

# Final Study on Poultry Catastrophic Disease

## Deliverable 2: Final Study

Order Number: D15PD00012

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## SECTION I. EXECUTIVE SUMMARY

The Statement of Work (SOW) for Order Number D15PD00012 identifies the objectives of the project as “...to obtain information and to determine if providing poultry catastrophic disease coverage would benefit agricultural producers; to help poultry producers and Congress understand how these risks are being, or could be addressed by the crop insurance system; to find and evaluate any existing policies or plans of insurance that provide coverage for any and all poultry catastrophic disease events; and, to determine what practical challenges are present that need to be overcome in order to create actuarially sound products related to a poultry catastrophic disease event.”<sup>1</sup>

The sheer size and complexity of the commercial poultry industry are two of its defining features. The industry produces meat and eggs from numerous species as well as live birds. Each of these sectors has different characteristics. For the egg sector, the birds are a capital resource rather than a crop, although there are some analogies to a wheat plant being the capital resource that produces the grain crop. Table and breaking eggs are used as a food, while hatching eggs are used to produce laying hens and meat birds. Game bird hatching eggs are used to produce game birds for meat as well as live game birds for release. The production cycle for eggs can last a year or more, while the production cycle for meat and live birds is much shorter. For broilers, live chicks and poults, a production cycle may be completed in a matter of weeks.

Much of the poultry meat industry is vertically integrated. Integrators typically control feed production, grow-out, transportation, slaughter, processing, and wholesale distribution and may control brood egg production and hatching. Production facilities and services are provided by contracted growers whose compensation depends on meeting objectives such as growth rates, disease control, feed efficiency, etc. The major sector stakeholders, the integrators, consequently have remarkable control of their products and vast market power relative to contract growers. There are many fewer contract growers in the layer sector than in the meat sectors. Nonetheless, many of the producers in the layer sector are also vertically integrated.

Large integrators generally indicated their preferred risk management for disease does not involve catastrophic disease loss insurance. Instead, their risk management relies on geographic isolation of production and strict biosecurity measures required of growers. On the other hand, the low margins for growers and the limited options for alternative uses of their facilities create a situation where downtime following a disease event is a major concern. Yet the appropriate response to a catastrophic disease event is to mandate a longer downtime before introducing a healthy flock. If a United States Department of Agriculture (USDA) Risk Management Agency (RMA) policy were to be offered to growers to address their greatest risk management concerns, changes in the Act would be required to establish indisputably a grower’s insurable interest not only due to loss of a “crop” but also due to the inability to use their production facilities. While this is somewhat analogous to prevented planting coverage offered for field and row crops, it differs in the respect that the period of loss is not a crop year but rather one or more production cycles. Insurance coverage addressing such an extended period of loss is allowed under Subsection 508(1)<sup>2</sup> for trees including losses due to disease and partial indemnification

<sup>1</sup> USDA, RMA, 2014, SOW, Order Number D15PD00012, page 19.

<sup>2</sup> Optional Coverage under the Crop Insurance section (7 U.S.C. 1508) of 75-30 - Agricultural Adjustment Act of 1938 & Federal Crop Insurance Act as amended through P.L. 113-79, Enacted February 7, 2014.

addressing such an extended period of loss for trees is offered under Section 531(f).<sup>3</sup> Nonetheless, for contract growers of poultry, the ownership of the crop most often resides with the integrator and therefore the issue of insurable interest in the foregone productive value of their facilities remains even if the long-term losses due to destruction of the capital asset can be addressed.

A small cohort of traditional producers of poultry exists, especially in the layer sector and in niche markets for meat and live birds. These include producers of “free range” poultry and poultry raised for ethnic markets. The strongest interest for disease insurance among owners of poultry is in this group, although here too the most substantial interest was for managing risk due to the downtime following a disease outbreak.

As this report neared completion, the Contractor identified an offer of insurance for business interruptions resulting from depopulations due to Highly Pathogenic (HP) Avian Influenza (AI). This offer appears to be underwritten by an international consortium and is available as a standard policy and on a surplus line basis. Although the Contractor examined policy materials, the examination was constrained by a confidentiality agreement. However, the Contractor is permitted to indicate business interruption coverage is offered following depopulation due to a government action resulting from a verified HPAI infection. Fixed costs identified in the policy, as well as continuing expenses and lost profits are indemnifiable until either the end of the insurance period or the release of the facility for repopulation. Coverage is available for both the poultry meat and layer sectors.<sup>4</sup> The reader should note, the Federal Crop Insurance Act requires that “no program may be undertaken [by the Federal Crop Insurance Corporation] if insurance for the specific risk involved is generally available from private companies.”<sup>5</sup>

Poultry industry data, including estimates derived by the USDA National Agricultural Statistics Service (NASS) from surveys, are available for the larger sectors of the industry: chickens (including layers and the eggs they produce), ducks, and turkeys. Production data on other sectors of the poultry industry are geographically limited, sporadic, and in many cases anecdotal. The proprietary nature of poultry industry data and contracts has made it particularly difficult to obtain farm-level data. Such data is important for development of an actuarially-sound crop insurance product.

Two commercial services provide price data on poultry for a fee. These price data focus on wholesale and retail markets rather than on farm-level sales. NASS and the USDA Economic Research Service (ERS) estimate “prices received” values for poultry based on live-weight-equivalent prices calculated by subtracting processing costs from ready-to-cook wholesale prices and multiplying that result by the dressing percentage.<sup>6</sup>

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<sup>3</sup> Supplemental Agricultural Disaster Assistance section (7 U.S.C. 1508).of 75-30 - Agricultural Adjustment Act of 1938 & Federal Crop Insurance Act as amended through P.L. 113-79, Enacted February 7, 2014.

<sup>4</sup> J.D. Goff, Vice President, National Accounts Underwriting, James Allen Insurance; personal communication, July and August 2015; B. Satterfield, Executive Director, Delmarva Poultry Industry, Inc., personal communication, August 2015.

<sup>5</sup> Federal Crop Insurance Act, 7 U.S.C. 1508(1).

<sup>6</sup> USDA, ERS, LDPM: Livestock, Dairy, and Poultry Outlook Catalog, <http://www.ers.usda.gov/publications/ldpm-livestock,-dairy,-and-poultry-outlook.aspx>, Livestock, Dairy, and Poultry Outlook, June 16, 2015, “U.S. red meat and poultry forecasts” table, <http://usda.mannlib.cornell.edu/usda/current/LDP-M/LDP-M-06-16-2015.pdf>, accessed July 2015.

Over the course of 6 on-site and 4 telephone listening sessions, the Contractor gathered feedback from more than 120 stakeholders. While there were several common themes in the stakeholder feedback, there were differences in emphasis regionally and by sector. Representatives from major integrators, the owners of a majority of the birds producing meat, indicated no interest in catastrophic disease insurance. They noted widespread disease outbreaks have the potential to increase their profits as prices rise. Even when diseases affect their own production, the size and internal diversification of the larger integrators limits the potential “catastrophic” impact because a single affected flock represents a small percentage of the total birds in production. However, this attitude is not reflected by contract growers. These growers frequently have heavily leveraged operations and a disease outbreak that results in the loss of even a single production cycle can cause bankruptcy. While a majority of listening session attendees who spoke expressed concerns related to diseases, many growers expressed the opinion that most of this risk could be controlled by proper biosecurity. However, recent losses in the Midwest suggest that current biosecurity protocols may not be sufficient to avoid losses.

The USDA Animal and Plant Health Inspection Service (APHIS) offers programs providing indemnities to poultry producers and integrators who incur disease losses resulting from depopulation. APHIS determines the net present value for commercial birds which have been “taken” as a part of a disease management program. The APHIS values for meat and live birds for release are generally based on the price of day-old birds offered by mail order hatcheries plus an estimated cost of feeding the birds from birth to the age attained at the time of depopulation. APHIS considers market pricing for marketable birds, the productive potential of layers, and the value of the intellectual property rights in breeding stock, when appropriate. Consequently, APHIS valuations are on a one-off basis. Furthermore, the percentage of the value of the taken poultry paid by APHIS is not always perceived as consistent by the industry. Since the integrators generally own the birds APHIS indemnities are not always distributed between integrators and contract growers, although growers have received some share of APHIS payments for some depopulations.

Private insurance has been offered by the Catlin Group (Bermuda) and Lloyd’s (London) on a surplus line basis for coverage for all mortality risks of livestock, including disease and down time. The premiums for such insurance are high. Furthermore, after the recent outbreak of HPAI, offers for mortality insurance and business interruption with disease listed as an insurable cause of loss have been withdrawn.

The Contractor considered alternate insurance designs to address widespread disease events in poultry. None of these alternative designs met all the RMA insurance development feasibility criteria. The most substantial barriers were imposed by the Crop Insurance Act, RMA’s enabling legislation. The Crop Insurance Act has been interpreted to preclude provision of insurance for rent and labor payments to growers because the authority for indemnities is limited to “... losses of the insured commodity...”<sup>7</sup>

Due to the sporadic and catastrophic nature of the proposed causes of loss, traditional quantitative rating approaches would be difficult to implement and most likely rates would need to be established for broad geographic regions. The biggest potential customers for catastrophic

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<sup>7</sup> Federal Crop Insurance Act, 7 U.S.C. 1508(a)(1).

disease insurance, the large integrators, are generally satisfied with their non-insurance risk management strategies. It is smaller producers who would be most likely to purchase the insurance. Consequently, the distribution of the insurance liability is unlikely to mirror the distribution of poultry throughout the country. Underwriting or policy language to address the short production cycle will be required to avoid adverse selection. While pricing meat birds will be relatively straight-forward, establishing a value for breeders, layers, and pullets will introduce complications in establishing the insurance pricing. These confounding factors and the very thin margins for the on-farm component of the poultry income stream means the cost of insurance may create opportunities for movement in the supply curve, at least regionally if not nationally.

From RMA's perspective, there are the fundamental questions regarding the insurability of the grower's interest, and non-trivial questions regarding identification, measurement, and tracking of the value of a livestock "crop." Moreover, the proprietary and closely guarded nature of production data makes the prospect for development of meaningful premium rates without a significant uncertainty load questionable. Furthermore, the existing reinsurance agreements with Approved Insurance Providers (AIPs) are likely not appropriate, barring meaningful adjustments, for livestock mortality products. In light of the many issues identified in this study, including the failure of insurance approaches for the poultry industry to meet some of the RMA criteria of feasibility, the Contractor believes it is currently not feasible to develop catastrophic disease insurance for the poultry industry without substantive changes in the current crop insurance paradigm. Any development effort to address catastrophic disease coverage would have to be very large in scope and include broad authority to request formal USDA counsel positions regarding legal authority for coverage so policy language could be appropriately structured; recommend potential changes to federal reinsurance agreements; utilize potentially alternative quantitative and qualitative data methods in ratemaking; require unique underwriting standards based on biosecurity practices; and operate under an indefinite and likely extended timeline to accommodate structural changes that would be appropriate to support the approval and implementation of the potential product.

## SECTION II. SECTOR DESCRIPTIONS

The Statement of Work (SOW) for Order Number D15PD00012 identifies the objectives of the project as “...to obtain information and to determine if providing poultry catastrophic disease coverage would benefit agricultural producers; to help poultry producers and Congress understand how these risks are being, or could be addressed by the crop insurance system; to find and evaluate any existing policies or plans of insurance that provide coverage for any and all poultry catastrophic disease events; and, to determine what practical challenges are present that need to be overcome in order to create actuarially sound products related to a poultry catastrophic disease event.”<sup>8</sup> This document is the Final Study required by that SOW.

The U.S. commercial poultry industry includes production of more than 15 species of domesticated fowl and commercial game-birds, production of eggs from these species for hatching, and production of eggs from a limited number of these species for direct consumption by humans. Commercial poultry species endemic to the United States and raised for meat include geese and turkeys, as well as several species of ducks, pheasant and quail.<sup>9</sup> Chickens, emu, guinea hens, ostrich, and additional species of duck, pheasant, and quail were introduced and are now grown commercially in the United States. Since disease can be transmitted from wild populations to commercial flocks and susceptibility to disease may be influenced by the bird’s origins, differences among the species grown commercially, including differences between endemic and introduced species, may impact the risks to the commercial flocks.

Production of all poultry and eggs comprises approximately \$43 billion of the U.S. agricultural economy.<sup>10</sup> The financial impact of the three major commercial poultry sectors (broilers, layers, and turkeys) collectively in the U.S. agricultural economy is comparable to the financial impact of soybeans. There is also a large processing added-value component in all poultry sectors. This increases the impact of the poultry industry on the overall U.S. economy. Furthermore, although feed costs and costs for transporting feed have led to some concentration of poultry production in the states producing the feed crops, additional production occurs near population centers. This bifurcation of production locales has contributed to the geographic balance in the poultry sector and in the overall U.S. agricultural economy.

To provide clarity, the Contractor defines below the terms poultry producer, grower, and integrator as they are used in this report.

- Poultry Producer: A person owning poultry and growing poultry or eggs for sale into markets for human consumption.
- Grower: A person retained under contract by the owner of poultry or an agent of that owner to manage the growth of poultry for delivery of mature birds or eggs to the owner.
- Integrator: A person who owns poultry being grown for sale into markets for human consumption as well as associated enterprises to provide inputs, services, or processing of the eggs or poultry.

<sup>8</sup> USDA, RMA, 2014, SOW, Order Number D15PD00012, page 19.

<sup>9</sup> Some classification systems include turkeys as members of the pheasant family.

<sup>10</sup> USDA, NASS, 2012 Census of Agriculture, Table 2,

[http://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_US/st99\\_1\\_002\\_002.pdf](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_US/st99_1_002_002.pdf), accessed April 2015.



Much of the poultry industry is vertically integrated. A small number of very large firms have “integrated” many elements of production, marketing, and sales. Integrators for poultry meat production may control feed production, brood egg production, hatching, grow-out, transportation, slaughter, initial processing (preparation of a marketable whole bird), further processing to retail products such as lunch meat, and wholesale distribution. Although integrators play a smaller role in egg production, they may control feed production, layer hatching and grow-out, transportation, processing, and wholesale distribution. Furthermore, this same level of integration characterizes many egg producers, including most of the larger producers. Consequently, the major sector stakeholders have a tremendous amount of control of their products and vast market power relative to their contract growers. Even relatively small egg and poultry producers/integrators may own and manage many aspects of their businesses (e.g., rearing of birds, feeding, housing, husbandry, and marketing of their product) and are capable of managing many elements of the process.

## II.A. Broiler Sector

The term ‘broiler’ is the poultry industry name for a young chicken raised for meat. With the value of broiler production in 2014 totaling almost \$33 billion,<sup>11</sup> broilers account for about two thirds of the farm-level value of production and sales of poultry products in the United States.<sup>7,12</sup> The broiler sector is dominated by vertically-integrated agribusiness firms. People in the industry refer to these firms as either broiler companies or integrators. In the government literature they are occasionally called “dealers” or “contractors.” In 2013, 15 vertically integrated firms controlled almost 90 percent of U.S. broiler production (Table 1).<sup>13</sup> Consolidation in the industry has resulted in “...significant structural change in recent decades...the industry has evolved to a structure including vertical integrators that contract with producers to raise their animals under strict specifications.” Under this integrated structure, “Vertically integrated companies in a supply chain are united through a common owner. Usually each member of the supply chain produces a different product or service, and the products combine to satisfy a common need...”<sup>14</sup> To avoid confusion in the discussions in this report, the Contractor will avoid using the term “producer,” except in those cases where the definition provided earlier specifically applies, and will generally refer to either integrators or contract growers.

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<sup>11</sup> USDA, NASS, 2014, Poultry Production and Value, 2014 Summary, <http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-04-30-2015.pdf>, accessed November 2014.

<sup>12</sup> The Poultry Site, Poultry News, “Value of US Poultry Production Has Doubled in 14 Years”, <http://www.thepoultrysite.com/poultrynews/33264/value-of-us-poultry-production-has-doubled-in-14-years>, accessed December 2014.

<sup>13</sup> WATT Poultry USA, 2014, 2013 Top Broiler Producing Companies, [http://www.wattagnet.com/Worldtoppoultry/US\\_broiler\\_producers.html](http://www.wattagnet.com/Worldtoppoultry/US_broiler_producers.html), accessed November 2014.

<sup>14</sup> National Chicken Council, Vertical Integration, <http://www.nationalchickencouncil.org/industry-issues/vertical-integration/>, accessed July 2015.

**Table 1. Top Broiler Integrators, United States, 2013**

Integrator	Percent of Market
Tyson Foods	25.3%
Pilgrim's Pride	17.5%
Perdue Farms	7.6%
Koch Foods	7.3%
Sanderson Farms	5.3%
Wayne Farms	3.9%
Mountaire Farms	3.8%
Foster Farms	3.4%
George's	3.4%
Peco Farms	2.3%
Keystone Farms	2.2%
Simmons Foods	2.2%
House of Raeford Farms	2.1%
O.K. Foods	1.8%
Fieldale Farms	1.8%

Source: After WATT Poultry USA, 2014, 2013 Top Broiler Producing Companies, [http://www.wattagnet.com/Worldtoppoultry/US\\_broiler\\_producers.htm](http://www.wattagnet.com/Worldtoppoultry/US_broiler_producers.htm) 1, accessed November 2014. The Contractor converted weekly numbers in that report to annual processed numbers.

### II.A.1. The Crop

Modern commercial broilers, typically known as Cornish crosses or Cornish-Rocks, are specially bred for large-scale, efficient meat production and grow much faster than egg or traditional dual-purpose breeds. Modern commercial broilers are noted for having very fast growth rates, a high feed conversion ratio, and low levels of activity. Broilers often reach a harvest weight of four to five dressed pounds in only eight weeks. Commercial broilers have white feathers and yellowish skin. These birds also lack the typical “hair”<sup>15</sup> characterizing many breeds that requires singeing after plucking. Both male and female broilers are slaughtered for their meat. The genetic lines for most broilers produced in the United States are managed by three companies: Aviagen Inc., Hubbard LLC (Americas), and Avian Technology Intl LLC.<sup>16</sup> These companies also have substantial international sales of chicks and parent stock (e.g., Aviagen reports sales in 130 countries).

Growers own the broiler houses, provide labor, and generally have the responsibility to manage biosecurity, house preparations, and litter. The vast majority of broiler production operations are managed under a contractual structure that dictates both the manner in which the enterprise is managed and how returns are distributed. The impact of these contracts on grower enterprises is the central focus of literature regarding risk management in the poultry industry.

At the outset, it is important to clarify that farm-level broiler prices, receipts, and values reported by various agencies, including NASS, are calculated or estimated values. They are not the values received by broiler growers which are dictated by the contractual agreement entered into between the grower and integrator. The published “prices received” values are live-weight-equivalent prices calculated by subtracting processing costs from ready-to-cook wholesale prices

<sup>15</sup> A filoplumes consists primarily of the rachis, the main shaft of a feather. In some breeds filoplumes lie under the contour (surface) feathers providing support.

<sup>16</sup> WattAgNet, 2014, Who's Who.

and multiplying that result by the dressing percentage. These values are useful only as industry-wide indicators of the relative price trends. While this report includes these values to a limited extent, the more important descriptive data are the number of broilers produced, the pounds of broiler meat produced, the number of broiler houses, and the relative impact of a catastrophic disease. The revenue growers actually receive is a contracted payment for capital and labor services rendered. Payment is based on pounds of bird delivered multiplied by the contract price, which is derived from a two-part, piece-rate tournament scheme, i.e., a base rate plus an incentive determined by the grower's performance relative to others in the tournament.

### Enterprise Structure

An analysis of broiler operations reported by the ERS in 2014 provides the best snapshot of broiler production.<sup>17</sup> Grower contracts dominate the industry, with only about 0.4 percent of birds produced by independent poultry producers and 0.3 percent produced on integrator-operated farms. Few details about the contracts themselves are available. In spite of recent legal and legislative actions freeing growers to share information about their contracts, and in spite of repeated requests for redacted copies of contracts from growers, integrators, and crop experts, the Contractor obtained only two contracts (Appendix A). ERS reports that almost 94 percent of the contracts contain performance-based payment incentives; however, most of these broiler contracts have tournament or similar competitor-comparison-based incentive payments. The contracts obtained by the Contractor contain language providing the grower with performance-based incentives coupled with tournament-based performance payments. Under the tournament system, the integrator sets an **average** price for raising the chickens (e.g., 5 cents per pound live weight). The growers are ranked. The top-ranking growers can be paid a premium of up to 25 percent. Since the contract price is a tournament average, the poorest performing growers will receive less than the average. The grower's ranking is largely based on feed conversion rates: how much weight the broilers gained compared to how much feed the birds have consumed.

ERS reported that in 2010, less than one fifth of contracts made provisions for catastrophic risk payments from the integrator to the grower.<sup>18</sup> Both of the contracts reviewed by the Contractor have catastrophic risk payment clauses. Based on the underlying cause of the loss, the integrator provided some compensation to the grower in the event of a catastrophic event. It should be noted, one contract obtained by the Contractor did include compensation for losses due to uncontrollable disease.

The turnover in farms producing broilers is relatively low. About one third of all broiler operations have been in business for at least 20 years. These older operations tend to be smaller and to have lower levels of technology. Only 4.5 percent of farms (6.6 percent of production by weight) produced broilers for 5 years or less. These newer operations have houses that are 11 years old on average. This suggests many new growers are operating on farms that had previously been operated by others or that economic restructuring of older operations resulted in their listing as having been in operation for 5 years or less. Just under half of the new operations had new houses. Newer operations tend to incorporate a larger number of houses. New

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<sup>17</sup> MacDonald, J.M., USDA, ERS, 2014, Technology, Organization, and Financial Performance in U.S. Broiler Production, Economic Information Bulletin No. 126. <http://www.ers.usda.gov/media/1487788/eib126.pdf>, accessed December 2014.

<sup>18</sup> *Ibid.*

operations with new houses also tend to carry a higher debt load compared to new operations using older houses.<sup>19</sup>

Since newer operations tend to be larger, they also tend to have more substantial investment in housing and technology. These newer operations are more reliant on income from the poultry operations rather than from a range of “crops” and more sensitive to changes in energy price and contract settlement terms. New large operations typically receive longer term contracts.<sup>20</sup> Furthermore, in at least one of the contracts reviewed by the Contractor, the integrator offered a minimum guaranteed payment for new house construction based on dollars per 1,000 birds placed and the type of the new construction.

Though commercial broiler farms have seen a modest increase in average size since the 2010 poultry report, the “contract poultry growers are relatively small and specialized farms.”<sup>21</sup> From a production perspective, the Southeast and Mid-South offer comparative advantages of climate, land prices, cost of implementing required environmental policies, and lack of alternative uses for the land. Poultry is susceptible to extreme weather conditions and requires access to ample supplies of water for maintenance and growth. Consequently, poultry can be raised less expensively in warmer climates in regions where ample water is available.

Growers with no debt have a cash flow cushion to withstand market risks due to variability in the number of flocks in a contract for a given year. Conversely, both net incomes and cash flows of growers with substantial debt are more susceptible to problems due to flock inventory variations.

## II.A.2. The Industry

While the agricultural segment of the U.S. economy has grown slightly on a relative percentage basis from 1999 to 2014, the broiler sector share of the total U.S. agricultural economy declined from 8.04 percent to 8.02 percent (Table 2). This decline occurred in spite of increases in production, consumption, and exports of meat from broiler chickens.

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<sup>19</sup> *Ibid.*

<sup>20</sup> *Ibid.*

<sup>21</sup> *Ibid.*

**Table 2. Economic Indicators–Broiler, United States**

Year	Gross Domestic Product <sup>1</sup>	Agricultural Cash Receipts <sup>2</sup>	Value of Broilers <sup>3</sup>
1999	9,660.60	187,814,689	15.1
2000	10,284.80	192,097,825	14
2001	10,621.80	200,026,456	16.7
2002	10,977.50	194,588,257	13.4
2003	11,510.70	215,971,148	15.2
2004	12,274.90	237,853,261	20.4
2005	13,093.70	240,897,821	20.9
2006	13,855.90	240,623,888	17.7
2007	14,477.60	288,545,936	21.5
2008	14,718.60	316,093,638	23.2
2009	14,418.70	291,376,034	21.8
2010	14,964.40	322,174,469	23.7
2011	15,517.90	368,667,940	23
2012	16,163.20	404,823,995	24.8
2013	16,768.10	401,313,896	30.8
2014	17,418.90	407,392,615	32.7

Source: <sup>1</sup> Bureau of Economic Analysis, 2015, National Income and Product Accounts Table 1.1.5, Gross Domestic Product, <http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1#reqid=9&step=1&isuri=1>, accessed July 2015.

<sup>2</sup> In Nominal dollars, USDA, ERS, 2015, Farm and Income Wealth Statistics, Annual cash receipts by commodity, [http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics/cash-receipts-by-commodity.aspx#.VFutk\\_nF9qW](http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics/cash-receipts-by-commodity.aspx#.VFutk_nF9qW), accessed July 2015.

<sup>3</sup> USDA, ERS, 2015, Poultry Production and Value, <http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1130>, accessed July 2015.

The southern and mid-Atlantic states form the major broiler producing areas of the United States (Table 3). Although number of head, pounds produced, and value all track relatively closely, variations in the harvest weight of birds lead to modest differences between percent of head produced and of pounds produced. The ERS estimated value produced is based on a constant price.

**Table 3. Broiler Production by States, 2014<sup>1</sup>**

State	Number Produced (1,000 head)	Percent of Number Head Produced	Pounds Produced (1,000 pounds)	Value of Production <sup>2</sup> (1,000 dollars)	Percent of Pounds/Value Produced
Georgia	1,324,200	15.50	7,547,900	4,808,012	14.69
Alabama	1,061,500	12.42	6,050,600	3,854,232	11.78
Arkansas	969,800	11.35	6,012,800	3,830,154	11.70
North Carolina	795,200	9.31	6,043,500	3,849,710	11.76
Mississippi	727,200	8.51	4,508,600	2,871,978	8.78
Texas	591,800	6.93	3,550,800	2,261,860	6.91
Kentucky	308,000	3.60	1,724,800	1,098,698	3.36
Missouri	288,500	3.38	1,384,800	882,118	2.70
Maryland	287,800	3.37	1,554,100	989,962	3.03
Virginia	262,000	3.07	1,441,000	917,917	2.80
Delaware	244,100	2.86	1,733,100	1,103,985	3.37
South Carolina	232,500	2.72	1,650,800	1,051,560	3.21
Oklahoma	205,300	2.40	1,334,500	850,077	2.60
Pennsylvania	181,300	2.12	997,200	635,216	1.94
Tennessee	180,600	2.11	939,100	598,207	1.83
West Virginia	95,300	1.12	371,700	236,773	0.72
Ohio	75,600	0.88	430,900	274,483	0.84
Florida	66,700	0.78	386,900	246,455	0.75
Wisconsin	53,400	0.62	224,300	142,879	0.44
Minnesota	46,800	0.55	280,800	178,870	0.55
Other States <sup>3</sup>	546,500	6.40	3,204,900	2,041,521	6.24
<b>United States Total</b>	<b>8,544,100</b>		<b>51,373,100</b>	<b>32,724,667</b>	

<sup>1</sup> Broiler production including other domestic meat-type strains.

<sup>2</sup> Live weight equivalent price, derived from ready-to-cook prices minus processing costs, then multiplied by a dressing percentage.

<sup>3</sup> California, Illinois, Indiana, Iowa, Louisiana, Michigan, Nebraska, New York, Oregon, and Washington combined to avoid disclosing individual operations.

Source: USDA, ERS. April 2015, Poultry - Production and Value 2014 Summary,

<http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-04-30-2015.pdf>, accessed July 2015

Nationally, broiler production decreased 5.5 percent from 2008 to 2014, from 9.01 billion birds in 2008 to 8.54 billion birds in 2014. Over the same time, weight per bird increased by 7.5 percent, from 5.594 pounds to 6.013 pounds. The combined decrease in bird numbers and increase in bird weight resulted in a 1.98 percent increase in total weight produced, from 50.4 billion pounds in 2008 to 51.4 billion pounds in 2014. The average weight per bird by geographic area masks bi-modal production pattern resulting from two genetic body weight groupings. Lighter birds are grown for the whole bird and parts markets and heavier birds are grown for the breast market (with the remaining meat from the heavy birds going into processed products and export markets). There are some differences in price per pound for these two “types.”

Alabama, Arkansas, and Georgia accounted for fewer than 40 percent of the production in 2014 when two of these states (Georgia and Alabama) produced more than 1 billion birds. Mississippi, North Carolina, and Texas comprise a second production tier, with harvests over half a billion. Some states, primarily in the northeast and mountain states, reported little or no commercial broiler production in 2014.<sup>22</sup>

<sup>22</sup> USDA, NASS, 2015, Broiler Production by State Million Head, 2014,

[http://www.nass.usda.gov/Charts\\_and\\_Maps/Poultry/brlmap.asp](http://www.nass.usda.gov/Charts_and_Maps/Poultry/brlmap.asp), accessed July 2015.

Despite substantial research, the Contractor was unable to identify national data other than the USDA NASS Census of Agriculture (Census) data at the county level for broilers. NASS annual statistics do not include number of growers or county-level statistics in estimates derived from its annual surveys. There are fragmented data available from a few state and county agencies and industry associations. Farm-level data have not been obtained despite requests of people who attended the listening sessions. Integrators, who have the most complete farm-level records for substantial grower populations, consider all their data proprietary.

The 2012 Census reported 32,935 farms with “Broiler and other meat-type chickens sold,” a 21.5 percent increase over the 2007 reported 27,091 farms. NASS reported that 15,334 growers produced more than 100,000 birds in 2012, and 41 percent of those growers produced more than 500,000 birds. A total of 7,183 farms were located in the 3 states ranked highest in broiler production, and 42 percent of farms with reported sales over 100,000 birds were located in the same 3 states. Commercial broiler production is organized and operated around broiler houses, the major farm-level capital investment. No consistent national dataset that reported the number of houses or houses per farm was identified.

Under the integrator/grower contract structure, the broiler enterprise might seem a safe haven for the grower. However, this is not the case; growers must be concerned about performance of the birds they are raising under contract. Broiler production is influenced by disease, weather, equipment, building environment, and the quality of feed provided by the integrator. Also, growers are not free from domestic and international market outcomes, even with a contracted payment. The potential of subsequent contracts, and, to a lesser extent, the payment and incentive provisions of the production contracts depend upon the integrator’s inventory of processed meat and short- and intermediate-run market forecasts.

## II.B. Turkey Sector

The United States is the world’s largest producer of turkeys. U.S. turkey production reached 7.5 billion pounds in 2012, with a total estimated farm-gate value of almost \$5.5 billion. In 2013 these production numbers fell slightly to 7.2 billion pounds and \$4.8 billion.<sup>23</sup> While most turkey produced in the United States is consumed domestically, the United States exports more turkeys and turkey products than any other country. Brazil, with the second largest production, harvested 1.1 billion pounds of turkey and Canada harvested 319 million pounds in 2013, while the European Union-27 collectively produced 4.2 billion pounds.<sup>24</sup> The average estimated price received by U.S. turkey producers during 2013 was almost 67 cents per live-weight pound.<sup>25</sup>

In 2012, the United States exported almost 798 million pounds of turkey and turkey products (up 14 percent from 2011), valued at \$678.9 million (up 13 percent). The majority of exported turkey products are lower value parts (drumsticks, feet, wings, gizzards, livers, and hearts) and ground or mechanically deboned meat. In 2012, Mexico was the biggest market for U.S. turkey,

<sup>23</sup> USDA, RMA, 2014, Poultry - Production and Value, 2013 Summary, <http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-04-29-2014.pdf>, accessed December 2014.

<sup>24</sup> After The Poultry Site, Global Poultry Trends 2013: US Produces Half the World’s Turkey Meat, <http://www.thepoultrysite.com/articles/3177/global-poultry-trends-2013-us-produces-half-the-worlds-turkey-meat>, accessed December 2014.

<sup>25</sup> USDA, RMA, 2014, Poultry - Production and Value, 2013 Summary, <http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-04-29-2014.pdf>, accessed December 2014.

accounting for over half of U.S. exports. The same year China imported more than \$70.5 million worth of turkey meat and both Canada and Hong Kong continued to import large amounts of meat from the U.S. turkey industry.<sup>26</sup> Many importers of U.S. production use turkey meat with other meats to produce sausage. Competition from exporters of turkeys and turkey products, particularly from Brazil, is likely to slow the growth of U.S. turkey exports.

U.S. per capita consumption of turkey has increased from 0.8 pounds in 1910<sup>27</sup> to 16.0 pounds in 2013.<sup>28</sup> This reflects the evolution from a seasonal market (between Thanksgiving and New Year's Day) for a single-turkey product (whole birds), to a year-round, diversified, value-added product line. Nonetheless, the whole turkey continues to be the most popular turkey product, although its sale is no longer associated solely with the holiday season. The structure of the turkey sector, with a wide variety of processed products, has changed turkey production into a year round activity.

The average retail price for whole frozen turkeys in the United States in 2013 was \$1.65 per pound.<sup>29</sup> Many processed turkey products have a substantial value-added component. A review of internet grocery store prices shows some of these products retail at prices in excess of \$9.00 per pound. Smoked and roasted turkey lunchmeats; ground breast meat; pre-roasted and ready-to-roast turkey rolls; heat-and-eat turkey dinners; and turkey sausage, hot dogs, "bacon," "pastrami," and "ham" illustrate the breadth of turkey products currently available. These products have a substantial impact on total integrator revenues, but have limited effects on prices received by growers.

### II.B.1. The Crop

Turkeys are large birds in the order Galliformes, genus *Meleagris*. In the United States, turkeys are raised only for meat (i.e., not for table eggs). Turkey meat is relatively lean when compared to the meat of other domestic poultry species. The domesticated turkey is a descendant of the wild turkey, *Meleagris gallopavo*. The dominant commercial breed of turkeys in the United States is the Broad-breasted White (similar to "White Holland," but a distinct breed). Most commercial breeds have been selected for size as well as meat types and distribution. Since 2009 U.S. producers have raised over 250 million turkeys annually; even with the declining number of turkeys raised, the average weight in 2013 (30.3 pounds) has enabled the total production in pounds to remain relatively constant since 2008. That year the average weight was 29.0 pounds.<sup>30</sup>

Heritage breeds more closely resemble their wild ancestors and can breed naturally.<sup>31</sup> Heritage turkey breeds include Beltsville Small White, Black Spanish, Bourbon Red, Chocolate, Jersey

<sup>26</sup> Marsh Laux, Agriculture Marketing Resource Center, Turkey Profile, [http://www.agmrc.org/commodities\\_products/livestock/poultry/turkey-profile/](http://www.agmrc.org/commodities_products/livestock/poultry/turkey-profile/), accessed December 2014.

<sup>27</sup> *Ibid.*

<sup>28</sup> National Chicken Council, Per Capita Consumption of Poultry and Livestock, 1965 to Estimated 2014, in Pounds, <http://www.nationalchickencouncil.org/about-the-industry/statistics/per-capita-consumption-of-poultry-and-livestock-1965-to-estimated-2012-in-pounds/>, accessed December 2014.

<sup>29</sup> USDA Economic Research Service Turkey Sector: Background & Statistics, <http://www.ers.usda.gov/topics/in-the-news/turkey-sector-background-statistics.aspx>, accessed December 2014.

<sup>30</sup> USDA, NASS, April 2014, Turkey Industry Overview, [http://www.nass.usda.gov/Publications/Highlights/2013\\_Turkey\\_Industry/](http://www.nass.usda.gov/Publications/Highlights/2013_Turkey_Industry/), accessed December 2014.

<sup>31</sup> The Broad-breasted White are propagated by artificial insemination.



Buff, Lavender/Lilac, Narragansett, Royal Palm, Slate, Standard Bronze, White Holland, and White Midget.<sup>32</sup> These niche market birds command less than one percent of the U.S. market.<sup>33</sup> While these breeds were originally selected for flavor and productivity (i.e., conversion of feed to meat), they require more time to reach maturity than does the Broad-breasted White and are less amenable to production in houses.

As with many Galliform species, the turkey hen (female) is smaller than the tom (male). Both hens and toms are raised commercially. Hens are more likely to be marketed as whole birds. A higher percentage of toms are processed into turkey products, such as lunchmeats, or sold to restaurants and food services. Parts from both hens and toms may be diverted to export markets. Mature Broad-breasted White toms are so large they are not able to fertilize hens naturally. Consequently, semen is collected from toms and hens are inseminated artificially. Many hens can be inseminated from each collection, so fewer breeding toms than hens are required. The meat from culled breeders is used primarily in processed meat products.

In commercial production, turkey brood farms supply eggs to hatcheries, which may hatch eggs from other species as well. After approximately 28 days, the hatched turkey poults are sexed, boxed, and shipped to the grow-out facilities (a collection of turkey “houses”). At these facilities, hens are raised separately from toms due to their different growth rates. Rations for both sexes and all age cohorts generally include corn meal and soybean meal with added vitamins and minerals. The feed mix is amended to achieve protein, carbohydrate, and fat levels appropriate for the age cohort.

Most turkey grow-out facilities raise 50,000 to 75,000 birds with an average of 3.5 “turns” per year (175,000 to more than 260,000 birds a year). Many of the larger facilities have a single structure (the brood house) with the capacity to house as many as 100 thousand poults. Poults are raised with an average density of one square foot per bird. Each of these brood houses generally serves two grow-out houses. Consequently, 7 broods can be raised in a year to produce the livestock for 3.5 grow-out production cycles per year in each of the grow-out houses. On larger farms, multiple houses may be stocked, although normally all the birds on the farm are the same age. This stocking approach helps to prevent diseases being passed among birds in different age cohorts.

The majority of U.S. turkeys are grown in controlled-environment confinement houses or in pole barns. The windowless confinement houses use modern systems of environmental control (heating, ventilation, and lighting). Ventilation systems provide sufficient oxygen for the normal growth and development and remove ammonia, carbon dioxide, dust, moisture, and heat. Confinement houses may contain as many as 50,000 birds. Depending on the degree of automation of the environmental control, feeding, and drinking systems, a single employee may provide all the necessary labor for a confinement house.

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<sup>32</sup> Heritage Turkey Foundation, 2014, What is a Heritage Turkey, <http://heritageturkeyfoundation.org/>, accessed April 2015, and American Livestock Breeds Conservancy, 2014, Breed Information – ALBC Conservation Priority List, <http://www.livestockconservancy.org/index.php/heritage/internal/conservation-priority-list#Turkeys>, accessed April 2015.

<sup>33</sup> Grace Communications Foundation, Talking Turkey, <http://www.sustainabletable.org/432/talking-turkey>, accessed April 2015.

Environmental control within pole barns is more rudimentary. Consequently, labor requirements are greater and stocking densities are lower. Turkey poults reared in pole barns are generally raised in environmentally-controlled houses to 5 or 6 weeks of age. In the pole barns, the birds are raised in natural light, supplemented during the winter months with electric light. In the North, there is often limited control of temperature or ventilation in pole barns. The floor area of turkey pole barns ranges from 10,000 to more than 20,000 square feet. Automated feeders and watering systems maximize production, although the cost of such systems may limit their use. Turkeys in the pole barns are raised on litter (wood shavings) and allowed to move freely within the barn.

After removal of a flock, a two- to four-week period is allowed before a new flock is placed in turkey brood and grow-out houses. During this time, the house is cleaned and disinfected. Old litter is generally replaced after a flock is removed from turkey brood houses; however, wastes may be removed from turkey grow-out houses just once each year. The decision on the timing of cleaning of the grow-out houses is driven largely by the cost of labor and bedding. However, following a disease outbreak, more extensive cleaning is required.

In most commercial operations, stocking densities in brood houses are set initially to maximize production, and only change as a result of “normal” mortality until harvest. Hens in grow-out houses are raised at a density of one per 2.5 square feet. Turkey hens consume about 40 pounds of feed in their lifetime with a feed conversion rate (pounds of feed per pound of weight gain) of about 2.5. Ten percent mortality during brooding and grow-out is assumed for planning the size of the houses and the initial population. For harvest, the hens are collected in “modules” or small cages, which are generally loaded onto flatbed trailers. Some additional mortality occurs during transportation. Those losses are generally not considered when an integrator evaluates a grower’s rank. However, the long-term trends of such losses may impact an integrator’s decisions about levels of restocking. Slaughter and processing are mechanized to minimize processing time.

Toms are raised at a density of 3 to 4 square feet per bird in the grow-out houses. Stocking densities in contract grower operations are generally based on the recommendations of the integrator. Toms consume about 90 pounds of feed during their lifetime with a feed conversion rate of about 2.9. Commercial toms, which are more aggressive than hens, have a higher mortality than the hens. Injurious pecking behavior can be a problem in enclosed confinement houses. This behavior is usually controlled by reducing the light levels or by beak-trimming. Some growers provide vegetable material or small objects for the turkeys to maneuver to distract the birds from their aggressive behaviors. Toms are harvested at about 18 weeks (i.e., slightly less than 3 production cycles each year). Some contract growers and producers reduce the density of older toms by moving a portion of the birds into houses vacated by the hens when they are harvested. This may reduce mortality marginally as the large birds compete for space and feed. The harvest process for toms is essentially the same as that for hens.

Free-range birds represent a small niche market in the turkey sector. The only requirement for labeling with the term ‘free-range’ is the birds have access to the outdoors.<sup>34</sup> Housing for free-range birds is usually of the pole barn type. Natural daylight and green food may be available on the range, but some source of food is generally provided in the barn. Slower growing strains, low nutrient density feed, low stocking density, and longer production cycles characterize this minor sector of the crop.

A typical turkey facility (a group of brood and grow-out houses with supporting storage) costs well over \$1 million. A typical facility will have one or two brooder houses and four to six grow-out houses. Most individual houses are larger than 25,000 square feet. Depending on the location, the house may have supplemental lighting, heat, ventilation, and automated feed and watering systems. Most new turkey operations are funded with borrowed money. Loans from an integrator are often based on a six or seven year payback. Typically, bank loans for a facility have a longer term. In either case, the loan structures assume year round production.

Contract growers furnish the land, facilities, and labor under contract. They are paid based on the grade, live weight, and feed conversion ratios of the birds delivered to the processing plant. Each integrator contract is reported to be unique; and contracts between an integrator and individual contract growers may also be quite different, taking into consideration such things as the physical services available at a facility, mortality experience, and historic and current feed conversion ratios. If the grower realizes a return of \$7 to \$8 per bird, the facility described as “typical” may generate a cash flow of \$1.25 million to \$2.5 million per year. Cost of production is more difficult to assess under the current integrator/contract grower industry structure. In many cases, the integrator owns the turkeys, supplies feed, medicine, vaccines, and pays a grow-out supervisor. The grow-out supervisor monitors the turkeys’ health and growth and decides when veterinary attention, primarily medications or vaccinations, are required.

During the course of this project, the Contractor spoke with representatives of several operations that fit neither the typical contract grower nor the typical producer paradigm. These operations own the turkeys produced under a contract with an integrator and bear all the associated financial risks in regard to losses from disease, price fluctuations, and poor weight gain. Twelve of the fifteen members of the Minnesota Turkey Association Board of Directors fall into this unique category.

## II.B.2. The Industry

The U.S. turkey sector is dominated by vertically integrated agribusiness firms. In the second half of the 20<sup>th</sup> Century, after a period of decline in the sector, turkey hatcheries began providing financing for the purchase of poults, while feed companies provided financing for both feed and poults as a means to stimulate feed sales. These financial arrangements eventually evolved into production contracts that shifted risk from grower to integrator. Under contract, the grower provides the buildings, equipment, and labor; the integrator, who is usually involved in a variety of post-harvest processing activities, provides poults, feed, veterinary services, and managerial assistance. Most growers receive a fee per bird or per pound and contracts may provide

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<sup>34</sup> USDA, Food Safety and Inspection Service, 2014, Food Labeling: Meat and poultry Labeling Terms, <http://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/get-answers/food-safety-fact-sheets/food-labeling/meat-and-poultry-labeling-terms/meat-and-poultry-labeling-terms>, accessed April 2015.

performance incentives for feed conversion and reduced mortality rates. Most, but not all, integrators produce both whole bodied and further processed turkey products. The major turkey integrators and their associated production for 2014 are documented in Table 4.

