

## [Webinar Transcript - Data Training Webinar: Dairy Data](#)

Good afternoon, everyone. My name is Ashley Murdie, your host for today's webinar. On behalf of USDA's Economic Research Service, welcome and thank you for joining us in another segment of our Data Training Webinar series.

Today's webinar spotlights our data...our dairy data product, a resource full of insights on the domestic supply, demand and trade of various data products. As part of the Data Training Webinar Series, this webinar builds upon our continued efforts to teach those interested in ERS data, how to access and utilize our many data products.

Now before we introduce our speakers, I'd like to quickly note that this webinar is being recorded and will be posted on the ERS website next week. If at any time during the webinar you have questions, please enter them into the chat feature at the bottom left-hand corner of the screen and our speakers will help answer those at the end of today's presentation.

Now it's a pleasure to introduce today's speakers: Branch Chief of our Animal Products and Cost of Production Branch, Jerry Cessna; and ERS Agricultural Economist Angel Teran. Jerry and Angel both serve in our Market and Trade Economics Division where Jerry oversees market research on various animal products and cost of production while Angel specializes in outlook issues for the U.S dairy industry. Thank you both for joining us today. Jerry, the floor is yours.

Thank you, Ashley, it's a pleasure to talk to you today about dairy data from USDA's Economic Research Service.

Okay, so first of all, let's start with selected dairy relevant data from U.S government agencies other than USDA Economic Research Service. Now you've been maybe thinking to yourself, 'well Jerry I thought we were going to learn about data from Economic Research Service?' Well, we will, but just bear with me for a while. Okay, USDA has 18 agencies and several of them publish very relevant data. Many other federal agencies also publish dairy data. This includes U.S Department of Labor, Bureau of Labor Statistics; Department of Commerce, Bureau of the Census; U.S Department of Health and Human Services, Food and Drug Administration. If you're not familiar with how uh U.S government is organized, on the left side of each of these is the department. On the right side is the agency or bureau for each of these bullet points. On the left side of the comma is the department, and the right side is the agency.

Okay, so um there is dairy related data from USDA's National Agricultural Statistics Service. This includes the all milk price, which is the farm level price for milk; milk production, which includes number of cows in the milk production per cow; milk used on farms including household use and what's fed to calves; production of major dairy products; stocks of major dairy products; the milk fat test (that's the percentage of milk fat in the milk from dairy farms); feed prices including corn, alfalfa, hay and premium alfalfa hay; and more. This isn't all the data, dairy related data that they publish.

The Agricultural Marketing Service is another agency at USDA that publishes dairy data. An example is classified milk prices for the federal milk marketing orders. These are minimum prices that milk handlers across most of the United States are required to pay for milk from dairy farms based on the end use of milk. There's the Class I price, which is for fluid milk. Note drinking milk is often called fluid milk by people in the dairy industry. Milk from dairy farms is

often called producer milk. There's a Class II price. This is for milk used to make soft products such as ice cream, cottage cheese, yogurt etc. Class III price used for milk use to make hard cheese products. Class IV for milk used to make butter and powdered dry milk products. They also publish statistical uniform prices. These are informally called blend prices, and these are weighted average minimal prices paid to dairy farmers to a pooling process. I won't go into much more detail...I won't go into more detail about these Federal Milk Marketing Orders. If you go to the AMS website, you can find out more about that.

Um there's other dairy related data from USDA Agricultural Marketing Service. Um, they publish domestic wholesale dairy product prices, international wholesale dairy product export prices of major exporting regions including Oceania, which is Australia and New Zealand, Europe, and South America. They publish fluid milk sales volumes by product. This is estimated by product for the United States, and they have in area sales by Federal Milk Marketing Order areas. Those in area sales are not by product. That's going to be total per area. They have milk components for most U.S milk. This includes milk fat protein and other milk solids, which is a lactose, and minerals, and much, much, more. I barely have scratched the surface of all the data that Agriculture Marketing Service publishes related to dairy.