**Table 4. Top U.S. Turkey Processors in 2014**

Processor	Live Weight Processed (million pounds)
Butterball, LLC	1,300.0
Jennie-O Turkey Store	1,250.0
Cargill Value Added Meats	1,071.0
Farbest Foods, Inc.	411.0
Hillshire Brands Company (formerly Sara Lee)	402.0
Kraft Foods, Inc. (Oscar Mayer)	280.0
Perdue Farms, Inc.	277.0
Foster Farms	270.7
Virginia Poultry Growers Coop.	239.0
West Liberty Foods	216.3
Cooper Farms	205.0
Michigan Turkey Producers	190.0
Dakota Provisions	179.0
Hain Pure Protein Corp.	172.0
Turkey Valley Farms	145.0
Prestage Foods	140.0
Norbest, Inc. (Western Sales LLC)	82.0
Zacky Farms, LLC	68.3
Northern Pride Inc.	40.0
Whitewater Processing	30.0
Empire Kosher Poultry, Inc	25.2
Koch's Turkey Farm	15.2
Jaindl Turkey Sales, Inc	11.0

Source: The Contractor's Research Department after Watt Poultry USA, 2014.

Turkey production is scattered throughout the United States. However, over half of all the turkeys raised for slaughter in the United States in 2014 were raised in four states: Minnesota, Arkansas, North Carolina, and Indiana (Table 5). While U.S. consumers eat more turkey per capita and as a population than any other national consumer population, the U.S. turkey industry is also more reliant on exports than most U.S. agricultural sectors. In the last decade, the peak year for turkey production in the United States was 2008. Since that year, the number of turkeys produced in the United States has declined from a high of 273 million to just 238 million in 2014. According to NASS, turkey production in 2014 was 7.2 billion pounds with a total farm-level value of just over \$5.3 billion. The market year average price per pound in 2013 was 67 cents per pound.<sup>35</sup>

<sup>35</sup> USDA, NASS, 2014, Highlights, Turkey Industry Overview, [http://www.nass.usda.gov/Publications/Highlights/2013\\_Turkey\\_Industry/](http://www.nass.usda.gov/Publications/Highlights/2013_Turkey_Industry/), accessed December 2014; USDA, NASS, 2015, Quick Stats, <http://quickstats.nass.usda.gov/results/5487DA7B-D988-3DF0-8884-2E407CE067F6>, accessed June 2015.

**Table 5. Geographic Distribution of 2014 Turkey Production in the United States**

State	Number Raised (1,000 head)	Pounds Produced (1,000 lbs)	Value of Production (\$1,000)
Minnesota	45,500	1,178,450	866,161
Arkansas	30,000	612,000	449,820
North Carolina	28,500	997,500	733,163
Indiana	19,000	754,300	554,411
Missouri	17,000	544,000	399,840
Virginia	16,800	443,520	325,987
California	11,000	310,200	227,997
Iowa	10,500	435,750	320,276
Pennsylvania	7,000	175,700	129,140
Ohio	5,100	209,100	153,689
Michigan	5,100	205,530	151,065
South Dakota	4,500	188,550	138,584
Utah	4,000	96,800	71,148
West Virginia	3,100	81,840	60,152
Other States <sup>1</sup>	30,400	983,816	723,104
<b>United States</b>	<b>237,500</b>	<b>7,217,056</b>	<b>5,304,537</b>

Source: USDA, NASS, 2015, Poultry - Production and Value - 2014 Summary, April 2015, <http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-04-30-2015.pdf>, accessed July 2015.

<sup>1</sup> Includes State estimates not shown and States withheld to avoid disclosing data for individual operations.

By 1961, feed company contracts for production accounted for almost two-thirds of all turkey production. Subsequently, processors became increasingly involved in production decisions and began raising turkeys themselves to better ensure supplies. With the involvement of large feed and processing firms, the share of turkeys sold on the U.S. spot market decreased substantially. In 2011, turkey production contracts accounted for more than two-thirds of U.S. production.<sup>36</sup> Vertically integrated operations, in which the processor owns the production facilities and hires labor to care for the birds, accounted for almost one-third of turkey production. With 2014 farm-level cash receipts of just over \$5.3 billion (Table 6), turkeys accounted for approximately 11 percent of cash receipts for poultry in the United States.<sup>37</sup>

<sup>36</sup> USDA, NASS, 2012 Census of Agriculture, Volume 1, Tables 32 and 45, [http://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_US/](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_US/), accessed January 2015.

<sup>37</sup> USDA, NASS, April 2015, Poultry - Production and Value 2014 Summary <http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-04-30-2015.pdf>, accessed July 2015.

**Table 6. Economic Indicators – Turkeys, United States**

Year	Gross Domestic Product <sup>1</sup>	Agricultural Cash Receipts <sup>2</sup>	Value of Turkeys <sup>3</sup>
1999	9,660.60	187,814,689	2.8
2000	10,284.80	192,097,825	2.8
2001	10,621.80	200,026,456	2.8
2002	10,977.50	194,588,257	2.7
2003	11,510.70	215,971,148	2.7
2004	12,274.90	237,853,261	3.1
2005	13,093.70	240,897,821	3.2
2006	13,855.90	240,623,888	3.6
2007	14,477.60	288,545,936	4.0
2008	14,718.60	316,093,638	4.5
2009	14,418.70	291,376,034	3.6
2010	14,964.40	322,174,469	4.4
2011	15,517.90	368,667,940	4.9
2012	16,163.20	404,823,995	5.4
2013	16,768.10	401,313,896	4.8
2014	17,418.90	407,392,615	5.3

Source: 1/ Bureau of Economic Analysis, 2015, National Income and Product Accounts Table 1.1.5, Gross Domestic Product, <http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1#reqid=9&step=1&isuri=1>, accessed July 2015.

2/ In Nominal dollars, USDA, ERS, 2015, Farm and Income Wealth Statistics, Annual cash receipts by commodity, [http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics/cash-receipts-by-commodity.aspx#.VFutk\\_nF9qW](http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics/cash-receipts-by-commodity.aspx#.VFutk_nF9qW), accessed July 2015.

3/ USDA, ERS, 2015, Poultry Production and Value, <http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1130>, accessed July 2015.

On farms either owned by the integrators or managed under grower contracts, the integrator generally provides the stock, feed, veterinary services, production technical support, and transportation. The grower provides the growing facilities and day-to-day care and management of the birds. The impact of production contracts on turkey enterprises are not as well documented as are the impacts of production contracts on broiler enterprises.

The relative importance of direct production in the turkey sector to the U.S. agricultural and overall economies is approximately one-fifth that of the broiler sector (see for example, Tables 3 and 5). However, it should be noted there are considerably more value-added processing activities in the turkey sector than in the broiler sector. This amplifies the financial effects of turkey production in the general economy.

Substantial research by the Contractor identified the NASS Census as the only source of national turkey data at the county level. The 2012 Census documents some limited commercial turkey production in every state.<sup>38</sup> NASS annual statistics do not include number of growers or county-level statistics in its annual surveys because there are insufficient numbers of growers in most counties to allow reporting of results under the disclosure rules followed by NASS. There are fragmentary data available from a few state and county agencies and industry associations. These data do not provide the comprehensive and consistent descriptions available for other enterprises.

<sup>38</sup> USDA, RMA, Census of Agriculture, 2012 Census Volume 1, Chapter 2: State Level Data, Table 19, [http://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_2\\_US\\_State\\_Level/st99\\_2\\_019\\_019.pdf](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_2_US_State_Level/st99_2_019_019.pdf), accessed January 2015.

Commercial turkey production is organized and operated around turkey houses, the major farm-level capital investment. No dataset documenting the total number of houses by county or houses per farm was identified. The 2012 Census reported 19,956 farms growing turkeys, a 15.8 percent increase over the 17,226 farms reported in the 2007 Census. NASS reported 833 growers produced more than 100,000 birds in 2012.<sup>39</sup> Of the 19,956 operations, 1,903 grew turkeys under contract, producing slightly more than two-thirds of the turkeys reported to have been sold.<sup>40</sup>

The turkey sector has evolved to fewer than 25 highly specialized, vertically integrated agribusiness firms. Under the grower/integrator structure, the turkey contract growers must be concerned about performance of the contracted birds. Turkey production is influenced by disease, weather, equipment, building environment, and the quality of feed. Also, growers are not free from the effects of domestic and international market changes, even with a contracted payment. An offer of subsequent contracts, and to a lesser extent the payment and incentive provisions, depend on the integrator's inventory of processed meat and short- and intermediate-run market forecasts. Current inventories are higher than historically.

Both turkey contract growers and integrators have benefited from economies of scale associated with the industry's horizontal and vertical structure, but projected gains in efficiency over the next decade are anticipated to be less than historical gains. Trade restrictions have slowed growth in many U.S. animal product exports. Continuing concerns in the turkey industry with AI and Exotic Newcastle Disease (END) have affected trade. The U.S. consumer will continue to buy more meat but will use a smaller proportion of disposable income for meat purchases. Poultry purchases will continue to rise as a share of consumer spending on meats, while beef and pork expenditures are expected to decline.<sup>41</sup>

## II.C. Layer Sector

The term 'layer' is the poultry industry name for a light hen maintained for egg production. Hens from all varieties (breeds) of chickens lay eggs, but hens from only a few breeds consistently lay eggs of appropriate size. Hens of laying breeds produce as many as 300 eggs a year. The laying breeds are further divided into birds that produce white shelled eggs (breeds generally developed from Leghorn stock) or brown shelled eggs (breeds developed from Rhode Island Red and other stock).

The egg laying breeds of chickens have been genetically selected for high egg productivity. They usually have small bodies that make them undesirable as meat producers. The small bodies benefit laying breeds because the hens use fewer nutrients to produce and support body mass. Instead, layers direct much of their energy into the egg production. After approximately 12 months of age, the hen's egg-laying declines. Hormonal changes resulting from changes in diet

<sup>39</sup> USDA, RMA, Census of Agriculture, 2012 Census Volume 1, Chapter 1: U.S. National Level Data, Table 32, [http://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_US/st99\\_1\\_032\\_033.pdf](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_US/st99_1_032_033.pdf), accessed January 2015.

<sup>40</sup> USDA, RMA, Census of Agriculture, 2012 Census Volume 1, Chapter 1: U.S. National Level Data, Table 45, [http://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_US/st99\\_1\\_045\\_048.pdf](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_US/st99_1_045_048.pdf), accessed January 2015.

<sup>41</sup> Iowa State University, 2013, AgMRC, Turkey Profile, [http://www.agmrc.org/commodities\\_products/livestock/poultry/turkey\\_profile.cfm](http://www.agmrc.org/commodities_products/livestock/poultry/turkey_profile.cfm), accessed January 2015.

and photoperiod can be used to stimulate further egg production. After the layer reaches age one and a half to two and a half years, commercial hens are typically slaughtered (culled). However, laying can be stimulated by forcing the hen to molt. During the molt, laying stops completely. Following the molt, the frequency of laying is increased relative to the pre-molt frequency. Meat from culled layers is used in pet foods, soup, pies, and other processed foods.

Commercial chicken eggs include two categories of “table” eggs for human consumption, as well as hatching eggs. “Shell” eggs are table eggs sold at retail, generally by the dozen. “Breaking” or processed eggs are table eggs broken in specialized plants that transform the eggs into liquid eggs or further process the liquid eggs into products, such as powdered eggs, that have a longer shelf life. Production of processing eggs is generally a conscious output decision, rather than a salvage activity. Operators (grower/integrator) of table egg production facilities do not generally produce hatching eggs.<sup>42</sup> Instead hatching eggs are raised by niche market poultry producers including some subsidiaries operations of integrators.

Table eggs are produced by single-site independent poultry producers, contract operators, and vertically integrated companies. The vertically integrated companies generally operate on multiple-sites, which are distributed either regionally or nationally. Recent trends of decreasing per capita shell egg consumption and increasing per capita processed egg product consumption reflect both consumer lifestyle and industry changes. The increase in production of less-perishable, processed egg products has generally reduced transportation costs for table eggs.

In-line breaking operations are located at the farm. Generally, one to five million hens are used to support a breaking operation. Eggs are collected via belts beneath the cages from the houses. Complex conveyor systems carry the eggs to the breaking plant. While some in-line operations produce shell eggs with undersized, oversized, and under-grade eggs diverted for breaking, most large facilities break all the eggs produced at that location. Some in-line operations of both sizes have equipment to receive eggs from other locations for processing. This is sometimes referred to as “side loading” in the literature.<sup>43</sup>

Modern in-line production, technologically advanced processing complexes, and lower feed cost has led to increased egg production in the Midwest. Substantial consolidation occurred in the layer sector during the last 25 years. The layer sector has exhibited substantial changes toward a vertically integrated system. In 2013, Iowa, Ohio, Indiana, Pennsylvania, and California (in order of dominance in the number of eggs produced) accounted for 45 percent of all table eggs produced. Between 2001 and 2008, Iowa’s table egg production increased from 8.7 billion eggs<sup>44</sup> to 14.8 billion eggs.<sup>45</sup>

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<sup>42</sup> Purdue University maintains a Website devoted to avian sciences, including a PowerPoint presentation (<http://ag.ansc.purdue.edu/poultry/publication/commegg/>) documenting most on-farm aspects of shell and breaker egg production.

<sup>43</sup> The Egg Sector Working Group (an industry committee primarily staffed by grower association representatives); the University of Minnesota’s Center for Animal Health and Food Safety; and USD, APHIS, 2009 (draft), An Assessment of the Risk Associated with the Movement of Nonpasteurized Liquid Egg (NPLE) and Its Products Into, Within, and Outside of a Control Area during a Highly Pathogenic Avian Influenza Outbreak, <http://secureeggssupply.com/wp-content/uploads/RANonPasteurLiquidEggs.pdf>, accessed July 2015.

<sup>44</sup> USDA, NASS, 2002, NASS Poultry - Production and Value 2001 Summary, <http://usda.mannlib.cornell.edu/usda/nass/PoulProdVa//2000s/2002/PoulProdVa-04-29-2002.pdf>, accessed January 2015.



There are 172 egg-producing companies with flocks of 75,000 layers or more, 63 companies with more than 1 million layers, and 16 companies with more than 5 million layers. Companies with at least 75,000 layers account for approximately 99 percent of all egg production in the United States.<sup>46</sup> In contrast, in 1987, there were approximately 2,500 operations comprising the top 95 percent of egg production.<sup>47</sup> Integrated production sites often have more than one million birds, a feed mill, and an in-line processing plant. While economies of scale are likely to be gained at relatively low levels of output (as low as 30,000 layers), diseconomies of scale at a single facility are apparently not realized until output exceeds that of the largest production sites, with more than six houses and more than one million hens.

It should be noted that new regulations in California, Standards for Confining Farm Animals, went into effect on January 1, 2015. These regulations have had a large impact on the layer industry and may impact the average size (number of hens in a house) on a production site. Proposition 2, as it is called in California, requires all eggs **sold** in California to come from chickens that have enough room to fully extend their limbs and turn around freely.<sup>48</sup> Missouri, Nebraska, Oklahoma, Alabama and Kentucky, and Iowa filed legal challenges to the California regulations. The initial federal court decision in October 2014 was in favor of California, but the six states have carried the challenge to the U.S. Ninth Circuit Court of Appeals.<sup>49</sup>

### II.C.1. The Crop

Eggs are the crop from layer operations. The layers are the capital asset producing the eggs.<sup>50</sup> Shell eggs are usually sold by the carton at retail, while breaking eggs are subjected to a variety of value-added processing. There is an irony in the value-added economics of breaking eggs, since historically these eggs were salvaged, under grade, deformed, or checked. Paul Aho, a national expert on the layer sector noted, “The breaker market was of last resort when a suitable shell egg market could not be found.” As the market for processed egg products expanded, processors/breakers began purchasing sound, problem free, shell eggs at a discount to retail prices.<sup>51</sup> “The big difference... compared to the processed egg market of just [20] years ago is that egg products (liquid, dried and frozen) have replaced shell eggs in most industrial food applications.”<sup>52</sup> In addition to improvements in in-line breaking plant technology and lifestyle changes among those who used to purchase substantial quantities of breaking eggs, *Salmonella*

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<sup>45</sup> USDA, NASS, 2014, NASS Poultry - Production and Value 2013 Summary, <http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-04-29-2014.pdf>, accessed January 2015.

<sup>46</sup> American Egg Board, 2010, Egg Industry Fact Sheet, <http://www.aeb.org/egg-industry/industry-facts/egg-industry-facts-sheet>, accessed May 2010.

<sup>47</sup> Watts and Associates, 2010, Final Feasibility Report, Feasibility Research Report for Insuring Commercial Poultry Production, <http://www.rma.usda.gov/pubs/2011/poultryfeasibility.pdf>, accessed January 2015.

<sup>48</sup> National Public Radio, December 29, 2014, Dan Charles, How California's New Rules Are Scrambling The Egg Industry, <http://www.npr.org/blogs/thesalt/2014/12/29/373802858/how-californias-new-rules-are-scrambling-the-egg-industry>, accessed January 2015.

<sup>49</sup> Dan Flynn, Egg Safety News, 2015, Egg-Producing States File Appeal Over California's Proposition 2, [http://www.foodsafetynews.com/2015/03/six-egg-producing-states-file-appeal-over-californias-proposition-2/#.VZVkw\\_IViko](http://www.foodsafetynews.com/2015/03/six-egg-producing-states-file-appeal-over-californias-proposition-2/#.VZVkw_IViko), accessed July 2015.

<sup>50</sup> Some parallels with the production of fruits from trees in orchards and groves have been noted in the layer/egg relationship.

<sup>51</sup> The discount is due to reduced packaging and distribution costs.

<sup>52</sup> Watts and Associates, 2004, Final Research Report, Livestock Insurance Program, Volume V: Layer Segment, delivered to USDA, RMA.

outbreaks in the 1990s<sup>53</sup> resulted in a doubling of the use of pasteurized liquid eggs and other processed egg products between 1990 and 2008.<sup>54</sup>

Nonetheless, production of eggs has not changed substantially since 2001. In 2001, 334.9 million layers produced 85.7 billion eggs, an average of 256 eggs per hen, with 85 percent of the eggs used for the table (i.e., breaking or shell eggs). In 2013, 346.4 million layers produced 95.2 billion eggs, an average of 275 eggs per hen, with 87 percent of the eggs used for the table.<sup>55</sup>

Price and consumer lifestyle changes are key factors reducing per capita shell egg consumption while increasing per capita consumption of broken (processing) eggs. Breaking eggs are an output product of specialized, in-line breaking technologies. Processing reduces volume and consequently transportation costs are reduced.

Egg production in the United States is widely dispersed (Table 7). Commercial egg production is reported in all 50 states; minor production areas are combined to avoid disclosure of data concerning individual operations. The perishable nature of shell eggs explains the historical dispersal of production. Changes in technology and demand are driving regional concentration of production. These, along with differences in use and proximity to markets, are driving substantial differences in prices.

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<sup>53</sup> Aho, P. Updated 2000. "Regional Egg Production Trends, Poultry Science and Technology Facts." Cornell University, Department of Poultry and Avian Sciences.

<sup>54</sup> After American Egg Board, 2010, Shell Egg Distribution, <http://www.aeb.org/egg-industry/industry-facts/shell-egg-distribution>, accessed April 2015.

<sup>55</sup> USDA, NASS, 2014, Chickens and Eggs 2013 Summary, February 2014, <http://usda.mannlib.cornell.edu/usda/current/ChickEgg/ChickEgg-02-27-2014.pdf>, accessed January 2015.

**Table 7. 2014 United States Egg Production by State**

State	Eggs Produced (million eggs)	Value of Production (1,000 dollars)	State	Eggs Produced (million eggs)	Value of Production (1,000 dollars)
Alabama	2,148	400,702	Nebraska	2,860	240,418
Arkansas	2,962	482,351	New York	1,493	133,257
California	4,551	419,135	North Carolina	3,381	500,989
Colorado	1,450	130,584	Ohio	8,731	744,317
Connecticut	669	61,646	Oklahoma	712	102,226
Florida	2,390	218,994	Oregon	727	65,781
Georgia	4,723	665,866	Pennsylvania	7,570	715,299
Illinois	1,409	124,258	South Carolina	1,117	130,060
Indiana	7,747	674,076	South Dakota	752	63,293
Iowa	16,449	1,403,504	Tennessee	341	67,997
Kentucky	1,219	154,849	Texas	5,109	526,459
Louisiana	541	72,828	Utah	1,180	106,640
Maine	989	86,266	Vermont	36	4,275
Maryland	785	70,753	Virginia	765	114,346
Massachusetts	44	3,844	Washington	1,950	176,805
Michigan	3,867	325,322	West Virginia	270	55,886
Minnesota	3,071	265,908	Wisconsin	1,449	129,890
Mississippi	1,351	234,653	Other States <sup>1</sup>	2,410	227,573
Missouri	2,407	252,305			
Montana	143	12,966	United States	99,768	10,166,321

Source: USDA, NASS, April 2015, Poultry - Production and Value Summary, 2014 Summary,  
<http://usda.mannlib.cornell.edu/usda/current/PoulProdVa/PoulProdVa-04-30-2015.pdf>, accessed July 2015.

<sup>1</sup> Alaska, Arizona, Delaware, Hawaii, Idaho, Kansas, Nevada, New Hampshire, New Jersey, New Mexico, North Dakota, Rhode Island, and Wyoming combined to avoid disclosing individual operations.

## Production Profile

Upon arrival at the operator's facilities, chicks are placed in either a pullet house or layer pens. Chicks in pullet houses are raised on open floors covered with wood shavings or similar bedding material. During the first week, beaks are usually trimmed. The pullets remain in the pullet house for 10 to 15 weeks, until attaining an appropriate size, and then are moved into layer cages. Alternatively, for chicks placed immediately into layer cages, a biodegradable mat is placed on the floor of the pen. The mat allows chicks to locate feed and adjust to the wire mesh floor. Within a week, the mat is removed or degrades. A layer cage may initially be occupied by as many as fifty chicks, but as the chicks mature, the population density is decreased.

The chicks' daily light exposure is increased at 16 to 23 weeks of age. An appropriate lighting program provides adequate light to stimulate a hormonal reaction, but is managed to control electrical costs. Chickens perceive dawn as the first light following the longest dark period in the 24 hour cycle. Consequently, photo-schedules often contain a longer dark period to establish a photo-sensitivity phase (perception of dawn) and the timing of oviposition (when the egg is laid). Continuous light triggers laying, but short repeated cycles of light (e.g., an hour light followed by two hours of darkness) can reduce costs of lighting by more than 66 percent. Different operators use different lighting schedules to stimulate egg production while minimizing electrical costs. If the hen has not reached an adequate body weight by 18 weeks of age, egg production declines. The lighter layers are culled to limit feed consumption.

The layers' diet is also altered to support egg production. Layer pullets are fed according to body weight and/or age. Mature layers are generally fed *ad libitum*. The feed is generally offered to the layers by automated systems (e.g., chain feeding systems). In general, 2 inches of feeder space are allotted for each pullet and 2.5 inches or more are allocated for each adult layer. Dietary protein and energy composition are adjusted based on age of the hens. Young layers are fed a high protein diet (e.g., 20 percent protein) during the first few weeks of life. This level is gradually decreased to 12 to 15 percent protein during egg production. Feed lysine, methionine, calcium, and phosphorus are also adjusted to support maximum egg production.

At 18 to 22 weeks of age, 10 to 20 percent of the hens are laying eggs each day. At 30 to 32 weeks of age, 90 percent of the hens are laying each day. By the time the hens are 70 weeks old, the number of hens laying eggs daily decreases to approximately 50 percent. At this level of production, variable costs are approximately equal to the income. Induced molting can increase production for another 20 to 30 weeks. Layers may be molted a second time to maintain production through 120 to 130 weeks of age or sent directly to slaughter after a single molt when they reach 100 to 110 weeks of age. Whether a second molt is induced is influenced by egg prices and the availability of replacement birds. The recent loss of layers to HPAI will likely lead many operations to molt their birds until production costs exceed revenues. Even under these circumstances, production may be continued to preserve market share.

Hens lay eggs onto an angled cage floor (sloping 8 to 10 degrees toward the collection belt). The eggs roll toward the front of the cage onto a slowly moving belt. The belt transports eggs out of the house to either the egg processing facility or refrigerated storage.

In an in-line shell egg facility, eggs move directly from the layer house to the egg processing facility where they are washed, inspected manually, graded for packaging, and moved into cold storage. Operators generally deliver eggs to retailers approximately a week after they are laid. In an on-line breaking facility, the eggs are washed, inspected manually, and broken. The raw liquid eggs are moved to storage silos, then to pasteurization units, and finally to processing units to make dry, liquid, or frozen products. Since the facility is highly mechanized, there are relatively few employees and the facility can be operated 24 hours a day. In off-line production facilities the eggs are moved from the house directly into refrigerated storage. The eggs are stored two to three days, and then they are transported to a packing or processing facility by refrigerated trucks.

After the flock is removed from the layer house, the house is stripped of all organic matter. It is then sanitized with liquid disinfectants. Drying is required before another flock enters the house. The total down time lasts one to several weeks.

As noted earlier, most operators in the layer sector are concerned with table egg production. A second, smaller category of layer production is hatching eggs. These are produced on niche market breeder farms. These breeder farms produce fertile eggs that hatch into chicks for production of both broiler and layer stock.<sup>56</sup> Some breeder operations run their own hatcheries. Other hatcheries are run independently. Breeder farms are particularly concerned about genetic

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<sup>56</sup> Aho, P. Updated 2000. "Regional Egg Production Trends, Poultry Science and Technology Facts." Cornell University, Department of Poultry and Avian Sciences.

characteristics of the stock. This intellectual property makes these layer hens particularly valuable.

## II.C.2. The Industry

The two primary types of operating arrangements within the layer sector are farms owned by contract growers and producer-owned farms. Contract operators own or control the land, buildings, and labor inputs used to produce eggs under contract to integrators, who process the eggs for retail sales or for breaking. On producer-owned farms, independent operators own farm assets, own and manage the flock. Most producer-owned operations are large, vertically integrated, regional and national firms.<sup>57</sup> The large integrated firms (both producer-owned and firms with an integrator structure more like that in the broiler sector) are the result of a turbulent period of consolidation and bankruptcies during the late 1970s and early 1980s. Consolidation has continued as some egg producers integrated vertically into processing, and some processing firms acquire ownership of layer operations. However, producer-owned operations include some smaller independent operations with vertical integration. However, these operations are likely candidates for takeover. Compared to large, integrated companies with a national presence, smaller independent egg producers are at a disadvantage when dealing with the rapidly consolidating wholesale-food industry.

The Census reported 3,144 farms produced eggs under contract in 2012 (a 5.61 percent decrease from 2007). In 2012, almost 22 billion eggs were produced under contract.<sup>58</sup> More than 97 percent of the table eggs were produced by producer-owned operations. In 2012, 4.6 billion eggs (approximately 4 percent of all egg production) were broken under Federal inspection. Egg production is not a simple farming process. The processing of the eggs, whether for the retail purchase or breaking, add considerably to the complexity of the operations. One notable complication is the substantial oversight by government agencies. The cleaning process for both shell and breaking eggs is overseen by the USDA Agricultural Marketing Service (AMS). Shell egg safety is overseen by the United States Department of Health and Human Services Food and Drug Administration (FDA). Breaking egg processing is overseen by the USDA Food Safety and Inspection Service. In addition to this federal oversight, most states' agriculture and/or health departments take an active role in egg safety oversight.<sup>59</sup>

The layer segment accounts for approximately 2 percent of the U.S. agriculture economy (Table 8). The distribution of this economic impact by state is evident in the production value in Table 14. In 1995, egg production in California, Georgia, Indiana, Ohio, and Pennsylvania, the top five egg producing states (by number of eggs produced), accounted for 37 percent of U.S. table egg production. By 2001, the top five egg producing states accounted for 41 percent of table egg production and Georgia had dropped out of the top five egg producing states. By 2001, egg

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<sup>57</sup> Paul Aho, personal communication.

<sup>58</sup> USDA, NASS, 2012 Census of Agriculture, Table 45,  
[http://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_US/st99\\_1\\_045\\_048.pdf](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_US/st99_1_045_048.pdf), accessed January 2015.

<sup>59</sup> Tai, S., 2015, Food safety regulation in the United States: An overview of the actors,  
[https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CB4QFjAA&url=http%3A%2F%2Fflaw.wisc.edu%2Fgls%2Fdocuments%2Ffood\\_safety\\_actors-1.ppt&ei=OZCVVZC-J8ybgwTH0oCYCg&usq=AFQjCNEY51rVJNU8RXZdK8KThG8VoEmCAw&bvm=bv.96952980,d.eXY](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CB4QFjAA&url=http%3A%2F%2Fflaw.wisc.edu%2Fgls%2Fdocuments%2Ffood_safety_actors-1.ppt&ei=OZCVVZC-J8ybgwTH0oCYCg&usq=AFQjCNEY51rVJNU8RXZdK8KThG8VoEmCAw&bvm=bv.96952980,d.eXY), accessed July 2015.

production in Iowa had doubled, increasing from 4.3 billion eggs in 1995 to 8.7 billion eggs. By 2013, the top five states accounted for 45 percent of egg production, and included (in order of number of eggs produced) Iowa, Ohio, Indiana, Pennsylvania, and California. It is interesting to note that the top five states in order of total value of egg production in 2013 were, in order: Iowa, Georgia, Pennsylvania, Ohio, and Indiana. NASS publishes less complete data on hatching egg production because of the requirements for confidentiality. Over a billion hatching eggs were produced in 2014. Major production states included Alabama, Arkansas, Georgia, Mississippi, and North Carolina. Other substantial production occurred on very large operations whose location could not be disclosed.<sup>60</sup>

**Table 8. Economic Indicators – Layer Segment United States**

Year	Gross Domestic Product <sup>1</sup>	Agricultural Cash Receipts <sup>2</sup>	Value of Egg Production <sup>3</sup>
1999	9,660.60	187,814,689	4.3
2000	10,284.80	192,097,825	4.3
2001	10,621.80	200,026,456	4.4
2002	10,977.50	194,588,257	4.3
2003	11,510.70	215,971,148	5.3
2004	12,274.90	237,853,261	5.3
2005	13,093.70	240,897,821	4.0
2006	13,855.90	240,623,888	4.4
2007	14,477.60	288,545,936	6.7
2008	14,718.60	316,093,638	8.2
2009	14,418.70	291,376,034	6.2
2010	14,964.40	322,174,469	6.5
2011	15,517.90	368,667,940	7.3
2012	16,163.20	404,823,995	7.9
2013	16,768.10	401,313,896	8.7
2014	17,418.90	407,392,615	10.2

Source: 1/ Bureau of Economic Analysis, 2015, National Income and Product Accounts Table 1.1.5, Gross Domestic Product, <http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1#reqid=9&step=1&isuri=1>, accessed July 2015.

2/ In Nominal dollars, USDA, ERS, 2015, Farm and Income Wealth Statistics, Annual cash receipts by commodity, [http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics/cash-receipts-by-commodity.aspx#.VFutk\\_nF9qW](http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics/cash-receipts-by-commodity.aspx#.VFutk_nF9qW), accessed July 2015.

3/ USDA, ERS, 2015, Poultry Production and Value, <http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1130>, accessed July 2015.

The 2012 Census reported 198,272 farms with an inventory of layers – a 36 percent increase over the 2007 Census numbers. However, 174,211 (88 percent) of the reported farms had fewer than 50 hens – a 39 percent increase from 2007, and only 4,719 (2.4 percent) had more than 400 hens. Only 387 of those farms with more than 400 hens had more than 100,000 hens.<sup>61</sup> The American Egg Board reported 176 egg producing companies had flocks of 75,000 hens or more. These companies owned approximately 95 percent of all U.S. layers in 2014.<sup>62</sup>

Cal-Maine Foods of Mississippi is the largest shell egg producer (Table 9). Cal-Maine is a “pure” shell egg producer without any breaking facilities. National and regional supermarket chains buy directly from this company, generally with packaging under each retailer’s brand

<sup>60</sup> USDA, NASS, 2015, Chickens and Eggs, <http://www.usda.gov/nass/PUBS/TODAYRPT/ckeg0215.pdf>, accessed July 2015.

<sup>61</sup> USDA, NASS, 2012 Census of Agriculture, [http://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_2\\_US\\_State\\_Level/st99\\_2\\_019\\_019.pdf](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_2_US_State_Level/st99_2_019_019.pdf), accessed January 2015.

<sup>62</sup> American Egg Board, 2014, U.S. Egg Industry Egg Facts – Q1 2014, <http://www.aeb.org/search/result-item/69-farmers-marketers/market-data-trends/231-u-s-egg-industry-egg-facts>, accessed January 2015.

name. The second-largest producer, Rose Acre, is a privately owned company with both shell and breaking egg production. Moark, LLC, the third-ranked firm, produces eggs for processing and sells egg products and other food items.

**Table 9. Top Ten Egg Production Companies: 2013**

Company	Layers in Production (million)
Cal-Maine Foods	33.0
Rose Acre Farms	24.6
Moark LLC	16.0
Rembrandt Enterprises	13.6
Daybreak Foods	13.0
Michael Foods	11.3
Trillium Farm Holdings	9.9
Midwest Poultry Services	8.5
Centrum Valley Farms	7.5
Hillandale Farms	7.5
Weaver Brothers	7.5

Source: The Contractors Research Department after WATTAgNet, 2014, 2013 Egg Industry Survey,  
[http://www.wattagnet.net/2013\\_Egg\\_Industry\\_Survey\\_\\_Industry\\_prepares\\_for\\_major\\_changes\\_in\\_2014.html](http://www.wattagnet.net/2013_Egg_Industry_Survey__Industry_prepares_for_major_changes_in_2014.html), accessed April 2015.

Many of the largest operations producing shell eggs are in the Midwest. This is evident when the number of large farms is evaluated (Table 10). The upper Midwest also currently dominates in the production of processing eggs. Many in-line production and processing complexes with on-site feed preparation facilities were constructed during the last quarter of the 20<sup>th</sup> Century. These complexes are now operated by low cost producers with large markets for processed egg products. Since feed costs account for about 66 percent of the total farm cost of egg production, the lowest feed cost area in the United States is likely to have the lowest total cost of egg production.

**Table 10. Top Ten States (in order of Value Sold): Number of Farms Reporting Layers 2012 Census of Agriculture**

Number of Layers	Iowa	Georgia	Pennsylvania	Ohio	Indiana	Arkansas	Texas	North Carolina	Alabama	California	Total	U.S.	Percent of U.S.
1 to 49	3,246	2,672	7,921	7,313	4,910	2,818	18,058	4,070	2,587	6,069	59,664	174,211	34%
50 to 99	283	266	683	679	400	211	1,055	350	324	339	4,590	13,074	35%
100 to 399	147	106	465	372	158	76	403	185	173	245	2,330	6,268	37%
400 to 3,199	31	24	123	36	25	6	71	40	31	39	426	1,103	39%
3,200 to 9,999	40	37	83	9	2	54	9	74	25	4	337	482	70%
10,000 to 19,999	18	112	81	40	12	187	22	101	175	4	752	1,199	63%
20,000 to 49,999	8	229	64	29	41	180	89	148	138	5	931	1,292	72%
50,000 to 99,999	8	14	68	33	7	10	17	23	7	8	195	256	76%
100,000 or more	40	23	51	37	29	7	24	5	9	31	256	387	66%
<b>Total</b>	<b>3,821</b>	<b>3,483</b>	<b>9,539</b>	<b>8,548</b>	<b>5,584</b>	<b>3,549</b>	<b>19,748</b>	<b>4,996</b>	<b>3,469</b>	<b>6,744</b>	<b>69,481</b>	<b>198,272</b>	<b>35%</b>

Source: USDA, NASS, 2012 Census of Agriculture, Table 19, [http://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_US/usv1.pdf](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_US/usv1.pdf), accessed January 2015



Although the feed cost differences between the Midwest and other parts of the country are well understood, production cost differences from west to east within the Midwest are often overlooked.<sup>63</sup> These have influenced the concentration of production among the Midwestern states and within individual states. The North Atlantic region, with high grain, labor, and land costs, has imported a large percentage of its eggs during the last 50 years. More recently, compliance with environmental guidelines, urban encroachment into rural areas, and food safety issues have further increased that region's relative costs. However, as a result of its proximity to large population centers, the North Atlantic region will continue to produce a substantial quantity of shell eggs. However, in the North Atlantic states, only under-grade eggs are likely to be broken.<sup>64</sup>

### Market Structure

Both shell eggs and liquid eggs can be transported long distances using refrigerated trucks. Producers typically sell to a variety of markets, including both local and national prepared food industry buyers (e.g., fast food restaurants chains and bakeries), national supermarket chains, smaller regional grocery stores, independent egg product processors, and institutional buyers (e.g., prisons, colleges, U.S. military, etc.). Given the vertical integration of large firms and contract egg production, egg buyers at the "farm gate" are frequently the integrators themselves. The estimated 229 million cases of eggs produced in 2013 were distributed as follows:

- 73.3 million cases (32.0 percent) were further processed;
- 122.1 million cases (53.3 percent) were sold at retail;
- 22.9 million cases (10.0 percent) were used in food services; and
- 10.7 million cases (4.7 percent) were exported.<sup>65</sup>

Independent poultry producers have incentive to increase in size or to act jointly to achieve a more equal bargaining position with the large, national firms which are potential buyers of their products. Consequently, bargaining associations and marketing cooperatives are active in the industry. Urner Barry's Market Price Reports serves as a basis for establishing the price for many contract sales. Contract length and settlement terms are extremely varied. While contracts are common, spot market transactions for some egg output are a matter of routine for nearly all firms as a way to deal with inventory fluctuations.

Egg producing operations are successful over a considerable range of potential output. It appears the long-run average cost curve is relatively constant over an extended range of targeted production. There are substantial economies of scale to be gained as operations increase in size. Layer enterprises tend to be focused on egg production. Few layer sites include other agricultural activities.

To the layperson, eggs are produced in "chicken houses." However, these houses are extremely sophisticated, controlled-environment facilities. If there is a mechanical failure in the climate control system, growers and producers have a 15-minute window before egg production is

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<sup>63</sup> Aho, P. Updated 2000. "Regional Egg Production Trends, Poultry Science and Technology Facts." Cornell University, Department of Poultry and Avian Sciences.

<sup>64</sup> *Ibid.*

<sup>65</sup> American Egg Board, 2014, U.S. Egg Industry Egg Facts – Q1 2014, <http://www.aeb.org/search/result-item/69-farmers-marketers/market-data-trends/231-u-s-egg-industry-egg-facts>, accessed January 2015.

measurably affected and a 30-minute window before hen mortality begins. The environment is further regulated with thorough and strict sanitary practices and disease prevention and security regimens. Thus, competent managers of very large firms are confident in their perception of the “things that could go wrong,” analysis of alternatives to prevent occurrence of those events (or at least mitigate the effects), and ability to implement the “best” strategy. Under such tightly managed conditions, there are few risks for which contingency plans do not exist. As large consolidated firms have grown to increasingly dominate the market, the fraction of total production under less intensive management schemes has grown very small.

Egg growers and producers are subject to state regulations regarding flock management, egg grading, egg handling and transport, and the environment. Some state regulations specify aspects of building design and construction, husbandry practices, and bird space requirements. In November 2008, California voters approved Proposition 2, effective in 2015, which requires egg-laying hens be housed with sufficient room to lie down, stand, turn around, and fully extend their limbs. State regulations regarding egg handling generally align with USDA Egg Grading Standards<sup>66</sup> and Shell Egg Surveillance Inspections.<sup>67</sup> Egg quality assurance is a part of state code. Environmental standards address manure and dead bird disposal and Animal Feeding Operations and Concentrated Animal Feeding Operations designation standards. However, some exceptional state regulations are in place. Thirteen states prohibit repacking shell eggs to limit the spread of *Salmonella*.<sup>68</sup> Pennsylvania requires all eggs be refrigerated throughout the distribution chain. Brand names must be registered by California egg handlers. Ohio poultry farms that discharge waste water into waterways are required to have a National Pollutant Discharge Elimination System (NPDES) permit, regardless of federal requirements for such a permit. This complex regulatory environment has been perceived by egg producers to add substantially to production costs.

## II.D. Game Birds

Game birds are raised primarily for specialty food markets, restaurants, and for release into the wild for sport hunting. Private individuals in the United States have been raising game birds for more than 100 years for meat and hunting. Game bird producers and hunting preserves are licensed and regulated in all 50 states by state conservation departments. The game bird sector has experienced dramatic growth since 2000. As early as 2003, the game bird sector contributed more than \$1.5 billion to the U.S. economy. A majority of this income was from sales of adult birds. A majority of the sector expenses were labor.<sup>69</sup> In 2013, the game bird industry in the United States produced nearly 52 million birds of various species is raised yearly for meat and sport hunting.<sup>70</sup>

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<sup>66</sup> USDA, AMS, 2000, United States Standards, Grades, and Weight Classes for Shell Eggs, <http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELDEV3004376>, accessed January 2015.

<sup>67</sup> USDA, AMS, 2006, Regulations Governing the Inspection of Eggs, <http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELDEV3004691>, accessed January 2015.

<sup>68</sup> Eskin, S.B., 2004, “Putting All Your Eggs in One Basket: Egg Safety and the Case for a Single Food-Safety Agency,” *Food and Drug Law Journal*, 59: 441-452.

<sup>69</sup> North American Gamebird Association and North American Gamebird Foundation, 2004, *Hunting Preserves and Gamebird Farms, Preserving Wildlife and Rural America*, [https://www.mynaga.org/wp-content/assets/2012/07/Preserves\\_Wildlife\\_America.pdf](https://www.mynaga.org/wp-content/assets/2012/07/Preserves_Wildlife_America.pdf), accessed January 2015.

<sup>70</sup> Dan Burden, AgMRC, 20154, Game Birds Profile, [http://www.agmrc.org/commodities\\_\\_products/agritourism/game-birds-profile/](http://www.agmrc.org/commodities__products/agritourism/game-birds-profile/), accessed January 2015.

The top five game bird types produced in the United States are pheasant, bobwhite quail, chukar partridge, mallard ducks, and wild turkeys. Additionally, there are many “decorative fowl” raised in the United States which fall into this segment of poultry.<sup>71</sup> Game bird farms and hunting preserves maintained for farmed birds include over 16 million acres of agricultural land, preserving these lands from development and protecting the wildlife habitat.<sup>72</sup> The game bird industry has grown to such an extent that it is now represented in the National Poultry Improvement Plan (NPIP) on decisions regarding disease testing or potential requirements in case of disease outbreaks or new regulations.<sup>73</sup>

### **II.D.1. The Crop**

“Game birds are native or non-native birds that historically were wild game ... but are now raised commercially for their meat or egg production or as ‘flight-ready’ birds for release on hunting preserves or by state wildlife agencies. Game birds may include guinea fowl, partridges, peacocks, pheasants, pigeons and doves, quail or squab (a young pigeon), swans, wild turkeys and some ducks, such as mallards or wood ducks. Only a few species of pheasants, partridges and quail are raised as flight-ready birds; an extremely large number of species and variants are raised for the ‘decorative pet’ exhibit or hobby market.”<sup>74</sup>

Game birds are raised by individual producers, in many cases as a side or hobby business. The commercial production of game birds requires specialized housing, netting or fencing systems, knowledge of common diseases of game birds, and an identified market. Game birds may be raised for use in the specialty food markets (ethnic cuisine specifically), as exotic pets (peafowl, guinea hens) or as flight-ready birds for release and restocking operations (on game preserves or for U.S. government repopulation and reintroduction efforts).