There's very relevant data from U.S government agencies outside of USDA. U.S Department of Labor, Bureau of Labor Statistics publishes Consumer Price Indexes. A CPI measures the average changes over time and the prices paid by urban consumers for a market basket of consumer goods and services. So, there are CPIs for all items. So, if you hear on the news that the inflation is up by four percent, um...that the, the statistic that's used to calculate, to calculate that usually is that CPI for all items. Uh, there's a CPI for all food, for dairy and related products: fluid milk, cheese, butter, and there's many more CPIs that they publish. International trade data are published by the U.S Department of Commerce - Bureau of the Census. This includes import data and export data, both volumes and dollar values. USDA's Foreign Agriculture Services repackages the Census Bureau trade data and provides it in a format for agricultural users.

The U.S Department of Health and Human Services from The Drug Administration publishes the Interstate Milk Shippers List. This includes dairy plants that produce certain types of dairy products. For these plants, the milk sanitation authorities, authorities have certified compliance with the Grade A Pasteurized Milk Ordinance of a Grade A Condensed and Dry Milk and Condensed and Dry Whey sanitation requirements. This list specifies location and approved products for each plant. The certification permits dairy processors to ship these dairy products for interstate commerce purposes. Population data are published by the U.S Department of Commerce Bureau of the Census, and you'll find out why that is important.

Alright now, so how are dairy data from ERS different from dairy data published by these government agencies? Well, ERS uses data from primary sources – the ones previously discussed and others I haven't included, all the sources we use – and we add value for you, the users of the data. ERS is a secondary source of dairy data.

So here are some examples of how ERS adds value to the dairy data. We have Supply and Utilization Data Sets. So, what are we missing from the primary sources? Well, how about consumption of dairy products? You didn't hear me talk about consumption of dairy products when I went through that list before. So ERS publishes domestic disappearance, which is a proxy for U.S consumption. The basic equation that we use. We take the production, which is coming

from NASS, beginning stocks from NASS, imports that's coming from Census and republished by Foreign Agriculture Service. Add those together and we get total supply. Now if you take those total supply and subtract exports, and you subtract ending stocks, then you get domestic disappearance. And for some products there are some additional terms included in the equations. For example, some products have animal use, and so we take that out so that we can come up with the human domestic disappearance. So now if you take that domestic disappearance and divide it by the population, which is provided by Census, you get a proxy for per capita consumption. Another example of how we add value is in U.S Dairy Situation at a Glance. This includes data from most of the sources on those prior slides and some of these ERS value-added data in one handy spreadsheet.

The answers to your questions about dairy data may be more complicated than you might think. Let's consider two questions... Butter accounts for what percent of U.S milk? The second question: what percentage of U.S dairy supply is exported? We've received these kinds of questions from different people that are interested in our data. But suppose you're a media reporter and you have a tight, tight deadline. Now I understand you want an answer that makes a good sound bite, and you don't want to get into the weeds with your readers. But sorry, the answers are just not as simple as you would like them to be. So, to answer these questions, we have some explaining to do.

There are two concepts necessary to understand much of the ERS Dairy data. The importance of milk components and the importance of milk equivalent quantities.

So, we'll talk about the importance of milk components. Now dairy farmers are paid based on their milk components. They're paid based on the milk fat and the protein and the other solids that are in the milk. In 2022 the components of U.S milk from dairy farms on average included 87 percent water, four percent milk fat, and the skim solids (that's the protein lactose and minerals) made up nine percent. That milk fat number has been going up over time in recent years, and so has the skim solids number. The dairy process... dairy processors separate and reassemble milk components to produce... produce a wide array of products. So fluid milk plants separate cream and skim milk, and then they reassemble the components to process whole milk and milk with lower fat contents. And then cream is left over for products such as ice cream or butter. Cheese plants separate curds from whey, and the cheese is made from the curds. And a variety of whey products are made from the whey. Butter powder plants separate cream and skim milk, but cream is churned to make butter. Skim milk is dried to make nonfat dried milk.