### **II.D.2. The Industry**

Homeowners and hobbyists make up the bulk of the industry. These producers have contacts in the local markets who purchase the game bird from the producer through direct marketing or under a contractual agreement. Replacement chicks are either produced on the operation or are purchased through catalogs and online supply venues. Independent game bird production operations truly began to blossom following a mid-1990’s report from the American Farmland Trust organization which identified approximately one million acres of agricultural lands being lost to development yearly.<sup>75</sup> Along with the land being lost to agriculture, the wildlife habitat and associated wildlife were being lost as well. The game bird industry began in earnest as an effort to preserve both habitat and wildlife for future generations. In the late 1990’s, the game bird industry was focused on repopulation and reintroducing game birds to regions in the United

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<sup>71</sup> *Ibid.*

<sup>72</sup> North American Gamebird Association and North American Gamebird Foundation, 2004, Hunting Preserves and Gamebird Farms, Preserving Wildlife and Rural America, [https://www.mynaga.org/wp-content/assets/2012/07/Preserves\\_Wildlife\\_America.pdf](https://www.mynaga.org/wp-content/assets/2012/07/Preserves_Wildlife_America.pdf), accessed January 2015.

<sup>73</sup> North American Gamebird Association, 2015, About, <https://www.mynaga.org/about/>, accessed January 2015

<sup>74</sup> AgMRC, Game Birds Profile, Dan Burden, Iowa State University, [http://www.agmrc.org/commodities\\_\\_products/agritourism/game-birds-profile/](http://www.agmrc.org/commodities__products/agritourism/game-birds-profile/), accessed January 2015.

<sup>75</sup> North American Gamebird Association and North American Gamebird Foundation, 2004, Hunting Preserves and Gamebird Farms, Preserving Wildlife and Rural America, [https://www.mynaga.org/wp-content/assets/2012/07/Preserves\\_Wildlife\\_America.pdf](https://www.mynaga.org/wp-content/assets/2012/07/Preserves_Wildlife_America.pdf), accessed January 2015.

States where development had driven the wildlife away. Since that period, game bird production has expanded its market footprint to include ethnic food markets and exotic pet markets.

The 2012 Census reported Georgia as having the highest population of production game birds in the nation with 2.52 million birds, followed closely by California (2.39 million), Indiana (2.37 million), Pennsylvania (2.18 million), and Alabama (2.14 million). With 8,435 game bird farms, Texas boasted the highest number of operations raising game birds in 2012 followed distantly by Pennsylvania (3,324), Wisconsin (3,300), Missouri (2,868), and Michigan (2,809).<sup>76</sup> Besides broilers, turkeys and layers, NASS gathers information on 14 additional types of poultry production for the Census report. The United States had an inventory of more than 23 million game birds reported in the 2012 Census and more than 77 thousand operations raising those birds.

**Table 11. Game Birds Reported in 2012 Census of Agriculture by Inventory**

Type	Inventory	Operations	Top Production State
Roosters	7,564,783	13,399	Arkansas
Quail	6,304,956	2,310	Georgia
Ducks	5,018,661	21,115	Indiana
Pheasants	2,436,570	2,322	Wisconsin
Chukars	805,552	604	Pennsylvania
Guineas	460,932	14,694	Pennsylvania
Pigeons or squabs	415,365	2,149	California
Other poultry	372,483	2,213	Pennsylvania
Geese	106,462	10,286	Texas
Hungarian partridge	52,245	44	Pennsylvania
Peacocks or peahens	46,998	6,076	Texas
Emus	13,281	1,550	Texas
Ostriches	6,540	258	Texas
Rheas	1,424	218	Texas
<b>Total</b>	<b>23,606,252</b>	<b>77,238</b>	

Source: USDA, NASS, 2012 Census of Agriculture, 2012 Census Volume 1, Chapter 1: U.S. National Level Data, Table 32, Desktop Data Query Tool 2.0, accessed January 2015.

Galliformes, which include many of the commercially produced game birds (i.e. pheasant, wild turkey, quail, partridge) are raised worldwide and there are many associations and organizations, both public and private, which support the expansion of galliform breeding and preservation. Galliformes include some of the most endangered birds in the world.<sup>77</sup> After extensive research efforts, the Contractor was unable to identify a reliable source of export and import data for the U.S. game bird industry. The results of this research effort indicate some production data may be obtained from the national and regional associations should an insurance development effort be pursued. However, it should be noted these data are likely not collected by a uniform methodology. It is anticipated that data by species and location are likely to be sporadic and, in the case of some species, not appropriate for insurance.

<sup>76</sup> USDA NASS 2012 Census of Agriculture, 2012 Census Volume 1, Chapter 1: U.S. National Level Data, Table 32, Desktop Data Query Tool 2.0, accessed January 2015.

<sup>77</sup> World Pheasant Association, <https://www.pheasant.org.uk/home.aspx>, accessed January 2015.

### SECTION III. STAKEHOLDER INPUT

The Contractor gathered stakeholder input during discussions with growers, integrators, producers, producer organization representatives, insurance industry representatives, state and federal legislators and their staff, extension agents, and USDA staff. See Appendix B, Exhibit 1 for a sample listening session agenda. The Contractor collected this input during ten listening sessions focused on diseases in the four primary sectors of the poultry industry: broiler, layer, turkey, and game bird. Of the ten sessions, six were conducted on site. Four were conducted as teleconference listening sessions. Additionally, the Contractor conducted numerous personal and telephonic conversations outside these more structured stakeholder input gathering activities.

The first on-site listening session was held in Atlanta, Georgia at the International Production & Processing Exposition (IPPE), the largest trade meeting for the industry, on January 26, 2015. Subsequent sessions were offered in St. Cloud, Minnesota, on February 3, 2015; in St. Paul, Minnesota, on February 4, 2015; in Lancaster, Pennsylvania, on February 12, 2015; in Modesto, California, on March 17, 2015; and in Okoboji, Iowa, on May 28, 2015. The teleconference listening sessions occurred on February 17, 2015; February 18, 2015; March 24, 2015, and June 18, 2015. Most of the conversations outside these venues were held in conjunction with organizing and conducting the listening sessions or in follow up as a result of a lead provided at a listening session.

The Contractor contacted a total of nine grower associations in the four states through telephone and email correspondence. The Contractor asked each grower group to convey listening session invitations to their membership. The Contractor's livestock segment specialist contacted more than 200 individuals within the poultry industry to invite them to participate in the sessions. Two weeks before the five initial on-site listening sessions the Contractor sent an RMA-approved Press Release (Appendix B, Exhibit 2) to local papers and regional agricultural publications. These advertisements and announcements were available to run for two weeks in each region and contained a brief synopsis of the topic for the listening session. The press releases also invited email communication directly with the Contractor concerning the research topic. Additionally, the Contractor contacted university extension specialists in the four initially targeted states and requested both their presence at the listening sessions and that they convey the information to poultry producers with whom they worked directly.

Those who participated in the listening sessions were provided a very brief summary of the crop insurance development process and encouraged to express their opinions concerning the feasibility of insuring poultry for catastrophic disease events.

#### **Atlanta, Georgia**

The session in Atlanta was scheduled to coincide with the IPPE at the Georgia World Congress Center. This annual exposition includes a gathering of more than 30,000 growers, integrators, producers, extension personnel, lenders, and allied industry representatives and is based around a trade show and a series of extension and education workshops. The Contractor was provided a meeting room and signage was posted in various areas to encourage participation. Unlike the other sessions at the conference, the listening session was intended to collect feedback rather than to provide current information to industry stakeholders. The Contractor facilitated the open-ended discussion with a large group of stakeholders representing the major poultry sectors. The

Contractor conducted the listening session from 1:00 pm to 3:30 pm Eastern time on January 26, 2015. Thirty-six individuals attended this session, but only 26 provided any demographic information. Two additional stakeholders arrived after the session had ended. Of the participating stakeholders who provided demographic information, there were seven growers, five veterinarians, four representatives of poultry producer associations, three representatives of the chick sales industry, two representatives of the NPIP program, two third party auditors of the poultry industry, one representative of a poultry integrator, one insurance representative, one member of the media, and one representative of USDA APHIS. Stakeholders from 18 states were represented at this listening session. This is the broadest stakeholder representation the Contractor has experienced in recent years both by geography and stakeholder classification.

### **St. Cloud, Minnesota**

The listening session in St. Cloud was held the day before the Minnesota Turkey Growers Association Board of Directors meeting. The listening session was held in a meeting room at the St. Cloud Holiday Inn & Suites with eight stakeholders attending. Of the eight stakeholders, five provided demographic information on the sign-in sheet. Four of the attendees were producers (two turkey producers, one egg producer, and one pheasant producer); one was from an integrator for the layers sector; one was an insurance company representative; one was an association representative representing growers, producers, and integrators; and one was the Minnesota state veterinarian.

### **St. Paul Minnesota**

The session in St. Paul was in addition to the contractually required listening sessions. The session was scheduled in response to an invitation by the Minnesota Turkey Growers Association Board of Directors for the Contractor to attend their meeting and discuss the issues related to catastrophic poultry disease insurance. There were 12 board members present during the discussion. Nine of the board members were independent producers of turkeys and the other three were contract growers for integrators.

### **Lancaster, Pennsylvania**

The session in Lancaster was held at the Farm & Home Foundation of Lancaster County on February 12, 2015. The Contractor contacted both the PennAg Poultry Council and Pennsylvania State University to advertise the session. Unfortunately, in spite of published advertisements and contacts with a vibrant and diverse poultry community, the session was attended by only one stakeholder from the PennAg Poultry Council.

### **Modesto, California**

The session in Modesto was postponed as a result of an outbreak of HPAI just prior to the scheduled meeting. The outbreak was in a commercial turkey flock in Stanislaus County, California, the same county where the session had been scheduled. After speaking with producer groups in California and APHIS representatives, out of an abundance of caution, the Contractor recommended to USDA RMA that a postponement of the meeting would be prudent.

The rescheduled session occurred on March 17, 2015 at the Stanislaus County Harvest Hall. Unfortunately, in spite of advertisements published online and in print and contacts with both meet and egg association representative and extension offices, only a single producer

representing a poultry layer cooperative attended the meeting. A representative from the RMA Davis Regional Office also attended.

### **Okoboji, Iowa**

The session in Okoboji was scheduled as a result of a contract modification to increase the number of stakeholder sessions. Sessions were originally scheduled prior to the unprecedented outbreak of HPAI. The limited response to the stakeholder session in California surprised the Contractor since at the time of the session H5N8 HPAI had been identified in Colusa and Solano counties in wild birds and in Stanislaus County in a large commercial flock. Since that time, the HPAI outbreak has spread across much of the nation. At RMA's request, the location of the session was selected by Representative Steven King's (Iowa's Fourth Congressional District) staff and the logistics of the session were handled by Representative King's regional coordinator.

The congressman's staff selected the Okoboji location because of the large number of commercial poultry that had been lost or depopulated in proximity to the region. Twenty stakeholders attended this session. In addition to the congressman himself and his program coordinator there were two contract growers, an integrator's representative, and eight producers, two representatives of poultry associations, one RMA representative, and three insurance company representatives. The remaining participants were Iowa state legislators. The session was opened by Representative King at 2:00 pm. Following Representative King's remarks, producers were invited to provide comments about disease events and the responses from federal agencies to those events. The floor was then opened to all attending. At the request of Representative King, an RMA representative made brief remarks. The Contractor then provided a brief overview of the contracted study. General discussion followed until approximately 4:00 pm. Additional one-on-one conversations continued for about an hour.

### **Teleconference Listening Sessions**

The Contractor hosted four teleconference sessions in addition to the on-site sessions. Participation in the first session on February 17, 2015 was by members of the Valdosta, Georgia Regional Office of RMA. Participation in the second session on February 18, 2015 was by 18 stakeholders from the Delmarva region of the United States. This session was coordinated at the request of the Delmarva, Inc. Executive Director, Bill Satterfield. The Contractor believes most of those attending were contract growers. The third session was coordinated with the encouragement of the Contractor's livestock segment specialist and the poultry producer associations in California and targeted the California layer sector. The California layer industry is primarily located in southern California and the associations believed these stakeholders would not, especially with the continued monitoring of HPAI in northern California, travel to the on-site session in Modesto. Participation in the third session on March 24, 2015 was by a single individual from the California poultry layer industry. Participants in the fourth session, held on June 18, 2015, included three producers, four grower association representatives, two insurance industry representatives, and four representatives of RMA. A spirited discussion focused on the layer sector. The large extent of depopulation in this sector had increased interest in purchased risk management for both mortality and business interruption resulting from catastrophic disease. There was consensus that coverage for extensive losses was more important than coverage for a specific disease (e.g., HPAI). This suggested a high deductible product would be acceptable to the layer industry representatives participating in the session.

C-SPAN provided a video (<http://www.c-span.org/video/?327001-1/hearing-combating-avian-influenza>) of a Senate Homeland Security and Government Affairs committee hearing held early in July 2015 focused on stopping the AI threat to animal and public health. The hearing was chaired by Senator Ron Johnson, [R] Wisconsin. C-SPAN identifies speakers as U.S. Senators Tammy Baldwin, [D] Wisconsin; Tom Carper, [D] Delaware; Joni K. Ernst, [R] Iowa; Ron Johnson; Gary Peters, [D] Michigan; and Jon Tester, [D] Montana, as well as John R. Clifford, Chief Veterinary Officer, USDA; Christopher Currie, Director of the Government Accountability Office on Emergency Management and National Preparedness Issues; Jack Gelb, Director of the University of Delaware-Avian Biosciences Center; Scott Schneider, President of the Wisconsin Poultry and Egg Industries Association; Anne Schuchat, M.D., Director of the Centers for Disease Control and Prevention; National Center for Immunization and Respiratory Diseases. The senate website offers additional video perspectives of the hearing (<http://www.hsgac.senate.gov/hearings/stopping-an-avian-influenza-threat-to-animal-and-public-health> and <http://www.ag.senate.gov/hearings/highly-pathogenic-avian-influenza-the-impact-on-the-us-poultry-sector-and-protecting-us-poultry-flocks>).

A second panel of witnesses included James R. Dean, Chairman, United Egg Producers; Ken Klippen, President, National Association of Egg Farmers; Brad R. Moline, manager and owner of Moline Farms LLC; Rob Knecht, President and Vice President of Operations, Michigan Allied Poultry Industries and Konos, Inc. respectively; and Dr. Thomas Elam, President, FarmEcon LLC represented a second panel of witnesses. Much of their testimony was presented in written format. Links to PDFs of their testimony area available at [www.ag.senate.gov/hearings/highly-pathogenic-avian-influenza-the-impact-on-the-us-poultry-sector-and-protecting-us-poultry-flocks](http://www.ag.senate.gov/hearings/highly-pathogenic-avian-influenza-the-impact-on-the-us-poultry-sector-and-protecting-us-poultry-flocks).

The bulk of the testimony focused on APHIS, veterinary medicine, and biosecurity. Witnesses stated that the strain of HPAI involved in the 2015 outbreak is not transmissible to humans. Dr. Clifford emphasized that the outbreak did not pose any risk to food safety or public health. However, from the perspective of the agricultural economy, testimony suggested it will take as long as 18 months to restore production of eggs to pre-HPAI levels. It was noted that about 85 percent of the hens and pullets lost as a result of these events produced breaking eggs. Turkey growers lost an estimated \$500 million during the outbreak while the layer sector lost \$1.1 billion. The outbreak also affected export of meat from all industry sectors. USDA officials indicated approximately half of the APHIS 2015 discretionary budget was spent addressing this year's HPAI outbreak. Dr. Clifford further testified that vaccination plays a crucial role in prevention and control of HPAI, while Dr. Swayne noted vaccinations can suppress outbreaks but not to eradicate HPAI.

The Contractor notes U.S. Representative Collin Peterson was quoted as the source of remarks about disaster relief for farming operations hit by bird flu.<sup>78</sup> In an associated audio clip, Representative Peterson says APHIS indemnities seem to have been working well and is the correct approach to indemnifying for mortality losses due to disease and government actions to protect against those diseases. He indicates the insurance industry is not interested in “doing” poultry disease insurance, and “we [unidentified] are looking at business interruption insurance

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<sup>78</sup> WNAX in Yankton, South Dakota, provided a summary of his comments yesterday (August 10, 2015), <http://wnax.com/news/180081-congress-considering-bird-flu-insurance-or-disaster-program/>, accessed August 2015.



for disease and have asked RMA to look at that question.” The associated news report text follows:

*“Congress is working on some type of risk management or disaster program to assist poultry producers hit by avian influenza. House Ag Committee Ranking Member Collin Peterson of Minnesota says this was the worst animal disease outbreak the U.S. has ever experienced and the virus may reemerge this fall. That is why some type disaster program is needed. However, he says catastrophic poultry insurance may not be the best option.*

*“Instead Peterson says a better option may be to look at insuring the lost income from the time the flock is depopulated until producers go through sanitation, certification and get birds back to market.*

*“He says the Ag Committees tried to include poultry insurance in the recent farm bill, but it was stripped out for budgetary reasons”*

U.S. Senator Al Franken’s office issued a press release about a statement he sent to USDA Secretary Vilsack calling for the creation of an insurance program to help poultry farmers facing avian flu. In this statement, Senator Franken indicates: “the Department of Agriculture is calling for an insurance program to help protect poultry producers.”<sup>79</sup>

### **Themes Raised During Listening Sessions**

The following comments gleaned from the listening sessions are categorized by theme. The Contractor identifies from the segment of the industry represented by the commenter accordance with the following descriptors:

- A = Association Representative
- C = Company or Integrator Representative
- E = University Extension Representative
- G = Government Representative
- I = Insurance Industry Representative
- P = Producer or Contract Grower
- V = Veterinarian Representative

#### Theme 1: Potential Interest in a Catastrophic Disease Insurance Program

- Is the insurance program contingent on depopulation? (V)
- This seems to be a pretty large bite to take. Can we start with something smaller – 5 or 6 diseases that affect us all and get going from there? (A)
- The number one concern with the turkey industry for many years has been the lack of effective antibiotics. (P)
- I don’t want to be compared to people who can use antibiotics that I cannot. (P)
- Is it feasible to sub-divide just like the grain farmers do when they divide wheat and oats? (P)
- If you want to start with something smaller, it would probably be the turkey industry, but that would also be the hardest to extrapolate to the other groups. (V)

<sup>79</sup> [http://www.franken.senate.gov/?p=press\\_release&id=3213](http://www.franken.senate.gov/?p=press_release&id=3213), accessed August 2015.

- Those current indemnity programs from APHIS are for specific diseases and payment depends on participation in the NPIP program. (V)
- The APHIS program is very specific in regards to covered diseases but the program will cover pheasants, upland game birds, broilers, turkeys, etc. (V)
- In the past, the industry has always managed itself through these events. Back in the early 80's, there was AI out in Pennsylvania. There were some people who took it in the shorts, but the industry thrived through that. The same can be said with PED (Porcine Epidemic Diarrhea) last year. Why does the government want to step in and take away that automatic management tool of the economics of the industry? (P)
- Again, in the past, the industry has always managed itself through these challenges, and it is probably a healthier industry today because of that. So wouldn't it be better to stop the government from coming to help? (P)
- I think that the market has managed to sort itself out pretty well so far, and some may feel pain, but the others will enjoy a short period of time where they benefit. The party who had that pain will either learn from it or be out of business. (P)
- One fear I have, is that any time the government gets involved in something, if they are going to put money into crop insurance – or turkeys – they are going to tell us what to do. (P)
- There would have to be guidelines to the insured for what to do if they suspected that they would have a claim. (P)
- It [catastrophic disease coverage] is something I would be interested in. (P)
- You vaccinate according to integrator requirements (P)
- You vaccinate according to APHIS requirements (V)
- The vaccines are being pulled so the growers and producers can't follow historical procedures (V)
- Good practices keep your losses down. (P)
- Disease outbreak is something that we talk a lot about – what as a state are we going to do? We need to be prepared. (A)
- Farm Credit Financial Institutions...where you are required to have farm insurance. I wonder if that would be an option – if they would require something like that with their annual payments. (E)
- We ought to have a catastrophic disease program for avian influenza. (P)
- I would be interested in [a catastrophic disease] insurance program. (P)
- We would be interested in an avian influenza [insurance product]. (C)
- We need insurance to deal with a crisis like this. (P)
- We are facing a decision about whether or not to restock our barns if and when we are permitted to do so. Without some form of disease insurance, I cannot allocate the capital to do so. (P)
- I don't know what would be called catastrophic if the current avian influenza outbreak isn't. (P)
- Commercial insurance [for mortality] is no longer available. Offers have been withdrawn. (I)
- We need business interruption insurance, not disease coverage. (P)
- We would definitely be interested depending on premiums (P)
- I wouldn't give up disaster payments to get insurance.(P)

### Theme 2: Industry Contracts

- There are contracts that have the owners of the birds entirely assuming the risk and contracts where owners of the facilities assume a portion of the risk and everything in between. (P)
- In the broiler industry, are there broilers owned by individuals or companies that function under a contract that does not allow the rise and fall of the market to influence what they get for revenue? If they [integrators] have total ownership of the bird, are there a few that are taking all the risk and aren't taking any market participation? Because that's what we have in our industry. Those few of us independents that are left...we share all the risk, but we are on a set contract. (P)
- In the turkey industry here, the growers still own the birds, buy the poultry from Jenny-O at a subsidized rate, pay for all the feed, and buy all the medication. The grower, however, has no control from where he gets his feed, Jenny-O makes the management decisions, and the grower is on a set contractual price for managing those turkeys.
- I don't have a problem with total ownership, but there has to be extra money in there for when that catastrophic loss happens. But it would be pretty tough to sort out. (P)
- We could amend our contracts so that the growers would have to have catastrophic disease insurance as a requirement for us to have a contract with them. (C)
- I will see if I can get you a [turkey] grower's contract. (C)

### Theme 3: Disease Risks the Producers Encounter in Their Operations

- Highly Pathogenic Avian Influenza (P), (C)
- Blackhead in turkeys (P)
- Avian Influenza – low path, high path (P)
- *Salmonella enteritidis* (P)
- Newcastle Disease (P)
- Fowl Cholera (P)
- Rio-Virus (P) [Reoviral Tenosynovitis]
- Let's use Cholera as an example, if you have a claim – the process starts, and then I assume you have to send something to a lab, and then treatment, and then do you accumulate dead birds...go by the honor system...or what? It gets really complicated. (P)
- New imported disease (V)
- Avian Metapneumovirus (P)
- I remember avian influenza on our farm in 1970's, it really decimated our flocks. (P)
- High path AI will travel across the country in a "W" so it's only a matter of time before what's happening in California comes here. (V)
- The Metapneumovirus came through in 1980's. (P)
- We realized that biosecurity is a huge thing to be concerned with. (A)
- I know that people are very aware of the potential threat that the live bird market poses to those that are growing birds from an integrator standpoint.(A)
- Another thing – back yard birds – the increased incidents of back yard birds popping up. Neighbors could have back yard birds that could interact with a producer's commercial flock. (A)

- The flock of birds that is depopulated – the farmer is paid about 20 percent of what he would have made if he had sold them. (V)
- An affected AI farm – real numbers – is probably going to lose about a third of his annual income. (V)
- The “wrong time, wrong place” farms who have never had AI, but they are a quarter of a mile to a mile away from the guy who does...and depending on their cycle of production, they may not get chicks replaced for two to ten weeks, or in an ongoing event, for about six months. So those are the guys who need business interruption insurance. A grower, on average, gets about five chicken flocks a year in the case of meat broilers, so every flock he misses is 20 percent of his annual income. (V)
- We’ve had an avian influenza event one time in 30 years that I’ve worked here. (V)
- I think AI is at the top of the list, but I think a better way to say it would be with quarantinable diseases, a grower is in a quarantine zone and that inhibits their business. (V)
- Exotic Newcastle Disease (V)
- There is a remote possibility of an agro-terrorism event. Purposeful introduction of economic disease problems for agriculture. (V)
- I would agree with the point that any infectious, contagious disease with a high morbidity/mortality should be included in such insurance if such insurance would be pursued as opposed to limiting it to one disease. (V)
- With AI – it’s not a big or small bird producer issue – it affects everybody...what we have learned is that there can be people that fall outside of NPIP but don’t fall into any group [integrator, contract grower, or producer]. (C)

Theme 4: Types of Insurance Programs that Would Interest Them

- We ought to have a catastrophic disease program for avian influenza. (P)
- I would be interested in [a catastrophic disease] insurance program for avian influenza and Newcastle Disease. (P)
- We would be interested in an avian influenza [insurance product]. (C)
- We need insurance to deal with a [APHIS-ordered taking] crisis like this. (P)
- Would insurance be on specific diseases or on widespread disease events? (A)
- Business interruption insurance seems more important to our customers. (I)
- You can buy business interruption insurance now but not for disease. (P)
- Which kinds of insurance do we want to have? Specific coverage, coverage in general? (I)
- Would people insure for just one disease in certain cases? (P)
- There are some property – casualty kind of insurance coverages where there will be a fixed-dollar deductible and then some kind of a co-insurance percentage for a secondary dollar amount. (I)
- I would be interested in revenue coverage comparable to the revenue coverage available for commodity crops. (P)
- We haven’t had any contact with the poultry and would not know enough to comment on it. (G)

- The two different components of poultry here is the value of what is in the houses growing at the time of loss, and from a producer aspect, the labor and housing and other input costs, but also the income loss on their behalf. (C)
- I have heard that there is income protection insurance available for chicken growers. (P)
- There is Whole Farm Revenue Protection – a sort of umbrella insurance policy but, if more than 35 percent of your revenue income came from the poultry, it knocks you out of the policy. (I)
- It seems like this is for a more diverse farming operation with many different crops that don't currently have an MPCCI crop insurance policy for them. (I)
- Many people's sole income is poultry, and I raise my eyebrows when I hear that there is something that covers a diversified farm that has other income, but nothing under the Farm Bill for those of us whose sole income is raising poultry. (P)
- I've experienced two events in fourteen years where I had insurance to cover the natural event (fire) for income protection but have not found insurance which covers disease. (P)
- There are some catastrophic loss policies that can cover named perils including disease selected by the insured. These can include disease catastrophes. They can also include business interruption coverage following a loss. However, not too many [producers, contract growers, integrators] inquire about the catastrophic disease coverage or the business interruption coverage. (I)
- Couldn't you do two tiers – like if you only want AI protection, the premium is this much, and if you want all quarantinable diseases, the premium is this much? (C)
- So part of our concern with the various AI outbreaks – which are all surrounding our operations – is that it is affecting our export business tremendously and that's a problem. (C)
- We need business interruption insurance not disease coverage. (P)
- [Insurance would be better than] APHIS changing its rules every day. (P)
- It would be nice to know how much you are going to get [for each bird] up front. (P)
- We need a “stamp out” program like in California that pays [when you depopulate]. (P)
- The deductible needs to be smaller [for poultry than for field crops]. (I)
- Quarantines are an important part of the control [of an avian influenza outbreak]. (P)
- Heat Prostration and diseases like Highly Pathogenic Avian Influenza can be catastrophic. (P)
- Business interruption and the high costs of getting back into business. (P)
- Different types would require different indemnities. (A)
- I would be interested in a named peril policy. (P)
- The insurance would need to cover the birds and the eggs [that won't be produced]. (P)
- Input into the operation needs some sort of coverage. (P)

#### Theme 5: What They are Willing to Pay to Manage the Risk

- With the program for NPIP, the government determines the value of the birds for each incident. Will they follow the same philosophy for this insurance? (P)
- Would have to have different insurance premium rates based on value of the bird. (P)
- If I am comfortable in insuring my grandparent flock at, say \$85 per bird, what difference would it make to the government? Why would it be so hard to set up a policy like this scenario? (P)

- In our industry, it would be very difficult to set a price. (A)
- How do you place a value on something that you cannot replace? Loss of a bloodline, for example. (P)
- Could we get down to basic premiums based on past experience like with crop insurance? (I)
- If they could insure for a certain [fixed] dollar amount, it would be good. (P)
- Or on a schedule based on age ... a declining indemnity based on age. (I)
- I don't think that a producer could handle a catastrophic crop or livestock insurance without that subsidy. (P)
- What would you would think it would be acceptable loss in order to collect insurance?...everything has a deductible. (P)
- Well, it would be an amount equal to what the policy holder could absorb that would require a balance sheet or the ability for low-cost credit to cover that deductible. (I)
- So, then, would it be on a dollar basis or a percentage basis? (P)
- My guess is that it would migrate to a dollar basis. (I)
- I would be interested in a product that was built off the Urner Berry price reports. (P)
- Nationwide [insurance] has gone astronomical- we saw a 24 percent increase on our farm this year- and yes...they might possibly cover chickens that were flooded. Any type of income coverage that would cover loss is limited and very costly, and I can tell you that from personal experience. (P)
- The deductible needs to be smaller [for poultry than for field crops]. (I)
- The [Animal Health Protection Act of 2002] doesn't really cover losses. (P)

Theme 6: Perceptions of Any Potential Conflicts or Difficulties

- What constitutes catastrophe? (P)
- Is the intent to insure the interest of the person who owns the birds or the person who owns the facilities, or both? (P)
- We looked into this five to six years ago and couldn't get any data through USDA [APHIS] etc... (I)
- Another difficulty was separating the discussion between indemnity insurance and business interruption. (I)
- If we don't have these diseases commonly, how would we get the data? (I)
- Not aware of any of the commodity groups on the poultry side that keep anything close to that kind of data. (A)
- How do you make sure that offering insurance doesn't increase the risk taking of other people in the industry that might affect me? (P)
- So the law would have to change to allow insurance for contract growers. (P)
- I am concerned about attracting bad players into the turkey business as a result of offering insurance. How do you keep bad players from getting paid from the insurance when they shouldn't be in the business in the first place? (P)
- This could be a real can of worms in the livestock industry. I can see the same problems in livestock insurance as in crop insurance. (P)
- Unlike in crop insurance, if my neighbor does a bad job raising turkeys – gets a disease and mismanages them to get an indemnity payment – I may pay severely for that. (P)
- It would be easy to prove a loss. (I)

- In a disease event, – sometimes our industries are dependent on exports quite heavily – with an event, it can affect the whole industry even though the producer keeps free of the disease, the marketing of their product would be affected. Will the insurance take that into consideration? (P)
- Right now there is no monitoring of the producer operation side of bird management. We need to monitor them more regularly instead of when they first come into the market. (A)
- We studied this several years ago and discovered there were obstacles which we could not overcome: first, the growers don't own the birds; secondly, the frequency and severity data just isn't available so there was no way to assign risk. (A)
- Not just the AI affected population is affected by the quarantine but usually an area is zoned so that a grower who is in that AI zone cannot put birds back in until everything is zero tolerance. So that grower can be out for months, maybe even half a year without any kind of production. No fault of their own, but that they happen to be in that zoned area. (P)
- You still have the insurable interest hurdle to overcome. The Whole Farm Revenue Protection product gives a double whammy to chicken growers by limiting the revenue to 35 percent from livestock which the insured has an insurable interest in and which the insured is not an animal contract grower. (I)
- It seems as though the law has to be re-written or changed to get a product like the one we are talking about. (C)
- Interstate commerce ought to be controlled when there is [a catastrophic disease] outbreak.
- Vaccines might be useful for layers, but they would have a negative impact on hatcheries. (P)
- The USDA [Food and Nutrition Service] inspector had a backyard flock, but he still came into my [poultry] house in spite of my objections. His supervisor said there was nothing in the regulations that would allow me to prevent his coming in. (P)
- Composting the [dead] birds creates more chance of infection in other flocks. (P)
- APHIS makes you wait to depopulate until the tests come back. That increases the chances of the disease spreading. (P)
- Broilers might be more immune [to avian influenza] compared to layers. Turkeys would be in between. (P)
- The [Animal Health Protection Act of 2002] doesn't really cover losses. (P)
- There is not enough private insurance capacity to cover catastrophic events like the current influenza losses. (I)
- I have many other bird operations near mine. That increases my risk. (P)
- I wouldn't give up disaster payments to get insurance. (P)
- Funding for different [federal] government programs might be in conflict. (A)
- We wouldn't let disaster payment get cut to pay for insurance. (A)
- There might need to be changes to the Standard Reinsurance Agreement. (I)
- Multiple benefits [from insurance and disaster programs] would be limited so there would be no [beneficial gain]. (G)
- Different types would require different indemnities. (A)
- I can already get (provide) coverage for everything except disease and heat (P) (I)
- No coverage is [currently] available for catastrophic losses. (I) (P)

### Theme 7: What is Considered Catastrophic?

- If “catastrophic” is something that is cutting production instead of actually killing birds, it might not be something that we want not to insure against because cutting back production might be good for prices for the rest of the industry. (P)
- Loss of revenue not loss of birds is catastrophic. (P)
- A disease that causes loss of weight could be catastrophic. (P)
- Catastrophic is when birds are dying behind you as you walk through the flock. (P)
- Say that there is one farmer that raises a million birds and has to put their whole flock down – would that qualify as a catastrophic loss? (A)
- Widespread might not be a great way to characterize the losses because one flock is very large and might be catastrophic to the owner and the company responsible. (V)
- So catastrophic doesn’t have to be widespread. (V)
- [APHIS] offered a calculation that started at \$12 per layer, but after their deductions they paid about \$1 a bird. That makes this a catastrophe. (P)
- I lost thousands of full grown turkeys one day before delivery. Do you know what composting that amount of turkey smells like? (P)
- I lost more than a million layers in one house. (P)
- I lost [all the birds in] every house. (P)
- Business interruption is the real catastrophe. (P)
- I got a 100 percent score on my APHIS bio-security evaluation and six weeks later had to depopulate. (P).
- When you have this many [poultry catastrophic disease] deaths the air is full of [inocula]. (P)
- I lost more than 4 million birds. (P)
- A million turkeys have been diverted [by depopulation] from our plant. (C)
- 12 percent of layers and more than 30 percent of layers in breaking egg operations have been depopulated. (P)
- High end losses to the bottom line are what are catastrophic, not the cause of the loss. (P)
- A catastrophe in a mega-operation will be different from one in a typical operation. (I)
- If there is a single facility, depopulation has a greater effect than if there are multiple facilities, especially if those operations are in different counties (states). (P)
- Heat Prostration and diseases like Highly Pathogenic Avian Influenza can be catastrophic. (P)
- Business interruption and the high costs of getting back into business. (P)
- The current [HPAI] events have been catastrophic. (P)



## SECTION IV. EXISTING PROGRAM REVIEW

In this section the Contractor provides information regarding programs offering financial support for the poultry industry identified during the course of the project. The Contractor reviewed programs offered through the Federal government, state governments, and from the private insurance industry. Numerous support programs are available from governmental agencies, although the Contractor found the risk management products exclude many poultry industry stakeholders. The Whole Farm Revenue Protection (WFRP) Pilot Program specifically excludes contract growers, operations with large gross revenues, and operations whose primary revenue source is livestock (including poultry). Furthermore, WFRP currently is not available in large geographic areas including counties and states with substantial poultry production. WFRP may be available and useful for smaller, diverse operations with poultry production. This could include some niche market operations. APHIS provides compensation to the owner of the poultry for animals the government destroys as part of the service's disease control programs ("takings"). Payments are not made for disease related death, only for animals destroyed (depopulation). The APHIS compensation is only available to owners of the birds taken (i.e., producers, integrators and contract growers who have an ownership interest in the birds they raise). The compensation addresses lost costs, but not total lost value. This contrasts significantly with most crop insurance which compensates the insured for total lost value (based on historical averages) less a deductible. Private catastrophic loss coverage is available for poultry operations. At least one U.S. and two international companies will consider covering catastrophic disease losses under these policies. However, it should be noted the premiums, which are calculated on a one-off basis, have been described by both producers and insurance industry stakeholders as prohibitive. Furthermore, APHIS procedures may limit APHIS payments for takings when compensation for value from takings is provided by private insurance. Details of the various support programs available to poultry industry stakeholders follow.

### Federal Programs

Federal programs supporting poultry producers and growers are offered primarily by agencies and services of the USDA. USDA programs supporting poultry producers are described by the agencies or services within the USDA offering the program. These agencies and services are listed alphabetically.

### Agricultural Marketing Service (AMS)

Poultry growers benefit from general services of AMS including the following programs:

- The Agricultural Analytics Division: Provides economic, scientific, statistical, mathematical, and market analysis.
- The Country of Origin Labeling Division: Ensures that poultry sold at retail are labeled by their country of origin (COOL). The recent World Trade Organization ruling regarding COOL labeling for beef may force changes in this program.
- The Food Safety and Commodity Specification Division: Develops and maintains specifications for poultry and eggs purchased by USDA for distribution through the various Federal food and nutrition assistance programs. Relevant standards include:
  - Poultry Carcass Grading and Standards (AMS 70.200 et seq.)
  - Egg Grading and Standards (AMS 56, 7 CFR Part 56, 7 CFR Part 57)

- Grading Division, Poultry Program: Monitors the Shell Egg Surveillance Program. Shell eggs that are not of the best quality for human consumption are called “restricted eggs.” Restricted eggs include checked eggs, dirty eggs, leaking eggs, incubator rejects, and inedible eggs. The program also provides mandatory procedures for the disposition of restricted eggs. The Shell Egg Surveillance Program limits the number and types of restricted eggs permitted in consumer channels and specifies the approaches appropriate for different restricted egg types.
- The Livestock, Poultry and Grain Market News Division: Collects price and volume information for the sale and purchase of poultry and eggs reported in the Weekly Livestock, Poultry, & Grain Market Highlights.
- The Quality Assessment Division: Develops and maintains Federal standards for egg and poultry quality and nomenclature. Participates in development of national and international standards.
- The Research and Promotion Division: Oversees industry-funded egg research and promotion programs, commonly called the checkoff programs.
- Animal Protein Free Certification Program (APFC): This program provides third-party verification that poultry have never been fed animal protein, animal fats, or animal by-products.

#### Animal and Plant Health Inspection Service (APHIS)

APHIS is responsible for protecting and promoting U.S. agricultural health, administering the Animal Welfare Act, and carrying out wildlife damage management activities. APHIS has been tasked with greater responsibility for enforcing the obligations of the United States under phytosanitary rules such as the *Codex Alimentarius* and responds to other countries’ animal and plant health import requirements and assists in negotiating science-based trade restrictions.

The NPIP is the major program addressing poultry diseases, including catastrophic diseases. The NPIP coordinates programs aimed at monitoring and, to the extent possible controlling, avian influenza, fowl typhoid, *Mycoplasma meleagridis*, *Mycoplasma gallisepticum*, *Mycoplasma synoviae*, *Salmonella enteritidis*, and *Salmonella pullorum*. Participation is voluntary, but flocks, hatcheries, and dealers must qualify as “U.S. *Pullorum* Typhoid Clean” before participating in any other program. The NPIP currently addresses commercial poultry such as chickens (broilers and layers), turkeys, and waterfowl, as well as exhibition poultry, backyard poultry, and game birds. The Contractor did receive some anecdotal evidence while gathering stakeholder input that some smaller poultry producers consider NPIP is “not for them.” The program is expensive and requires a level of infrastructure and staffing that does not fit well into a small business model.

APHIS, under authority of the Secretary of Agriculture granted by the Code of Federal Regulations, Title 9: Animals and Animal Products, Chapter I: Animal and Plant Health Inspection Service, Department of Agriculture, has been given the task of responding to poultry disease outbreaks. APHIS may seize, quarantine, and, if necessary, order the destruction of poultry affected by any one of several identified diseases. Furthermore, the Secretary of Agriculture has authority to ascertain the value of animals destroyed and provide compensation; this task has also been assigned to APHIS. The poultry diseases named in 9 CFR are Newcastle disease, HPAI, and chlamydiosis. APHIS relies heavily on the NPIP program standards as the

foundation of their poultry disease monitoring activities.<sup>80</sup> One of the constraints on APHIS programs compensating owners is that payments are generally limited to those animals alive at the time a (Veterinary Service) VS 1-23 form is submitted to APHIS. Confirmation of infection is required for submission. Consequently, animals lost to the disease prior to submission of the VS 1-23 to APHIS are generally not covered under the compensation program.<sup>81</sup>

Other APHIS programs important to the poultry industry include:

- Animal Welfare,
- Import and Export Services:
  - Animal and Animal Product Import and Export Information,
  - International Trade,
  - Sanitary and Phytosanitary Management (Trade Facilitation),
- Veterinary Services:
  - Animal Diseases by Species,
  - Animal Health Report,
  - Laboratory Information and Services,
  - Monitoring and Surveillance,
  - Professional Development Training,
  - Veterinarian Accreditation,
  - Veterinary Biologics,
  - Veterinary Services Process Streamlining (VSPS),
  - Veterinary Services, Office of the Chief Information Officer (VS OCIO), and
- Wildlife Service.

#### Cooperative State Research, Education, and Extension Service (CSREES)

CSREES is the Federal administrative authority for the State Land Grant Agricultural Experiment Stations and the Cooperative Extension Service. Extension and education programs provide important educational and consultancy resources for producers in all areas, including poultry producers.

CSREES funds research leading to the development of vaccines to fight poultry diseases. Recent CSREES-funded research has addressed Avian Influenza,<sup>82</sup> Avian Pathogenic *Escherichia coli* (APEC),<sup>83</sup> and Marek's disease.<sup>84</sup>

<sup>80</sup> USDA, APHIS, Veterinary Services, August 2014, National Poultry Improvement Plan Program Standards, <http://www.poultryimprovement.org/documents/ProgramStandardsAugust2014.pdf>, accessed April 2015.

<sup>81</sup> USDA, 2015, HPAI Outbreak 2014-2015 Indemnity Procedures, [http://www.aphis.usda.gov/animal\\_health/emergency\\_management/downloads/hpai/indemnity\\_procedures.pdf](http://www.aphis.usda.gov/animal_health/emergency_management/downloads/hpai/indemnity_procedures.pdf), accessed July 2015.

<sup>82</sup> Cardona, C., R. Slemons and D. Perez, 2009, The prevention and control of avian influenza: The avian influenza coordinated agriculture project, Poultry Science 88: 837-8, <http://ps.oxfordjournals.org/content/88/4/837.full#xref-fn-1-1>, accessed January 2015.

<sup>83</sup> World poultry, 2008, CSRESS funding poultry vaccine development, <http://www.worldpoultry.net/Home/General/2008/9/CSRESS-funding-poultry-vaccine-development-WP002891W/>, accessed January 2015.

<sup>84</sup> Stacy Kish, CREES, 2008, Chicken Genome Leads to New Vaccine to Fight Poultry Disease, <http://www.nifa.usda.gov/newsroom/impact/2008/nri/pdf/chicken.pdf>, accessed January 2015.

### Economic Research Service (ERS)

ERS provides data and analysis on poultry product supply and demand, as well as information on industry structure, pricing, trade, farm policies, production systems, and processing. ERS reports of particular interest include:

- Animal Production and Marketing Issues Briefing Room,
- Livestock, Dairy, and Poultry Outlook: Tables,
- Livestock and Meat Trade Data, and
- Meat Price Spreads Data.

### Farm Service Agency (FSA)

The Farm Service Agency (FSA) provides financial assistance to assist producers facing losses from natural disaster (i.e., drought, flood, fire, freeze, tornadoes, pest infestation, and other “calamities”). FSA’s Noninsured Crop Disaster Assistance Program (NAP) provides payments to producers of non-insurable crops when low yields, loss of inventory, or prevented planting occur due to a natural disaster. Eligible producers include landowners, tenants, or sharecroppers who share in the risk of producing an eligible crop. The annual gross revenue of the eligible producer cannot exceed \$2 million. The natural disaster causing the loss must occur before or during harvest and must directly affect the eligible crop. There is a requirement that disaster caused by weather, earthquake, volcano, or flood be declared or that losses result from disease or insect infestations arising because of such a declared disaster.

In the 2014 Farm Bill, FSA’s Supplemental Revenue Assistance Payments (SURE) Program underwent some modifications. Four disaster programs were extended indefinitely: Livestock Forage Disaster Program (LFP), Livestock Indemnity Program (LIP), Emergency Assistance for Livestock, Honeybees, and Farm-Raised Fish (ELAP), and Tree Assistance Program (TAP). Furthermore, the 2014 Farm Bill removed the requirement that producers purchase crop insurance or NAP coverage to qualify for these payments. Of these programs, only LIP and ELAP apply to the poultry industry.

The Livestock Indemnity Program (LIP) provides “benefits to livestock producers for livestock deaths in excess of normal mortality caused by adverse weather. In addition, LIP covers attacks by animals reintroduced into the wild by the federal government or protected by federal law, including wolves and avian predators. LIP payments are equal to 75 percent of the market value of the applicable livestock on the day before the date of death of the livestock as determined by the Secretary.”<sup>85</sup> Eligible poultry for this program include broilers, pullets, chicks, layers, Cornish hens, ducks, ducklings, geese, goslings, and turkeys. Those whose average adjusted gross income is greater than \$900,000 are ineligible for payment under this program. This program does not provide compensation for death resulting from disease.