Alright, so now let's talk about milk equivalent quantities. ERS aggregates dairy quantities by using two measures of milk equivalents. There's the milk-fat basis and the skim-solid basis. So, I'm just going to walk through this. On the left is the milk fat basis. So, one pound of butter has about 80.5 percent milk fat in the butter. It can vary, but that's, that's about on average what it would have. And then you divide by the milk fat. In this case 4.08 milk fat in the producer milk, and you get 19.7 pounds of producer milk on a milk-fat equivalent basis. So, what we're seeing here, is one pound of butter has about the same amount of fat as 19.7 pounds of producer milk. Now non-fat dry milk has about 0.8 percent milk fat. Now even though it's called non-fat... non-fat dry milk, it still has a little bit of fat, about 0.8 percent milk fat. And you take that point eight percent and you divide by 4.08 percent milk fat in producer milk, you get about 0.2 pounds of producing milk on a milk-fat, milk equivalent basis. Now that might seem trivial but consider this, last year the United States exported 1.8 billion pounds of non-fat dry milk. So, if you take

that, and you do the math, you get that about 0.4 billion pounds of fat were exported with that non-fat dry milk last year. So, if it's a big number (1.8 billion pounds) that, that fat number becomes where it's not non-trivial. Okay, now we're on the right-hand side. We have the skim-solids basis. So, we had kind of the opposite kind of situation. One pound of butter is about 1.85 skim solids. Take that and divide by 9.03 skim solids and producer milk, you get about 0.2 pounds of producer milk on a skim solids milk equivalent basis. For non-fat dry milk, it has 95.2 percent skim solids. Divide that by 9.03 skim solids and producer milk, you get about 10.5 pounds of producer milk on a skim-solids milk equivalent basis. Now you take that 1.8 billion pounds of non-fat dry milk exported in 2022, that ends up being about 19 billion pounds of milk on a skim on a skim-solids milk equivalent basis.

Okay so let's get back to the questions...uh...Let's consider the first question that was asked earlier. Butter accounts for what percent of U.S milk? Well, there's not really a sensible answer to this question. Dairy processors separate and reassemble milk components to produce a wide array of products. The same milk that is used to produce butter could also be used to produce non-fat dry milk, fluid milk or other products. Consider this, milk fat is the main milk component in butter. So, let's consider reframing the question. Let's, let's reframe it as: 'this butter accounts for what percent of the total milk fat in the U.S milk supply?' Well, according to the ERS Dairy Data Set Supply and Allocation of Milk Fat and Skim Solids by product, U.S butter production accounted for 18.3 percent of total U.S milk fat in 2021 (the latest year for which data are available.)

Okay, let's go to the second question we asked earlier. What percentage of the U.S dairy supplies exported? Understand that dairy exports must be converted to milk equivalent values to answer the question. So ERS actually has two answers to this question. Using 2022 data from the ERS Dairy Data Set Supply and Utilization of Milk in All Products, if we take the milk fat milk equivalent basis, dairy exports or 5.9 percent of milk production, but if we look at the skim-solids milk equivalent basis, we're going to look at how much was...uh...convert the skim solids into what is the milk equivalent of that, we get that about 23.2 percent of milk production was exported. And one thing to note about this, the United States consistently exports a much higher dairy product quantity on a skim-solids basis than a milk-fat basis.

Okay well let's shift gears a little bit um...How do I find the ERS Dairy Data? Okay well there are several ways to get to it. You could just type in the web address for it. You could type the ERS Dairy Data into a search engine. It's probably going to appear close to the top. Or you could drill down to it through the USDA website.

Let's talk about how you do that. So first of all, go...if you went to the U.S Department of Agriculture website, and you clicked on our agency, and uh you go down to the drop-down menu, you click on agencies, and so you'll get this list of all the agencies.

So, scroll down and you'll see Economic Research Service. So, you can see up there, Agriculture Marketing Service. If you want to get dairy data there, you can go there. But um, so click on Economic Research Service, and then next you get to the ERS website.

This is the Economic Research Service website. Click on data products. You click on animal products and, then you'll get um, you'll get uh...there's quite a bit that's going to be on this page. And you'll have to scroll down quite a bit, and you'll come to dairy data.

So, click on dairy data, and voila here you are at the ERS Dairy Data site. And so, at the top, there's a brief overview describing the data, and then there's only two files showing on this screenshot, but you will see 15 files if you continue to scroll down. And if you click over on the left, you can get to our documentation if you want to know all the details about how we're calculating our numbers. And if you click on related topics, if you click on dairy, well then you will be able to get to some web pages where you're going to see an overview of the dairy industry, background, market outlook, trade policy and readings. If you want to know much more about the dairy industry, go there and you can find out quite a bit of information.

Alright and at this point, I will turn it over to Angel to take over um the presentation.

Thanks Jerry, um very glad to be here with these beautiful people. Well, the first thing to do is to define what is our ERS Dairy Data Sets. Well, it's a collection of data files that provide information on domestic supply use, an international trade of selected dairy products. The data is updated in a monthly, quarterly, and annually basis. There are 12 current and three historical dairy data sets available for download. The data can be used to track trends and make informed decisions in understanding the impact of the dairy industry on the economy of the country.

The first set I'm going to present is Milk Cows and Production by State and Region. In this annual file, ERS provides regional total for milk cows, milk per cow and milk production from states going back to 1970. This shows the percentage the states and regions represent in the total national milk production.

Well, here's an example of what you can do with the information. This is a table showing the top milk producer in 2022. And this is a refresher, I know most of you know this, but California is the leading state producer of milk accounting for nearly 20 percent of the total production of the country. Also, California has more dairy cows and produce more milk per cow. Wisconsin is the second largest producer followed by Idaho, Texas, and New York. And these five states produce more than 50 percent of the national animal production. Another set is uh, U.S. Milk Production and Related Data. Milk Production and Related Data provides quarterly and annual milk production and related data back to 1998. Also includes milk production, milk per cow, cow inventory, feed values, and replacement cow prices.

Another ERS set is the Animal Production and Factors Affecting Supply. This is another table that shows the inventory of cows, replacement heifer, cow productivity, daily ration value, the milk feed ratio, slaughter prices and Alfalfa hay prices. Uh...so you can see in the highlighted area the number of replacement heifer for 100 milk cows has been decreasing each year since 2015, but the number of milk cows have been growing, which is interesting. Uh, generally speaking this year, dairy farmers are becoming more effective managing their replacement inventory. For example, farmers have been able to improve their genetics of their heifers with selective breeding, which have resulted in cows that are more productive and have longer lifespans. So, they're needing less heifers.

From the previous table, we can see a general trend and that's farm milk production is steadily increasing each year. But we also can see a decline in the number of dairy cows from the 80s to 2004. And then a slow increase after that year.

Another ERS data set is a Supply and Utilization for Dairy Product Categories is a monthly and annual set. One of the main objectives uh in is to estimate the domestic human consumption of

milk and dairy products. Here ERSs calculate domestic use, which as Jerry said is a proxy for consumption for the eight main dairy products, which are butter, dry skim milk, American cheese, other than American cheese, dry whey, whey protein concentrate, lactose, evaporated / condensed milk.

Another important set is Supply and Utilization for Dairy Products. Here's an example of how the spreadsheet actually looks in this case for butter where total supply equals beginning stocks plus production plus imports. Domestic use equals total supply less export less ending stocks, and therefore you will have supply is balanced with utilization. You can see the import and export are a relatively small part of the equation for butter. As you can see, butter production and domestic use continue growing in the past couple of years.

Another set is Supply and Utilization of Milk in All Products. ERS converts dairy products, imports, exports and stocks to make equivalent quantities based on their milk fat and skim solids proportion and the composition of the producer milk. That is a milk fat percentage and skim solids percentage. And this is during the month, the quarter, or the year of analysis. ERS derives estimate, estimate of the domestic use for all the milk use to produce all products. Well converting dairy products to milk equivalent also make it easier to track the overall supply and utilization of all dairy products. And this is because we can (and when I say, when I say we, is ERS) we can add up the different products and get a total amount of milk represented by stocks, imports, and exports. And this is very important for understanding the dairy market and for making policy decisions about the industry.