Poultry producers may also qualify for disaster payments under ELAP. ELAP provides emergency assistance to eligible producers of livestock (including contract poultry growers), honeybees and farm-raised fish. “ELAP covers losses due to an eligible adverse weather or eligible loss condition, including blizzards, disease (including cattle tick fever), water shortages

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<sup>85</sup> USDA, FSA, Program Fact Sheets, April 2014, Livestock Indemnity Program, [http://www.fsa.usda.gov/FSA/newsReleases?area=newsroom&subject=landing&topic=pfs&newstyp=prfactsheet&type=detail&item=pf\\_20140415\\_distr\\_en\\_lip.html](http://www.fsa.usda.gov/FSA/newsReleases?area=newsroom&subject=landing&topic=pfs&newstyp=prfactsheet&type=detail&item=pf_20140415_distr_en_lip.html), accessed April 2015.

and wildfires, as determined by the Secretary, that occurs on or after Oct. 1, 2011.”<sup>86</sup> The payments for death losses are the only benefit for which poultry is eligible to participate. Eligible loss conditions for this program do not include death losses associated with disease.

### Food Safety and Inspection Service (FSIS)

The Food Safety and Inspection Service (FSIS) is the agency responsible for ensuring the safety, wholesomeness, labelling, and packaging of the commercial supply of meat, poultry, and egg products. Both the Federal Meat Inspection Act (FMIA) and the Poultry Products Inspection Act (PPIA) require the Secretary of Agriculture to consult with an advisory committee before issuing product standards, labeling changes, or statements on matters affecting Federal and state meat inspection programs.<sup>87</sup> The National Advisory Committee on Meat and Poultry Inspection (NACMPI) was created to serve that end, and FSIS employees are responsible for scheduling and facilitating the work, actions, and meetings of the committee. Agency employees also identify, assess, and define emerging and standing issues affecting procedures, policies, activities, or resources for consideration by the committee.

### Foreign Agricultural Service (FAS)

Poultry growers benefit from FAS general services and programs. Due to the growing importance of foreign markets to the poultry sectors, FAS export development and promotion programs are of particular importance. The FAS poultry data includes:

- Dairy, Livestock and Poultry Division (DLP),
- Data series, analysis of world markets, buyer lists, etc., and
- Export Program Data.

### National Agricultural Statistics Service (NASS)

NASS is the primary data collection and publication service of the USDA. Its continuous, consistent data series are widely used by producers and researchers. Some poultry industry data are collected and summarized by NASS. The two principal data collection approaches are census and survey. All commercial producers are expected to respond to the census questionnaires which are distributed every five years. NASS extrapolates from survey responses to report state and national poultry data.

### Risk Management Agency

The WFRP Pilot Program provides a risk management safety net for essentially all revenue on the farm under one insurance policy. WFRP replaces the previous Adjusted Gross Revenue (AGR) and Adjusted Gross Revenue-Lite (AGR-Lite) policies. This new insurance plan is tailored for any farm with up to \$8.5 million in insured revenue. Due to the effective deductible in the coverage level, the total gross revenue of the insured operation can be larger. WFRP is available for farms with specialty or organic commodities (both crops and livestock), or those marketing to local, regional, farm-identity preserved, specialty, or direct markets.

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<sup>86</sup> USDA, FSA, 2014 Farm Bill Fact Sheet, November 2014, Emergency Assistance for Livestock, Honeybees, and Farm-Raised Fish Program (ELAP) – Livestock Assistance, [http://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdfiles/Disaster-Assist/elap\\_livestk\\_fact\\_sht1114.pdf](http://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdfiles/Disaster-Assist/elap_livestk_fact_sht1114.pdf), accessed April 2015

<sup>87</sup> USDA, FSIS, 2015, FSIS History, <http://www.fsis.usda.gov/wps/portal/informational/aboutfsis/history/history>, accessed April 2015.

WFRP is designed to meet the needs of highly diverse farms that are growing a wide range of commodities, and for farms selling commodities to wholesale markets. The WFRP policy was specifically developed for farms that tend to sell to direct, local or regional, and farm-identity preserved markets and grow specialty crops and animals and animal products. All commodities produced by the farm are covered under WFRP except timber, forest, and forest products, and animals for sport, show or pets.

The insured must have filed five consecutive years of Schedule F (or equivalent) tax forms as the same tax entity; unless an appropriate change in the tax entity is approved by the insurance provider under the terms of the policy. The farm operation will be ineligible for insurance under this policy if expected revenue from animals and/or animal products is more than \$1 million or 35 percent of the total expected revenue or if the operation derives more than 50 percent of allowable revenue from commodities purchased for resale.

The amount of farm revenue a producer can protect with WFRP insurance is based on the lower of the revenue expected on the current year's farm plan or the producer's five-year historic income adjusted for growth. WFRP provides whole-farm revenue protection coverage levels from 50 to 85 percent of insured revenue described above. These coverage levels are available in 5 percent increments and a farm must have diversification of at least three (3) commodities, in order to qualify for the 80 and 85 percent coverage levels.

At the end of the insurance period and after the insured has filed farm income tax forms for the insurance year, a loss adjuster will complete an Allowable Revenue and Allowable Expense Worksheet for the insurance year using the insured's farm tax forms. The allowable revenue will be adjusted for inventory adjustments, unharvested or unsold production, and production lost for uncovered causes of loss to determine the revenue-to-count for the year. A loss is paid when the total revenue-to-count for the insurance year falls below the insured amount of revenue, multiplied by the expense reduction factor, if applicable.

There are limits and qualifications under WFRP that may impact a poultry operation. First, the operation will not qualify for WFRP if: "The expected revenue from animals and animal products on the farm is greater than \$1 million or more than 35 percent of the expected revenue as determined on the sales closing date."<sup>88</sup> "Animals" is defined in the WFRP Pilot Handbook: as: "living organisms other than plants or fungi that are produced or raised in farm operations, including, but not limited to, cattle, horses, swine, sheep, goats, poultry, aquaculture species, bees, and fur bearing animals. For the purposes of WFRP, animals must be propagated or reared in a controlled environment."<sup>89</sup> [emphasis added]

In addition, the following are excluded from the allowable revenue in each year of the whole-farm history period, expected revenue for the insurance year, and revenue-to-count for claims:

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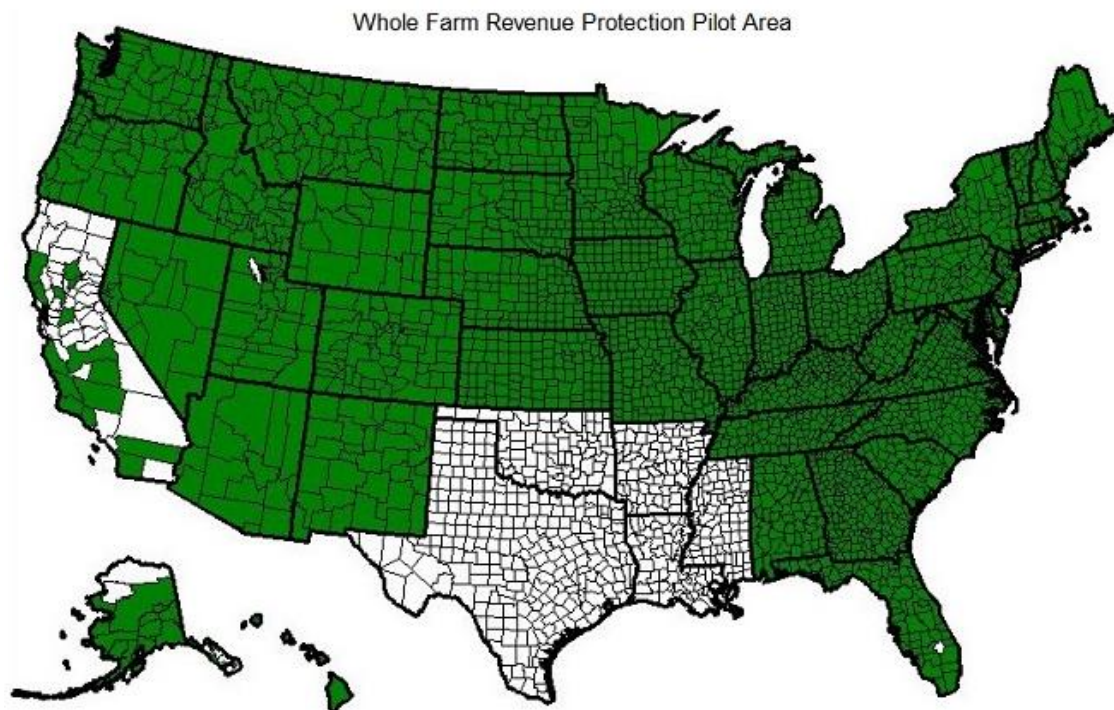
<sup>88</sup> USDA, RMA 2015, Whole Farm Revenue Protection Pilot Handbook: 2015 and Succeeding Crop Years (FCIC 18160-1 (01-2015), page 10.

<sup>89</sup> *Ibid.*, page 78.

- “Revenue from commodities in which the insured does not have an insurable interest;”  
and
- “Revenue earned as an animal contract grower”<sup>90</sup> [emphasis added]

Contract grower means a person retained under contract to manage the growth of a commodity owned by another person. A contract grower in the case of large poultry operations is considered the “grower.” For instance, large poultry companies, commonly called integrators, contract with independent farmers, commonly called growers, to raise birds until ready for processing. The grower provides the facility and the labor, and then cares for the poultry until the birds are ready for processing and are picked up by the integrator. The revenue earned by the “grower” in these cases is excluded from the WFRP program. WFRP is available in most states as shown below:

**Figure 1. Whole Farm Revenue Protection Pilot Area**



Source: <http://www.rma.usda.gov/policies/2015/wfrpareamap.pdf>, accessed July 22, 2015.

### Rural Business–Cooperative Service (RBS)

RBS is a small agency with limited funding and staff whose purpose is to finance and facilitate development of small and emerging private business enterprises, and promote sustainable economic development in rural communities.<sup>91</sup> While this agency could potentially serve poultry growers and integrators, the industry structure will limit the impact of RBS services to many producers.

<sup>90</sup> *Ibid.*, page 20.

<sup>91</sup> USDA, Rural Development (RD), 2015, About RD, <http://www.rd.usda.gov/about-rd>, and Rural Business–Cooperative Service, <http://www.rd.usda.gov/about-rd/agencies/rural-business-cooperative-service>, accessed April 2015.

### Environmental Protection Agency (EPA)

Poultry operations are affected by EPA rules administered primarily by the Office of Water Management under the heading “Animal Feeding Operations” (AFO). Relevant reports may be found through linked topics such as water, waste, and waste management and by reviewing the EPA Website for AFOs (<http://www.epa.gov/oecaagct/anafoidx.html>). The rules regulate the discharge of pollutants from point sources to waters of the United States. As a point source, some operations require a National Pollutant Discharge Elimination System (NPDES) permit. Application for the permit includes development of a nutrient management plan ensuring litter is properly managed.<sup>92</sup> Many stakeholders expressed concern that EPA regulations introduce economic barriers to profitable management of poultry operations.

### **State Government Programs**

State programs and regulations affect poultry production. State statutes or codes generally define an administrative office and/or an administrator responsible for licensing and enforcing minimum husbandry, sanitary, and environmental standards for poultry operations. Some states have poultry regulations that replace or complement Federal sanitary or environmental standards. The various regulations are similar to Federal standards, often referencing them as minima. The purpose of these regulations is to reduce risks of animal diseases and contamination of poultry products.

The USDA NPIP often functions as a centerpiece of most state efforts. Activities, responsibilities, and regulations of state agencies include inspection of poultry flocks and chick hatcheries, issuing inspection certificates, and overseeing rules and regulations for the movement, sale, labeling, and advertising of all chicks, eggs, and poultry produced by flocks and hatcheries. Code sections relating to the movement of birds address health issues, particularly disease prevention and control.

The codes are intended to prohibit movement of poultry from or through areas quarantined due to disease. Any vehicle or equipment transiting a quarantined area must be cleaned and disinfected in accordance with state and Federal regulations. Disposal of all dead poultry is required, with the means of disposal generally restricted to incinerators or specific composters. Older composters and compost pits, common in the past, are generally no longer acceptable methods for poultry disposal. Code sections concerning health and sanitary conditions often co-join state departments of health, veterinary medicine, safety, and/or other agencies.

States oversee and regulate integrators’ slaughter, processing, and distribution activities. The regulatory burden on integrators is often much greater than on growers. Regulations governing slaughter and processing procedures generally follow the FMIA and the PPIA, which control operations and transactions affecting interstate commerce.<sup>93</sup>

While integrator regulation not associated with “crop” production is outside the scope of this feasibility assessment, it contributes to institutional risks that may impact grower wellbeing. These regulations ultimately affect growers. For example, compliant poultry operation

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<sup>92</sup> EPA, 2015, Animal Feeding Operations Overview, <http://water.epa.gov/polwaste/npdes/afo/index.cfm>, accessed April 2015.

<sup>93</sup> Poultry products are sold under provisions of the Federal Meat Inspection Act, the Federal Poultry Products Inspection Act, or the Federal Food, Drug and Cosmetic Act.



management plans in Maryland must ensure proper storage, handling, and land application of excess poultry waste. Until the current regulations were set, manure disposal was the responsibility of the contract growers; now it is the integrator who must bear this cost.<sup>94</sup>

### **Private Insurance Inventory**

Private insurance companies offer coverage to commercial poultry operations, family farm poultry operations, private hatchery operations, and contract growers. Policies and the coverage provided are described herein.

#### Disease Loss Coverage

During the course of the research the Contractor ascertained that at least one private insurance company, Catlin, offered poultry producers the opportunity to purchase a rider on a property catastrophic insurance policy to provide coverage for some disease related losses. These riders are written on an individual basis and negotiated individually with the company. In email correspondence, the representative of the company indicated that coverage could be extended, on a case by case basis, to the “widely known” diseases such as avian influenza, Newcastle disease, and *Salmonella enteritidis*. For the policy to be granted, the producer’s history of disease, biosecurity measures, and disease related protection protocols would need to be investigated by the company and assessed in light of the potential risk. The company representative had no knowledge as to any restrictions being in place on the company to offer these riders in any state in the United States. These catastrophic policies are underwritten by a consortium with Lloyds of London. It is likely that other agents could access these same disease benefits through other consortium members. However, the one-off nature of these policies and the individually established premiums will limit access to these products to highly motivated (risk averse) insureds. The Contractor also discussed disease coverage with Nationwide, a major underwriter of catastrophic property coverage for poultry. The representative indicated poultry mortality could be a covered cause of loss and that policies for disease coverage could be written. However, he was not aware of any such policy being in force. Since the 2014-2015 HPAI outbreak, these offers have been withdrawn. The Contractor has not been able to determine if or when these offers might again become available.

#### Building Coverage

Although coverage varies by company, “All Risk Coverage” insurance is available for farm buildings. These policies indemnify losses from fire, weather, damage due to snow and ice load, or impact by a farm-owned vehicle. Replacement cost coverage is available for farm buildings. Typically, no depreciation is calculated in establishing indemnities. Building policies tend to cover the repair or replacement of fixed equipment. Replacement cost coverage is also available for all on farm dwellings including the replacement cost of contents.

Companies writing poultry insurance building coverage have various underwriting requirements based on the age of the poultry house. Policies are generally contingent on a favorable inspection of the poultry house. Although insurance companies tend to have a limited range of premium rates regardless of house construction materials (i.e., the premium rate on all-metal houses may be the same as the premium rate on wood frame houses), there is a movement toward differentiating the rates, with all-metal housing receiving discounts. While insurance

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<sup>94</sup> State of Maryland. 1998, BILL INFO-1998 Regular Session-SB 41.

companies may not fully understand the exposures presented by environmentally controlled housing, computer technology to manage inputs and outputs, and integrated processing equipment, several insurance companies have focused attention on developing coverage that appropriately addresses these details of the poultry industry.

### Flock Insurance Coverage

Most insurers offering coverage for the poultry industry do not typically cover animal mortality or loss of business income resulting from loss of birds. However, several carriers and/or agencies are aggressively seeking customers through online sales.<sup>95</sup> Some insurance is available to cover the value of lost poultry as well as the loss of business income resulting from the inability to complete a production cycle. Covered losses include losses to livestock due to contaminated feeds, smoke, failure of environmental controls, suffocation of the livestock, biosecurity issues (terrorism and quarantine), and certain defaults by integrators.<sup>96</sup> These product lines are offered in at least 19 states, including most, but not all the major poultry production locations<sup>97</sup> and are offered by carriers who underwrite insurance in the United States.<sup>98</sup> The terms of the policies are considered proprietary. Agents at three agencies indicated they had not yet seen a policy covering feed conversion (the best measure of production). However, two agents indicated individual policies are negotiated with terms defined by the insured and underwriting and premium defined by the insurer. Most of the existing policies cover catastrophic losses.

Flock insurance coverage is available for heat prostration due to power interruption (both on and off premises) from any cause including mechanical breakdown and fuse breakage. Some policies require a back-up system or alarm system warranty in order to offer power interruption coverage. Policies may provide schedules to value types and ages of birds differently within the same policy or may value poultry using a simple formula based on both the age at which birds are typically marketed and different values for various types of birds. Coverage is available for full mortality and theft, specific perils and theft, major medical, loss of use, and infertility. Programs are available for insurance under an “agreed value endorsement,” wherein the value of breeding stock is insured for a predetermined value regardless of market forces. There is also a “market value endorsement” option where the market value acts as an adjustment increasing the value of the poultry when the market value increases. Coverage available in Canada through mutual insurance arrangements appears to be even more extensive,<sup>99</sup> suggesting that demand over time may drive the development of additional available coverage options in U.S. markets.

### Business Interruption Coverage Following Depopulations

After delivery of the draft of this report, the Contractor was made aware of an offer of insurance for business interruptions resulting from depopulations due to HPAI. Like the aforementioned mortality insurance, this offer appears to be underwritten by an international consortium and is

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<sup>95</sup> e.g., The Hartford, <http://www.thehartford.com/business-insurance/poultry-insurance>, accessed April 2015.

<sup>96</sup> TGA Cross Insurance, <http://www.thomasgregory.com/property-casualty/poultry/>, accessed April 2015, Alabama Farm Insurance, <http://alabamafarminurance.com/>, Westfield Insurance, [http://www.westfieldinsurance.com/farm/farm\\_insurance.jsp/](http://www.westfieldinsurance.com/farm/farm_insurance.jsp/), accessed April 2015.

<sup>97</sup> Westfield Insurance, [http://www.westfieldinsurance.com/farm/farm\\_insurance.jsp/](http://www.westfieldinsurance.com/farm/farm_insurance.jsp/), accessed April 2015.

<sup>98</sup> Nationwide Agribusiness, the agricultural arm of the Nationwide Insurance, and its affiliates Allied Insurance offer this insurance and are the largest underwriter of farmowners’ property and casualty insurance in the United States.

<sup>99</sup> North Blenheim Mutual Insurance, <http://www.northblenheim.ca/products/farm/poultry-coverage/>, accessed April 2015.

available as a standard policy and on a surplus line basis. Although the Contractor was given the opportunity to examine policy materials, it was upon the condition of not revealing the language of the policy to protect certain intellectual property rights of the offerer. However, the Contractor was permitted to indicate on this broadly available product coverage is offered for a set period following depopulation resulting from a government action resulting from a verified HPAI infection; fixed costs identified in the policy as well as continuing expenses and lost profits are indemnifiable until either the end of the insurance period or the release of the facility for repopulation. Currently coverage is targeted for both the poultry meat and layer sectors.<sup>100</sup>

### Loss of Income Coverage

Loss of income coverage is available to poultry operations from the private insurance industry. Profits insurance is also available with a 12 month loss of income agreement. Some companies offer policies for loss of egg income or income from meat birds. Within these policies, growers may be allowed to choose the limit per bird. Typically, loss of income coverage for poultry houses is included in the Farm Owner's Policy, which stipulates coverage of the entire farm (i.e., house, tractor, barn, and poultry houses). Loss of income coverage for the broiler house growers and producers is generally based on structural and/or mechanical risks. Loss of income insurance is available as a result of damage to the covered poultry houses, generators, freezers, feed equipment, etc. Coverage may not be available for older houses (12 to 15 years old) or the premium for older houses may be prohibitive. Loss of income coverage for the poultry industry is less common than for some other industries due to the limited loss exposure and reduced amount of risk.

TGA Cross Insurance, Alabama Farm Insurance, Westfield Insurance, the Livestock Department of Hartford Insurance, and Nationwide Agribusiness (the agricultural arm of the Nationwide Insurance) offer loss of income and flock insurance. According to industry representatives, Nationwide Insurance, Hartford Insurance, and a third unnamed major company (although this is most likely the Lloyds consortium) carry much of the poultry liability. Nationwide Insurance and its affiliates Allied Insurance are the largest underwriter of farm owners' property and casualty insurance in the United States. They appear to be aggressively targeting poultry markets with policies customized through negotiations to reflect the risk borne by growers, producers, and integrators. While the Contractor found mortality coverage for extreme weather conditions is available from a variety of sources, along with corollary business interruption insurance, such coverage for disease is not available in "prepackaged" products. Several agents indicated a willingness to talk about such coverages, but none had had experience negotiating policies for these perils.

### Coverage in Transportation

Some policies are available to provide coverage for growers, producers, and integrators requiring transportation of poultry or eggs from one listed location to another, if the vehicle is owned by the policy holder.

### Basic Farm Liability

Basic Farm Liability is available for all but the smallest operations.

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<sup>100</sup> J.D. Goff, Vice President, National Accounts Underwriting, James Allen Insurance; personal communication, July and August 2015; B. Satterfield, Executive Director, Delmarva Poultry Industry, Inc., personal communication, August 2015.

Employers Contingent Liability

Employers Contingent Liability is available with the ability to add employees as insureds.

## SECTION V. DATA AVAILABILITY AND APPLICABILITY ASSESSMENT

This section of the report addresses requirement in the Study on Poultry Catastrophic Disease contract Section 2.4.1 that calls for the Contractor to “conduct a search for price data at the national and regional level, and “yield” data in each geographic region. Identify viable data series.”<sup>101</sup> The contract for the study identifies catastrophic diseases as: “An occurrence of a widespread disease, but not due to insufficient or improper application of disease control measures for poultry.”<sup>102</sup>

Development of insurance typically is driven by data. Diverse and comprehensive data are required to assess the appropriate rates for an actuarially-sound catastrophic disease insurance product. For the product to be meaningful to the insured, it must address the appropriate diseases and be rated to address the insured’s risk. This would in turn require a comprehensive poultry catastrophic disease dataset. The Contractor notes that the insurance industry has developed products for other adverse events having low frequency and unpredictable severity, such as hurricane exposures in the coastal areas of the United States. For example, in the case of hurricane damage, probability distributions of frequency of occurrence, wind speed, and other parameters of the hurricane itself as well as engineering models of the damage that occurs under various conditions were employed to obtain best estimates of the appropriate premium rates.

APHIS conducted a symposium in Ft. Collins, Colorado, concerned with data addressing the frequency and severity of poultry catastrophic disease outbreaks. The conclusion among the participants was that time series data such as those required for traditional quantitative rating of a catastrophic disease insurance product were not available and most likely never would be available. However, the participants determined the rating issue was not insurmountable if sufficient time and funds were available. Both the Netherlands and Germany provide compensation for poultry catastrophic disease events and apparently model the funding required for that compensation.<sup>103</sup>

The most comprehensive insurance dataset would include data on total production, production cycle, and inventory by poultry species, location, characteristics of the production facility (e.g., pole barn versus enclosed climate controlled facility), and management practices (e.g., conventional, organic, free-range, etc.). It would also include data on disease events including number of birds affected, natural mortality, condemnations, and depopulation numbers by species, location, disease, characteristics of the production facility, and management practices. For chickens and turkeys, the variety of the bird is also an essential element of any quantitative catastrophic disease analysis. Broilers and layers are known to be affected by diseases differently (see for example Table 12). It may also be that heavy and light chickens respond differently. The extraordinary breast size of some of the turkey varieties makes skeletal diseases affecting these birds a risk likely to show varietal differences as well.

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<sup>101</sup> U.S. Department of the Interior, Interior Business Center, ADQ, 2014, Order Number: D15PD00012, page 21 of 26.

<sup>102</sup> U.S. Department of the Interior, Interior Business Center, ADQ, 2014, Order Number: D15PD00012, Section 1.10, page 16 of 26.

<sup>103</sup> Jim Driscoll, personal communication, June 2015.

**Table 12. Important Diseases by Poultry Industry Sector**

Disease	Broilers	Layers	Turkeys	Gamebirds
Avian Metapneumovirus (AMPV)			yes	yes
Blackhead (Histomoniasis)			yes	
Bordetella avium (BART)			yes	
Cellulitis			yes	
Chicken Anemia Virus		yes		
Colibacillosis	yes	yes	yes	yes
Exotic Newcastle Disease	yes	yes	yes	yes
Fowl Cholera	yes	yes	yes	yes
Fowl Choriza		yes		
Gangrenous Dermatitis	yes			
H3N2 Influenza			yes	yes
Highly Pathogenic Avian Influenza	yes	yes	yes	yes
Highly Pathogenic Infectious Bursal Disease Virus	yes			
Infectious Laryngotracheitis	yes	yes		
Marek's	yes	yes		
Mycoplasma gallisepticum (MG)			yes	yes
Mycoplasma Synoviae (MS)			yes	yes
Necrotic Enteritis	yes	yes	yes	yes
Ornithobacterium rhinotracheale (ORT)			yes	yes
Poult Viral Enteritis			yes	yes
Reoviral Tenosynovitis			yes	
Runting and Stunting Syndrome	yes			
<i>Salmonella enteritidis</i> (SE)		yes		
Turkey Coronavirus			yes	
Uncontrolled Coccidiosis	yes	yes	yes	yes
Uncontrolled Infectious Bronchitis Virus	yes	yes		
Urolithiasis/Gout		yes		
Very Virulent Infectious Bursal Disease		yes		

Source: The Contractor's Research Department after data supplied by Andrew Rhorer, formerly national coordinator and executive secretary of the General Conference Committee of the National Poultry Improvement Plan for APHIS.

Finally, a comprehensive insurance database will address information on insurable interest by integrator, grower, and producer. This is important because both growers, especially of turkeys, and independent producers indicated their contractual arrangements included a range of distribution of risk among the parties. The distribution of insurable interest among the various parties and the responsibility for making disease-related management decisions both need to be addressed in an appropriate catastrophic disease product for poultry. The impact of anything less than a comprehensive dataset to support the development effort will be discussed later in this section.

Primary agricultural data are collected directly from the data source. In the case of agricultural production, primary data come from the entity (person, partnership or corporation) responsible for the crop (including livestock and livestock products like eggs). In the case of disease, primary data can be provided by growers, producers, and integrators, although the integrators are have substantial data from growers and/or producers. The granularity of primary data supports an analysis that limits uncertainty. This in turn allows risk premiums to be minimized. For most crop insurance products, the risk premium and the subsidies provided by the government for the purchase of insurance are important elements in a potential insured's decision to purchase the insurance. The Contractor heard repeatedly from stakeholders in the poultry segment of the

agricultural economy that the thin margins in the industry will make the cost a critical factor in these decisions.

NASS is the principal repository of primary agricultural data for the United States. NASS conducts numerous surveys each year and prepares reports covering most aspects of U.S. agriculture. The most comprehensive survey is the Census. This Census, conducted every five years, is especially valuable because its methods are transparent; furthermore, it is conducted using a relatively consistent methodology. While farm-level data are only available under limited circumstances that will protect the anonymity of the data sources, the Census report provides detailed aggregate information about many aspects of U.S. agriculture. It is the only source of uniform, comprehensive agricultural data for every state and county in the United States. Participation by producer, regardless of the size or type of operation, is expected and NASS makes every effort to encourage such participation.

The Census reports inventory and sales of 14 species of domesticated fowl and commercial game-birds as well as poultry from other species under the category “other poultry” (Table 13). The Census reports on inventory, farms with inventory, and numbers sold for these species. For the major species there is a breakdown to identify these quantities by industry sector and by size of operation in the published Census report.

**Table 13. Census of Agriculture Poultry Species for which Data are Collected and Reported**

Species	
Chickens	Peafowl
Chukars	Pheasants
Ducks	Pigeons/squabs
Emus	Quail
Geese	Rheas
Guineas	Turkeys
Hungarian partridge	Other poultry
Ostriches	

Source: The Contractor’s Research Department after USDA, NASS, 2012 Census of Agriculture Table 32.

Many production and inventory data from the Census are also available at the state level in both the published and online versions of that report (Tables 14 and 15). The online version allows preparation of customized reports for limited areas of significance to the analysis. However, NASS does not report comprehensive data on poultry diseases in the Census; a review of the questionnaire shows these data are not collected.<sup>104</sup> NASS county-level data, available primarily in Census reports, are limited because of the respondent confidentiality requirements of the NASS reports. The ‘D’ notations in Tables 14 and 15 represent data censored to preserve confidentiality of proprietary data. “In keeping with the provisions of Title 7 of the United States Code, no data are published [by NASS] that would disclose information about the operations of an individual farm or ranch. All tabulated data are subjected to an extensive disclosure review prior to publication. Any tabulated item that identifies data reported by a respondent or allows a respondent’s data to be accurately estimated or derived, was suppressed

<sup>104</sup> USDA, NASS, 2012 Census of Agriculture Questionnaire.

and coded with a 'D'. However, the number of farms reporting an item is not considered confidential information and is provided even though other information is withheld.”<sup>105</sup>

Furthermore, the infrequent distribution of the wide-ranging Census surveys (i.e., once every five years) limits their utility for insurance development.

**Table 14. Sample Census of Agriculture Arkansas State-level Annual Sales: Chickens by Operation Size**

Operation Size by Annual Sales (Head)	Total Live Bird Sales		
	Broilers	Replacement Pullets	Roosters
1 to 1,999	8,450	1,474	
2,000 to 15,999	D	108,668	
16,000 to 29,999	D	498,456	
30,000 to 59,999	1,083,201	2,393,381	
60,000 to 99,999	3,779,023	11,365,371	
100,000 to 199,999	34,721,588		
100,000 or more		3,940,569	
200,000 to 299,999	67,296,079		
300,000 to 499,999	229,420,093		
500,000 or more	639,594,539		
Not specified	975,950,973	4,422,823	1,463,791

Source: The Contractor's Research Department after USDA, NASS, 2012 Census of Agriculture, Quick Stats output, accessed April 2015.

**Table 15. Sample Census of Agriculture California County-level Single Period Inventory: December Chukar Inventory**

County	Operations	Inventory
Alameda	2	D
Butte	5	17,276
Fresno	4	6,952
Kern	1	D
Lassen	1	D
Plumas	2	D
Riverside	2	D
San Diego	1	D
San Joaquin	2	D
Shasta	2	D
Solano	1	D
Stanislas	2	D
Sutter	4	2,400
Tehama	1	D

Source: The Contractor's Research Department after USDA, NASS, 2012 Census of Agriculture, Quick Stats output, accessed April 2015.

More poultry industry data, including annual estimates derived by NASS from annual surveys, are available for the larger sectors of the industry: chickens (including egg production), ducks, and turkeys. In addition to production and economic data, the NASS survey-based estimates data include estimates of condemnations for chickens, ducks, turkeys, and other poultry (aggregated). These condemnations are documented for airsacculitis, leukosis, synovitis, tuberculosis, tumors, contamination of the meat from harvested birds, and a variety of generic

<sup>105</sup> USDA, NASS, 2012 Census of Agriculture, Introduction IX.



physical (e.g., bruising) and processing (e.g., over scalding) problems identified during harvest. NASS carefully documents its Census<sup>106</sup> and survey methods<sup>107</sup> for use in data analysis by third parties. The survey analyses extrapolate from the responses from limited populations surveyed using standard sample survey methods. The extrapolations build on patterns identified in the Census. However, the limited number of large poultry operations and the large number of small operations reported in the Census survey limit the utility for the detailed quantitative analysis essential for development of an insurance product meaningful to producers and appropriately addressing their risks.

As reported previously, data from NASS on disease (Table 16) are limited and address only a small fraction of the poultry disease considered important. Instead, it appears collection of the condemnation data by NASS is focused on poultry as an element of the food supply rather than on poultry diseases as a risk to the poultry sector of the agricultural economy. Data on the other sectors of the poultry industry are even more geographically limited, sporadic, and in many cases anecdotal.

**Table 16. Sample of NASS Reported Condemnation Data: Chicken Condemnations Due to Diseases in 2014 by Number of Head**

Disease	Immature	Heavy	Light
Airsacculitis	6,549,813	146,763	68,461
Leukosis	74,371	1,265	4,131
Septicaemia	10,749,517	445,838	1,204,988
Synovitis	147,563	947	943

Source: The Contractor's Research Department after USDA, NASS, 2015, Quick Stats

APHIS maintains data on “reportable” animal diseases. Currently reportable diseases include HPAI, low pathogenic avian influenza (H5 or H7 subtypes), Newcastle disease, turkey rhinotracheitis, infectious bronchitis, infectious laryngotracheitis, duck viral hepatitis, fowl cholera (*Pasteurella multocida*), fowl typhoid (*Salmonella gallinarum*), infectious bursal disease (Gumboro disease), Marek's Disease, mycoplasmosis (both *M. gallisepticum* and *M. synoviae*), chlamydiosis (psittacosis and ornithosis, *Chlamydia psittaci*), and Pullorum disease (*Salmonella pullorum*). This list constitutes approximately two thirds of the diseases considered important to poultry operations by the industry (See Table 12).

To encourage compliance with reporting requirements, APHIS considers most of its data proprietary and publishes limited announcements of disease events. The Contractor was surprised to learn from a former APHIS NPIP panelist that farm-level data on occasion have not been available even to the panel.

APHIS is in the process of revising its list of reportable diseases; changes for poultry disease reporting may even reduce the number of diseases for which data are collected. Due to issues with confidentiality and because of the sensitivity of information concerning financial losses of

<sup>106</sup> USDA, NASS, 2009, Surveys: Census of Agriculture, [http://www.nass.usda.gov/Surveys/Guide\\_to\\_NASS\\_Surveys/Census\\_of\\_Agriculture/index.asp](http://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Census_of_Agriculture/index.asp), accessed April 2015; USDA, NASS, 2014, 2012 Census of Agriculture, Appendix A [http://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_US/usv1.pdf](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_US/usv1.pdf), accessed April 2015.

<sup>107</sup> See for example: USDA, NASS, 2014, Poultry - Production and Value 2013 Summary, [http://www.nass.usda.gov/Publications/Todays\\_Reports/reports/plva0414.pdf](http://www.nass.usda.gov/Publications/Todays_Reports/reports/plva0414.pdf), accessed April 2015.

individual operations, the Contractor does not believe access to farm-level data for insurance development could be obtained by an outside Contractor, even with a confidentiality agreement, and believes access to that information by RMA personnel would require action by the Secretary of the Department of Agriculture. It is not clear that aggregate data could be released for development of a catastrophic disease insurance product. The limited frequency of most widespread diseases would make it likely APHIS data could be linked to specific operations even if the data were censored. APHIS has published information on AI depopulation on their website. Archival information may be useful to understand the potential interactions of APHIS compensation programs for depopulation and a poultry catastrophic disease insurance product. However, the focus of APHIS data is on live bird takings. Thus for the development of insurance, the APHIS data could be used to extrapolate frequency of the reportable events, but not necessarily the severity of natural deaths due to the reportable diseases.

APHIS is responsible for the U.S. report on OIE (Office International des Epizooties – World Organization for Animal Health) reportable diseases. These reports include 13 poultry diseases (Table 17). Like most other lists of poultry diseases, the OIE reportable disease list includes diseases that are highly infectious, diseases with very high mortality, and endemic diseases. The presence of many of these diseases in wild populations makes them particularly difficult to control in commercial flocks. The passage of avian influenza between wild and commercial flocks has characterized the recent outbreak of HPAI in the United States. The Contractor notes the OIE reports provide only metadata on animal disease. However, even the data underlying these metadata will not include the essential elements of a comprehensive poultry disease insurance dataset.

**Table 17. APHIS Report on the Status of OEI Reportable Diseases in the United States in 2012**

Disease	Status	Date of Last Occurrence / Notes
Avian chlamydiosis	Present	Sporadic (wild birds, pet birds, backyard) / no commercial production flock detections in 2012
Avian infectious bronchitis	Present	
Avian infectious laryngotracheitis	Present	Sporadic (primarily vaccine-related)
Avian mycoplasmosis ( <i>M. gallisepticum</i> )	Present	Sporadic / all commercial poultry breeding flocks are under a surveillance program to confirm infection-free status. Commercial table-egg laying may be vaccinated
Avian mycoplasmosis ( <i>M. synoviae</i> )	Present	Sporadic / all commercial poultry breeding flocks are under a surveillance program to confirm infection-free status.
Duck viral hepatitis	Free	1998
Fowl typhoid ( <i>Salmonella gallinarum</i> )	Free	1981
Highly pathogenic avian influenza	Free	2004
Low pathogenic avian influenza (poultry) Notifiable H5 and H7	Identification of the presence of infection	Identified sporadically in backyard poultry and in live-bird-markets which serve local ethnic communities. No commercial production flock detections in 2012.
Infectious bursal disease (Gumboro disease)	Present	Sporadic
Newcastle disease (Neurotropic and viscerotropic strains)	Present (wild)	2003-domestic poultry are considered Free / sporadic detections in wild birds
Pullorum disease ( <i>Salmonella pullorum</i> )	Present?	Sporadic (backyard) / no commercial production flock detections since 1991, considered absent in them / no detections reported in 2012
Turkey rhinotracheitis	Present?	Disease suspected but not confirmed limited to certain zones / regions of the country

Source: The Contractor's Research Department after USDA, APHIS, 2013, United States of America's Status of OEI Reportable Diseases: 2012, [http://www.aphis.usda.gov/vs/nahss/docs/us\\_status\\_of\\_oei\\_diseases\\_2012.pdf](http://www.aphis.usda.gov/vs/nahss/docs/us_status_of_oei_diseases_2012.pdf), accessed April 2015. APHIS is anticipating release of the 2014 report shortly.

The contract defines a catastrophic disease event as “An occurrence of a widespread disease, but not due to insufficient or improper application of disease control measures for poultry.”<sup>108</sup> It is interesting to note the contract definition introduces an element of ambiguity into the process of identifying catastrophic disease. Widespread can be interpreted to mean highly infectious, prevalent, causing high mortality, endemic, epidemic, or pandemic. There are a relatively small number of diseases considered important by every sector of the poultry industry (Table 18). However, stakeholders did not consistently name these diseases as the most important catastrophic disease(s) in their sector. This categorization seemed to be largely influenced by a stakeholder's personal experiences rather than by some statistical characterization of the impact of a disease on the economy, the industry or industry sector. Nonetheless, inasmuch as an outbreak of HPAI was reported during the course of this study, and as that disease spread to numerous states, in most conversations about catastrophic disease, HPAI was at least mentioned. In the later conversations HPAI was the main topic of discussion.

<sup>108</sup> U.S. Department of the Interior, Interior Business Center, ADQ, 2014, Order Number: D15PD00012, Section 2.4.1, page 16 of 26.

**Table 18. NASS Reported Condemnations of Chickens Due to Diseases in 2014**

Disease	Broilers	Layers	Turkeys	Gamebirds
Highly Pathogenic Avian Influenza	yes	yes	yes	yes
Colibacillosis	yes	yes	yes	yes
Exotic Newcastle Disease	yes	yes	yes	yes
Fowl Cholera	yes	yes	yes	yes
Necrotic Enteritis	yes	yes	yes	yes
Uncontrolled Coccidiosis	yes	yes	yes	yes

Source: The Contractor's Research Department after Table 12.

The programs for disease response supported by the NPIP are also limited to a few of the important poultry diseases (Table 19). The NPIP was established to foster cooperation among industry, state, and federal programs with a focus on diagnostic techniques that can be applied to the improvement of poultry health and poultry products safety. Developed initially in response to Pullorum Disease, caused by *Salmonella pullorum*, NPIP has been expanded to address diseases that currently affect U.S. commercial and wild flocks. While this focus identifies diseases that are likely catastrophic if and when they occur, the substantial success of the NPIP protocols to limit risk makes it less likely that these diseases should be the sole focus of a named-peril insurance product, with the possible exception of HPAI. Regardless, the data maintained by APHIS under the NPIP program relate more to testing than to disease and do not include many of the important data elements for a comprehensive catastrophic disease database.

**Table 19. Poultry Diseases with NPIP Protocols for Response**

Disease	Broilers	Layers	Turkey	Gamebirds
H3N2 Influenza			yes	yes
Highly Pathogenic Avian Influenza	yes	yes	yes	yes
<i>Salmonella enteritidis</i> (SE)		yes		
<i>Salmonella gallinarum</i> (Fowl Typhoid)		yes		
<i>Mycoplasma gallisepticum</i> (MG)			yes	yes
<i>Mycoplasma synoviae</i> (MS)			yes	yes

Source: The Contractor's Research Department after Table 12.

State veterinarians (Appendix C) often have broad-ranging responsibilities and duties, potentially including prevention, control and eradication of animal diseases in all animals in the state. Generally both livestock and pet health are monitored at some level, though some state veterinarians also have responsibilities addressing wildlife health. In a way this supports the need for disease experts to be cognizant of commercial, backyard and wild flocks. However, these broad responsibilities often tax the limited resources of the state agencies. State veterinarians generally collect data on **some** animal diseases. In many ways the responsibility of these modestly staffed departments mirror those of APHIS. However, these data are not collected using any uniform protocol or methodology. State veterinarians cooperate with APHIS in addressing reportable disease outbreaks in poultry. The Contractor found no evidence the limited data available through these offices could be compiled into even a component of a comprehensive poultry disease insurance dataset, in large part because the different offices have such disparate responsibilities and staffing levels.

The United States Animal Health Association (USAHA) is a non-profit, voluntary organization whose mission is focused on animal health issues. Membership includes representatives of state

and federal animal health offices, national organizations representing sectors of the livestock industry, regional representatives from five geographic regions, and individual members. Individual membership includes university research staff, commercial research scientists, veterinarians, livestock producers, and extension service personnel. USAHA represents all 50 states. Among other topics, USAHA work focuses on disease eradication, emergency preparedness, emergency response and recovery, and emerging diseases. The USAHA Committee on Transmissible Diseases of Poultry and Other Avian Species (Poultry Committee) is to “provide information and advice... on issues pertaining to the health of animals of the avian species ..., [including] the prevention, control and eradication of transmissible diseases of the avian species.”<sup>109</sup>

USAHA issues annual reports on transmissible diseases of poultry. The quantitative information presented in these reports are metadata that address a wide variety of poultry disease issues. Because the reports are focused on actions supported by the USAHA, the published data focus on the current agenda of the USAHA Poultry Committee and vary from year to year (Tables 20 and 21).

**Table 20. Poultry Diseases Topics Addressed in the 2004 Report of the Committee on Transmissible Diseases of Poultry and Other Avian Species - USAHA**

Topic Documented with Metadata
Subtypes of low pathogenicity AI virus or specific antibodies detected in non-commercial birds, FY 2004.
Most frequently identified <i>Salmonella</i> serotypes from chickens
Most frequently identified <i>Salmonella</i> serotypes from turkeys
The number of chickens in <i>Salmonella pullorum</i> positive flocks
Mycoplasma positive breeding flocks 2003-2004
Types of Poultry disease testing

Source: The Contractor’s Research Department after USAHA, 2005, 2004 Report of the Committee on Transmissible Diseases of Poultry and Other Avian Species, <http://www.usaha.org/Portals/6/Reports/2004/report-pad-2004.pdf>, accessed March 2015.