Well, another set is Annual Dairy Products, Per Capita Consumption. For most dairy products, per capita consumption is calculated by dividing domestic disappearance by the U.S resident population with Armed Forces overseas. This data set is very detailed, so I decided to show a graph instead, comparing per capita consumption of fluid milk, cheese, butter, dry products, ice cream and yogurt. As you can see in the chart, there is a notable change in consumer pattern for dairy products. Consumers are increasingly choosing to eat more dairy products such as cheese, butter and yogurt instead of drinking milk. It is very complex to answer why this is happening, but for the age has have been interviewed stakeholder and um they have an observation. What they said is that there are several trends that may be involved with this shift including the growing diversity of the population and the rise of the new generation, which are influencing the market. The changing demographic of the country may be having an impact on dairy consumption as people from diverse cultural backgrounds are more likely to consume other dairy products instead of drinking milk. Also, a new generation may be also leading the way in the changing dairy consumption pattern. Uh, for example, we had Gen-Z and Millennials. They are more likely to try new foods and flavor, so they are more likely to choose cheese, yogurt, and other dairy products over fluid milk. And actually, this is happening in my home. All my millennials...um my daughter is a Gen-Z and I'm pretty sure this is happening in a lot of homes in the United States. Well, another point is also cheese and butter are popular foods that are often included in many popular diets such as the Mediterranean diet, paleo, and keto diet. And this is an interesting note. And this is an Amber Waves article that Gary and I wrote some I think one or two years ago. Well, the dietary guidelines for American had long recommended low-fat dairy products, but recent research suggests that milk fat may not be as harmful as once thought. Farmers have responded to this strong demand for milk fat by shifting to breeds of cows that naturally produce higher fat milk like Jersey cows and by improving their feeding practices.

The increase in demand for higher fat milk products such as cheese and butter is a sign that consumers are not as concerned about risk of consuming fat as in the past. And some see consumption of milk fat as nutritionally beneficial for them. Another interesting point is that we are, according to the ERS Chart of Note titled 'Per Capita Consumption of Milk' with cereal has fallen since the early 2000s. Um, in this Chart of Note, there's a drastic decline in consumption of milk with cereal for children in 2000 to 2018, a moderate decline in teenagers, and a very slight decline on adults. So, what is happening to the cereal market affects the milk, fluid milk market because they are complementary goods. Well, um another set is the Annual Fluid Beverage Milk Sales Quantities by Products. ERS reports annual estimated U.S sales quantities of fluid milk from the federal order marketing areas and outside this area in states like New York, Virginia, Montana and Maine. As you can see in the table, whole milk sales has bounced back after 2015. A consumer may be more aware of its health benefit, however at the same time, sale of free reduced fat, low fat and skimmed milk have been steadily declining. Interesting enough, sale of flavor or whole milk are increasing, but it's still a relatively small market when, when compared to other Class 1 or fluid milk products.

Okay, let me see. Okay, another set is the Number and Average Size of the United States Fluid Milk Product Plants. And this with ERS do have Census um, the data go back to 1960. Uh, ERS estimated the number of plants based on the U.S Food and Drug Administration Interstate Milk Shippers List. And in the past 14 years, um the average fluid milk consumption has been declining. The number of plants has been increasing, but the production plant has been decreased.

Another dairy set is the Annual Per Capita Consumption of Selected Cheese Varieties. Mozzarella is the most consumed type of cheese in the country and is followed by cheddar. In 1970 an average resident of United States consumed about 11 pounds of cheese per year. By 2021 that number have increased to about 39 pounds per year. There are several factors that has contributed to the increase in per capita cheese consumption in the country. Uh and this includes the growing popularity of pizza and other cheesy dishes, the increasing availability of different type of cheeses and the growing awareness of the health benefit of cheese to uh is high in protein and the content of calcium.