**Table 21. Poultry Diseases Topics Addressed in the 2014 Report of the Committee on Transmissible Diseases of Poultry and Other Avian Species - USAHA**

Topic Documented with Metadata
York Infections and starve-outs in caged and cage-free pullets
Top five caged and cage-free pullet diseases
Top five caged and cage-free layer diseases
Comparison of 2013 and 2014 issues and diseases of concern
Areas requiring research
State and university animal diagnostic laboratories survey participants by year
Numbers of total diagnoses by diagnosis category* for 2012-2014
Numbers of total diagnoses by diagnosis category* by avian group for 2012-2014
Number of total diagnoses for each disease or condition reported in the survey**
Sample types for AI, <i>Salmonella</i> , <i>Pasteurella</i> and <i>Mycoplasma</i> by state, disease

Source: The Contractor’s Research Department after USAHA, 2015, 2014 Report of the Committee on Transmissible Diseases of Poultry and Other Avian Species, <http://www.usaha.org/Portals/6/Reports/2014/report-pad-2014.pdf>, accessed March 2015.

\*Diseases are grouped into four categories: bacterial, fungal, parasitic, and viral.

\*\*These data are reported on a testing basis rather than on birds affected or flocks affected basis.

<sup>109</sup> USAHA, 2011, Committee On Transmissible Diseases Of Poultry And Other Avian Species, <http://www.usaha.org/Committees/TransmissibleDiseasesOfPoultryAvianSpecies.aspx>, accessed April 2015.

One advantage of the data collected by USAHA is that their surveys are not restricted under the Paperwork Reduction Act; hence the questions asked and data collected can be modified over time without need to engage in a lengthy Federal approval process. One disadvantage is the sampling methodologies are not well documented in the reports. Furthermore, there are no farm-level data of the type that would be most useful for development of a catastrophic disease crop insurance product.

The Contractor identified more than 6,000 academic research articles addressing poultry catastrophic disease through an internet search and database searches of the major scientific publishing houses. The Contractor found no subset of these articles focused on the data required for crop insurance development for a catastrophic poultry disease product. Most of the research articles addressed a single disease and presented either aggregate data for the disease, single incident case studies, epidemiological studies, or documented testing or preventative practices (including vaccines). Inasmuch as the methods used for data collection were not consistent, consolidating the data available in different articles would by no means produce the comprehensive dataset required for development. Furthermore, it was not possible in many cases to be sure that the data in different articles was not replicated. The precision of the data presented in different articles suggested that some used rounding to facilitate comparison between dissimilar events.

More than anything the search for data with which to construct a comprehensive poultry catastrophic disease insurance dataset convinced the Contractor that even with extraordinary efforts constructing such a database from disparate sources of historical data would be fraught with problems. It appears the only viable mechanism for development of such a database would be by a survey instrument administered by a Federal agency and distributed annually to **all** poultry producers. While such a survey could address either a short list of identified catastrophic diseases or a longer list of diseases to support the identification of those diseases that could be categorized as catastrophic, actual implementation of either survey would be challenging. First and foremost are the restrictions imposed by the Paperwork Reduction Act on surveys conducted by or on behalf of Federal agencies. If this hurdle were overcome, the scope of the survey would be enormous. A precise number of poultry operations in the United States is difficult to establish because more than one poultry type may be produced on a single operation. However, it appears poultry are produced on as many as 10 percent of the 2,109,303 agricultural entities identified in the 2012 Census. Due to the infrequency of poultry disease events, a database development survey could likely not be sent to a small sample of these entities. Furthermore, the most comprehensive data would be obtained from an annual survey conducted over a period of 10 to 20 years. Obviously, such a data gathering effort is not only beyond the scope of the contract under which this report was produced, it is beyond the scope of RMA, and even of NASS unless special funding were made available for the necessary staffing, infrastructure, and analysis. Finally, considering the most important issue to potential insureds was downtime rather than the disease itself, any database development effort would need to focus not only on the diseases, but also on the on ensuing downtime. This adds substantially to the challenges to database development for insurance development as many criteria for downtime are idiosyncratic.

In the absence of quantitative analysis to develop the necessary rates for a poultry catastrophic disease product, judgmental rating is the remaining approach. This is the approach used in the

rating for the private poultry catastrophic loss policies. Nonetheless, the hurdles to even a judgmental rating of poultry catastrophic disease risks are substantial. First there is the identification of which diseases are in fact catastrophic, including which have the greatest impact on downtime. Then there is the likelihood that the low frequency of major disease events will result in widely different judgments among the various experts. There is a large cohort of experts on poultry disease. Many of these are veterinarians who manage disease control programs. Some work for the integrators, some for state agencies, and some for the federal government. Those working with the integrators likely have access to appropriate farm-level data. It is even possible that the data the largest integrators have could be compiled to comprise an appropriate comprehensive dataset for development. However, veterinarians working for the integrators are constrained by company policy and confidentiality agreements from sharing these data. To further complicate analysis, experts from the different industry sectors are likely to judge the risks of various diseases in different ways. Procedures exist to derive from these dissimilar judgmental assessments the data for the insurance development. It might even be most appropriate to develop separate judgments of frequency and severity, rather than developing a judgmental rate which conflates these two components. However, rates derived from either of these approaches will necessarily include an uncertainty load greater than that required from an analysis of a comprehensive database.

The contract requires the Contractor to address the applicability of the available data to the development of an insurance product from the point of view of the feasibility of developing such a product. The Contractor has identified only fragments of the necessary quantitative data for a rigorous quantitative analysis of the frequency and severity of catastrophic poultry disease events. The Contractor has not identified a mechanism to combine these fragments to make a complete rating dataset. The uncertainty accompanying infrequent and potentially severe outbreaks of known diseases, combined with the uncertainty surrounding diseases that have not yet affected U.S. poultry and diseases of wildlife that have not yet affected the global commercial poultry industry, has led the Contractor to conclude that any attempt to address diseases collectively will not succeed. It may be possible to aggregate sufficient information about a small subset of poultry diseases (i.e., AI and Exotic Newcastle Disease) to rate a named peril product. However, the Contractor saw no general enthusiasm for such a product, until the outbreak of HPAI created such interest. Interest in a downtime insurance product, especially following the HPAI outbreak was much higher. A reasonable conclusion is that the individual grower, integrator, or producer is likely better served by the customizable private products available for poultry catastrophic loss, especially if those products that offered disease loss coverage again become available, than by a generic product not adapted to address the insured's particular risk aversion.

## SECTION VI. PRICING METHODOLOGIES INVESTIGATIONS

According to the OIE World Animal Health Information System, and until the 2014 HPAI outbreak, the United States has not had a significant commercial-poultry-related catastrophic disease outbreak since 2004.<sup>110</sup> Hence, any outbreak of one of these diseases would be considered a Foreign Animal Disease (FAD). Developing an insurance program to cover costs related to the outbreak of a poultry FAD is challenging in that the current response protocols for such an outbreak is “stamping-out” or the “depopulation of all clinically affected and in-contact susceptible poultry.”<sup>111</sup> Depending on the timing of such an outbreak, the economic impacts to the producer could range from minimal (newly acquired shipment of chicks, outbreak confined to a single brood house, destruction and clean-up costs, and downtime and reset operation costs) to catastrophic (outbreak affects multiple houses, flocks ready for shipment to market, destruction and clean-up costs, and downtime and reset operational costs).

### VI.A. Broiler Sector

The best way to describe the “price” received by contract growers would be to document contract prices over time. However, reliable longitudinal datasets recording contract payments are not publicly available. In fact, no report of prices actually received by the growers by state is available. Despite efforts by the Contractor to obtain these data from growers or integrators, these data were considered proprietary. An alternative is the “Poultry Yearbook” live-weight equivalent broiler prices, calculated by the USDA ERS.<sup>112</sup> While this can serve as a proxy for prices received by growers, it includes payments for feed and chicks, costs not paid by growers. The 2006 update of these values, the most recent available, included estimated live-weight prices received through 2004. Nonetheless, it is interesting to note, real prices for broilers appear to have remained relatively constant since the early 1980s, in contrast to prices for many other agricultural commodities. It may be possible to replicate the live-weight equivalent broiler price calculations if relevant data were available. However, as noted above, ERS has not reported the component data for the years after 2004. Consequently, the price discovery process is likely to be a time consuming and expensive annual effort. The following data concerning broiler production and pricing are available:

- Urner Barry Price Current, wholesale broiler prices, daily and regionally, by subscription.
- Broiler Sector Profiles: WattAgNet.com, 2015, Extrapolated industry statistics based on NASS estimates, <http://www.wattagnet.com/Marketdata/Poultry/>, (accessed April 2015).
- Broiler production data by Year: USDA, NASS, Quickstats, annual data on calculated price, number raised, pounds produced, and values at the national and state level, some very limited and sporadic county level data, <http://www.nass.usda.gov/>, (accessed April 2015).

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<sup>110</sup> World Animal Health Information Database (WAHID) Interface, animal Health Information, 2015, 2005 first quarter report, OIE-listed diseases absent in United States of America during the reporting period or never reported, Birds, [http://www.oie.int/wahis\\_2/public/wahid.php/Reviewreport/semestrial/review?year=2005&semester=1&wild=0&country=USA&this\\_country\\_code=USA&detailed=1](http://www.oie.int/wahis_2/public/wahid.php/Reviewreport/semestrial/review?year=2005&semester=1&wild=0&country=USA&this_country_code=USA&detailed=1), accessed July 2015.

<sup>111</sup> Newcastle Disease (ND) Response Plan: The Red Book (2014) USDA [http://www.aphis.usda.gov/animal\\_health/emergency\\_management/downloads/nd\\_response\\_plan\\_ppt\\_feb2014.pdf](http://www.aphis.usda.gov/animal_health/emergency_management/downloads/nd_response_plan_ppt_feb2014.pdf), accessed July 2015.

<sup>112</sup> USDA, ERS, 2015, Poultry Yearbook, <http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1367>, No longer being updated, last update July 2006, accessed July 2015.



- U.S. Poultry Production by Year: USDA, NASS, Poultry - Production and Value: 2014 Summary, [http://www.nass.usda.gov/Publications/Todays\\_Reports/reports/plva0415.pdf](http://www.nass.usda.gov/Publications/Todays_Reports/reports/plva0415.pdf), (accessed April 2015).
- U.S. Broiler Production and Value by Year: USDA, NASS, 2003-2013, [http://www.nass.usda.gov/Charts\\_and\\_Maps/Poultry/brprvl.asp](http://www.nass.usda.gov/Charts_and_Maps/Poultry/brprvl.asp), (accessed April 2015).
- Poultry industry characteristics: USDA, NASS, Poultry and Egg Production, every 5 years, [http://www.agcensus.usda.gov/Publications/2007/Online\\_Highlights/Fact\\_Sheets/poultry\\_and\\_eggs.pdf](http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Fact_Sheets/poultry_and_eggs.pdf), (accessed April 2015).
- Poultry Slaughter Reports: USDA, NASS, Poultry Slaughter, monthly and annual reports on head, live weights and condemnations (some limited state-level data), <http://usda.mannlib.cornell.edu/usda/current/PoulSlau/PoulSlau-06-25-2015.pdf>, (accessed April 2015).
- USDA, ERS Meat Price Spreads, <http://www.ers.usda.gov/data-products/meat-price-spreads.aspx> (accessed April 2015).
- Wholesale broiler prices: USDA, ERS, monthly, <http://search.ers.usda.gov/search?affiliate=ers&query=%E2%80%A2%09Wholesale%20broiler%20composite%20prices> (accessed April 2015).

No organized exchanges offer futures contracts for broilers or other poultry products. The recent ERS focus on retail and wholesale prices provides an opportunity for RMA to develop a variety of models for broiler prices. However, long-term data series, particularly those collected by the government, are limited by changing foci in the data collection.

## VI.B. Turkey Sector

For much more than half of production, turkey growers generally receive a contracted price per pound of live bird and frequently have contracts that include incentive payments for feed conversion rates and survival to harvest. The best way to establish “prices” received by contract growers would be to document contract prices over time. Reliable datasets recording contract payments over time are not publicly available; the integrators consider these data proprietary. They have instilled a sense in the grower population that these data should not be revealed. Payment is based on numbers and pounds of birds delivered times the contract price.

The next best data are retail turkey prices published by ERS. There is a substantial history of price spreads between retail and wholesale prices. Using retail prices as a proxy for farm-level prices is fraught with difficulty. Each of the elements of the retail price, costs paid by both growers (management and labor) and integrators (stock, feed, and transportation), payments to growers, processing costs, shipping costs, profit margins, etc. is subject to frequent and somewhat unpredictable changes. Nevertheless, sufficient data exist to develop a model to establish estimated farm-level payments for live-weight turkeys by pound.

Farm-level turkey prices, receipts, and values, including NASS and ERS data, are generally calculated or estimated values; they are not values received by growers. Due to the level of industry integration, farm-gate prices are not generally available for purchase of ready to slaughter birds. The live-weight equivalent price per pound is calculated by subtracting

processing cost per pound from ready-to-cook, whole-bird, wholesale price per pound and multiplying the result by the dressing percentage.

There are a variety of resources available to assist with pricing. However, since the prices received at the farm level incorporate additional “settlement” elements, the price discovery process is likely to be a time consuming and expensive annual effort. The following data concerning turkey production and pricing are available:

- Uerner Barry Price Current, wholesale turkey prices, daily and regionally, by subscription.
- Turkeys production data by Year: USDA, NASS, Quickstats, annual data on price, number raised, pounds produced, and values at the national and state level, some very limited and sporadic county level data, <http://www.nass.usda.gov/>, (accessed April 2015).
- U.S. Turkey Production in 2014: USDA, NASS, Turkeys: Numbers Raised by State, US, [http://www.nass.usda.gov/Charts\\_and\\_Maps/Poultry/tkymap.asp](http://www.nass.usda.gov/Charts_and_Maps/Poultry/tkymap.asp), (accessed July 2015).
- U.S. Turkey Production and Value by Year: USDA, NASS, Turkeys: Pounds Produced and Value of Production United States US, 1964-2014, [http://www.nass.usda.gov/Charts\\_and\\_Maps/Poultry/tkprvl.asp](http://www.nass.usda.gov/Charts_and_Maps/Poultry/tkprvl.asp), (accessed April 2015).
- U.S. Poultry Production by Year: USDA, NASS, Poultry - Production and Value: 2014 Summary, [http://www.nass.usda.gov/Publications/Todays\\_Reports/reports/plva0415.pdf](http://www.nass.usda.gov/Publications/Todays_Reports/reports/plva0415.pdf), (accessed April 2015).
- Poultry Slaughter Reports: USDA, NASS, Poultry Slaughter, monthly and annual reports on head, live weights and condemnations (some limited state-level data), <http://usda.mannlib.cornell.edu/usda/current/PoulSlau/PoulSlau-06-25-2015.pdf>, (accessed April 2015).

No organized exchanges offer futures contracts for turkeys. The recent ERS focus on retail and prices and the NASS focus on organic production makes it difficult to develop a variety model for turkey farm-gate prices. The utility of data series on turkeys collected by the government for insurance development are limited by changing foci in the data collection.

### VI.C. Layer Sector

Establishing a price for losses of birds due to catastrophic disease events in the layer sector is complex. First of all it is important to understand, from a crop insurance perspective, eggs are the crop from a layer operation. The birds themselves, which are a capital asset of the operation, produce the crop. The crop is lost if the birds die because of a catastrophic disease event (whether the death is natural or the result of a depopulation). Furthermore, because the eggs are produced *seriatim*, rather than in a single production event, the length of potential laying becomes an issue in establishing the lost crop. In many cases, this production could occur in more than one calendar year and likely more than one crop year (however that is defined). After the layer reaches age one and a half to two and a half years, commercial hens are typically slaughtered (culled). The larger the operation, the more likely culling will occur early. However, laying can be stimulated by forcing the hen to molt. Following the molt, the frequency of laying is increased relative to the frequency immediately prior to molting. Nonetheless, there is a definite end to productive life of a layer and a logical financial end to that productive life which occurs earlier than the biological end of productivity.

For table egg layers a cost-of-production approach is appropriate for valuing the birds until the birds begin laying. Layers increase in value from the day they hatch to the beginning of lay, approximately half a year. Therefore until the layers reach this age, costs associated with raising the birds reflect their ever increasing capital value. However, once the bird is laying, the net value of the bird is a function of the number of eggs expected to be laid less the costs to maintain the birds. APHIS calls this approach the income approach. Net income is a function of both costs and gross income. The costs include fixed and variable costs. Furthermore, the number of eggs that will be produced by a bird varies with management practices (for example if forced molting is used or light cycle is manipulated). The salvage occurs not when the layers are spent but when the cost of future production is in balance with the potential income derived from that production. The timing of salvage is likely to be affected by a widespread loss of birds to disease. When the number of layers is insufficient to meet the demand for eggs, even birds that are performing poorly are likely to have a value higher than that when disease has not affected the total U.S. layer population.<sup>113</sup>

Further complications in assigning a value to layers based on the net present value of future production is the disparity in cost of production of shell eggs and breaking eggs. The processing costs of breaking eggs are different as shell eggs are cooled, washed, culled, graded and packaged; while the breaking eggs are cooled, washed, culled (but to a different standard), broken, and then processed by drying and freezing. Packaging costs are very different for bulk breaking egg products and breaking egg products destined for the retail market. The distribution of fixed and variable costs in these different markets are also notable. Finally, the distinction between operations that produce only shell eggs, operations that produce only breaking eggs, and operations that produce both must be taken into account in calculating the net present value of future egg production.

Stakeholders indicated they believed fixed costs of production should be covered by an indemnification for birds lost to disease. Some even suggested that wages for idle employees, who represent an asset of the operation, that could be lost if wages are withheld during a down-time, should be indemnifiable.

For breeder hens, the crop is fertile eggs. The value of the genetics of the breeder has to be taken into account. Since some of the breeding chicks are produced as part of integrated operations, assigning a value to the genetics is not in itself simple.

While there are some parallels between a net present value approach for layers and the methods used in Federal Crop Insurance to value trees in an orchard, there are also some important differences. First, the useful life of a layer is much shorter than the useful life of a tree. In some cases, the productive potential of the tree increases over time (i.e., for some varieties growth and the increase in productivity is indeterminate). Vertebrates, including fowl, all have a determinate life cycle. Consequently, there is a definite end to productivity and a decrease in net future value over time. Nonetheless, a dollar insurance approach for the lost layers, with a number of set points for value based on age, seems the only reasonable approach short of the one-off

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<sup>113</sup> Ott, S.L. and K. Bergmeier, 2005, Determining Poultry Indemnity Values: Examples and Lessons Learned from Poultry Disease Outbreaks in Canada and the United States, Annual Meeting of the Canadian Agricultural Economics Society, <http://ageconsearch.umn.edu/bitstream/34163/1/cp05ot01.pdf>, accessed January 2015.

calculations APHIS uses. Neither a fixed dollar approach nor a variable dollar approach with limited set points seems likely to satisfy all claimants, but that is true of the current tree-based coverages as well. Furthermore, either approach will introduce either the opportunity for beneficial gain or the possibility the insurance will not be considered meaningful. While these shortcomings inure the use of a net present value approach in any crop insurance context, the finite and brief lifespan of a productive layer introduces challenges that have not been overcome previously.

It is important to note farm-level egg prices and values reported by various agencies, including NASS, include actual, calculated, and estimated values. The prices contract growers receive are primarily payments for capital and labor services rendered. Since the contracts vary by region and by grower, the prices may include the costs of other inputs as well. The value integrator farms receive for the eggs are extrapolated from their overall income associated with production and processing. The USDA ERS Poultry Yearbooks include national price data through 2004. The USDA ERS Livestock, Dairy, and Poultry Outlook reports include more recent data for relative egg prices. There is seasonality in egg prices, with operator costs sometimes exceeding income during summer months. The seasonal pattern in prices results from the interaction between the seasonal supply and demand for eggs and egg products.

In 1995 and 2001, the nominal price for table eggs was \$0.52 per dozen and \$0.47 per dozen, respectively.<sup>114</sup> The ERS Poultry Yearbook reported prices of \$0.63 per dozen in 1995 and \$0.62 per dozen those same years and 2004 prices of \$0.71 per dozen (Table 22).

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<sup>114</sup> USDA, NASS, 2002, Prices Received by Farmers: Historic Prices and Indexes 1908–2001.

**Table 22. Poultry Yearbook Egg Prices 1955 to 2004**

Year	Price per dozen (\$/100)	Year	Price per dozen (\$/100)	Year	Price per dozen (\$/100)
1955	39.5	1972	30.9	1989	68.9
1956	39.3	1973	52.5	1990	70.8
1957	35.9	1974	53.2	1991	67.6
1958	38.5	1975	52.4	1992	57.6
1959	31.4	1976	58.3	1993	63.4
1960	36.1	1977	55.6	1994	61.5
1961	35.6	1978	52.2	1995	62.5
1962	33.8	1979	58.3	1996	75
1963	34.5	1980	56.3	1997	74.9
1964	33.8	1981	63.1	1998	66.8
1965	33.7	1982	59.5	1999	62.1
1966	39.1	1983	61.1	2000	61.7
1967	31.3	1984	72.3	2001	62.2
1968	34	1985	57.2	2002	58.9
1969	40	1986	61.5	2003	73.2
1970	39.1	1987	54.7	2004	71.4
1971	31.4	1988	52.8		

Source: After USDA, ERS, 2006, Poultry Yearbook (89007), <http://usda.mannlib.cornell.edu/usda/ers/89007/table0002.xls>, accessed April 2015.

NASS has numerous reports on egg prices. Summary statistics are available on their Quick Stats tool (Table 23).

**Table 23. Prices Received 1996 to 2014**

Year	Price (\$ per dozen)	Year	Price (\$ per dozen)
2014	1.26	2004	0.713
2013	1.09	2003	0.746
2012	0.999	2002	0.607
2011	0.968	2001	0.611
2010	0.857	2000	0.635
2009	0.823	1999	0.608
2008	1.06	1998	0.665
2007	0.929	1997	0.696
2006	0.59	1996	0.758
2005	0.545		

Source: USDA, NASS, 2015, Quick Stats, accessed May 2015.

NASS does not include the number of egg producers or county-level statistics in its annual surveys. However, NASS publishes Monthly Chickens and Eggs Reports. The Chickens and Eggs Reports include information on the current supplies of eggs and on future supplies based on the size of the laying flock, number of replacement pullets, and placements in breeding flocks. In December, a full survey targets all flocks in the United States. Many state Agriculture Statistics Service offices report prices received by farmers for eggs. These are translated by NASS into prices received by farmers by state. ERS gathers information regarding egg production and prices through a variety of survey instruments.

Finally, many wholesale egg sales are priced based on contracts tied to the Urner Barry Price-Current. A range of price data, regionally, by grade, use, and by size (including nest run) are

available by subscription. While wholesale prices may or may not reflect farm-gate prices, the datasets have been constructed using consistent processes and algorithms. While historical data is available from Urner Barry, the Contractor was unable to determine the length and cost of long-term egg price series.

There are no egg futures contracts traded on organized exchanges. With increased consolidation and vertical integration, the proportion of eggs exchanged on the spot market is decreasing. However, the Egg Clearinghouse (a nationally recognized marketplace for both buyers and sellers of eggs) seems to function reasonably well and continues to have producer confidence as a price discovery mechanism. Regardless of the data source, it is important to remember there are regional price differences, as well as price differences based on the market (shell or breaking) into which the eggs are sold. The reader should note, for many of the largest operations, and consequently for the majority of eggs produced, the first receiver is part of the same integrated enterprise that produced the eggs.

For insurance development, some measure of price and productivity based on the data available would need to be tied to the productive life of the layer killed or depopulated as the result of a catastrophic disease event. Costs of production budgets are available for layer operations.<sup>115</sup> These would need to be updated as part of a development effort. Then a model could be developed using potential income and costs to establish a net present value per bird. However, producer dissatisfaction with the APHIS model to establish similar values shows how challenging development of a price structure for insurance will be.

#### **VI.D. Game Bird Sector**

As difficult as it would be to establish prices for broilers, turkeys, and eggs (i.e., layers), the challenges facing the insurance industry for establishing game bird prices are substantially greater. In the first place there are numerous species involved. Furthermore, individuals within a species are sold at different ages. The birds may pass through the hands of several agricultural producers before being sold for slaughter or release. Finally, it appears there are differences in price regionally, reflecting both where the birds are raised and transportation costs. There are no time series data available for the farm-level value of birds in this class. In fact, there are no data for a single point in time that captures farm-level value for game birds generally.

In many ways the challenges related to establishing game bird prices are analogous to the challenges related to establishing the prices of nursery stock. In that industry, catalog prices for wholesale stock are used in lieu of a survey to establish maximum prices for individual species and size (equivalent to poultry age) classes. Each of these prices is then set as a maximum for limiting liability based on actual prices received by the insured. The Contractor believes that contract pricing with caps set based on industry price patterns is the only viable approach for game bird pricing for a crop insurance product. Any other approach carries too great a risk of either creating situations where some insureds may obtain a beneficial gain or alternatively where some prospective insureds will find the available coverage not meaningful because the available coverage is insufficient.

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<sup>115</sup> Menon, D. 2009, Economics Of Layer Farming, <http://www.slideshare.net/drdgmrm/economics-of-layer-farming>, accessed May 2015; and Ibarburu, M. and D. Bell, 2014, U.S. and Regional Estimates of Layer Feed Prices, Cost of Producing Eggs, and Egg Prices, <http://www.ans.iastate.edu/EIC/newsletters/LayerFeb2014.pdf>, accessed May 2015.

## SECTION VII. RISK ASSESSMENTS

This section of the report addresses the requirement in the contract that: “The Contractor shall define the economic risks; collect data to identify and quantify these risks; identify data that are unavailable, but necessary, to quantify these risks; estimate the frequency and severity of the most important risks that currently are uninsured, classify each of the perils as insurable or uninsurable and justify the classification of the risk. The Contractor shall also identify man made or created perils that can affect the commodity and describe when and how these perils can occur. The Contractor shall also report any history of disaster program payments, including [Livestock Indemnity Program] LIP, as a result of any action for the past ten years if available.”<sup>116</sup>

This contractually required risk assessment has a broader scope than the risks of catastrophic disease. However, since the focus of the report is on the potential of an insurance offer for losses due to a catastrophic disease event, the Contractor has provided detailed information about disease risks in the context of the more encompassing description of risk in the poultry industry sectors. In 2011, there were 15 avian related diseases the United States was required to report to the OIE.<sup>117</sup> The OIE is recognized as a reference organization by the World Trade Organization and is the intergovernmental organization responsible for improving animal health. The United States is one of 178 member countries of the OIE.<sup>118</sup> Many of these diseases have never affected U.S. commercial flocks or have not affected those flocks for years. However, as they affect poultry somewhere, the globalization of the agricultural economy means there is a small but real risk that they may affect U.S. flocks in the future.

### VII.A. Broiler Sector

Growers are sensitive to the difference between systemic risk and idiosyncratic risk due to their contractual relationship with integrators. Both broiler price and feed price are subject to market forces. Together, these risks may lead to considerable income variability in the broiler sector over time. Output and input price changes do not immediately affect the broiler grower directly, but over time are manifested through changes in the number of contracts fulfilled each year based on integrator financial decisions, contract prices, and/or incentive clauses.

Production risks have not changed substantively over the past several decades. However, changes in the relationship between contract growers and integrators has resulted in many shifts in risk management responsibility. Understanding risk mitigation for growers requires an understanding of the contract system. The majority of broiler contracts have a payment structure commonly known as two-part, piece-rate tournaments. The first part is a fixed base payment for each pound of live bird delivered to the integrator. The second part is a variable bonus payment based on the grower’s performance relative to other nearby growers contracting with the same integrator. Grower performance is measured by a ‘settlement cost,’ which incorporates the integrator’s costs (feed, chicks, medication, etc.) and the total pounds of live birds produced. An

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<sup>116</sup> U.S. Department of the Interior, Interior Business Center, ADQ, 2014, Contract # GS-10F-0155P, Section 2.4.1, page 21 of 26.

<sup>117</sup> USDA, APHIS, Animal Health, Monitoring and Surveillance, NAHSS, Status of Reportable Diseases in the United States, [http://www.aphis.usda.gov/animal\\_health/nahrs/downloads/2011\\_nahrs\\_dz\\_list.pdf](http://www.aphis.usda.gov/animal_health/nahrs/downloads/2011_nahrs_dz_list.pdf), accessed January 2015.

<sup>118</sup> World Organization For Animal Health, 2015, About, <http://www.oie.int/about-us/>, accessed January 2015.

individual grower's performance is compared to average performance of all growers in the tournament whose flocks were harvested during a defined interval.<sup>119</sup>

Although the majority of broiler production is contracted, there are a small number of independent farms. Some of these poultry producers focus on niche markets, including organic and kosher chicken meat. These niche poultry producers are vulnerable to risk due to their size and may have a greater need for insurance than larger, mainstream poultry farms. However, beyond the existence of these operations, the Contractor obtained little information regarding this portion of the broiler sector.

### **Production Risk**

Production risks facing broiler growers include weather, disease, feed quality, and chick quality. Weather-related risk in broiler production is minor compared to similar risks in crop production with severe weather affecting a small portion of flocks each year.<sup>120</sup> Disease risk includes both catastrophic losses, such as losses to avian influenza, and chronic disease losses, which more slowly erode profits. Growers are also impacted by the competence of integrators who control feed and chick quality.<sup>121</sup>

Under the current contract system, growers cede control of marketing and production management decisions to the integrator in return for a guaranteed price floor. With payments based on relative production performance, price risk and the common portion of production risk are transferred from individual growers, who may be risk averse, to integrators. By some estimates, as much as 97 percent of the risk borne by broiler producers is shifted from contract growers to integrators through the typical contract arrangement.<sup>122</sup> As described previously, price risk is transferred from growers to integrators under the two-part, piece-rate tournament contracts. Therefore, any responsibility for hedging risk lies with integrators who, "...may hold well-diversified portfolios resulting in little [net] risk-bearing cost."<sup>123</sup> "The risk-bearing cost [to the integrator] is similarly reduced in multi-product, private companies because these firms produce diversified portfolios and products."<sup>124</sup>

Growers perceive some of the production-related risks they face as disadvantages of the contract system. Growers are concerned with a system where their payment can be affected because tournament outcomes can be biased through chick quality and other production inputs, all of which may be under the exclusive control of integrators.<sup>125</sup> Some grower contracts provide additional grower security through casualty clauses. These clauses indemnify losses arising from

<sup>119</sup> Tsoulouhas, T. and T. Vukina, 2001, "Regulating Broiler Contracts: Tournaments versus Fixed Performance Standards," American Agricultural Economics Association: 1063-1072; MacDonald, J.M., USDA, ERS, 2008, The Economic Organization of U.S. Broiler Production, Economic Information Bulletin No. 38. [http://www.ers.usda.gov/media/205671/eib38\\_1\\_1.pdf](http://www.ers.usda.gov/media/205671/eib38_1_1.pdf), accessed January 2015.

<sup>120</sup> Aho, P. and D. Reid, 1988, "Risks and Returns," Broiler Industry, May, 14-16.

<sup>121</sup> *Ibid*; Taylor, C.R. and D. A. Domina, 2010, Restoring Economic Health to Contract Poultry Production, <http://www.dominalaw.com/documents/Restoring-Economic-Health-to-Contract-Poultry-Production.pdf>, accessed January 2015.

<sup>122</sup> Knoeber, C.R., and W.N. Thurman. 1995. "Don't Count Your Chickens...": Risk and Risk Shifting in the Broiler Industry. American Journal of Agricultural Economics, 486-496.

<sup>123</sup> *Ibid*.

<sup>124</sup> *Ibid*.

<sup>125</sup> Tsoulouhas, T. and T. Vukina, 2001, "Regulating Broiler Contracts: Tournaments versus Fixed Performance Standards," American Agricultural Economics Association: 1063-1072.



natural disaster such as a flood, excessive heat, fire, or losses of potential production. The casualty clauses in contracts vary by integrator and region.<sup>126</sup>

One argument against contracts between growers and integrators is the loss of grower/producer heterogeneity and the resulting control by integrators, leading to potentially negative influences on supply. Intense competition within the broiler sector has promoted consolidation, creating several major firms competing for the same national and international markets. Competition also plays a role in the price structure of the industry. While integrator contracts insulate growers from the intense competition in the processing industry, growers remain exposed to curtailments in production by integrators. For example, WATT Poultry USA reported in January 2015, "...management problems in broiler breeding flocks, ... have suppressed productivity."<sup>127</sup> In the integrated system found in poultry, the broiler breeding flocks may be owned and overseen by the integrator. Limiting available broiler chicks reduces the number of contracts the integrators enter into with broiler production farms and thus growers' revenue is impacted by forces outside their control. While poultry producers may have had to make similar adjustments, the growers had no role in the decision making process.

It is useful to keep a sense of the broiler growers' perspectives on loss severity. A "catastrophic loss" meant the loss (mortality) of an entire house or flock of birds. With a normal rotation of 4 to 6 flocks per year, 100 percent mortality in 1 flock would reduce annual gross revenue 16 to 25 percent. The timing of such a loss is critical in gauging the overall severity of such an event; the later in the grow-out cycle such an event occurs, the greater the financial impact. A catastrophic loss at the end of a grow-out cycle would reduce annual gross revenue by 16 to 20 percent, but expenses would not be reduced. Consequently, the impact on net revenue would be more severe. Specifically, 'Income Above Variable Cost' and 'Net Returns Above All Specified Expenses' would drop by the same amount, but 'Net Returns Above All Specified Expenses' would be decreased by a substantially larger volume. Conversely, if the event occurred early in a grow-out cycle, expenses would be reduced substantially. If the integrator repopulated the house relatively soon, the reduction in annual gross revenue could be significantly less and the reduction in net return would decrease even more quickly. Nonetheless, since disease is a potential cause of catastrophic loss, disease clean-up procedures generally require an extended layout period, offsetting any quick repopulation intentions of the integrator.

Further reduction in the "impact" of a total flock loss is possible, given the "typical" broiler operation, which includes multiple houses. If a loss occurs in one house, the economic effects are lessened. Conversely, an event that requires closing all houses for an extended period magnifies the impact of the event. The diseases chosen for this study include both "mortality" and "production" diseases. Mortality diseases are those avian diseases that result in natural or unnatural (depopulation orders) death of the bird. Production diseases negatively affect the birds' weight gain and/or reproductive abilities thereby rendering the bird of less value to the integrator. Both types of disease can result in extended layout periods for the grower and endanger the growers' revenue and livelihood.

<sup>126</sup> MacDonald, J.M., USDA, ERS, 2008, The Economic Organization of U.S. Broiler Production, Economic Information Bulletin No. 38. <http://www.ers.usda.gov/Publications/EIB38/EIB38.pdf>, accessed January 2015.

<sup>127</sup> Thorton, G., 2015, "US poultry's slow-mo expansion extends profitability," WATT PoultryUSA, January. 14-15. <http://www.wattpoultryusa-digital.com/>, accessed January 2015.

Input quality, including the quality of chicks supplied by the integrator, is considered as a peril by some growers. Chick quality refers to the flock-to-flock variation in the growth rate and performance of company owned chicks being fed company supplied feedstuffs and medication while in a grower-owned house, under the grower's daily care. No quantifiable estimates of variation are available. One of the criteria for feasibility requires "Losses covered under the proposed insurance product must be adjustable." Separately identifying the effects of chick quality, feedstuff quality, the effect of medication, or a slight change in the functioning of the grower's equipment or daily care as the source(s) of production variation is, at least, problematic. Consequently, input quality cannot be an insurable peril and will not be discussed further. Similarly, risks arising from EPA regulations, litter and dead bird disposal, energy cost, cost of operation, and banned antibiotics are elements of management that would not be insurable under conventional production (yield) insurance structure.

### Disease

Disease prevention and control are given continual management attention. Ten of the twelve diseases considered catastrophic in nature by the broiler industry have an available vaccine. However, in the case of six of the ten with available vaccines, those vaccines are either autogenous and not available to all growers or the vaccine is not approved by regulators for use in broilers. Infectious Laryngotracheitis is the only disease in the list of 12 that has both a vaccine for an infected bird and for use as a preventive measure. Marek's disease has an available vaccine for use as a preventive measure.

Broilers are maintained on litter in a controlled-environment facility where the birds roam freely. The environment (temperature, humidity, and soiled litter) is conducive to both broiler growth and to fostering some catastrophic poultry diseases. Thus, an important part of broiler management is implementation and monitoring of strict medication and disease prevention procedures and a tight bio-security regimen. An infection from several of these diseases (HPAI, Exotic Newcastle Disease, etc.) results in mortality or government ordered depopulation of an entire house or farm, usually followed by quarantine, costly cleanup and disinfection, and a period of enhanced surveillance. Quarantine and cleanup add a business interruption dimension to incurred losses as delayed house repopulation (layout) further interrupts the normal annual cycle.

As presented in Table 24, the NPIP provides guidance to the poultry industry on but a single disease for testing and sanitation procedures – AI. Interestingly, the protocols provided in the NPIP are specific to low pathogenic AI. Until the standards specific to HPAI are written and adopted, APHIS has used the low pathogenic avian influenza response standards as a proxy to respond to the current outbreak of this disease across the nation.

**Table 24. Broiler Catastrophic Disease List:  
Available Vaccinations and NPIP Protocol Inclusion**

Disease	Vaccine		NPIP Protocols	
	Affected Bird	Preventive	Prevention	Response
Highly Pathogenic Avian Influenza	no	yes#	yes	yes
Colibacillosis	no	yes****	no	no
Exotic Newcastle Disease	no	yes	no	no
Fowl Cholera	no	yes****	no	no
Gangrenous Dermatitis	no	yes****	no	no
Highly Pathogenic Infectious Bursal Disease Virus	no	yes?	no	no
Infectious Laryngotracheitis	yes	yes	no	no
Marek's	no	yes	no	no
Necrotic Enteritis	no	no	no	no
Runting and Stunting Syndrome	no	no	no	no
Uncontrolled Coccidiosis	no	yes/no	no	no
Uncontrolled Infectious Bronchitis Virus	no	yes/no##	no	no

#- A commercial vaccine is available, but it is unlikely that regulators will allow its use

##- A commercial vaccine is available unless the virus is a new variant strain

\*\*\*\*- Some of these agents do not have a commercial vaccine available, but do use autogenous vaccines to minimize disease impact

Source: Andrew Rhorer, formerly national coordinator and executive secretary of the General Conference Committee of the National Poultry Improvement Plan for APHIS.

### *Frequency and Severity*

Growers and experts offered very general qualitative statements regarding frequency and severity of disease perils. The only statements made regarding the frequency of disease perils were generic statements such as “rare.” Income losses resulting from catastrophic disease outbreaks are generally excluded from indemnification under the conventional loss-of-income coverage products available. APHIS disease monitoring programs are generally available for livestock and the NPIP is specific to the poultry industry. Discussions with APHIS staff indicate that APHIS does not maintain a comprehensive disease occurrence database appropriate for insurance development inclusive of frequency (time and location) and severity (number of birds affected, depopulated, cost of depopulation activities, etc.) for any of the NPIP identified poultry diseases.

The Contractor investigated several alternative sources in an effort to discover data to create a time series frequency and severity dataset. “The United States Animal Health Association (USAHA), the nation’s animal health forum for over a century, is a science-based, non-profit, voluntary organization.”<sup>128</sup> Annually, USAHA publishes reports documenting the state of the industry for poultry and other livestock. Until relatively recently (2009) these reports would often contain disease occurrence data which included both the location (state/county) and severity (number of birds affected). These reports currently contain information relative to the APHIS efforts on behalf of the NPIP surveillance protocols which do not include depopulation figures. Each depopulation order has an affiliated incident report which may contain severity and location data which might be used in a development effort to create a database containing enough information to support frequency and severity determinations for rating purposes.

<sup>128</sup> United States Animal Health Association, 2015, USAHA: The Nation’s Animal Health Forum Since 1897, <http://www.usaha.org/AboutUs.aspx>, accessed April 2015.

Creation of this database from incident reports would be a function of a developmental effort and is outside the scope of this study.

The Contractor also contacted several state government livestock organizations to ascertain their level of poultry disease tracking. These state organizations also develop incident reports when diseases are reported. These reports might be used in a development effort to create a database containing enough information to support frequency and severity determinations for rating purposes. The creation of this database from isolated reports would be a function of a developmental effort and is outside the scope of this study.

Federal programs indemnifying the value of birds lost to disaster declarations have generally not benefited broiler growers because they do not own the birds. The presence of a disease and associated mortality are certainly identifiable. Underwriting related to vaccination schedules, sanitation, and management practices is possible. Data are limited. Most chronic diseases are controllable or manageable, but acute disease like AI are much more difficult to control. The risks associated with lost production are of less concern to growers than are the risks to the business and production cycles, including the number and length of layouts.

“Some industry production practices are also the subject of debate regarding public health. Broilers have long been provided with antibiotic drugs in their feed and water to prevent disease and to promote more efficient conversion of feed to meat. With growing scientific and public concern over increased antimicrobial resistance in human and animal pathogens, there is growing pressure, and a regulatory initiative from the U.S. Food and Drug Administration, to reduce the use of antibiotic drugs, especially for growth promotion, in livestock and poultry production.”<sup>129</sup> Hence, past frequency of disease events may not be predictive of the future frequency.

### Weather

During the listening sessions, growers identified two distinct events – severe storms and extended periods of extreme weather – as the “weather” perils of greatest concern. In the South, hurricanes and tornados are most likely to damage or destroy houses. In Mid-Atlantic States, snow storms resulting in accumulations that exceed roof load limits and cause building collapse are the most damaging. A storm event results in lost revenue from the flock in grow-out, incurred expenses that will not generate any return, unplanned building repair or replacement costs, and, possibly, additional lost revenue from interruption of the annual production cycle during repairs or reconstruction.

Extended periods of severe heat are not considered catastrophic events by growers with modern houses. Rather, energy costs increase when maintaining proper house temperature and humidity. Some claim there may be reduced bird grow-out performance and delivery of fewer pounds of bird leads to reduced base payment revenue. A reduction in the grower’s tournament ranking due to heat likely results from inferior or outdated house construction because all growers in the tournament are subject to the same conditions. Indemnifying lost incentive payments attributable to obsolete facilities would create a disincentive to technological innovation. The expressed concern was for the loss of future income coverage. No quantitative estimates

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<sup>129</sup> MacDonald, J.M., USDA, ERS, 2014, Technology, Organization, and Financial Performance in U.S. Broiler Production, Economic Information Bulletin No. 126. <http://www.ers.usda.gov/media/1487788/eib126.pdf>, accessed December 2014.

regarding frequency and severity of losses from weather events were offered by growers or experts.

Growers and lenders generally considered available property and casualty coverage for house damage adequate though costly. Participation in this coverage is highly variable, but is distinctly higher in highly leveraged/low equity operations.

With the data currently available, questions concerning identification and measurement of losses tied to specific weather events seem problematic. The insurability of electric power loss from the RMA perspective revolves primarily around the failure of the electrical supply outside the control of the grower. With existing technology and building design, heat and moisture build-up following the loss of ventilating and cooling systems measurably affects flock well-being and consequently production. This is similar to the terms for causes of loss that affect irrigated acreage. The loss of the irrigation water supply must be due to an insurable cause that occurs during the insurance period.

Many growers considered power loss a peril to production. For some, power loss is the peril of greatest concern because they do not have back-up systems. It is an area event, whose frequency is influenced primarily by the delivery system for commercial power and secondarily by weather affecting that system. It should be noted that “Failure of, or reduction in, the power supply” is a covered cause of loss in the Nursery Crop Provisions. Hence, procedures to adjust losses claimed due to this event already exist.

Weather related property losses would be indemnified under the grower’s usual coverage for catastrophic events such as fire and building collapse, and some loss of income coverage is available. Even under a property loss policy, growers would generally not be compensated for the value of birds lost as the integrator retains ownership of the flock. However, since the grower does not incur a loss of the value of the birds since he or she has no share in that value, there is no loss to the grower.

#### Equipment Failure

Equipment failure is very similar to power loss. The difference is a matter of degree. If a piece of bird watering or feeding equipment breaks down there may not be the same urgency to complete repairs as with a loss of power, or for that matter, a controller malfunction. However, given the inventory of replacement equipment and parts that growers keep as a means of self-insuring, the Contractor would conclude the events are not trivial, as lack of attention would transform these situation into catastrophic events. Conversely, if the failed piece of equipment were an integral part of the environmental control system, then failure could be catastrophic in a very short time. Insurability issues would be similar to those for weather related power loss. Failure of the irrigation water supply is a comparable event covered by other crop insurance policies.