Well, um another set is Supply and Allocation by Milk Fat and Skim Solids by Product. Well, here seven tables are provided for the supply and allocation of milk fat and skim solids by dairy product in million pounds. The tables are extensive so I can summarize the supply allocation set with charts in the next two slides.

In this chart, ERS compares supply and allocation of milk fat by dairy products in year 2000 and year 2019, which is almost a gap of 20 years. As you can see, for the past 20 years, the milk fat supply increased from 6.2 billion pounds in 2000 to 8.6 billion pounds in 2019. Cheese is the main product for the fat allocation with butter second. Allocation share of both products has increased over time and notice that the share for fluid milk has declined in the same period of time.

As we, as we see in the chart, uh the same as with milk fat, the total supply of skim solid has increased over time represented by a larger circle graph for 2019 compared to 2000. And notice that fluid milk accounts for the largest share of skim solids, but the share have been decreasing over time. These have been gaining a share of skim solid allocation. Uh, if this trend continues,

it may overtake fluid milk. Notice that dry milk products and whey products make up a large proportion of the skim solid charts. And dairy components are used in many products that fit into several small categories that make up for other uses.

We have uh, ERS have other data sets. One of them is the United States Dairy Situation at a Glance that provide basic dairy related studies for the past 14 months and annual statistics for the past two years. Each share a monthly snapshot of the United States dairy industry and include information on production milk use, dairy product price, dairy product export and import, costs, uh also, dairy costs, uh year over year changes in the Consumer Price Index for dairy products. Another one is domestic use for selected soft dairy products, which provide domestic use data for frozen products including ice cream also for cottage cheese and sour cream.

And to conclude our presentation, well this overview of the dairy data sets: what are the sets? Well, a series of tables or spreadsheets covering domestic supply and the many factors affecting milk production and per capita consumption. Why are they important? To keep track of total supply and demand of milk and dairy products. It shows recent and historical per capita consumption of dairy products. How can it be used? Well, you can download this to do graphs to, to do business strategies or to forecast. Uh, where can I found these sets? Well for all detailed documentation, please visit the ERS Dairy Data web page in the link below. And now we go back to Ashley.

Thanks Angel, at this time we'll go ahead and open the floor for some questions. Uh just a quick reminder, any questions can be submitted through the chat feature located at the bottom left-hand corner of your screen. Alright we've got a quite, quite a few coming in. Uh the first being uh why do you convert dairy product quantities into milk equivalent quantities?

Alright, well um dairy manufacturers separate and reassemble milk components to produce a wide array of diverse products. So, um to analyze those products, um to analyze the demand for those products, the domestic demand, the foreign demand for those products, convert the products to a milk equivalent uh basis and um that'll allow you to look uh, at it on a milk fat equivalent basis in a skim solids equivalent basis. We get common units that way.

Thanks Jerry, another question here um, how does domestic disappearance differ from actual consumption? ... .. I think you might be muted, Jerry.

Um, Angel, would you like to answer the question?

Well, uh apologies, we'll ask the question again?

Sure. The question is, how does domestic disappearance differ from actual consumption?

Well, they are very related because when we calculate domestic disappearance is as received of the total supply. Um, you know the formula that we explained. But we don't count some losses like jumping that may be happening, but they're the, that pretty really um outside domestic use is, is strongly related with, with sales. What is not uh, is basically different from, from demand, that's another hour topic that we can discuss later.

I can think of a few other things...

Oh, great. Go ahead Jerry.