### **VII.B. Turkey Sector**

Turkey growers are subject to similar risks faced by the growers of broilers. Growers are sensitive to the difference between systemic risk and idiosyncratic risk as a result of their contractual relationship with integrators. Part of the production risk is idiosyncratic and affects

only a single grower (as when an automatic feeder breaks down), but part is common and affects many growers (as when the ambient air temperature becomes very high). There is also a price risk. Both turkey price and feed price are subject to market forces. Together, these risks may lead to considerable income variability in the turkey sector over time. Output and input price changes do not directly and immediately affect the turkey grower, but over time they are manifested through changes in the number of contracts, contract prices, and/or incentive clauses.

Grower risks have not changed substantively over the past several decades. However, the relationship between contract growers and integrators has resulted in many shifts in risk management responsibility.

Although the majority of turkey production is contracted, there are a number of independent farms and cooperatives. Some of the poultry producers focus on niche markets, including organic and kosher turkey meat. These niche poultry producers are vulnerable to risk as a result of their size and may have a greater need for insurance than larger, mainstream poultry farms. However, beyond the existence of these operations, the Contractor obtained little information regarding this portion of the turkey sector.

### **Production Risk**

Production risks facing turkey growers include weather, disease, feed quality, and chick quality. Weather-related risk in turkey production is minor compared to similar risks in crop production with severe weather affecting a small portion of one flock out of five or six each year.<sup>130</sup> Disease risk includes both catastrophic losses, such as losses to END and AI, and chronic disease losses, which more slowly erode profits. Growers are also impacted by the competence of integrators who control feed and chick quality.

Under the current contract system, growers give up control of marketing and production management decisions in return for a guaranteed price. With payments based on relative production performance, price risk and the common portion of production risk are transferred from individual growers, who may be risk averse, to integrators. Growers perceive some risk-related disadvantages in the contract system. Production contracts may provide additional grower security through casualty clauses. These clauses would indemnify losses arising from natural disaster such as a flood, excessive heat, fire, or losses of potential production.

Although growers do not bear price risk directly, they are dependent on integrators for stock to grow-out. Given the competitive nature of the turkey processing industry, growers can experience lower revenues through reduced production industry-wide, lack of competition among integrators, and integrator failure or default. Like the broiler market, the turkey market has experienced less price appreciation over time than some other agricultural sectors. Consequently, competitors in the turkey production sector are focused on increasing the weight gain rate and weight gain efficiency of the turkeys being raised.

### Disease

Disease prevention and control are given continual management attention in the turkey sector. Ten of the seventeen diseases considered catastrophic in nature by the turkey industry have an

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<sup>130</sup> Aho, P. and D. Reid, 1988, "Risks and Returns," Broiler Industry, May, 14-16.

available vaccine (Table 25) though in eight of the ten with available vaccines, those vaccines are either autogenous, and not available to all growers, or the vaccine is not approved by regulators for use in turkeys. Exotic Newcastle Disease and Uncontrolled Coccidiosis are the only two diseases of the 17 listed that have an available vaccine for use as a preventive measure unencumbered by prohibitive regulatory use restrictions. There are no vaccines for any of the 17 diseases on the list available for use on affected birds.

While a limited number of turkeys are pastured (raised primarily outdoors with free access to natural food and conditions), most turkeys are maintained on litter in pole barns or controlled-environment facilities where the birds roam freely. The environment (temperature, humidity, and soiled litter) is conducive to both turkey growth and to fostering certain poultry diseases. Thus, an important part of management is implementation and monitoring of strict medication and disease prevention procedures and a tight bio-security regimen. With those practices in place, diseases of particular concern are catastrophic diseases such as AI, particularly the highly pathogenic form, and END. An infection from these diseases results in mortality or depopulation of an entire house, usually accompanied by quarantine and costly cleanup and disinfection. Quarantine and cleanup add a business interruption dimension to incurred losses as delayed house repopulation interrupts the normal annual cycle. However, it is important to note that such events, while extremely severe, are extremely rare.

As presented in Table 25, the NPIP provides guidance to the poultry industry on 4 of the 17 catastrophic diseases for testing and sanitation procedures – H3N2 Influenza, HPAI, *Mycoplasma gallisepticum*, and *Mycoplasma synoviae*. Interestingly, the Federal Drug Administration removed the vaccine for Histomoniasis (Blackhead) from the available vaccines for use by turkey producers. In listening session interactions, turkey growers mentioned that their counterparts in the European Union still have access to and use this vaccine.

**Table 25. Turkey Catastrophic Disease List:  
Available Vaccinations and NPIP Protocol Inclusion**

Disease	Vaccine		NPIP Protocols	
	Affected Bird	Preventive	Prevention	Response
H3N2 Influenza	no	yes*	yes	yes
Highly Pathogenic Avian Influenza	no	yes**	yes	yes
<i>Mycoplasma gallisepticum</i> (MG)	no	no	yes	yes
<i>Mycoplasma synoviae</i> (MS)	no	no	yes	yes
Avian Metapneumovirus (AMPV)	no	yes***	no	no
Blackhead (Histomoniasis)	no	no	no	no
Bordetella avium (BART)	no	yes***	no	no
Cellulitis	no	yes***	no	no
Colibacillosis	no	yes***	no	no
Exotic Newcastle Disease	no	yes	no	no
Fowl Cholera	no	yes***	no	no
Necrotic Enteritis	no	no	no	no
<i>Ornithobacterium rhinotracheale</i> (ORT)	no	yes***	no	no
Poult Viral Enteritis	no	no	no	no
Reoviral Tenosynovitis	no	no	no	no
Turkey Coronavirus	no	no	no	no
Uncontrolled Coccidiosis	no	yes	no	no

\* Vaccine is used in breeders only to minimize egg production drop

\*\* A commercial vaccine is available, but it is unlikely that regulators will allow its use

\*\*\* Some of these agents do not have a commercial vaccine available, but do use autogenous vaccines to minimize disease impact

Source: Andrew Rhorer, formerly national coordinator and executive secretary of the General Conference Committee of the National Poultry Improvement Plan for APHIS.

### *Frequency and Severity*

Growers and experts offered very general qualitative statements regarding frequency and severity of disease perils. The only statement made regarding the frequency of disease perils is that these events are rare. As experienced by the Pennsylvania poultry industry in the mid-1980's and again by the national poultry industry in 2015, these rare events can be extremely severe. Income losses resulting from catastrophic disease outbreaks are generally excluded from indemnification under the conventional loss-of-income coverage products identified. There are APHIS disease monitoring programs and, specific to the poultry industry, the NPIP. Federal programs indemnifying the value of birds lost to disaster declarations provide no benefit to contract growers who do not own the birds. APHIS managed disaster payments only provide compensation for poultry destroyed under an order from the U.S. Government and do not generally cover losses to the disease itself prior to the time a (Veterinary Service) VS 1-23 form is submitted to APHIS. APHIS also reserves the right to determine the value of the poultry it destroys when determining the compensation amount.

The presence of a disease and associated mortality are certainly identifiable. Underwriting related to vaccination schedules, sanitation, and management practices should be possible. Data are limited. Most chronic diseases are controllable or manageable. The risks associated with lost production are of less concern to growers than are the risks to the business and production cycles.



### Weather

During the listening sessions, growers identified cold as the “weather” peril of greatest concern. The cold did not directly affect the birds, but instead had a major impact on energy costs, and consequently on total production costs. Extended periods of severe heat or cold are not considered catastrophic events by growers with modern houses. Rather, energy costs increase when maintaining proper house temperature and humidity. No quantitative estimates regarding frequency and severity of losses from weather events were offered or obtained.

As in the broiler sector, new controlled environment (closed) houses for turkeys have greater, more consistent power requirements than do the older, open-design houses. These added power demands arise from year-round operation of ventilation systems to remove moisture and heating and cooling systems to maintain consistent interior temperatures. The primary benefit of higher power consumption is reduced variation (more precise predictability) in grow-out performance than can be achieved with older technology. With existing technology and building design, heat and moisture build-up following the loss of ventilating and cooling systems measurably affects flock well-being and consequently production.

Property losses would be indemnified under the grower’s coverage for catastrophic losses caused by weather and physical equipment failures, and some loss of income coverage is available as riders to those policies. Growers generally consider available property and casualty coverage for house damage due to severe weather adequate. No growers reported purchasing available income-protection coverage. They noted they had difficulty hedging risk associated with temperature and disease.

### Morbidity and Mortality

Turkeys develop over a substantially longer period of time than broilers and (particularly among toms) have a higher mortality rate during periods of normal grow-out. While the production practices are fundamentally similar, the longer timeline means that any risks or challenges with any aspect of production can have a more pronounced impact on final outcomes. As a result, anecdotal testimony suggests that mortality-based variability in production is much greater from flock to flock in turkeys than in broilers.

## **VII.C. Layer Sector**

Like other agricultural enterprises, layer growers and producers are exposed to production risks such as disease and weather. Producers also face price or market risks for outputs and production inputs. The risks faced by egg producers and growers are similar to those faced by broiler growers, except in many cases the egg producers and growers are also the processors. Furthermore, the industry has a much larger population of producers, many of whom buy their feed on the open market. However, as noted in the stakeholder input section for this sector, these operators are aware of futures markets for feed and energy and some do hedge their input price risk.

### **Production Risk**

Contract egg growers and producers face similar risks to those faced by the contract growers in the broiler and turkey sectors. The unique element of the layer sector is the greatly vertically integrated operator (i.e., grower/integrator). Even relatively small egg producers may be

vertically integrated. Producers, and to a lesser extent growers, may own or control feed milling, grading, breaking and processing facilities, and distribution resources. By owning assets in the value chain, these producers and growers better control cost structures. While becoming vertically integrated has helped layer enterprises manage cost structures, they are now responsible for managing all risks at many levels in the value chain. In addition, this high level of integration results in far less interaction between individual operations, and thus greatly reduces the potential for inadvertent exposure to disease vectors from neighboring operations.

### Disease

Although many ailments can impact flock production, two viral disease risks are of particular concern: END and AI. END is dispersed as an aerosol in feces and from the respiratory tract of infected birds. Consequently, the virus is easily spread, contaminating feed, water, footwear, clothing, tools, equipment, and the environment. Most END-infected chickens eventually die. Recommended practices for preventing the spread of END include the following:

- Vaccination;
- Isolating the facility;
- Reducing introduction of potential carriers such as birds, people, and vegetation;
- Controlling farm traffic and employee travel; and
- Maintaining sanitation standards for buildings, organic matter, equipment, and vehicles.

Disease prevention and control are given continual management attention. Twelve of the fourteen diseases considered catastrophic in nature by the layer industry have an available vaccine (Table 26) though in three of the twelve with available vaccines, those vaccines are either autogenous, and not available to all growers, or the vaccine is not approved by regulators for use in layers. Infectious Laryngotracheitis is the only disease in the list of 14 that has both a vaccine for an infected bird and for use as a preventive measure. For layers, there are eight catastrophic diseases with an available vaccine for use as a preventive measure.

As presented in Table 26, the NPIP provides guidance to the poultry industry on two catastrophic diseases for testing and sanitation procedures – HPAI and *Salmonella enteritidis*. Interestingly, as noted earlier, the protocols provided in the NPIP are specific to low pathogenic avian influenza. Until the standards specific to HPAI are written and adopted, APHIS has used the low path response standards as a proxy to respond to the current outbreak of this disease across the nation.

**Table 26. Layer Catastrophic Disease List:  
Available Vaccinations and NPIP Protocol Inclusion**

Disease	Vaccine		NPIP Protocols	
	Affected Bird	Preventive	Prevention	Response
Highly Pathogenic Avian Influenza	no	yes#	yes	yes
<i>Salmonella enteritidis</i> (SE)	no	yes##	yes	yes
Chicken Anemia Virus	no	yes	no	no
Colibacillosis	no	yes****	no	no
Exotic Newcastle Disease	no	yes	no	no
Fowl Cholera	no	yes****	no	no
Fowl Coryza	no	yes	no	no
Infectious Laryngotracheitis	yes	yes	no	no
Marek's	no	yes	no	no
Necrotic Enteritis	no	no	no	no
Uncontrolled Coccidiosis	no	yes	no	no
Uncontrolled Infectious Bronchitis Virus	no	yes	no	no
Urolithiasis/Gout	no	no	no	no
Very Virulent Infectious Bursal Disease	no	yes	no	no

# - While a vaccine is available for prevention, it is unlikely that regulatory officials will allow its use

## - *Salmonella enteritidis* generally doesn't cause significant disease in the bird, however, the vaccine may significantly reduce egg transmission

\*\*\*\* - Some of these agents do not have a commercial vaccine available, but do use autogenous vaccines to minimize disease impact

Source: Andrew Rhorer, formerly national coordinator and executive secretary of the General Conference Committee of the National Poultry Improvement Plan for APHIS.

### *Frequency and Severity*

Growers and experts offered very general qualitative statements regarding frequency and severity of disease perils. As with the other poultry industry sectors, the only statements made regarding the frequency of disease perils were generic statements such as rare. While the 2015 HPAI losses changed the perception of risks from catastrophic disease, the outbreaks are historically rare. The timing of the HPAI outbreak has likely influenced grower and producer concerns about catastrophic disease risks.

Income losses resulting from catastrophic disease outbreaks are generally excluded from indemnification under the conventional loss-of-income coverage products available as riders to catastrophic event coverage. APHIS disease monitoring programs are generally available for livestock and the NPIP is specific to the poultry industry. Though discussions with APHIS staff indicate that APHIS does not maintain a disease occurrence database inclusive of frequency (time and location) and severity (number of birds affected, depopulated, cost of depopulation activities, etc.) for any of the NPIP identified poultry diseases. There may be a way to develop a database of severity for an outbreak of a catastrophic disease from APHIS Stakeholder Registry<sup>131</sup> reports provided periodically by APHIS during an outbreak (Appendix D). Development of this database is outside the scope of this study.

Historically, federal indemnification for catastrophic disease has been through APHIS or state sponsored *ad hoc* disaster programs. When disease outbreaks result in disaster declarations and quarantine areas, owners of birds may be eligible for payments reflecting the value of birds

<sup>131</sup> USDA, APHIS, 2013, USDA Expands Animal and Plant Health Stakeholder Registry, [http://www.aphis.usda.gov/wps/portal/?1dmy&urile=wcm%3Apath%3A/APHIS\\_Content\\_Library/SA\\_Newsroom/SA\\_News/SA\\_By\\_Date/SA\\_2012/SA\\_11/CT\\_Gov\\_delivery](http://www.aphis.usda.gov/wps/portal/?1dmy&urile=wcm%3Apath%3A/APHIS_Content_Library/SA_Newsroom/SA_News/SA_By_Date/SA_2012/SA_11/CT_Gov_delivery), accessed June 2015.

destroyed as determined by APHIS. Those payments are the current value of the birds not the value at harvest. Furthermore, such payments do not always compensate for clean-up costs, costs associated with unplanned depopulation and repopulation, or any part of discounted future production not captured in the declared value of birds destroyed.

### Weather

Heat stress is no longer reported as a common weather-related cause of loss in the layer sector. While mortality due to overheating resulted in substantial losses to production, production efficiency losses also occurred, including reduced growth rates, lower egg production, reduced shell quality, and smaller egg size. Producers and growers minimize losses from heat stress by utilizing heat-reducing building features promoting radiant heat management and proper ventilation, providing additional calcium and phosphorus in feed rations, and allowing access to feed during cooler times of the day.

With the exception of losses to major disease outbreaks, egg growers and producers have relatively predictable revenue streams, and are therefore able to leverage the business and hedge risks. Many egg producers have geographically diverse enterprises both within counties and between counties and/or states.

### Power/Equipment Failure

Power failure and equipment failure are not identical. The difference is in the time between a failure and when losses in production are measurable. Given the controlled environment technology of modern facilities in which layers are housed, power failure is a term used to describe a sequence of very specific events. Nearly all systems within the house have redundant back-up systems in place. Consequently, power failure means both that the delivery of commercial power has been interrupted and at least one of the automatically switched standby generating systems has failed. Privately offered loss of income coverage is available that indemnifies the estimated value of the lost production. Available named peril insurance coverage for the value of the hens and to some extent loss of income generally requires two automatically switched, rather than manually activated, back-up generating systems.

Much of the operating equipment has alarms triggered by any malfunction. There is often either a back-up piece of equipment in place or in inventory. The sense of urgency in repair depends on the specific piece of equipment. If the equipment is part of the climate control system, then the event is no different in consequence than power loss. If the equipment is part of the hen watering or feeding systems, then the urgency for repair is reduced, but cannot be delayed for long without some production loss. In terms of severity, an extended power failure would nearly always be catastrophic, resulting in mortality of the entire flock of hens in the affected house(s). Equipment failure is likely to be catastrophic only if the piece of equipment was part of the climate control system and repair or replacement was not possible.

### **Price or Market Risk**

Feed costs amount to as much as two-thirds of the total production cost of eggs. In layer production, a rise in corn and soybean-meal prices can be financially devastating. Egg producers and growers are always “short” grain by definition. Large layer enterprises can manage their

feed costs through hedging on the Chicago Board of Trade. Long futures hedges and long call options hedges can help to manage some of the feed cost risks.

Shell egg transactions at all levels are typically priced by formulae using the wholesale-level price quotations published in Urner Barry's Price-Current. Urner Barry reports prices from daily Egg Clearinghouse, Inc. (ECI) trading and pricing information involving farms with more than one million birds. Producers utilize the Urner Barry pricing indexes and trading volumes to assess and manage price and market risk in both the short and long term.

Market period risk is price and/or quantity change during the marketing process. With industry consolidation, the market period has been shortened and the number of actual transactions has been reduced as most eggs pass from the farm to the processor (both of which are likely elements of the same enterprise). Historically, the volume of all sales into the retail markets is more variable than the volume moving off farms.

### **Institutional Risk**

Animal welfare husbandry standards influence the layer sector more than the broiler or turkey sectors, as most layers are housed in cages. United Egg Producers (UEP) developed husbandry standards in 2002 following efforts begun in 1999 with the formation of an independent scientific advisory committee charged with reviewing all scientific literature on animal well-being for egg-laying hens. UEP then prepared industry guidelines (i.e., "Animal Husbandry Guidelines for U.S. Egg Laying Flocks"). These guidelines are used in a program called "United Egg Producers Certified." Growers who participate in the UEP certification program are inspected annually by independent auditors. California's Proposition 2 (implemented in January 2015) has the potential to substantially distort the market as much more stringent animal welfare requirements are imposed in that state and in any state supplying eggs to California but not in others. In 2014, Nebraska, Alabama, Oklahoma, Kentucky, and Iowa joined Missouri "in a lawsuit against California over its law requiring more space for all egg-laying hens. The standards apply to all eggs produced within the state as well as eggs produced in any other states but sold in California."<sup>132</sup> In 2015, these same states appealed a lower court ruling against their 2014 lawsuit; the appeal is pending.<sup>133</sup> In any case, the implementation of the law has had a distorting effect in the largest market for table eggs in the United States by reducing the supply of eggs causing the price of eggs in California to rise while increasing the availability of eggs, thereby reducing prices, in other markets.<sup>134</sup>

Large institutional buyers also negotiate separate animal welfare policies as elements of their purchase contracts. The Federal government issued final rules for the "Egg Safety Final Rule" in 2009.<sup>135</sup> Regulations are political or market outcomes that are clearly not insurable perils even

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<sup>132</sup> USSOY.ORG, Agri Pulse, Agri-Pulse Communications, Inc., Sarah Gonzalez, March 2014, <http://www.agri-pulse.com/Six-states-join-lawsuit-against-California-egg-law-3-6-2014.asp>, accessed April 2015.

<sup>133</sup> KCET, Living, Food, Food Rant, Rick Paulas, 6 States Appeal California's Humane Egg Law, <http://www.kcet.org/living/food/food-rant/six-states-appeal-californias-humane-egg-law.html>, accessed April 2015.

<sup>134</sup> *Ibid.*

<sup>135</sup> FDA, Department of Health and Human Services, 2009, Prevention of *Salmonella enteritidis* in Shell Eggs During Production, Storage, and Transportation; Final Rule, <http://edocket.access.gpo.gov/2009/pdf/E9-16119.pdf>, accessed April 2015.

though they commonly require management attention, resource expenditures, and some level of compliance.

#### **VII.D. Game Bird Sector**

In some ways game bird growers are more subject to the risks of disease than other poultry enterprises. Production risks, like other agricultural enterprises, and weather related risks are also an ever present threat for a game bird operation. Price or market risks for outputs and production inputs are relatively similar to those faced by the other poultry sectors. The risks faced by game bird producers and growers are similar to those faced by chicken and turkey growers, recalling that producers are the owners of the bird. Similar to many egg producers and growers, game bird growers tend to buy their feed on the open market. However, most game bird operations are small enough where hedging these purchases on the futures market is not practical.

#### **Production Risk**

Game bird growers and producers are, for the most part, responsible for finding and fostering markets for their product. Many operators have developed niche clientele for delivery of both meat (restaurants, live markets, and specialty grocery markets) and live birds for hunting (state game and fish departments, local hunting preserves, etc.). These agreements and arrangements are both verbal and written though the industry is rapidly moving to written contracts being the norm. Production contracts generally include negotiated price, delivery dates, and number of birds contracted for delivery. Since most of these operators do not require or own feed mills and other production input facilities, they are subject to production risks associated with feed prices, chick replacement, litter prices, etc. This relatively low level of integration results in added risk for introduction of disease vectors from neighboring and supply operations.

#### Disease

Interestingly, the game bird and waterfowl industry faces more diseases considered catastrophic and included in the NPIP than any other sector. Waterfowl diseases of concern include four identified in the NPIP: H3N2 Influenza, *Mycoplasma gallisepticum*, HPAI, and *Mycoplasma synoviae*. For other game birds, the list includes: HPAI, and *Mycoplasma synoviae*. Disease prevention and control are given continual management attention in the game bird sector. All 12 of the diseases considered catastrophic in nature by the waterfowl industry have available vaccines (Table 27), though 9 of those 12 vaccines are either autogenous, and not available to all growers, or the vaccine is not approved by regulators for use in various waterfowl. There are no vaccines available for waterfowl affected by any of these 12 diseases.

**Table 27. Waterfowl Catastrophic Disease List:  
Available Vaccinations and NPIP Protocol Inclusion**

Disease	Vaccine		NPIP Protocols	
	Affected Bird	Preventive	Prevention	Response
H3N2 Influenza	no	yes*	yes	yes
Highly Pathogenic Avian Influenza	no	yes#	yes	yes
<i>Mycoplasma gallisepticum</i> (MG)	no	yes	yes	yes
<i>Mycoplasma synoviae</i> (MS)	no	yes	yes	yes
Avian Metapneumovirus (AMPV)	no	yes*	no	no
Colibacillosis	no	yes*	no	no
Exotic Newcastle Disease	no	yes	no	no
Fowl Cholera	no	yes*	no	no
Necrotic Enteritis	no	yes*	no	no
<i>Ornithobacterium rhinotracheale</i> (ORT)	no	yes*	no	no
<i>Riemerella anatipestifer</i>	no	yes*	no	no
Uncontrolled Coccidiosis	no	yes**	no	no

\* Some of these agents do not have a commercial vaccine available, but do use autogenous vaccines to minimize disease impact.

\*\* While a vaccine is available for prevention, it is unlikely that regulatory officials will allow its use.

Source: Andrew Rhorer, formerly national coordinator and executive secretary of the General Conference Committee of the National Poultry Improvement Plan for APHIS.

There are 15 of the 19 diseases considered catastrophic in nature by the game bird industry that have an available vaccine (Table 28) though in 8 of the 15 with available vaccines, those vaccines are either autogenous, and not available to all growers, or the vaccine is not approved by regulators for use in various game birds. Botulism is the only disease identified that has a vaccine available for use on affected birds.

**Table 28. Game Bird Catastrophic Disease List:  
Available Vaccinations and NPIP Protocol Inclusion**

Disease	Vaccine		NPIP Protocols	
	Affected Bird	Preventive	Prevention	Response
Highly Pathogenic Avian Influenza	no	yes***	yes	yes
<i>Mycoplasma gallisepticum</i> (MG)	no	yes	yes	yes
<i>Mycoplasma synoviae</i> (MS)	no	yes	yes	yes
Avian Metapneumovirus (AMPV)	no	yes****	no	no
Blackhead (Histomoniasis)	no	no	no	no
Bordetella avium (BART)	no	yes	no	no
Botulism,	yes	no	no	no
Colibacillosis	no	yes****	no	no
<i>Erysipelas rhusiopathiae</i>	no	no	no	no
Exotic Newcastle Disease	no	yes	no	no
Fowl Cholera	no	yes****	no	no
Fowl Coryza	no	yes	no	no
H3N2 Influenza	no	yes###	no	no
Marble Spleen	no	yes##	no	no
Necrotic Enteritis	no	yes****	no	no
<i>Ornithobacterium rhinotracheale</i> (ORT)	no	yes****	no	no
Quail Bronchitis virus	no	yes****	no	no
Ulcerative Enteritis	no	no	no	no
Uncontrolled Coccidiosis	no	yes***#	no	no

\*\*\* - While a vaccine is available for prevention, it is unlikely that regulatory officials will allow its use

\*\*\*\* - Some of these agents do not have a commercial vaccine available, but do use autogenous vaccines to minimize disease impact

# - Chukars

## - Pheasants

### - Wild turkeys

Source: Andrew Rhorer, formerly national coordinator and executive secretary of the General Conference Committee of the National Poultry Improvement Plan for APHIS.

Unlike the birds in other commercial poultry sectors, most game birds are raised in outdoor or mostly outdoor environments in flight pens with access to natural lighting and with adequate space to encourage flight training and strengthening. The environment (temperature, humidity, and access to wild birds) is conducive to both game bird growth and to fostering certain poultry diseases. Thus, an important part of management is implementation and monitoring of strict surveillance and disease prevention procedures and a tight biosecurity regimen. With those practices in place, diseases of particular concern are catastrophic diseases such as AI, particularly the HPAI form, *Mycoplasma gallisepticum*, and *Mycoplasma synoviae*. An infection from these diseases results in mortality or ordered depopulation of an entire house, usually accompanied by quarantine and costly cleanup and disinfection. Quarantine and cleanup add a business interruption dimension to incurred losses as delayed house repopulation interrupts the normal production cycle. However, it is important to note that such events, while extremely severe, are extremely rare. The NPIP provides guidance to the poultry industry on only a few of the identified catastrophic diseases for testing and sanitation procedures – H3N2 Influenza, HPAI, *Mycoplasma gallisepticum*, and *Mycoplasma synoviae*.

Historically, as with the other poultry industry sectors, federal indemnification for catastrophic disease has been through APHIS or state sponsored *ad hoc* disaster programs. When outbreaks result in disaster declarations and quarantine areas, owners of birds may be eligible for payments reflecting the value of birds destroyed. Those payments are the current value of the birds not the value at harvest. Furthermore, such payments do not compensate for clean-up costs, costs



associated with unplanned depopulation and repopulation, or any part of discounted future production not captured in the declared value of birds destroyed.

### Weather

Heat stress still remains a common weather-related cause of loss in the game bird sector. While mortality due to overheating resulted in substantial losses to production, production efficiency losses also occurred, including reduced growth rates, lower egg production, reduced shell quality, and smaller egg size. Producers and growers minimize losses from heat stress by utilizing heat-reducing building features promoting radiant heat management and proper ventilation, providing additional calcium and phosphorus in feed rations, and allowing access to feed during cooler times of the day.

## SECTION VIII. RESEARCH FINDINGS

The sheer size and the complexity of the poultry sector are two defining features of the industry. Poultry species raised for meat in the United States include ducks, geese, pheasant, pigeon, quail, turkeys, chickens, chukars, emu, guinea fowl, ostrich, partridge, pea fowl, rhea. The 2012 Census reports the poultry industry had a value of \$43 billion (11 percent of the \$395 billion value reported for the entire agriculture economy) in 2012.<sup>136</sup> In addition to this considerable farm-level value documented in the Census there is a substantial processing added-value component in virtually all poultry sectors. Much of this added value accrues to integrators, who in many cases are the owners of the birds.

### Industry Structure

Many elements of the poultry industry are vertically integrated. Fewer than 100 very large firms have ownership over elements of production, marketing, and sales in the meat sectors of the poultry industry collectively. Integrators for poultry meat production may control feed production, brood egg production, hatching, grow-out, transportation, slaughter, initial processing (preparation of a marketable whole bird), further processing to retail products such as lunch meat, and wholesale distribution. Integrators and producers for egg production may control feed production, layer, hatching, and grow-out, transportation, processing, and wholesale distribution. Consequently, major sector stakeholders have a remarkable control of their products and vast market power relative to the contract growers who are responsible for managing the development of a day-old bird into a marketable product. Even relatively small egg and poultry producers/integrators often own and manage a variety of the elements of their businesses (e.g., rearing of birds, feeding, housing, husbandry, and marketing of their product).

One area where integrators manage costs is in payments made to growers. Growers have often borrowed heavily to build poultry houses or to upgrade the houses to meet the requirements of the integrator. Poultry houses are very specialized farm structures; there are few alternate uses for these structures. The low margins and the limited options create a situation where downtime is a major concern. Yet the appropriate response to a catastrophic disease event is to impose a longer downtime than would generally be utilized between healthy flocks as the houses are decontaminated and tested.

Within the broader poultry industry there are sectors which are less fully integrated. One such sector is the breeders of species other than chickens and turkeys. Such operations may be quite similar to a typical farm operation. Their control of the genetics provides special status within the industry. Furthermore, smaller niche markets for free-range, kosher, and halal production, and to some extent organic production, also support less integrated operations. However, the higher prices for these niche market products are attracting the interest of the larger integrators.

### Grading Standards

The contract requires documentation of the grading standards for poultry. AMS maintains the classes, standards, and grades for poultry produced for marketing in the United States. AMS provides several manuals to assist inspectors, producers, integrators, educators, and consumers understand and apply these standards to the poultry product.

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<sup>136</sup> After USDA, NASS, 2012 Census of Agriculture, Tables 1 and 2, pages 7 and 9, [http://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_US/usv1.pdf](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_US/usv1.pdf), accessed April 2015.

The USDA AMS Poultry-Grading Manual establishes “a guide to the uniform application of the U.S. Department of Agriculture (USDA) classes, standards, and grades for poultry, and to USDA’s voluntary poultry grading and certification services.”<sup>137</sup> The United States Classes, Standards, and Grades for Poultry, AMS 70.200 *et seq.* contains information on the grading program used by the USDA to “establish a basis for quality and price relationship and enable more orderly marketing. Consumers can purchase officially graded product with the confidence of receiving quality in accordance with the official identification.”<sup>138</sup> Both these documents provide the poultry industry with a uniform approach to grading the meat elements of the poultry markets.

Poultry are broken into six types and then into sub-categorizations called classes. The types identified in the AMS documents are: chickens, turkeys, ducks, geese, guineas, and pigeons. The classes of chicken include: Rock Cornish game hen or Cornish game hen; Rock Cornish fryer, roaster, or hen; broiler or fryer; roaster or roasting chicken; capon; hen, fowl, or baking or stewing chicken; and cock or rooster. For turkeys, the classes are: fryer-roaster turkey; young turkey; yearling turkey; and mature turkey or old turkey (hen or tom). Ducks are classified as: broiler duckling or fryer duckling; roaster duckling; and mature duck or old duck. Geese have two classes: young goose and mature goose or old goose. Guineas also have two classes: young guinea and mature guinea or old guinea. The final type, pigeons, is classified as squab or pigeon.

There are 20 “cuts” which are graded for poultry. When grading the quality of Ready-to-Cook Poultry (Table 29), inspectors are instructed to grade nine areas of the carcass: conformation; fleshing, fat covering, defeathering, exposed flesh, disjointed and broken bones and missing parts, discolorations, freezing defects, and backs. Depending on the quality of the carcass in each of these inspection areas, the carcass is graded as A Quality (U.S. Grade A), B Quality (U.S. Grade B), or C Quality (U.S. Grade C).

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<sup>137</sup> USDA, AMS, Agriculture Handbook Number 31, Poultry-Grading Manual, “<http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELDEV3002393>, accessed May 2015.

<sup>138</sup> USDA, AMS, Marketing and Regulatory Programs, Poultry Programs, September 5, 2002, United States Classes, Standards, and Grades for Poultry, AMS 70.200 *et seq.*, <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELDEV3004377>, accessed May 2015.

**Table 29. Ready-to-Cook Poultry - A Quality Summary of Specifications for Standards of Quality for Individual Carcasses and Parts**

		A Quality					
<b>Conformation:</b>		Normal					
<b>Breastbone</b>		Slight curve or dent					
<b>Back</b>		Slight curve					
<b>Legs and Wings</b>		Normal					
<b>Fleshing:</b>		Well fleshed, considering kind and class					
<b>Fat Covering:</b>		Well developed layer – especially between heavy feathers tracts					
<b>Defeathering:</b> Free of protruding feather and hairs		<b>Turkeys</b> (feathers less than ¾ in.)		<b>Ducks and Geese</b> <sup>1</sup> (feathers less than ½ in.)		<b>All Other Poultry</b> (feathers less than ½ in.)	
		<b>Carcass</b>	<b>Parts</b>	<b>Carcass</b>	<b>Parts</b>	<b>Carcass</b>	<b>Parts</b>
		4	2	8	4	4	2
<b>Exposed Flesh:</b> <sup>2</sup> <b>Weight Range</b> Minimum                  Maximum		<b>Carcass</b>		<b>Large Carcass Parts</b> <sup>3</sup> (halves, front and rear halves)		<b>Other Parts</b> <sup>3</sup>	
		<b>Breast and Legs</b>	<b>Elsewhere</b>	<b>Breast and Legs</b>	<b>Elsewhere</b>		
None	2lbs.	¼ in.	1 in.	¼ in.	½ in.	¼ in.	
Over 2 lbs.	6lbs.	¼ in.	1 ½ in.	¼ in.	¾ in.	¼ in.	
Over 6lbs.	16lbs.	½ in.	2 in.	½ in.	1 in.	½ in.	
Over 16lbs.	None	½ in.	3 in.	½ in.	1 ½ in.	½ in.	
<b>Discolorations:</b> <b>Carcass</b>		<b>Lightly Shaded</b>				<b>Moderately Shaded</b> <sup>4</sup>	
		<b>Breast and Legs</b>	<b>Elsewhere</b>	<b>Hock of Leg</b>	<b>Elsewhere</b>		
None	2lbs.	¾ in.	1 ¼ in.	¼ in.	5/8 in.		
Over 2 lbs.	6lbs.	1 in.	2 in.	½ in.	1 in.		
Over 6lbs.	16lbs.	1 ½ in.	2 ½ in.	¾ in.	1 ¼ in.		
Over 16lbs.	None	2 in.	3 in.	1 in.	1 ½ in.		
<b>Discolorations:</b> <b>Large Carcass Parts</b> (halves, front and rear halves)		<b>Lightly Shaded</b>				<b>Moderately Shaded</b> <sup>4</sup>	
		<b>Breast and Legs</b>	<b>Elsewhere</b>	<b>Hock of Leg</b>	<b>Elsewhere</b>		
None	2lbs.	½ in.	1 in.	¼ in.	½ in.		
Over 2 lbs.	6lbs.	¾ in.	1 ½ in.	3/8 in.	¾ in.		
Over 6lbs.	16lbs.	1 in.	2 in.	½ in.	1 in.		
Over 16lbs.	None	1 ¼ in.	2 ½ in.	5/8 in.	1 ¼ in.		
<b>Discolorations:</b> <b>Other Parts</b>		<b>Lightly Shaded</b>				<b>Moderately Shaded</b> <sup>4</sup>	
				<b>Hock of Leg</b>	<b>Elsewhere</b>		
None	2lbs.	½ in.		¼ in.			
Over 2 lbs.	6lbs.	¾ in.		3/8 in.			
Over 6lbs.	16lbs.	1 in.		½ in.			
Over 16lbs.	None	1 ¼ in.		5/8 in.			
<b>Disjointed and Broken Bones:</b>		Carcass—1 disjointed and no broken bones. Parts—Thighs with back portion, legs, or leg quarters may have femur disjointed from the hip joint. Other parts—none.					
<b>Missing Parts:</b>		Wing tips and tail. In ducks and geese, the parts of the wing beyond the second joint may be removed if removed at the joint and both wings are so treated. Tail may be removed at the base.					
<b>Freezing Defects:</b>		Slight darkening on back and drumstick. Overall bright appearance. Occasional pock-marks due to drying. Occasional small areas of clear, pinkish, or reddish-colored ice.					

<sup>1</sup> Hair or down is permitted on the carcass or part, provided the hair or down is less than 3/16 inch in length, and is scattered so that the carcass or part has clean appearance, especially on the breast and legs.

<sup>2</sup> Maximum aggregate area of all exposed flesh. In addition, the carcass or part may have cuts or tears that do not expand or significantly expose flesh, provided the aggregate length of all such cuts and tears does not exceed a length tolerance equal to the permitted dimensions listed above.

<sup>3</sup> For all parts, trimming of skin along the edge is allowed, provided at least 75 percent of the normal skin cover associated with the part remains attached, and the remaining skin uniformly covers the outer surface and does not detract from the appearance of the part.

<sup>4</sup> Moderately shaded discolorations and discolorations due to flesh bruising are free of clots and limited to areas other than the breast and legs except for the area adjacent to the hook.

Source: United States Classes, Standards, and Grades for Poultry AMS 70.200 et seq. - September 5, 2002, page 22, <http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELDEV3004377>, accessed May 2015.

The USDA AMS also provides handbooks and manuals providing instructions to assist industry egg graders in their application of the U.S. egg grading standards. The USDA AMS Egg-Grading Manual is a handbook which “provides graders with an understanding of egg marketing, the purpose of grading, production and processing practices, and Federal-State grading programs. An in-depth description of USDA’s egg grading and certification programs is provided for use by processors, marketers, volume food buyers, and retailers to enhance their procurement and quality control activities.”<sup>139</sup> The USDA AMS manual entitled United States Standards, Grades, and Weight Classes for Shell Eggs, AMS 56 is the document used in the voluntary shell egg grading program providing a national grading service based on official U.S. standards, grades, and weight classes for shell eggs.<sup>140</sup> These standards are applicable only to in the shell eggs that come from domesticated chicken hens.

There are three quality levels associated with shell eggs (Table 30). These quality designators are AA Quality, A Quality, and B Quality (Grade B). The assignment of a grade for shell eggs is done by “lot” (two or more eggs) rather than by individual shell egg. There are two grades allowed under the designator U.S. Grade AA. These are U.S. Consumer Grade AA (at origin) which refers to a lot with at least 87 percent shell eggs of AA quality and U.S. Consumer Grade AA (at destination) which refers to a lot with at least 72 percent shell eggs of AA quality. For the designator U.S. Grade A, there are also two grades allowed: U.S. Consumer Grade A (at origin) – at least 87 percent A quality or better shell eggs, and U.S. Consumer Grade A (at destination) - at least 82 percent A quality or better shell eggs. U.S. Grade B allows two designators as well though the percent B quality at origin and at destination are the same – 90 percent. The difference between these two designators resides in the allowance for Leakers, Dirties, or Loss (due to meat or blood spots).

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<sup>139</sup> USDA, AMS, Handbook Number 75, Egg-Grading Manual, <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELDEV3004502>, accessed May 2015.

<sup>140</sup> USDA, AMS, Marketing and Regulatory Programs, Poultry Programs, July 2000. United States Standards, Grades, and Weight Classes for Shell Eggs, AMS 56, <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELDEV3004376>, accessed May 2015.

**Table 30. Summary of U.S. Standards for Quality of Individual Shell Eggs**

SUMMARY OF U.S. STANDARDS FOR QUALITY OF INDIVIDUAL SHELL EGGS			
Specifications for Each Quality Factor			
Quality Factor	AA Quality	A Quality	B Quality
<b>Shell</b>	Clean. Unbroken. Practically normal.	Clean. Unbroken. Practically normal.	Clean to slightly stained. * Unbroken. Abnormal.
<b>Air Cell</b>	1/8 inch or less in depth. Unlimited movement and free or bubbly.	3/16 inch or less in depth. Unlimited movement and free or bubbly.	Over 3/16 inch in depth.  Unlimited movement and free or bubbly
<b>White</b>	Clear. Firm.	Clear. Reasonably firm.	Weak and watery. Small blood and meat spots present. **
<b>Yolk</b>	Outline slightly defined. Practically free from defects.	Outline fairly well defined. Practically free from defects.	Outline plainly visible.  Enlarged and flattened. Clearly visible germ development but nit blood. Other serious defects.
For eggs with dirty or broken shells, the standards of quality provide two additional qualities. They are:			
<b>Dirty</b>		<b>Check</b>	
Unbroken. Adhering dirt or foreign material, prominent stains, moderate stained areas in excess of B quality.		Broken or cracked shell but membranes intact, not leaking. ***	
* Moderately stained areas permitted (1/32 of surface if localized, or 1/16 if scattered). ** If they are small (aggregating not more than 1/8 inch in diameter). *** Leaker has broken or cracked shell membranes, and contents leaking or free to leak.			

Source: United States Standards, Grades, and Weight Classes for Shell Eggs AMS 56 - July 20, 2000, page 12, <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELDEV3004376>, accessed May 2015.

The above referenced manuals and handbooks are incorporated into this report by reference as Attachments I to IV.

FSIS is the governmental agency charged with “ensuring that the nation’s commercial supply of meat, poultry, and egg products is safe, wholesome, and correctly labeled and packaged.”<sup>141</sup> As noted earlier, the poultry inspection and grading program is a voluntary program. Under the FSIS umbrella “Establishments have the option to apply for Federal or State inspection. States operate under a cooperative agreement with FSIS. States’ program must enforce requirements “at least equal to” those imposed under the Federal Meat and Poultry Products Inspection Acts and the Humane Methods of Slaughter Act of 1978. However, products produced under State

<sup>141</sup> USDA, FSIS, About FSIS, <http://www.fsis.usda.gov/wps/portal/informational/aboutfsis>, accessed May 2015.

Inspection are limited to those marketed within the state, unless a state opts into an additional cooperative program, the Cooperative Interstate Shipment Program.”<sup>142</sup>

## Data

The Census reports inventory and sales of 14 species of domesticated fowl and commercial game-birds as well as poultry from other species under the category “other poultry.”<sup>143</sup> More poultry industry data, including estimates derived by NASS from surveys, are available for the larger sectors of the industry; chickens (including eggs), ducks, and turkeys. Production data on the other sectors of the poultry industry are geographically limited, sporadic, and in many cases anecdotal. The NASS survey-based estimates include condemnation data for chickens, ducks, turkeys, and other poultry (as an aggregate). These condemnations are documented for airsacculitis, leukosis, synovitis, tuberculosis, tumors, contamination, and a variety of generic physical (e.g., bruising) and processing (e.g., over scalding) problems. APHIS maintains data on “reportable” animal diseases. Currently reportable diseases include HPAI, low pathogenic avian influenza (H5 or H7 subtypes). Newcastle disease, turkey rhinotracheitis, infectious bronchitis, infectious laryngotracheitis, duck viral hepatitis, fowl cholera (*Pasteurella multocida*), fowl typhoid (*Salmonella gallinarum*), infectious bursal disease (Gumboro disease), Marek’s Disease, mycoplasmosis (both *M. gallisepticum* and *M. synoviae*), chlamydiosis (psittacosis and ornithosis, *Chlamydia psittaci*), and Pullorum disease (*Salmonella pullorum*).<sup>144</sup> To encourage compliance with reporting requirements, APHIS considers its data proprietary. APHIS is in the process of revising its list of reportable diseases; changes for poultry disease reporting may reduce the number of diseases for which data are collected.<sup>145</sup>

Two commercial services provide price data on poultry for a fee. These are Urner Berry, with a website at <http://www.urnerberr.com/>, and Watt Poultry, a division of Watt Global Media, whose website is <http://www.wattagnet.com/Poultry.aspx>. Urner Berry publishes market news and quotations on poultry and eggs in print and digital media. Urner Berry’s published reports include Daily Poultry and Egg, West Coast Egg, and Poultry and Egg Monthly Price Review. Watt Global Media publishes the monthly digital report Watt Poultry USA (<http://www.wattpoultryusa-digital.com/>). Watt publishes data on broilers, eggs, and turkey. The reports on wholesale and retail pricing are used by the industry in financial planning. However, it should be noted the impact of integration makes it challenging to extrapolate farm-gate prices from these data. APHIS has determined the net present value for commercial birds which have been “taken” as a part of a disease management program. These determinations have

<sup>142</sup> USDA, FSIS, Inspection, 2014, [http://www.fsis.usda.gov/wps/portal/food-safety-education/get-answers/food-safety-fact-sheets/production-and-inspection/inspection-and-grading-of-meat-and-poultry-what-are-the-differences\\_/!ut/p/a1/jZFRT4MwFIV\\_iw88lhaZy-bbQmIEHWQhKuNl6eC2kEBL2iLBX2\\_BB7Nl07Uvved-J\\_fmFOc4w7mgznWnppaCNlOdLw9kR5beOiBRsvaeSBi\\_75KXICCr9MEC-z-A2L\\_Rf-VsyH\\_-6iYBr92obbDnOO2oqVAsmccbBICr0AerjElZik0ZmBExWhikKwBjG52SZV9MUVi4tFbdwVzi7Pc9t7iiZS04kgy1QM2sdbJvYBrRUE2CAmQqQGXNGCgQBegD\\_sD56frEszeM\\_XTxHMU-SRbnwIV8f4DrAdqEeCOP82fuN-Lor2wUCqYtlnsrK1fGdPrRIQ4ZhsHIUvIG3EK2DrIkqaQ2ODslcde-ZV-vG5aGKD-Ow903J8z7sA!/?1dmy&current=true&urile=wcm%3apath%3a%2Ffsis-content%2Finternet%2Fmain%2Ftopics%2Finspection%2Fstate-inspection-programs%2Fpsip](http://www.fsis.usda.gov/wps/portal/food-safety-education/get-answers/food-safety-fact-sheets/production-and-inspection/inspection-and-grading-of-meat-and-poultry-what-are-the-differences_/!ut/p/a1/jZFRT4MwFIV_iw88lhaZy-bbQmIEHWQhKuNl6eC2kEBL2iLBX2_BB7Nl07Uvved-J_fmFOc4w7mgznWnppaCNlOdLw9kR5beOiBRsvaeSBi_75KXICCr9MEC-z-A2L_Rf-VsyH_-6iYBr92obbDnOO2oqVAsmccbBICr0AerjElZik0ZmBExWhikKwBjG52SZV9MUVi4tFbdwVzi7Pc9t7iiZS04kgy1QM2sdbJvYBrRUE2CAmQqQGXNGCgQBegD_sD56frEszeM_XTxHMU-SRbnwIV8f4DrAdqEeCOP82fuN-Lor2wUCqYtlnsrK1fGdPrRIQ4ZhsHIUvIG3EK2DrIkqaQ2ODslcde-ZV-vG5aGKD-Ow903J8z7sA!/?1dmy&current=true&urile=wcm%3apath%3a%2Ffsis-content%2Finternet%2Fmain%2Ftopics%2Finspection%2Fstate-inspection-programs%2Fpsip), accessed May 2015.

<sup>143</sup> USDA, NASS, 2014, 2012 Census of Agriculture, Tables 32, page 25, and Table 19 and 20, pages 377f. [http://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_US/usv1.pdf](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_US/usv1.pdf), accessed April 2015.

<sup>144</sup> USDA APHIS, 2011, 2011 National Animal Health Reporting System Reportable Disease List, [http://www.aphis.usda.gov/animal\\_health/nahrs/downloads/2011\\_nahrs\\_dz\\_list.pdf](http://www.aphis.usda.gov/animal_health/nahrs/downloads/2011_nahrs_dz_list.pdf), accessed April 2015.

<sup>145</sup> USDA APHIS, 2014, Proposal for a U.S. National List of Reportable Animal Diseases (NLRAD) Concept Paper, [http://www.aphis.usda.gov/animal\\_health/downloads/nlrاد\\_concept\\_paper.pdf](http://www.aphis.usda.gov/animal_health/downloads/nlrاد_concept_paper.pdf), accessed April 2015.

included appraisal values for over 250 species/breeds of fowl including game birds. The APHIS values are generally calculated based on the price of day-old birds offered by mail order hatcheries and an estimated cost of feeding them to the age of the depopulation. APHIS considers market pricing for marketable birds, the net present value of future production of table and fertile eggs, and the value of the intellectual property rights in breeding stock, when appropriate.

### **Stakeholder Input**

Over the course of six on-site listening sessions, and four telephone listening sessions, the Contractor gathered feedback from more than 100 stakeholders. Some of the stakeholders from the listening sessions followed up with individual conversations in person or by telephone or with email correspondence. In addition, the Contractor had telephone calls and email correspondence with stakeholders who had not participated in the listening sessions.

While there were several common themes in the stakeholder feedback nationwide, the feedback was regionally disparate. Representatives from major integrators, the owners of a majority of the birds producing meat and eggs, indicated they had no interest in catastrophic disease insurance. They noted their geographic diversity is their major risk management tool. Furthermore, some noted that market changes resulting from catastrophic disease outbreaks can have positive economic effects on large firms. Widespread disease outbreaks have the potential to increase their profits as prices rise. Even when diseases affect their own production, the size of the larger integrators limits the potential “catastrophic” impact. However, this attitude is not reflected by the contract growers. These growers frequently have heavily leveraged operations and a disease outbreak that makes them miss even a single production cycle can send them into bankruptcy.

In the South, much of the grower and poultry producer concern was tied to the potential for business interruption following a catastrophic disease event. In the central and north Atlantic region, concerns focused on the implementation of federal catastrophic disease regulatory programs and increasing the cost of operations resulting from these regulatory changes. In the Midwest and West, stakeholders indicated that growers frequently have production contracts that provide some ownership interest. This pattern was especially evident in comments from turkey grower/owners in the Midwest and egg producers in the Midwest and West. Nonetheless, repeated requests for copies of such contracts to document these ownership interests met with limited success. Once again, business interruption due to down-time was a major concern of growers and producers.

While a substantial majority (approximately 65 percent) of attendees who spoke expressed concerns related to diseases, many growers expressed the opinion that most of this risk could be controlled by proper biosecurity. It is important to note, many of the egg farms depopulated in Iowa and Minnesota because of an HPAI infection maintained exemplary biosecurity practices and standards. A majority (approximately 75 percent) of contract growers noted unpredictable costs associated with quarantine and long layout periods following depopulation were a major concern. Notably, in spite of the focus of the listening sessions on catastrophic disease, a substantial number of contract growers and independent producers (approximately 20 percent) discussed the potential for severe weather (tornado and hurricanes) to destroy houses and facilities.



### **Available Insurance**

Most of those who were concerned about catastrophic risks associated with weather noted that private coverage was already available for these perils. Furthermore, at least one stakeholder identified private insurance offered by Catlin Group (Bermuda) and Lloyd's (London) for coverage for all mortality risks of livestock, including disease, on a surplus line basis. Surplus line policies are offered in cases where state licensed insurers will not accept a risk because it does not meet their underwriting criteria. Specially licensed brokers are allowed to offer policies from an insurer not licensed in the state where the insurance is in force. Since these insurers are not regulated by the state where the surplus line policy is in force, they are free from form and/or rate regulations imposed on state licensed insurers. Surplus line policies have more flexibility in design and prices can be set by market forces as well as the level of risk. However, following the outbreak of HPAI, agents reported the offer of riders on catastrophic policies for disease and for business interruption due to disease were withdrawn. No timeframe for the reintroduction of such offers could be provided.

The Contractor considered several alternate insurance designs to address widespread disease events in poultry including:

- A disease policy addressing all losses to uncontrollable disease;
- A national named peril disease coverage program;
- Coverage for limited perils in limited industry sectors and regions;
- Top-up coverage for APHIS payments for depopulations;
- Catastrophic disease coverage with business interruption coverage; and
- Whole farm coverage.

None of these approaches meets all the RMA feasibility requirements. Some of the barriers, as are discussed in the next section, apply to all these approaches. Others present unique barriers for just one or more approaches; these latter issues are discussed by approach herein.

### Catastrophic Disease Coverage with Business Interruption Coverage

The major impediment to this approach is found in the Crop Insurance Act. There is no provision in the act for business interruption coverage. There are some parallels between prevented planting coverage and business interruption resulting from disease mitigation downtime. Nonetheless, the Contractor believes substantial changes in the Crop Insurance Act language would be required before a combined catastrophic disease business interruption policy could be developed. For the layer sector, some parallels between tree coverage and layer sector business interruption resulting from disease mitigation downtime were considered. Nonetheless, the Contractor also believes substantial changes in the Crop Insurance Act language would be required before a catastrophic disease business interruption policy focused on that sector could be developed.

### Whole Farm Revenue Protection

While a WFRP product may seem an attractive insurance option for poultry producers and growers, there are substantial limits in the current WFRP that render it unavailable to most interested parties. Contract poultry growers are specifically excluded from coverage (Section 44D.(1)(f)). The expected revenue from animals and animal products cannot be greater than \$1 million, or more than 35 percent of the insured revenue from all commodities on the farm

operation for the insurance year (Section 21 B. (2)). Furthermore, WFRP is not available in all states nor in all counties in states where the product is available. These limitations currently exclude almost every poultry operation whether integrator, grower, or producer. The Contractor understands these restrictions were imposed to reflect the uncertainty surrounding the locations and revenue of livestock operations. The multiple production cycles lost to a catastrophic disease outbreak led the Contractor to conclude modifications to the WFRP product to provide coverage for poultry catastrophic diseases are not feasible.

## SECTION IX. SUMMARY OF FEASIBILITY ASSESSMENT

The SOW requires the Contractor to “make recommendations on the 1) feasibility of new product development; and 2) the relative feasibility of adding coverage to an existing insurance program.”<sup>146</sup> To address this requirement, the Contractor considered RMA’s criteria for feasibility.<sup>147</sup> None of the alternate insurance designs to address widespread disease events in poultry the Contractor defined as potentially useful meets all the feasibility criteria. This includes modification of the coverage under an existing insurance program. Each of the RMA feasibility requirements is discussed below.

### Criteria for Feasibility

**The proposed insurance coverage must conform to RMA’s enabling legislation, regulations, and procedures that cannot be changed.** The Crop Insurance Act, the enabling legislation, imposes substantial barriers for any approach to insuring poultry for losses to catastrophic disease. A major issue is the question of insurable interest (7 U.S.C. 1520(2)). The principal owners of meat poultry are generally the major integrators that control production from hatching to wholesale and retail marketing of the finished product. Some owners of layers are also integrators who contract production with growers. The integrators clearly have insurable interest, but integrator stakeholders, particularly in the meat bird sectors, indicated limited or no interest in an insurance approach to risk management for disease. Even after the outbreak of HPAI, it was growers and producers who expressed interest in the insurance, not integrators. Growers may have an insurable interest under the terms of some integrator’s contracts but that interest must be clearly defined in both the grower’s contract and any insurance construct. Unlike many contract growers, producers have an insurable interest in the same manner as the producer of wheat or any other crop included under the crop insurance program.

A further barrier is the limits of coverage to crops “in the field” (7 U.S.C. 1508(a)(2)). Once the poultry or eggs have left the “houses,” the crop clearly is beyond the “field.” Furthermore, for the producers who have an ownership interest, the value at risk includes substantial integrated components beyond the in-field value of the birds. This is substantially the same as the situation confronted by crop insurance for coverage of many specialty crops. Stakeholders expressed at least as much interest in insurance for business interruption coverage following depopulation as for the loss of the poultry itself. The greatest concern both growers and producers expressed concerning catastrophic disease is extended downtime. During the downtime, however, there is no crop in a house to insure. Perhaps the argument could be made that an orchard where the trees have been destroyed by an insurable event is like a chicken house that has been depopulated, but the tree coverage is expressly for replacement of the trees not the opportunity cost lost in the treeless orchard.

Finally, the Act requires any insurance to have actuarially sound rates (7 U.S.C. 1508(d)(1)). The complexity of the poultry industry, the lack of published data on disease, and the challenge of predicting which producers might participate make it difficult to imagine development of rates for this insurance based on data. Any attempt to develop a premium rate must rely upon informed judgement and the very limited data that might be accessed. To pursue a development,

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<sup>146</sup> U.S. Department of the Interior, Interior Business Center, ADQ, 2014, Order Number: D15PD00012, Section 2.4.1, page 21 of 26.

<sup>147</sup> *Ibid.*, pages 21 and 22.

FCIC and the agency would have to express an unusual willingness to extend coverage based on judgmental rate estimates and then revise those rates aggressively based on experience thereafter.

The language of the Crop Insurance Act would require appropriate treatment of growers, integrators, and producers based on their insurable interest. The language of the Act also requires a distinction between loss of the crop and the interruptions of business resulting from the disease outbreak. The possibility of covering the business interruption as a “prevented planting” event would require clarification of this concept at the regulatory level if not in the language of the Act itself. The issue of actuarially sound rates is discussed below. Ultimately, the Contractor believes this requirement of the Crop Insurance Act cannot logically be changed. Actuarially sound rates are an essential construct of insurance. The public-private partnership supporting crop insurance is based on appropriate premium rates.

The production from poultry defined as laying hens is eggs. Thus, the loss from a catastrophic disease that killed laying hens would be the eggs not harvested. This is conceptually similar to the loss of wheat grains not harvested from wheat plants that do not exist due to an insurable cause of loss. The distinction between the mortality of the livestock and the loss of production will need to be addressed appropriately so any insurance for the crop is consistent with the limitations of the Act.

Finally, Section 523(b)(10)(C) limits expected costs of conducting livestock programs for fiscal year 2004 and each subsequent fiscal year to \$20,000,000. These funds would likely be insufficient to support a catastrophic disease mortality program and even less likely to support a program indemnifying losses from business interruption due to catastrophic disease because it very likely would be difficult to demonstrate that “... all costs associated with conducting the livestock programs (other than research and development costs covered by section 522) are not expected to exceed...” [the specified limit].<sup>148</sup> Furthermore, FCIC already supports livestock programs whose costs would compete for available funds authorized under this section of the Act. However, it is important to note the \$20 million specified in Section 523(b)(10)(C) is not a cap on outlays for any particular year. It is a guideline for expectations. The expected loss in any year is the premium rate times the liability. So the issue about whether or not catastrophic disease coverage fits under this limitation cannot be established until the premium rate and the potential liability of a pilot are known. The poultry expected costs then need to be coordinated with expected costs for the other livestock programs to determine if the limitation needs to be modified by congressional action.

**Be ratable and operable in an actuarially sound manner.** Rating crop insurance ideally requires access to substantial historical data on the frequency and severity of losses. This ideal rarely or never is met. Catastrophic disease losses historically are relatively infrequent events. The Contractor was unable to identify a long-term, time series database containing the necessary frequency and severity information to construct a data driven rating model. Some poultry diseases have never been reported in the United States; nonetheless, the globalization of the poultry industry makes it possible that any of these diseases will affect U.S. production without warning. The severities of the poultry losses due to catastrophic disease are influenced by management practices (e.g., size of the house, bird population density, availability of antibiotics

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<sup>148</sup> Section 522(b)(10).

or inoculants, etc.). The recent outbreaks of HPAI demonstrate that strict and rigid phytosanitary measures cannot absolutely prevent the occurrence of a catastrophic disease but can deter it. The Contractor has concluded data driven rating is not possible. The Contractor is familiar with alternate judgmental approaches to rating. These approaches can be actuarially sound, but the uncertainty of judgmental rating tends to result both in challenges in winning FCIC approval for implementation and in higher conservatively-loaded premiums. This in turn affects willingness of potential insureds to participate in the insurance.

**Producers or their agents must be willing to pay the appropriate price for the insurance.**

The Contractor heard repeatedly that the margins in the poultry industry are very thin. Consequently, only producers who are extremely risk averse are likely to be willing to pay an appropriate premium, even with subsidy, for the insurance. This is complicated by the fact that in many cases the owners of the birds, the large integrators, have indicated they are not interested in purchased risk management at any price. While some stakeholders have indicated a willingness to pay an appropriate price for catastrophic disease insurance, few explored the private commercial catastrophic disease products available before the HPAI outbreak. Generally, the interest in a crop insurance product is focused more on business interruption resulting from the downtime associated with catastrophic disease events and less on the loss of production to uncontrollable disease.

**There must be an appropriate geographic distribution of production to ensure a sound financial insurance program.** While the Contractor understands this feasibility requirement applies to the RMA portfolio in its entirety, the magnitude of the poultry industry has the potential to create pockets of substantial insured liability for disease coverage. For example, Midwestern turkey producers, who indicated they have an insurable interest, could increase substantially the liability insured under the RMA portfolio in that region. While the insurance program in its entirety may still be financially sound, the distribution of insured liability is unlikely to reflect the distribution of production in the poultry industry unless contract growers have the opportunity to insure the poultry they are raising. Based on the past performance of the crop insurance program, a concentration of liability is not an issue. However, disparate distribution of production and liability present additional challenges to the establishment of rates.

**Moral hazards must be avoidable or controllable.** This is perhaps one of the most thought-provoking feasibility requirements for the poultry industry. There is the potential of moral hazard in the coordination of compensation between the APHIS depopulation program and any proposed insurance program. These issues are manageable with appropriate language in the policies, regulations, and procedures. Similar controls have been established to coordinate between crop hail coverage and crop insurance. Nonetheless, to protect the poultry industry, safeguards would need to be established so the insured could not choose a higher mortality benefit from insurance than the depopulation benefit provided by APHIS. APHIS depopulation is essential to the control of catastrophic diseases for the industry as a whole. The APHIS payments are made to compensate the producer or integrator for participation in a program to support the industry. Currently, biosecurity measures are incentivized by both the design of APHIS compensation and the desire to produce the crop. Adding the possibility of an indemnity into this mix has the potential to disturb the balance of the incentives. This is especially problematic where the relationship between integrators and contract growers are contentious.

Consequently, if there were a business interruption element of the catastrophic disease coverage, as many growers and producers would prefer, the potential for moral hazard increases. Furthermore, there are endemic poultry diseases that are sometimes called production diseases. These introduce the moral hazard of the producer needing to decide between the costs of the insurance and the costs of managing the diseases. While moral hazards are not insurmountable barriers to development of catastrophic disease coverage for poultry, they do introduce impediments to the development of the insurance that would need to be addressed. An insurance structure that did not allow a contract grower the choice between a contract payment and an insurance indemnity would be required. Such a choice might incentivize less stringent surveillance and management of production diseases, or even outright “pyric” negligence if they are covered causes of loss and intent in the behavior is not clearly discernable.

**Customers must not be able to select insurance only when conditions are adverse.** The short production cycle for meat birds makes it easier for producers of these birds to know when conditions are adverse. While some species grow faster than broilers (e.g., quail) and some grow more slowly (e.g., ostrich), production cycles as short as five or six weeks for many species would need to be addressed to avoid the possibility of adverse selection. This problem could be addressed by requiring a relatively long period between the purchase of the insurance and the date the insurance attaches. Alternatively, a policy that insures all flocks in a given 12-month period could be developed. This complicates efforts to control adverse selection, especially if growers are provided an insurable interest. Since many houses are populated on the integrator’s schedule, a grower’s insurance might be less meaningful under this alternate approach. Moreover, this does nothing to mitigate the concern about information asymmetries at or near the date of an annual renewal. These are likely not insurmountable barriers; however, they cannot be addressed until the issue of insurable interest has been resolved.

**There must be enough interest for the risk to be spread over an acceptable pool of insureds.** The Contractor understands this feasibility requirement also applies to the RMA portfolio in its entirety. Considering the size of the industry, the level of interest in catastrophic disease insurance documented by stakeholder testimony was limited. It will be less feasible to spread the risk associated with poultry catastrophic disease across a broad pool of insureds than to spread crop production risk collectively over such a pool. While the Contractor expects the pool of interested producers and growers would grow and shrink as disease outbreaks occur, it is unlikely integrator interest will increase substantially. Integrators manage the risk through approaches other than insurance. Many integrators have staff solely responsible for risk management.

Regarding the impact of disease outbreaks on interest in insurance, the Contractor was surprised that participation in the listening session in California was extraordinarily limited. A notable outbreak (in terms of value lost and number of birds affected) of AI had recently occurred in the county where the session was held. The Contractor made substantial recruitment efforts in the region, including working with grower organizations and local extension specialists. Yet only one producer, but no growers or integrators, were represented at the session. While the producer was a member of a cooperative, no follow-up calls were received from other cooperative members, although the Contractor encouraged the participating stakeholder to solicit such calls. This pattern changed with the outbreak of HPAI in the Midwest. Very large numbers of birds

were lost there, with total potential production of breaking eggs reduced by as much as 30 percent. It was in this locale that the most substantial producer input was obtained. All those expressing an interest in poultry catastrophic disease insurance had incurred some loss to HPAI.

**There can be no chance of beneficial gain.** From day to day, the value of a meat bird increases and after laying begins the value of a laying bird decreases. To meet this feasibility criterion, any poultry catastrophic disease policy would need to have a variable liability that mirrored the value of the lost poultry. In some ways this would be similar to the dollar amount of approach used in the existing Nursery Crop Insurance product. Without a variable value structure, there would be the possibility of beneficial gain. A variable loss value is an unusual structure for a mortality policy. Some field crop policies (e.g., the onion policy) are structured with indemnities based on the stage of the crop as is the nursery crops policy. This approach could potentially be modified for poultry. Furthermore, a method of attaching a value to birds over their life has been implemented by APHIS. While growers and producers have expressed disappointment with the value established by the APHIS system, it represents a useful available reference for establishing prices that would avoid beneficial gain.

**There must be no unacceptable change in market behavior or unacceptable market distortions in terms of either a change in quantity supplied or shift in the supply curve.** It is hard to predict how an insurance product for poultry might affect the markets. Currently the integrators and their growers are in competition with producers. Producers expressed more interest in mortality insurance than growers, but both expressed stronger interest in business interruption insurance to address the extended downtime needed to prepare a house in which catastrophic disease losses occurred to accept a new “crop.” Producers are better represented in the layer and breeder sectors and in niche markets than in the broiler and turkey sectors. These divisions may be strong enough to limit the potential impact of insurance on supply curves. There is a possibility that insurance might elicit a change in the integrator-grower contract terms to reduce the risk of the integrator. Insurance might also allow some growers to consider becoming producers. However the need for a market for the production makes this latter change less likely since the opportunities for open market sales are limited. Essentially, a grower would need a buyer for the production before undertaking the investment. Integrators may not be willing to loosen the restrictions presently imposed on managing the production.

**The insurance product must be effective, meaningful and reflect the actual risks of the producers.** This criterion is difficult to address because of the large number of potential catastrophic diseases and the distribution of those diseases globally. Furthermore, since the actual risk of greatest concern to respondents is the downtime, it is not clear potential insureds would consider mortality insurance as effective and meaningful coverage for their operations. A producer might be compensated for the loss of birds but still face bankruptcy because of downtime. If enough producers are so impacted, it could have a significant effect on the agricultural economy.

**The perils affecting production must be identified and categorized as insurable and non-insurable.** During the listening sessions, producers indicated that the diseases that affect poultry are numerous. It would be essential in the development of an insurance product that diseases be categorized as controllable or uncontrollable, and also as production diseases (i.e., endemic and

causing limited losses) or catastrophic diseases. Stakeholders indicated concern about a limited number of diseases in any one area and for any one industry sector. However, as noted earlier, concerns were not consistent regionally. Some stakeholders suggested that a very limited pilot for a single industry sector in an isolated region might be appropriate. Gamebirds, turkeys in the Midwest, and eggs in the Midwest or Southwest were all suggested as possible pilot projects. While the Contractor believes these suggestions have some merit, consideration of the other barriers to implementation is important.

**Contain underwriting, rating, pricing, loss measurement, and insurance contract terms and conditions.** Terms and conditions are a matter of policy language and procedures. If the other barriers to implementation of a poultry catastrophic disease product can be overcome, the Contractor believes appropriate contract terms and procedures can be developed.

#### Impediments Specific to Approaches to Insuring Poultry Catastrophic Diseases

The principal barrier to an insurance policy addressing all losses to uncontrollable poultry diseases is the magnitude of the disease list. Currently, production diseases cause some variability in yield, but much less variability than is seen in field crops. Yet the impact of this limited variability is exacerbated by the incredibly thin margins under which the growers operate. As regulatory restrictions limit control mechanisms available for production diseases, greater variability in “yield” can be expected. Production diseases may become catastrophic, at least as far as survival of grower operations is concerned. Diseases endemic to wild populations, such as AI, can be expected to have sporadic but substantial outbreaks. As live birds and poultry products are moved across borders, new diseases will affect the U.S. flocks. The timing of the emergence of *Salmonella enteritidis* as a common food-borne illness in the United States, and the location of those early infections, corresponded with the import of chicks to replace layers lost to a major depopulation response by the US Government associated with an AI outbreak in the Northeast. Furthermore, for the most part the poultry diseases affect different species in dissimilar ways. Consequently, the magnitude of a program addressing all diseases for all poultry species is enormous. Quantifying the risk by disease and species becomes an almost insurmountable barrier to development.

A national named-peril disease coverage program faces many of these same hurdles. Stakeholders suggested a potential approach to development of a poultry catastrophic disease program would be to cover only a limited number of specific diseases (the named-perils). However, there was little agreement about the appropriate diseases for such a program, although after the AI outbreak, AI was consistently named. Furthermore, the risks for these named perils are likely to be very different in different parts of the country. Different rates in different regions would likely introduce market forces that affected participation in the program and perhaps the supply curve. Furthermore, the cost of the insurance would likely exacerbate price differences for production in different regions that in turn could introduce unacceptable market disruption into the poultry industry itself.

Stakeholders at several listening sessions suggested the best approach to begin development of a poultry catastrophic disease program would be to start with just one species and one or two diseases. However, there was little agreement about the appropriate disease and species for such a pilot. This introduces the potential for extreme dissatisfaction with the insurance if a non-



specified disease were to severely affect a non-specified species. Coverage for limited perils in limited industry sectors would almost certainly introduce market factors that would not be acceptable under RMA's criteria for feasibility. Yet the implementation of this approach would provide the most reliable evidence of producers' interest.

APHIS compensation was described previously. In some limited ways this is a form of risk management for specific poultry catastrophic diseases. A crop insurance product that provides top-up coverage for APHIS payments might provide a mechanism for supporting producers, growers, and even integrators during down time due to disease. APHIS also pays only for live birds at the time a VS 1-23 form is submitted to the service. A top-up product could provide coverage so a whole flock would be protected, not just the birds alive when the VS 1-23 was submitted. The availability of both APHIS compensation and RMA indemnities would require careful coordination to assure the incentives for strong biosecurity were not undermined by the compensation available. Careful underwriting would be needed to avoid the possibility of beneficial gain.

From the FCIC's perspective, there are important issues regarding constraints imposed by the Crop Insurance Act, as well as fundamental questions about contract grower's insurable interest. There are also important questions regarding identification, measurement, and tracking of the value of a livestock "crop," similar to those that have been faced by the FCIC as it has provided coverage for the nursery industry. Moreover, the proprietary and closely guarded nature of production data makes the prospect for development of meaningful premium rates without a significant uncertainty load unlikely. This in turn affects both the issue of whether coverage would be meaningful and the issue of whether potential insureds would be willing to pay the premium. In light of these and other issues identified in this study, the Contractor believes it is not currently feasible to develop poultry catastrophic disease crop insurance for the FCIC portfolio without substantive changes in the crop insurance paradigm.

# Appendix A

## Poultry Grower Contracts

## BROILER PRODUCTION AGREEMENT

This AGREEMENT, made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, by and between INTEGRATOR COMPANY hereinafter referred to as “Integrator” and \_\_\_\_\_ of \_\_\_\_\_, Party of the Second Part, with its address for notice at \_\_\_\_\_, hereinafter referred to as “Grower.”

### WITNESSETH

Additional Capital Investments Disclosure Statement:  
ADDITIONAL LARGE CAPITAL INVESTMENTS MAY BE REQUIRED OF GROWER DURING THE TERM OF THIS AGREEMENT.

Integrator expressly intends that this Agreement and the independent services of Grower establish Grower as an independent, third party contractor grower. Grower is primarily responsible for the care, maintenance and growth of each flock to which it has custody. Grower shall use its own judgment and experience in finalizing all techniques and production methods, using the Broiler “Growing Program” Procedures Guide as guidelines only and reporting its successes and recommendations to Integrator.

In consideration of the agreements and covenants of each with the other herein contained, said parties hereby contract and agree as follows:

I. Integrator agrees:

A. To furnish the Grower with a flock (“Flock”) of birds to raise for broiler production for Integrator. Integrator bears the cost of and **retains title to the birds** [emphasis added]. Integrator shall have the right to determine the placement density of the birds.

B. To provide and deliver to the Grower such feed, fuel, litter, medication, vaccine, and litter amendments as may deem necessary for the care of the Flock placed in the custody of the Grower under this Agreement. **Integrator retains title to any feed, medication, or other supplies remaining on the Grower’s farm** [emphasis added].

C. **To determine and schedule when and where the Flock is to be removed for processing** [emphasis added] and shall or shall arrange for third parties to catch, load and transport the Flock at no cost to the Grower.

D. To provide the Grower all feed delivery and live poultry scale tickets that are used in the calculation of the Grower’s compensation and furnish Grower with a copy of the final Flock settlement instrument calculating the payment due to Grower (“Final Flock Settlement”). Any feed picked up by or returned to Integrator shall be weighed and reported on the Final Flock Settlement.

E. To compensate the Grower for services rendered herein as provided for in the attached “Grower Payment Schedule,” not later than fifteen days following the week in which the Flock is slaughtered.

II. Grower hereby commits himself to accept delivery or placement of the Flock, and in addition, agrees:

A. To furnish and provide, in accordance with Integrator’s judgment, the necessary land, buildings, equipment, utilities (understanding that maintenance, management and environmental management are always Grower’s responsibility and Integrator assumes no responsibility as to these or other Grower responsibilities) and further, to provide such labor (including hiring assistants, if any, as Grower may choose) as are necessary to properly care for the Flock.

B. To be present and assist in the preparation of the house(s) for the delivery of chicks and, also, for the removal of the Flock.

C. To adopt and follow sound poultry management practices that conform to practices of good animal husbandry that are at least comparable to Integrator’s recommended practices.

D. To comply with applicable State, Federal and Local environmental laws, rules, regulations, codes and ordinances (“Laws”), including but not limited to, those governing environmental management, poultry litter management, and prompt and proper disposal of all litter and dead birds. Growers in the State of Oz shall be properly certified by the Oz Nutrient Management Commission, or its successor, and shall include within their Nutrient Management Plans or Animal Waste Management Plans (NMP/AWMP) accurate and required accounting for nitrogen and phosphorous applications, as required by Oz’s nutrient management Laws.

E. To provide properly maintained roads, free of surface or overhead obstructions, from the nearest county or state maintained road to and around Grower’s poultry house(s) and furthermore, to provide adequate space to turn vehicles where necessary and adequate loading areas for birds. Grower shall be liable for wrecker or towing charges incurred by Integrator due to insufficiently or improperly maintained roads.

F. To allow no other poultry, fowl, wild birds, exotic or domestic pet birds on the Grower’s premises.

G. To secure all poultry house(s) to prohibit the entrance of unauthorized persons or wild and domestic animals and birds.

H. To insure that all hired labor or other authorized entrants to the poultry house(s) follow proper biosecurity procedures and have no contact with other fowl, wild birds, or exotic or domestic birds.

I. To keep accurate records (such as daily mortality) necessary for the efficient and proper care of the Flock.

J. To notify Integrator immediately if any situation develops that has an adverse effect on the health or well being of the Flock (such as increased mortality or other disease or abnormal conditions).

K. To not use or allow to be used during the period of this Agreement any feed, medication, herbicides, pesticides, rodenticides, insecticides or any other such item except as supplied or approved in writing by Integrator.

L. Within this framework, **Grower retains the exclusive power to control how the actual growing and care services are provided, by use of its own skills, labor, tools, ideas, manner, and judgment** [emphasis added].

M. To indemnify Integrator, its officers, employees, agents and representatives, defend and hold Integrator harmless from and against:

1. Any and all claims for damage or injury to persons or property arising out of or resulting from the Grower's operations or inactions under this Agreement, except to the extent such damage or injury is caused by the gross negligence or willful misconduct of Integrator.
2. Loss from theft or disappearance of birds, feed, medications, or other goods supplied by Integrator pursuant to this Agreement.

N. To indemnify, defend and hold Integrator, its officers, employees, agents and representatives harmless from and against any and all losses, claims, damages, and actions, including federal, state, or local administrative actions, rulings and all other actions of any nature whatsoever which are in any manner caused by or which result from the presence of the broilers on the premises of Grower, including, but not necessarily limited to matters involving emission complaints; disposal complaints; pollution complaints; violation of Laws and any negligent acts or omissions of Grower in the performance of its obligations under this Agreement.

O. To carry comprehensive general liability insurance with limits of not less than Five Hundred Thousand Dollars (\$500,000.00) for death or bodily injury and/or property damage per occurrence. If possible without charge to Grower or Integrator, Integrator shall be named as an additional insured. In any event, a certificate of insurance shall be delivered to Integrator annually on or before the renewal date of the policy. All policies of insurance shall contain a provision that the insurer will not cancel or materially change the policy, except after thirty (30) days' prior written notice to Integrator.

P. To notify Integrator if Grower plans to significantly change its operations.

III. It is further understood and agreed that:

A. This is a service contract and not a contract of employment and Integrator and the Grower are independent contractors and neither their employees nor agents shall be considered to be employees of the other for any purpose whatsoever.

B. The Grower accepts full and exclusive liability for payment of any and all applicable local, state and federal taxes, taxes for workers' compensation insurance, unemployment compensation insurance, or old age benefits or annuities now or hereafter imposed by any governmental agency, as to Grower and all persons as Grower may engage in the performance of this Agreement.

C. Integrator shall not be held responsible or liable for damages to Grower caused by delay or failure to perform hereunder when such delay or failure is due to fire, labor strike, act of God, legal act of a public authority or a labor, feed or fuel shortage, disease, or other circumstances outside the reasonable control of Integrator.

D. Integrator shall have the right to immediately remove said birds from the Grower's premises at any time that any of the following events may occur:

1. The birds contract any disease that, in Integrator's sole reasonable judgment, renders the Flock to be unthrifty, poses a disease threat to other poultry, or as directed by federal, state, or local authorities.
2. Grower's management practices do not conform to Integrator's standards and/or do not conform to practices of good animal husbandry.
3. Failure of the Grower to comply with any provision of the Agreement.
4. Grower becomes insolvent or commits any act of bankruptcy.
5. The use of abusive language, threat of physical harm or in any manner prohibiting Integrator or its authorized representative from properly monitoring the Flock.
6. The Flock reaches a normal marketable age as determined by Integrator.

E. If in the judgment of Integrator, the Grower should fail to provide proper care, feeding or treatment under the terms of this Agreement, Integrator shall have the right to enter over and into the land and premises where the Flock is located and provide necessary care for and handling of the Flock and to charge the Grower with expenses incurred to accomplish this, which will be deducted from settlement before final payment is made.

F. Integrator shall have the right of access at all times to the premises in which the Flock shall be housed or otherwise located for the purpose of inspecting birds, delivering chicks, feed or supplies and removal of birds.

G. If a Grower's Flock performance as determined by either the Standard Cost (as defined in the Grower Payment Schedule) or the basic management practices of the Grower reaches an unacceptable level as determined by Integrator, then the following may occur:

1. Consultation with Integrator's Grow-Out Department management and placement of Grower on an action plan or performance improvement plan.
2. Action plans will be developed in writing with a Grower.
3. Action plans precede a notice of termination that will be issued concurrently with placing a Grower on a performance improvement plan so the Grower is advised that if the performance improvement plan is not met that the Grower will be terminated and the date of termination.
4. A copy of the current performance improvement plan standards are attached hereto as **Schedule I**. New contracts or new Flocks may have changed terms for performance improvement plans that will be provided to the Grower.
5. If the Grower fails to comply with the performance improvement plan to Integrator's satisfaction the contract will be terminated at the date specified in the initial notice.

H. INTEGRATOR DOES NOT WARRANT QUALITY, MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE OR OTHERWISE WARRANT ANY PRODUCT DELIVERED BY OR RECOMMENDED BY IT TO THE GROWER UNLESS MANUFACTURED BY INTEGRATOR. SUCH GOODS ARE DELIVERED AS IS, WHERE IS AND THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE FACE HEREOF.

I. Integrator may assign this Agreement at any time. The Grower may assign this Agreement only with the written consent of Integrator which consent may be withheld in Integrator's sole discretion.

J. **TERMINATION PROVISIONS:**

As a matter of convenience of not having to initiate a new contract for each Flock, this Agreement shall be continuous until terminated as follows:

Grower shall have a right to rescind this Agreement until 11:59 p.m. on the third business day after the day on which Grower signs the Agreement. Grower shall provide written notice of termination to the Integrator's Live Production Manager or Breeder Manager.

Grower may cancel this Agreement without cause and either party may cancel this Agreement with cause, but in all cases, upon first giving the other party written notice of such decision to terminate: provided, however, that such written notice on the part of the Grower or Integrator shall be given no less than ninety (90) days prior to the termination date. Any such notice of termination shall be personally delivered or sent by first class mail to the other party at

the address set forth below such party's signature line. The notice may be given at the date the party enters the performance improvement plan program if that program applies to the Grower. In any event, Integrator's termination notice shall specify the reasons and any appeal rights. The effective date of the termination shall be stated by the party giving notice.

Neither party shall incur any liability to the other party as a result of so electing to terminate this Agreement. Any claim that either party may have against the other party for sums loaned or indebtedness owed to the other party or for breach of this Agreement shall survive termination of this Agreement.

Termination during a Flock placement shall be in accordance with the other terms of this Agreement. Should such termination occur, Integrator agrees to pay the Grower for all services performed until termination of this Agreement, and the Grower agrees to perform all obligations until termination of this Agreement. Except for cause or economic necessity, such as Grower's gross negligence, Flock abandonment or material financial breach, hereinafter defined, Integrator will not terminate this Agreement without first providing Grower an opportunity to cure any deficiencies through a performance improvement plan or other written agreement reached by the parties.

Notwithstanding any provision in this Agreement to the contrary, in the event of Grower's gross negligence or Flock abandonment, Integrator shall have the right to remove the Flock and/or take over said work and complete it in any manner it sees fit, with any and all expenses incurred by Integrator being charged back to the Grower, and at Integrator's option this Agreement, at that time, may be terminated without notice.

Notwithstanding any provision in this Agreement to the contrary, Grower's default under any financing agreement and/or levy, seizure, or attachment of Integrator or Grower's property, Grower insolvency or bankruptcy, shall be considered a "material financial breach" of this Agreement and/or its Exhibits, and Integrator shall have the right to take over said work and complete it in any manner it sees fit, with any and all expenses incurred by Integrator being charged back to the Grower, and at Integrator's option this Agreement, at that time, may be terminated without notice.

#### IV. Miscellaneous:

A. This Agreement shall be binding upon the heirs, executors, administrators, successors and assigns of the parties hereto, and shall supersede any previous agreements made between the said parties.

B. Further, this Agreement constitutes the sole and final agreement between the parties hereto and may be changed or modified only by an agreement in writing signed by each of the said parties.

C. The terms of this Agreement and any documents provided in conjunction herewith or pursuant hereto, including, but not limited to, any Final Flock Settlement and Grower Payment Schedule, shall be deemed confidential information and trade secrets and may



only be shared by Grower if or with: (i) required by applicable legal standards or processes to a federal or state governmental agency; (ii) provided to financial or legal advisers or lenders; (iii) Grower’s hired accounting services representative; (iv) if Grower is an entity, Grower’s executives or managers that agree in writing to maintain the confidential nature of the information; (v) Grower’s landlords that agree in writing to maintain the confidential nature of the information; (vi) a member of Grower’s immediate family or a business associate with whom the Grower has a valid business reason for consulting; or (vii) other Integrator. All such produced documents shall be marked COMPANY CONFIDENTIAL on each page. In addition, the Grower shall immediately provide to Integrator notice of any such legal requirement. Confidential information shall not include information which becomes generally available to the public other than as a result of any unauthorized disclosure by Grower. Grower agrees on behalf of it and its officers, directors, employees, agents and representatives, if any, not to disclose to any third party or appropriate for their own use any confidential information. Each party to whom or to which confidential information is shared will be asked to maintain the confidential nature of the information.

D. This Agreement shall be governed and interpreted by the laws of the State where Grower’s operations under this Agreement are conducted.

E. As noted above, this Agreement may be canceled by Grower within three (3) business days after it is executed by Grower by delivery of a cancellation notice from Grower at the address referenced in the opening paragraph hereof.

IN WITNESS WHEREOF, the parties have hereunto set their hands the day and year first above written.

\_\_\_\_\_  
Grower

INTEGRATOR

\_\_\_\_\_  
Social Security # or Federal ID #

By: \_\_\_\_\_

## SCHEDULE I

Criteria for placing Grower on PIP (Performance Improvement Plan):

1. Written action plan required:
  - When a grower's six Flock average reaches (-) minus \$.0040 or worse.
  - The plan will be written in cooperation with the Grower and it will define steps the Grower should take to improve performance.
  
2. PIP required:
  - When a grower's six Flock average reaches (-) minus \$.0065 or worse.
  - The Grower will be sent a certified letter notifying them that they are on the PIP and providing notice of termination if the PIP plan does not result in improved performance.
  - The certified letter will be sent prior to the placement of the Flock on the PIP.
  - The certified letter will inform the Grower that any Flock while on the PIP must settle better than (-) minus \$.0030 or the contract with the Grower will be terminated.
  - If the termination Flock settles in less than ninety (90) days from the notification by certified letter, the Grower may place another Flock in order to meet the ninety (90) day notification.
  - If a grower's six Flock average improves to better than (-) minus \$.0065 and does not have any Flocks worse than (-) minus \$.0030 while on the PIP, the Grower will be removed from the PIP program.
  - In the case of "**Force Majeure**" meaning war, hostilities (whether declared or not), disasters, including as to individual farms, unforeseen natural catastrophe including but not limited to earthquake, flood, fire, and other causes beyond Grower's foreseeable control, such as labor strike, legal act of a public authority or a labor, feed or fuel shortage, then the PIP and notice of termination may be extended, in writing.

**Schedule II**  
**INTEGRATOR**  
**ADDENDUM TO BROILER PRODUCTION AGREEMENT**  
**MINIMUM PAYMENTS FOR NEW HOUSE CONSTRUCTION**

This **ADDENDUM**, made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, by and between **INTEGRATOR**., referred to as “Integrator” and \_\_\_\_\_ of \_\_\_\_\_, Party of the Second Part, hereinafter referred to as “Grower”.

The Broiler Production Agreement (Grower Payment Schedule) is hereby amended as follows:

I Integrator agrees to pay the Grower for each flock of poultry placed in the Grower’s care a guaranteed minimum payment for new house construction according to the following schedule:

<u>Class</u>	<u>House Type</u>	<u>Dollar (\$) Amount Per 1,000 Birds Placed*</u>	<u>Age of House – Period of Payment</u>
		<u>Large</u>	
AAA	Tunnel With Self Generation, Darkout With Dimmers, 6” Recirculating Pad, Approved Air Speed, Radiant Heat in Brood Chamber	\$300 (Built after 12-31-02)	15 Year Term
AA**	Tunnel With Controller, Self Generation, Dimmers, 6” Recirculating Pad, Approved Air Speed	\$245 (Built after 08-19-02)	15 Year Term
A	Tunnel With Controller and Dark-out	\$230	15 Year Term

\* Based on a placement density of one bird per .75 square foot of floor space.

II All house types must be constructed and equipped according to Integrator's requirements and specifications.