I can think of a few other things to talk about there. So, um, you know...okay, so Angel mentioned that we don't account for everything like some, some products might be discarded. So, we're not able to capture those losses. So, you can go, um there's another ERS data product called ERS Loss Adjusted Food Availability where you can get uh...what they try to do is estimate after these losses, and so you can go there and find that. Um, another thing that we have is we, we get our stock numbers from cold storage facilities for some products from warehouses, manufacturers, welfare warehouses, from other products. So, we don't have what we would call pipeline stocks. So those are stocks that are in transit from warehouses to stores, uh stocks that are sitting on grocery store shelves. Those are using ingredients that are bought by consumers. What we're essentially, we're essentially treating the products that leave the warehouse as though they're consumed at that time. And then for some products, we don't even have stock data. So, on those, in those cases, we're making a simplifying assumption that products are consumed as soon as they are produced. And then we're using different sources for different terms in some of those equations, and some of these sources might have different uh product definitions. You know, they might have a slightly different product definitions for what's produced from what's exported and imported and so forth. So, um, one thing to keep in mind is uh you might, if you're going to look at those domestic disappearance, look at it over a period of time. If you look at one month, it may be up or down, and that could be due to some anomaly going on that has to do with the data or these pipeline stocks or something like this. If you look over a longer period of time, maybe three months or four months or rolling average, something like that, you might get a better idea of what's really happening with uh domestic use.

Good to know. Okay let's see um another question...Uh to confirm, a dairy product per capita consumption is calculated by dividing product disappearance by U.S resident population right?

Uh, that's correct, and um usually you're going to divide by resident population plus Armed Forces overseas. That's what it is for most of the products for the fluid milk products. It's going to be just the resident population.

Alright, another question...Is domestic yogurt volume broken out from other dairy and ERS reporting?

Could you repeat the question?

Sure thing. The question is, is domestic yogurt volume broken out from other dairy and ERS reporting?

Yes, it is. If you look at the per capita consumption, there's a per capita for yogurt.

Thanks. Alright, let's see...uh next question here: why have the fat and skim solids been going up? Is this a diet change?

Um, okay. So, there's supply and demand. That's related to that. Okay, so um Angel talked about before, is that um, uh you know, there was a number of studies and articles in the past that have shown that fat may not be as harmful as people thought it was or their nutritional benefits to fat. So, so they, people may be consuming more fat, and dairy farmers responded to that. You know, if there's higher demand for it, it will supply more. They'll find out what, they'll find ways to increase milk fat and skim solids for their milk production. So that's one part of it. Another thing is they've, they've got better uh genetics to produce more fat and skim solids. You know, their

cows, you know they've got better genetics to produce those components. So that's going on, and, and as Angel spoke about before, there's been a shift toward some uh some breeds that produce more of these milk components.

Thanks Jerry, alright next... Why is more exported on a skim milk basis versus a fat basis?

Well, um, U.S residents are consuming more on the fat side. They're consuming greater and greater quantities of cheese, which are more heavily weighted on fat than the skim solids. There's more, there's a ratio of fat to skim solids is higher in cheese than it is in the producer milk. So, the U.S is consuming more of the fat, and then the skim solids are left. And so those are exported, and a lot of those are exported to other countries. You know it's about going to Mexico or China, and so we're exporting quite a bit of non-fat dry milk. Uh a lot of times, the U.S is consuming a lot of the cheese and exporting quite a bit of the whey products. So, some of the whey products are exported and so um, we've got quite a bit of.... It's what we export that is more heavily weighted toward the skim solid side.

Right, another question is uh, how is cheese variety per capita consumption.... Let me, let me start again. How is cheese variety per capita consumption calculated?

Angel, would you like to answer that question?

Yeah, sure. Um well, the per capita consumption, the first step is to, to calculate the domestic disappearance. Right and then after you have the domestic disappearance, where you divide that by the resident population and over an Armed Forces overseas, and you get the per capita consumption.

Thanks Angel. Okay, let's see here. Another question asks: does ERS ever analyze uh dairy TRQ, that being tariff rate quota, usage?

Um, well we're... I can say that we're always analyzing it internally. When we're thinking about our forecasts, that goes for the uh WASDE, or the Livestock, Dairy and Poultry Outlook, um, you know, we're looking at, you know, sometimes we're looking at those fill rates, you know and so forth. So, um yes, we're looking at it that way. It's included in our modeling efforts, you know, when we've got, you know, we're looking at how much those tariff quotas are being filled. So, yes, we're looking at it. Um, we're looking, and, and I assume that the question is about Imports. I don't think we've had a study that has come out about dairy imports, but that would be an interesting study to do. About dairy imports and how those tariff quotas are affecting those dairy imports. And also, if you look at our uh, if you go and look at our topic page and you see the trade page, you'll see kind of an explanation of those tariff rate quotas - just a basic overview of them.

Thanks Jerry. Alright, our next question asks, um, let's see here. WASDE report's milk equivalent fat exports or imports. Um, does ERS estimate how much of that consists of cheese, butter or other products?

On the imports or export side?

Uh yes it says, WASDE reports milk equivalent fat exports or imports. Um, does ERS estimate how much of that ME consists of cheese, butter or other products?

We do have that information. We don't, we, we don't have that published I mean. We only publish so much, but um you know we don't have that. We're not publishing that detail, but that's... We're adding all that up to get that total.

Alright, um another question asks... Is it possible to get data on other countries?

Um you mean, uh dairy data on other countries? I would think the best place to go to get that data would be Foreign Agriculture Service. Uh, you can go to the Foreign Agriculture Service. You can look at the Production Supply and Demand Estimates, and you'd be able to get to see information about dairy um you know, the dairy situation in each of those countries. They also have their Foreign Attaché Gain Reports that will tell you about what's going on in the dairy industries in those countries. But uh, they, they would be the main source that you'd go to, to find out about dairy industry and what's going on in those other countries. Also, Agriculture Marketing Service produces prices for those um, you know, foreign export prices. And so, you could find that information from Agriculture Marketing Service.

Thanks Jerry. Our next question asks, does ERS have any data on plant-based milks?

Well, we've done a little uh... we studied it somewhat if you uh look at some of the studies that Hayden Stewart has done. I've been a, I've been a co-author on some of those studies about plant-based milk, and so what they're doing to get that data is going through scanner data, looking at scanner data, and, and these cases of these studies has been household scanner data. And uh, so that's not government data, but we've done some studying of that scanner data and what that's telling us about plant-based milk. And we do find that those plant-based, plant-based milk alternatives. I better correct myself, we don't have... we don't, can't, shouldn't call it plant-based milk. It's plant-based milk alternatives. And uh those plant-based milk alternatives, we do find, those do substitute for milk... as far as in the marketplace. Now they don't substitute nutritionally, they're not the same products as milk nutritionally. But in the marketplace, they are substituting for milk.

Alright, thanks Jerry. Um, another question asks, are farmstead producer processor products included in these data sets?

Um, I think you'd have to talk to NASS about that. So, we're getting our production data from NASS so I'm not, you know, I don't know to what extent NASS is capturing all that. But if you can, I would think that'd be a question for NASS.

Got it, alright. And we've got time for one more question... Um, we'll end with um, what do you mean by allocation for the data set on supply and allocation of milk fat and skim solids by products?

Okay, Angel would you like to answer that question?

Sure, um, allocation are, are a process – a complex process from the fair market order, but I'm going to answer in a simple way. Allocation is the amount of fat, uh milk fat or skim solids, that are going to be used as a final product for the different dairy products. That's, you know, that's the main purpose of the allocation system.

I would just add to that, you know, the milk processors... the milk processors are separating, reassembling dairy products so they're allocating those components to those different dairy

products. And economically speaking, the market...the market uh is allocating you know, you can think of the market as an allocator, you know based on forces of supply and demand.

Great thank you both. Um, that's all the time we have for today. Uh, thanks again for sharing your expertise with us and you know, thanks to our listeners for your interest in ERS research. We hope this Data Training Webinar has been helpful for you.

Before we close, mark your calendar. Our next webinar will be Tuesday July 11th at 1 p.m. Eastern Time. Join us as ERS Economist James MacDonald presents our recent report on Concentration and Competition in U.S Agribusiness. Market concentration and its impact on competition has attracted growing public scrutiny. Critics argue that many industries have grown too concentrated with fewer firms competing with one another and a consequent weakening of competition. You know the issues surrounding concentration extend to agribusiness, particularly to three agribusiness sectors where concentration has increased over time: seeds, meat packing and food retail. Don't miss it. Register today on the ERS website.

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