III Disaster Payment:

a. **A disastrous loss will be determined by Integrator and is the result of fire, windstorm, flood, or disease** [emphasis added], not resulting from any negligent act or omission on the part of the Grower.

b. In the event of a 100% disastrous loss of birds, Integrator will compensate the Grower \$15.00 per 1,000 birds started for each week the birds are in the Grower's house until the date of the disaster.

c. In the event of a partial disastrous loss (less than 100% of the birds are lost), Integrator will compensate the Grower \$15.00 per 1,000 birds lost for each week the birds are in the Grower's house based on the number of birds lost. The above payment schedule will be used to calculate the payment for the surviving birds with the exception that if any minimum payments apply, they will be paid on number of birds moved rather than number of birds started.

IV In the event there is an excessive amount of birds lost (greater than 4% of the birds housed) during a 24-hour period that is the result of the following event:

1. Birds are lost due to malfunction of the Grower's equipment (alarms, fans, curtain minders, generators, electrical boxes, etc.) that was preventable and within the control of the Grower,

Or

2. Birds are lost due to a caretaker not being present to respond to an emergency situation,

Then

all Minimum Payments, Disaster Payments, and New House Construction Minimum payments will not apply.

3. Birds are lost due to malfunction of the Grower's equipment (alarms, fans, curtain minders, generators, electrical boxes, etc.) that was not preventable and not within the control of the Grower, then all Minimum Payments, Disaster Payments, and New House Construction Minimum Payments will apply to the number of birds moved (Live Haul count).

IN WITNESS WHEREOF, the parties have hereunto set their hands the day and year first above written.

\_\_\_\_\_  
Grower

INTEGRATOR

\_\_\_\_\_  
Date

By: \_\_\_\_\_

<u>Poultry House #</u>	<u>Class</u>	<u>Date Built</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

**GROWER PAYMENT SCHEDULE**

- A. Base Payment Rate: \$.0450 per pound of poultry moved.
- B. Feed Conversion Performance Rating:
  - Will be determined by comparing each Grower’s average weight per bird and feed conversion to the Weekly Average Weight / Feed Conversion of all flocks in the settlement week.
  - The average weight will be adjusted using a ratio of .10 points of weight equal to .01 point of feed conversion.
  - Average weight will be determined by dividing the pounds of poultry moved from the Grower’s farm by the number of birds at movement as determined from the House Mortality Chart. The grower is required to keep an accurate record of flock mortality.

<u>Example</u>		<u>Grower #1</u>	<u>Grower #2</u>	<u>Grower #3</u>
<u>Weekly Average</u>				
Avg. Weight	6.50	6.60	6.40	6.60
Avg. Feed Conversion	<u>2.05</u>	<u>2.04</u>	<u>2.06</u>	<u>2.06</u>
Rating	.00	+02	-02	.00

- The rating is then multiplied by \$.0750 to determine the cents per pound adjustment to the Base Payment Rate.

**Example**

$+.02 \times \$.0750 = + \$.0015/ \text{lb. Added to the Base Payment Rate}$

$-.02 \times \$.0750 = - \$.0015/ \text{lb. Deducted from the Base Payment Rate}$

- C. Fuel Performance Rating:
  - Will be determined by comparing each Grower’s fuel cost per pound to the Weekly Average Fuel Cost per pound of all flocks in the settlement week.
  - An average unit cost of fuel for the settlement week will be calculated and will be applied to each Grower’s actual units used during the flock.

Example Grower	Actual Gal. Used	Total* Fuel \$'s	Fuel Cost** / Pound	Avg. Wkly Fuel Cost	Base Pay Adjustment
#1	73	\$58	\$.0005	\$.0010	=\$.0005
#2	216	\$173	\$.0015	\$.0010	-\$.0005

\* Average Weekly Fuel Cost/Gal. = \$.80

\*\* Pounds Moved = 115,000

D. Standard Cost:

- Defined as the cost of feed (using a fixed ingredient cost/ton) plus fuel (using the weekly average cost/gal.) calculated on a per pound of poultry moved.
- A minimum of ten flocks per growing program is required to calculate the Weekly Average Standard Cost. If less than 10 flocks are moved during the week, the Weekly Average Standard Cost for the previous week will be used for each flock until the 10 flock minimum requirement is obtained.
- Any flock with a Standard Cost that is either \$.0150 per pound greater than (+) or less than (-) the Weekly Average Standard Cost will not be included when computing the final Weekly Average Standard Cost.

E. Top Six Growers Bonus Payment:

- A bonus payment per pound for each growing program will be added to the Base Payment for the top six Growers that have the lowest Standard Cost for the week's settlement period.
- The following per pound payment will be added to the Base Payment:
 

#1 Grower: \$.0050	#4 Grower: \$.0020
#2 Grower: \$.0040	#5 Grower: \$.0010
#3 Grower: \$.0030	#6 Grower: \$.0005

F. Tunnel Premium Payment

- Tunnel ventilated houses that are approved by Integrator will receive an additional payment per pound of \$.0010.
- This "Tunnel Premium Payment" will be added to the Base Payment per pound.
- If a farm has a combination of "tunnel" housing and "conventional" housing on the same account, the premium pay per pound will be pro-rated based on percent of capacity placed in each style house.
 

Example: 3-house farm --- 2 tunnel houses had 49,000 chicks placed and 1 conventional had 21,000 chicks placed.  
49,000 tunnel capacity divided by 70,000 total capacity = 70% tunnel housing  
70% x \$.0010 = \$.0007 per pound of poultry moved.

G. Insulated Sidewall Incentive Payment

- Houses with at least one sidewall that is closed in, insulated to minimum R-8 and sealed properly to Integrator approval will receive an additional payment per pound of \$.0005.
- This “Insulated Sidewall Incentive Payment” will be added to the Base Payment per pound.
- If a farm has a combination of solid sidewall and open sidewall housing, then “Insulated Sidewall Incentive Payment” will be pro-rated based on the percent of capacity placed in each style house. (See tunnel pro-rate formula in Section F.)

H. Performance Payment

- Growers who have a previous Six-Flock Average that is better than average will have 50% of their previous Six-Flock Average added to their base payment.
- Six-Flock Average is defined as the simple average of the Grower’s most recent six flocks’ Standard Cost. A grower with less than six flocks, but more than three flocks, will have a partial flock average of those flocks. A Grower with three flocks or less will be assigned the average six flock (i.e., zero).

Example: Growers previous Six-Flock Average is +.0020 than .0010 will be added to their base payment.

I. Minimum Payment:

- A minimum payment per 1,000 birds started (at .75 density) is based upon a Grower’s Six-Flock Average as follows:

<u>Six Flock Average</u>	<u>Minimum Payment</u>
+.0026 or above	\$160.00 per 1,000 birds
+.0011 to + \$.0025	\$155.00 per 1,000 birds
+.0010 or below	\$150.00 per 1,000 birds

J. Growers who install, maintain and continuously operate the following equipment to Integrator’s specifications will be paid an additional payment based on the square footage of the house(s) so equipped.

1. Equipment required:
  - a. Six (6) inch pad with recirculating water system.
  - b. Tunnel ventilation with a calculated wind speed of 600 feet per minute or 100 feet per minute more than the length of the house; whichever is greater. (400 foot or less houses must have a minimum of 500 feet per minute.)
  - c. Controllers
  - d. Dark out sidewalls with light dimmers.
  - e. Cross-over fogger lines inside house to specifications.
  - f. Generator with automatic switch-on capable of operating all poultry houses.
2. Payment per square footage of house per flock produced: \$.0100
3. The Minimum Payment referenced in Item H above will be \$165.00 per 1,000 birds placed (at .75 density).



K. **Disaster Payment:**

- **A disastrous loss will be determined by Integrator and is the result of fire, windstorm, flood, or disease, not resulting from any negligent act or omission on the part of the Grower.**
- **In the event of a 100% disastrous loss of birds, Integrator will compensate the Grower at the rate of \$15.00 per 1,000 birds started for each week the birds are in the Grower's house until the date of the disaster.**
- **In the event of a partial disastrous loss (less than 100% of the birds are lost), Integrator will compensate the Grower at the rate of \$15.00 per 1,000 birds lost for each week the birds are in the Grower's house based on the number of birds lost. The above payment schedule will be used to calculate the payment for the surviving birds with the exception that if any minimum payments apply; the calculation will be based upon the number of birds moved rather than number of birds started [emphasis added].**

L. In the event there is an excessive amount of birds lost (greater than 4% of the birds housed) during a 24-hour period that is the result of the following event:

1. Birds are lost due to malfunction of the Grower's equipment (alarms, fans, curtain minders, generators, electrical boxes, etc.) that was preventable and within the control of the Grower,

Or

2. Birds are lost due to a caretaker not being present to respond to an emergency situation,

Then all Minimum Payments, Disaster Payments, and New House Construction Minimum Payments will not apply.

3. Birds are lost due to malfunction of the Grower's equipment (alarms, fans, curtain minders, generators, electrical boxes, etc.) that was not preventable and not within the control of the Grower, then all Minimum Payments, Disaster Payments, and New House Construction Minimum Payments will apply to the number of birds moved (Live Haul count).

M. Any additional bedding deemed necessary by Integrator, because of Grower's mismanagement or omissions, will be supplied by Integrator at Grower's expense, as determined by Integrator based on standard use and practices. Grower remains responsible for handling bedding in accordance with all Laws as defined in the Broiler Production Agreement.

N. All flocks moved each week from Saturday midnight through the following Saturday midnight constitute a payment period.

- O. Payment to the Grower will be made within fifteen (15) days of the date of the final movement of the flock from the farm. Any Federal or state holiday shall extend this time period accordingly.

IN WITNESS WHEREOF, the parties have hereunto set their hands the day and year first above written.

\_\_\_\_\_  
Grower

INTEGRATOR

\_\_\_\_\_  
Date

By: \_\_\_\_\_

**INTEGRATOR'S**  
**POULTRY GROWER AGREEMENT AND COMPENSATION SCHEDULE**

This AGREEMENT, made this day \_\_\_\_\_, by and between \_\_\_\_\_, \_\_\_\_\_, a Delaware corporation with an address of \_\_\_\_\_, hereinafter referred to as \_\_\_\_\_, and \_\_\_\_\_ of \_\_\_\_\_ hereafter referred to as GROWER.

In consideration of the premises and the mutual agreements of each other herein contained, said parties hereby contract and agree as follows:

**WISTNESSETH**

**Additional Capital Investments Disclosure Statement:**

Additional Large capital investments may be requires of GROWER during the term of this AGREEMENT.

**I. \_\_\_\_\_, AGREES:**

- A. To cosign and deliver chicks to GROWER to be raised exclusively for \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ has the right to determine placement density.
- B. To provide and deliver to GROWER, or arrange to have provided and delivered to GROWER, all feed, medication, vaccines, fuel and other flock supplies. \_\_\_\_\_, \_\_\_\_\_ retain titles to any flock supplies remaining on GROWER'S farm.
- C. To provide GROWER with an accounting of chicks consigned and supplies provided under the terms of this Agreement.
- D. To determine, at tis sole option and discretion, the time each flock will be delivered to GROWER, removed from GROWER for processing and which processing plant will be utilized and shall arrange for the catching and hauling of the flock at no cost to the GROWER.
- E. To compensate the GROWER in accordance with the terms set forth in the attached compensation schedule.

**II. GROWER AGREES:**

- A. To accept the chicks when cosigned by \_\_\_\_\_, \_\_\_\_\_ and to raise the chicks until removed at \_\_\_\_\_, \_\_\_\_\_ sole direction form the GROWER'S farm.
- B. To furnish the necessary housing, equipment, supplies to maintain equipment and housing, utilities, alarms, labor and management to properly care for the flock in accordance with \_\_\_\_\_, \_\_\_\_\_ requirements, which Grower agrees may change from time to time.
- C. To be present or represented when chicks are delivered and during the catching and movement of each flock by \_\_\_\_\_, \_\_\_\_\_ and be responsible for proper house preparation to include to chick delivery/placement and chicken catching and movement, such preparation to include adequately raising or moving of equipment.
- D. To use only the feed, medication, vaccines, fuel and other flock supplies, which \_\_\_\_\_, \_\_\_\_\_ has provided or has arranged to be provided to the GROWER for the raising of the chicks cosigned.
- E. To use only pesticides, rodenticides, or insecticides supplied or approved in writing by \_\_\_\_\_.

- F. To allow no other poultry, fowl. Wild birds, exotic or domestic pet birds on the GROWER'S premises and to promptly rid the farm of any birds left on the farms same day of the final movement of birds.
- G. To keep accurate records of mortality and other information for the efficient and proper care of consigned chicks.
- H. To adhere to the National Chicken Animal Welfare Guidelines implemented on April 5, 2005 (which are adopted and incorporated herein) and any revisions of said Guidelines.
- J. To assure that no birds are sold or removed from the GROWER'S premises except by \_\_\_\_\_, \_\_\_\_\_ or with its prior written consent.
- K. To provided properly maintained roads, free of surface or overhead obstructions, from the nearest country or state maintained road to and around GROWER'S poultry house(s) and furthermore, to provide adequate space to turn vehicles where necessary and adequate loading for birds. GROWER shall be responsible for all costs incurred by \_\_\_\_\_, \_\_\_\_\_ if roads are not maintained properly or free from obstructions.
- L. To insure that all hired labor or other authorized entrants to the poultry house(s) follow all bio-security procedures and have no contact with other fowl, wild birds, or exotic or domestic birds.
- M. To properly secure all poultry house(s) to prohibit the entrance of unauthorized persons or wild and domestic animals and birds.
- N. To follow, adhere, perform and maintain all bio-security procedures and programs recommended by \_\_\_\_\_, \_\_\_\_\_ at all times.
- O. To provide for prompt and proper disposal of all dead and cull poultry resulting from normal mortalities and/or catastrophic loss in a manner meeting the requirements of federal, state, and local laws, regulations and codes.
- P. To comply with all applicable federal, state and local laws, regulations, rules or codes applicable to GROWER, the services provided, the chicks consigned, and/or the properly or equipment utilized in the performance of this AGREEMENT.
- Q. To comply with all applicable federal, state, and local laws, regulations, rules or codes applicable to GROWER'S environmental management, including, without limitation, nutrient management plans, operating permits, birds mortality, waste, disposal, water quality and air quality.
- R. To indemnify \_\_\_\_\_, \_\_\_\_\_, its officers, employees, agents and representative and hold them harmless from and against:
  - i. Any and all claims for damage or injury to persons or property arising out if resulting from the GROWER'S operations, acts or inactions under this AGREEMENT, except to the extent such damage or injury is caused by the gross negligence or willful misconduct of \_\_\_\_\_, \_\_\_\_\_.
  - ii. Loss from theft or disappearance of birds, feed, medications, or other flock consigned herein. GROWER shall use their own judgment, skills labor, tools ideas and experience in caring for each flock.

**III. IT IS FURTHER UNDERSTOOD AND AGREED THAT:**

- A. The GROWER is and shall in all circumstances remain and independent contractor and shall not be an agent, servant, or employee of, or a joint venture with \_\_\_\_\_, \_\_\_\_\_. Each party hereto shall employ and supervise exclusively its own servants, agents, and employees. The GROWER shall be solely responsible for the performance of

- its obligation under this AGREEMENT, and all costs incurred by the GROWER in the performance of its obligations hereunder are the GROWER'S exclusive any debts, liabilities or other obligations in the name of \_\_\_\_\_, \_\_\_\_\_.
- B. GROWER represents and warrants that Grower is the owner of the land, buildings, and equipment utilized for this AGREEMENT or GROWER is in legal possession of said real property, buildings and equipment and has the right and authority to use the same for the purposes of this AGREEMENT.
- C. GROWER or their agene/designee, shall have the right to be present at the weight by \_\_\_\_\_, \_\_\_\_\_ of any birds raised by GROWER under this AGREEMENT, be present at the weighing of feed delivered under this AGREEMENT, and observe the weights and measures used by \_\_\_\_\_, \_\_\_\_\_ to determine the compensation due to PRODUCER under this AGREEMENT.
- D. GROWER shall be solely responsible for payment of any and all applicable federal and state taxes on the GROWER'S income and the timely reporting and payment of all worker's compensation insurance, unemployment compensation, withholding and payroll taxes, licenses, permits, and assessments now or hereafter imposed by any governmental agency as to the GROWER and all persons employed or engaged by the GROWER in the performance of this AGREEMENT. GROWER and all persons employed or engaged by the GROWER in the performance of this AGREEMENT. GROWER agrees to defend and hold \_\_\_\_\_, \_\_\_\_\_ harmless from any liability with respect to any such taxes or other charges and reimburse, \_\_\_\_\_, \_\_\_\_\_ for any and all costs incurred, including attorney's fees, in any such action.
- E. All poultry and supplies furnished by \_\_\_\_\_, \_\_\_\_\_ necessary to raise the birds pursuant to this AGREEMENT are the property of \_\_\_\_\_, \_\_\_\_\_ and the GROWER shall have no titles or right of any kind therein. \_\_\_\_\_, \_\_\_\_\_, at its sole option discretion, may post notices or placards concerning its ownership at the GROWER'S premises and may file one or more financing statements or similar instruments under the UCC or other applicable law (for purposes of which this AGREEMENT shall constitute a financing agreement), and the GROWER shall cooperate fully with \_\_\_\_\_, \_\_\_\_\_ as necessary to accomplished the foregoing. The failure by \_\_\_\_\_, \_\_\_\_\_ to provide notice of its ownership in the foregoing manner shall not, however, relieve the GROWER of its obligation to advise third parties of \_\_\_\_\_, \_\_\_\_\_ ownership as provided in this AGREEMENT.
- F. Grower shall permit and allow any agent, or employee of \_\_\_\_\_, \_\_\_\_\_ unrestricted access and entry upon the premises of the GROWER where the flock is or shall be located, at any and all times deemed necessary by \_\_\_\_\_, \_\_\_\_\_, to inspect the premises and the flock, to treat for disease, to cull or remove birds for any reasons, to inspect the GROWER'S records, or take any other action \_\_\_\_\_, \_\_\_\_\_ deems necessary in its sole discretion to protect its property.
- G. If in the judgment of \_\_\_\_\_, \_\_\_\_\_ the GROWER should fail to provide proper care, feeding or treatment under the terms of this AGREEMENT, \_\_\_\_\_, \_\_\_\_\_ shall have the rights to immediately enter over and into the land and premises where the flock is located and provide necessary care for and handling of the flock. GROWER shall assume the costs for any necessary disbursements to accomplish such purposes. Costs incurred by the GROWER will deduct from settlement before final payment is made.

- H. Unless otherwise expressed in the AGREEMENT, \_\_\_\_\_, \_\_\_\_\_ GROWER shall not be held responsible for damages to the other caused by delay or failure to perform hereunder when such delay or failure is due to fires, strikes, acts of God, legal acts of public authorities or delays or defaults due to labor, feed, or fuel shortages, which are due to natural disaster (including, but not limited to, fire, flood, windstorm, or hailstorm) which cannot be reasonable forecasted or protected against.

**IV. TERMINATION:**

- A. For the convenience of not having to initiate a new AGREEMENT for each flock, this AGREEMENT shall continue until the AGREEMENT is terminated by either \_\_\_\_\_, \_\_\_\_\_ or GROWER as provided herein.
- B. GROWER shall have a right to cancel this AGREEMENT until 12:00 midnight of the third business day after the day on which GROWER signs this AGREEMENT or until chicks have been placed with GROWER, whichever occurs first. GROWER shall provide a written notice of termination to \_\_\_\_\_, \_\_\_\_\_ for termination to be effective.
- C. This AGREEMENT can be terminated by either party upon giving the other party ninety (90) days written notice. Notice is required to be sent by certified mailed to the address listed the AGREEMENT.
- D. \_\_\_\_\_, may not place birds with GROWER during the 90 day notification period under the following conditions:
- i. The GROWER fails to properly care for any poultry in accordance with terms of this AGREEMENT.
  - ii. The GROWER permits to be levied upon or attached, or disposes or attempts to dispose of any poultry or supplies furnished by \_\_\_\_\_, \_\_\_\_\_.
  - iii. The GROWER breaches any of the terms of this AGREEMENT.
  - iv. In the opinion of \_\_\_\_\_, \_\_\_\_\_ the flock becomes endangered for any reason.
  - v. Grower's management practices do not conform to \_\_\_\_\_, \_\_\_\_\_ standards or do not comply with practices of good animal husbandry.
- E. If this AGREEMENT is terminated by \_\_\_\_\_, pursuant to the provisions of the preceding paragraphs then, in addition to, and not in limitations of, any other rights and remedies available to \_\_\_\_\_, \_\_\_\_\_ at law or in equity, it or its authorized representative shall be fully authorized to come upon the GROWER'S premises without legal process, as \_\_\_\_\_, \_\_\_\_\_ may elect, either to feed and care for the flock on the GROWER'S premises or to take immediate possession and to remove or dispose of same in such manner as \_\_\_\_\_, \_\_\_\_\_ may see fit. If \_\_\_\_\_, \_\_\_\_\_ elects to keep the flock on the GROWER'S premises and equipment for completing the growing operation shall be without charge. If \_\_\_\_\_, \_\_\_\_\_ exercises its rights pursuant to this paragraph, the GROWER shall be liable for any expenses and other costs, including reasonable attorney's fees and court costs, incurred by \_\_\_\_\_, \_\_\_\_\_.
- F. Neither party shall incur any liability to the other party as a result of so electing to terminate this AGREEMENT. Any claim that either party may have against the other pater for sums loaned or indebtedness owed to the other party or for breach of this AGREEMENT shall survive termination of this AGREEMENT.

**V. PERFORMANCE IMPROVEMENT PLAN (PIP):**

- A. A PIP will be developed for the improvement of the overall cost and or performance of the GROWER. A GROWER may be placed into a PIP program if one or more of the following conditions exist:
- i. A GROWER'S five of six flock average cost equals or exceeds \$0.0075 per pound worse the average of their growing program.
  - ii. GROWER has two consecutive flocks with costs greater than \$0.0075 worse than average of their growing program.
  - iii. A single event due to GROWER negligence (such as a suffocation) causing increased mortality during a normal production cycle.
- B. Once the GROWER is placed into the PIP program, the following steps will transpire:
- i. An overview of the GROWER'S facility to include the condition of all equipment, GROWER'S management technique, etc., by a committee that will consist of the GROWER, the Technical Supervisor, and the Growout Manager.
  - ii. An action plan will be developed based upon the findings of the committee for improving the overall performance and cost. The action plan may include upgrades to existing facilities or changes in poultry husbandry practices, including but not limited to changes in density or layout period.
  - iii. Entering into the PIP program precipitates the termination clause that requires a ninety (90) day written notices as outlined in the Farm Bill Act. The PIP program can last for a period of three (3) grow out cycles. The completion of the third growout cycle of 90 days, a GROWER whose performances is better than average will be removed from the PIP Program. GROWERS not showing a \$0.0025 per pound improvement in cost will be terminated.

**VI. MISCELLANEOUS:**

- A. All disputes, claims, and questions regarding the rights and obligations of the parties under the terms of this AGREEMENT shall be subject to compulsory arbitration. Either party may make a demand for arbitration by filling such demand in writing with the other party within forty-five (45) days after the disputes first arises. Thereafter, arbitration shall be conducted by one arbitrator acting under the rules of commercial arbitration of the American Arbitration Association. The decision of the arbitrator shall be final and binding upon both parties hereto. Each party shall share equally the arbitrator's expenses.
- B. As outlined in the Farm Bill Act, GROWER has the right, before entering into the AGREEMENT, to decline the requirement to use arbitration to resolve any controversy that may arise hereunder. If GROWER declines the requirement to use arbitration, GROWER has the right to nonetheless seek to resolve any controversy that may arise under this AGREEMENT if, after the controversy arises, both parties consent in writing to use arbitration to settle the controversy. GROWERS refusing the arbitration process are required to sign a statement to that affect.

By signing below, GROWER declines the requirement to use arbitration to resolve any controversy that may arise hereunder.

\_\_\_\_\_  
WITNESS

\_\_\_\_\_  
GROWER (CO-OWNER) (seal)

\_\_\_\_\_  
WITNESS

\_\_\_\_\_  
GROWER (CO-OWNER) (seal)

\_\_\_\_\_  
DATE

- C. If any legal action is filed for the enforcement or interpretation of this AGREEMENT, the prevailing party shall be entitled to recover, as a part of its damages, the costs, including reasonable attorney’s fees, incurred by prevailing party.
- D. The invalidity of any portion of this AGREEMENT shall not affect the validity of any other provision. If any provision of this AGREEMENT is held to be invalid, the remaining provisions shall be deemed to be in full invalid provision.
- E. This AGREEMENT and the then current COMPENSATION SCHEDULE constitutes the entire agreement between \_\_\_\_\_, \_\_\_\_\_ and GROWER, and no representations statements made by either party or their agents not contained herein shall be in any way binding on either party. This AGREEMENT shall be freely assignable by GROWER only with \_\_\_\_\_, \_\_\_\_\_ prior written consent.
- F. This AGREEMENTS shall be governed by, and construed and enforced in accordance with the laws of the state where GROWER’S premises are located and operations conducted under this AGREEMENT.
- G. This AGREEMENT shall be binding upon the heirs, executors, administrators, successors and assigns of the parties hereto, and shall supersede any previous AGREEMENTS made between the said parties.
- H. By executing this AGREEMENT and COMPENSATION SCHEDULE, GROWER represents and warrants that he ,she or it has been afforded the opportunity to have the AGREEMENT and COMPENSATION SCHEDULE reviewed outside the business premises of \_\_\_\_\_, \_\_\_\_\_ or \_\_\_\_\_, \_\_\_\_\_ agents by an attorney or adviser of GROWER’S choosing for at least three business days prior to such execution.



**GROWER COMPENSATION SCHEDULE**

**I. WEEK’S AVERAGE PRIME COST**

The sum of chick, feed, fuel, and non-chargeable expenses (including but not limited to; litter, litter bug treatment, PLT, vaccine, medication, and miscellaneous costs) as charged to each program’s Settling GROWERS, divided by the total Pounds of Poultry Moved from Settling GROWERS’ farms as recorded by the far, weight record. These costs shall be calculated using standard rates as determined by \_\_\_\_\_, \_\_\_\_\_.

**II. WEEK’S AVERAGE ADJUSTED PRIME COST**

The Week’s Starting Adjusted Prime Cost is the sum of chick, feed and fuel costs of all Settling Growers divided by the pounds of poultry moved from each program’s Settling GROWER’s farms as recorded by the farm weight record. These costs shall be calculated using standards rates as determined by \_\_\_\_\_, \_\_\_\_\_.

- a. A minimum of 5 flocks are required to calculate the Week’s Starting Average Adjusted Prime Cost. In the event there are not 5 flocks within the Payment Period, the number of flocks to equal or exceed 5 will be used from the previous week’s Payment Period starting with the most recent flocks moved.
- b. All GROWERS who’s Adjusted Prime Cost per pound is \$.0150 greater than the Week’s Starting Average Adjust Prime Cost shall be excluded when calculating the Week’s Final Average Adjusted Prime Cost.

**III. GROWER ADJUSTED PRIME COST**

The Adjusted Prime Cost is sum of chick, feed and fuel costs divided by the pounds of poultry moved from GROWER’S farm as recorded by the farm weight record. These costs shall be calculated using standards rates as determined by \_\_\_\_\_, \_\_\_\_\_.

**IV. GROWER’S POINT SPREAD**

Week’s Average Adjusted Prime Cost minus GROWER’s Adjusted Prime Cost.

**V. PAYMENT PERIOD**

Based on final movement, all flocks marketed each week from Saturday at midnights to the following Saturday at midnight will constitute a payment period.

**VI. BASE PAYMENT RATES**

Payments rates per pound of poultry moved by program:

Program	ABF SB	SB	ABF SR	SR
Base Pay Rate per Pound	\$0.0510	\$0.0370	\$0.0490	\$0.0335

**VII. GROWER PERFORMANCE PAYMENT**

The GROWER’S Performance Payment per pound is the base payment per pound plus or minus the GROWER’S Point Spread.

**VIII. INCENTIVE PAYMENTS**

All the below listed Incentive Payments will be paid per live pound. The applicable Incentive Pays will be added to the GROWER Performance Payment (Base Pay +Point Spread). If a farm has a combination of different types of housing, the incentive pay per pound will be pro-rated based on the percent of square footage of each style house placed.

Example: A farm has a combination of “tunnel” housing. House #1 has a 6” recirculating system and house #2 is conventional. The square Footage for house #1 is 20,000 and house #2 is 16,000. Total farm square footage of 36,000 square feet.

20,000 square feet of tunnel divided by 36,000 total square feet = 56% tunnel.

56% X \$0.0055 (Tunnel Incentive) = \$.0031 per pound of all poultry moved.

- A. Tunnel Incentive Pay - Houses which meet \_\_\_\_\_, \_\_\_\_\_ tunnel specifications and approved air will receive the Tunnel Incentive Pay per pound.

	ABF SB	SB	ABF SR	SR
Tunnel Incentive Rate per Pound - 6" Recirculation Pad	\$0.0055	\$0.0055	\$0.0055	\$0.0055
Tunnel Incentive Rate per Pound - Spray on Pad	\$0.0035	\$0.0035	\$0.0035	\$0.0035

- B. Solid Sidewall Incentive Pay – This incentive pay will be paid to those houses with both sides covered and sealed properly and insulated to a minimum rating of R-13.

	ABF SB	SB	ABF SR	SR
Both sides covered, sealed properly and insulated to a minimum of R-13	\$0.0035	\$0.0035	\$0.0035	\$0.0035

- C. Brooding Light Circuit Incentive Pay – This incentive pay will be paid to those houses that contain a brooding light circuit and are able to achieve 2.5 or greater foot candles.

	ABF SB	SB	ABF SR	SR
Brooding Light Circuit 2.5 or greater Foot Candles	\$0.0015	\$0.0015	\$0.0015	\$0.0015

- D. Pulse Water Meter Incentive Pay – This incentive pay will be paid to those houses that are equipped with a pulse water meter connected through the controller. There must be one pulse water meter per house.

	ABF SB	SB	ABF SR	SR
Pulse water meter connected through the controller	\$0.0010	\$0.0010	\$0.0010	\$0.0010

**IX. CHANGE OF PRGORAM INCENTIVE PAY**

- a. The below rates per pound will paid when the program change involved all of the houses within an account.

	ABF SB	SB	ABF SR	SR
SB or ABF SB placed but proceeded as SR or ABF SR	NA	NA	\$0.0025	\$0.0025
SR or ABF SR placed but processed as SB or ABF SB	\$0.0120	\$0.0120	NA	NA

- b. If there is a partial farm movement change (i.e. less than all of the houses change programs) the GROWER will be paid based on the average pay per day of the flocks used to create the best five of six flock average. The per day pay amount will be multiplied times the average of the flock for total pay amount prior to bonuses.

**X. CONTRACT MINIMUM PAY**

Contract Minimum Pay will be paid per square foot of housing space per flock. Contract Minimum Pay will be paid instead if it exceeds the total of the Grower’s Performance Payments plus Incentives.

	ABF SB	SB	ABF SR	SR
Standard House	\$0.25/Sq. Ft	\$0.25/Sq. Ft	\$0.25/Sq. Ft	\$0.25/Sq. Ft
New House	\$0.33/Sq. Ft	\$0.33/Sq. Ft	\$0.33/Sq. Ft	\$0.33/Sq. Ft

**XI. GROWER’S SIX - FLOCK ADJUSTED PRIME COST RATING**

A simple average of GROWER’S Point Spread for the previous up to six (6) flocks settled. If this is the GROWER’S first flock, the rating shall zero.

**XII. FIVE OF SIX FLOCKS AVERAGE RATING BONUS**

- a. Five of Six Flocks Average Rating is the simple average pf GROWER’S highest five out of the last six settled flocks’ GROWER’S Point Spread. For growers with less than six flocks settled, but greater than two, the Five of Six Flocks Average Rating is a sample average of those flocks GROWER’S Point Spreads. If a grower has less than three flocks settled, the Five of Six Flocks Average Rating shall be zero.
- b. In order to receive the Five of Six Flocks Average Rating Bonus, a GROWER must have a Five of Six Flock’s Average Rating greater than zero. The GROWER will receive 50% of the Five of Six Flocks Average Rating

For example: If the GROWER’S 5 of 6 flock average, prior to current settlement, is +.0020, then +.0010 will be added to their payment per pound.

**XIII. ELECTRIC BONUS**

An electric bonus will be paid pound of poultry moved between June 1 and October 31.

	ABF SB	SB	ABF SR	SR
Electric Bonus	\$0.0025	\$0.0025	\$0.0050	\$0.0050

**XIV. DIASTER PAYMENT:**

- a. In the event of a disaster involving 100% loss of a flock from fire, windstorm, flood or hail \_\_\_\_\_, \_\_\_\_\_ will pay GROWER \$10.00 per week per one-thousand (1000) chicks placed and lost from date of placement of birds on GROWER’S farm to the date of disaster.
- b. In the event of a partial disaster (less than 100%) of a flock from fire, windstorm, flood or hail, placed and lost from date of placement of birds on GROWER’s farm to the date the disaster. The surviving poultry will be settled in accordance to the COMPENSATION SCHEDULE and all surviving house Contract Minimum Payments will apply:
- c. In the event there is an excessive amount of birds lost (greater than 2% of the birds placed) during a 24-hour period, the following will apply:
  - i. If birds lost are due to malfunction of the GROWER’s equipment (alarms, fans, curtain minders generators, electrical boxes, etc.) that was preventable and within the control of the GROWER, or caretaker not being present to respond to an emergency situation, then all Contract Minimum Pay and Disaster Payments will not apply.
  - ii. If birds lost are due to malfunction of the GROWER’S equipment (alarms, fans, curtain minders generators, electrical boxes, etc.) that was not preventable and not within the control of the GROWER, \_\_\_\_\_, \_\_\_\_\_ will pay GROWER \$10.00 per week per one-thousand (1000) chicks placed and lost from date of placement of birds on GROWER’S farm to the date of the disaster. The surviving poultry will be settled in accordance to the Compensation Schedule and all surviving house Contract Minimum Payments will apply.

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals to this AGREEMENT and COMPENSATION SCHEDULE on the day and year first above written.

\_\_\_\_\_, \_\_\_\_\_

By \_\_\_\_\_ (seal)  
Director of Live Production

\_\_\_\_\_  
WITNESS

\_\_\_\_\_  
GROWER (CO-OWNER) (seal)

\_\_\_\_\_  
WITNESS

\_\_\_\_\_(seal)  
GROWER (CO-OWNER)

\_\_\_\_\_  
DATE

## **Appendix B**

### **Stakeholder Input**

**Exhibit 1. Listening Session Agenda**

**Exhibit 2. Sample Listening Session Press Release**

## **Exhibit 1**

# **Listening Session Agenda**

## **Poultry Catastrophic Disease Study – FCIC Insurance? Listening Session Agenda**

- Introductions
  - Watts and Associates, Inc.
  - RMA representative
  - Congressional representatives
  - Other attendees
  
- Purpose
  - Gather stakeholder input regarding possible Federal poultry catastrophic disease product
  
- Background
  - Paperwork Reduction Act constraints
  - Farm Bill mandate
  - Contract requirements
    - Criteria for Feasibility
  - Contract definition of Poultry Catastrophic Disease
  - Typical process for development of a crop insurance product
  
- Stakeholder Input
  - Catastrophic events for a contract grower
  - Catastrophic events for a poultry owner
  - Experiences with poultry catastrophic disease
  - Interest in poultry catastrophic disease crop insurance
    - Existing private products
    - Possible FCIC coverage
  - How growers and owners protect themselves from the risks of poultry catastrophic disease
    - Veterinary care
    - National Poultry Improvement Plan
    - Other bio-security measures
  - Other issues raised by the attendees
  
- Questions



## **Exhibit 2**

# **Sample Listening Session Press Release**

## **Government Contractor Seeks Stakeholder Input on Federal Insurance for Poultry Catastrophic Disease Events.**

Congress made an amendment to Section 522(c) of the Federal Crop Insurance Act in the Agricultural Act of 2014. One portion of the amendment added a subparagraph to the Crop Insurance Act directing the Federal Crop Insurance Corporation (FCIC) to contract for “a study to determine the feasibility of insuring poultry producers for a catastrophic event.”

Watts and Associates, Inc. (W&A) was awarded the contract to conduct this study. W&A is an economic consulting firm out of Billings, Montana and has completed almost 100 projects focused on crop insurance in the United States, Canada, and Europe over the last 12 years. The completed projects include a 2010 report entitled “Feasibility Research Report for Insuring Commercial Poultry Production” prepared for the United States Department of Agriculture (USDA) Risk Management Agency (RMA). Part of the research required under the Poultry Catastrophic Disease Study is gathering stakeholder input. To that end, W&A is conducting listening sessions open to the public on Date, 2015, at Time am/pm at Location, Minnesota; on Date, 2015, at Time am/pm at Location, Pennsylvania; and on Date, 2015, at Time am/pm at Location, California.

W&A is particularly interested in gathering information on the level of concern associated with catastrophic diseases in the poultry industry; risk management techniques related to such diseases; insurable interest (share of risk) held by integrators and growers; impressions about the current government programs to assist with the costs associated with depopulation, cleaning, disinfection, and heightened surveillance procedures; and other relevant feedback. If you are unable to attend a listening session, you can provide your input to Randy Landgren at W&A by email at [rlandgren@wattsandassociates.com](mailto:rlandgren@wattsandassociates.com). You may also indicate your interest in attending one of the sessions at the same email address.

# Appendix C

## State Veterinarians

## STATE ANIMAL HEALTH OFFICIALS –2014

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Sacramento, CA 95814  
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Website: <http://www.cdffa.ca.gov/ahfss/>  
Permits Info: Most livestock and poultry have entry permit and Certificate of Veterinary Inspection (CVI) requirements to enter California. California entry permits are issued to accredited licensed veterinarians from the state of origin by the Animal Health Branch.  
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# Appendix D

## APHIS Stakeholder Registry Reports

WASHINGTON, April 14, 2015 -- The United States Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) has confirmed the presence of highly pathogenic H5N2 avian influenza (HPAI) in an additional eight commercial turkey flocks in Minnesota. There are 22 total confirmed cases in Minnesota. These flocks are within the Mississippi flyway where this strain of avian influenza has previously been identified. CDC considers the risk to people from these HPAI H5 infections in wild birds, backyard flocks and commercial poultry, to be low. No human infections with the virus have been detected at this time.

The affected flocks are in:

- Kandiyohi County – 30,000 turkeys (4th detection in the county)
- La Sueur County – 21,500 turkeys (1st detection in the county)
- Meeker County – 25,000 turkeys (2nd detection in the county)
- Meeker County – 20,000 turkeys (3rd detection in the county)
- Stearns County – 76,000 turkeys (5th detection in the county)
- Swift County – 160,000 turkeys (1st detection in the county)
- Swift County – 154,000 turkeys (2nd detection in the county)
- Redwood County – 56,000 turkeys (1st detection in the county)

Samples from the turkey flocks were tested at the University of Minnesota Veterinary Diagnostic Laboratory and the APHIS National Veterinary Services Laboratories (NVSL) in Ames, Iowa confirmed the findings. NVSL is the only internationally recognized AI reference laboratory in the United States. APHIS is working closely with the Minnesota Board of Animal Health on a joint incident response. State officials quarantined the premises and birds on the property will be depopulated to prevent the spread of the disease. Birds from the flock will not enter the food system.

The United States has the strongest AI surveillance program in the world. As part of the existing USDA avian influenza response plans, Federal and State partners as well as industry are responding quickly and decisively to these outbreaks by following these five basic steps: 1) Quarantine – restricting movement of poultry and poultry-moving equipment into and out of the control area; 2) Eradicate – humanely euthanizing the affected flock(s); 3) Monitor region – testing wild and domestic birds in a broad area around the quarantine area; 4) Disinfect – kills the virus in the affected flock locations; and 5) Test – confirming that the poultry farm is AI virus-free. USDA also is working with its partners to actively look and test for the disease in commercial poultry operations, live bird markets and in migratory wild bird populations.

The Minnesota Department of Health is working directly with poultry workers at the affected facility to ensure that they are taking the proper precautions. As a reminder, the proper handling and cooking of poultry and eggs to an internal temperature of 165 °F kills bacteria and viruses.

USDA will include the confirmation information in routine updates to the World Organization for Animal Health (OIE), and will notify international trading partners of this finding as

appropriate. OIE trade guidelines call on countries to base trade restrictions on sound science and, whenever possible, limit restrictions to those animals and animal products within a defined region that pose a risk of spreading disease of concern.

These virus strains can travel in wild birds without them appearing sick. People should avoid contact with sick/dead poultry or wildlife. If contact occurs, wash your hands with soap and water and change clothing before having any contact with healthy domestic poultry and birds.

All bird owners, whether commercial producers or backyard enthusiasts, should continue to practice good biosecurity, prevent contact between their birds and wild birds, and report sick birds or unusual bird deaths to State/Federal officials, either through their state veterinarian or through USDA's toll-free number at 1-866-536-7593. Additional information on biosecurity for backyard flocks can be found at <http://healthybirds.aphis.usda.gov>.

### *Additional background*

Avian influenza (AI) is caused by an influenza type A virus which can infect poultry (such as chickens, turkeys, pheasants, quail, domestic ducks, geese and guinea fowl) and is carried by free flying waterfowl such as ducks, geese and shorebirds. AI viruses are classified by a combination of two groups of proteins: hemagglutinin or "H" proteins, of which there are 16 (H1–H16), and neuraminidase or "N" proteins, of which there are 9 (N1–N9). Many different combinations of "H" and "N" proteins are possible. Each combination is considered a different subtype, and can be further broken down into different strains. AI viruses are further classified by their pathogenicity (low or high)—the ability of a particular virus strain to produce disease in domestic chickens.

The HPAI H5N8 virus originated in Asia and spread rapidly along wild bird migratory pathways during 2014, including the Pacific flyway. In the Pacific flyway, the HPAI H5N8 virus has mixed with North American avian influenza viruses, creating new mixed-origin viruses. These mixed-origin viruses contain the Asian-origin H5 part of the virus, which is highly pathogenic to poultry. The N parts of these viruses came from North American low pathogenic avian influenza viruses.

USDA has identified two mixed-origin viruses in the Pacific Flyway: the HPAI H5N2 virus and *new* HPAI H5N1 virus. The *new* HPAI H5N1 virus is not the same virus as the HPAI H5N1 virus found in Asia, Europe and Africa that has caused some human illness. Only the HPAI H5N2 virus has been detected in the Pacific, Mississippi and Central Flyways.

Detailed analysis of the virus is underway in cooperation with the U.S. Centers for Disease Control and Prevention. For more information about the ongoing avian influenza disease incidents visit the APHIS website. More information about avian influenza can be found on the USDA avian influenza page. More information about avian influenza and public health is available on the CDC website.

## Attachments

- Attachment I. Poultry-Grading Manual
- Attachment II. United States Classes, Standards, and Grades for Poultry  
AMS 70.200 *et seq.*
- Attachment III. Egg-Grading Manual
- Attachment IV. United States Standards, Grades, and Weight Classes for Shell  
Eggs AMS 56

# Attachment I

## Poultry-Grading Manual

USDA AMS provides poultry grading standards manuals on its Website (<http://www.ams.usda.gov/>). For this report, the Poultry-Grading Manual from <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELDEV3002393> is incorporated into the report by reference, with agreement of the Government.



## Attachment II

### United States Classes, Standards, and Grades for Poultry AMS 70.200 *et seq.*

USDA AMS provides poultry grading standards manuals on its Website (<http://www.ams.usda.gov/>). For this report, the United States Classes, Standards, and Grades for Poultry AMS 70.200 *et seq.* from <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELDEV3004377> are incorporated into the report by reference, with agreement of the Government.

## **Attachment III**

# **Egg-Grading Manual**

USDA AMS provides poultry grading standards manuals on its Website (<http://www.ams.usda.gov/>). For this report, the Egg-Grading Manual from <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELDEV3004502> is incorporated into the report by reference, with agreement of the Government.

## **Attachment IV**

# **United States Standards, Grades, and Weight Classes for Shell Eggs AMS 56**

USDA AMS provides poultry grading standards manuals on its Website (<http://www.ams.usda.gov/>). For this report, the United States Standards, Grades, and Weight Classes for Shell Eggs AMS 56 from <http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELDEV3004376> is incorporated into the report by reference, with agreement of the Government.