

# Dust Mitigation Conservation Practices & EQIP Air Quality Incentive Program



# Why is “Air” so IMPORTANT??

- For humans, air is extremely vital. Human survival training sometimes refers to the “Rule of Threes,” which says that humans can survive for...
  - 3 months without hope or purpose
  - 3 weeks without food
  - 3 days without water
  - 3 minutes without air.

**Air is a necessary input to most living systems.**



**Without air, life as we know it would cease to exist!!!!**

# How we Originated as the Soil Conservation Service

- Air quality issues were one of the reasons our Agency was formed.
  - Huge dust storms in the Dust Bowl of the 1930s were formed with particulate matter – soil eroded from drought-stricken cropland.
  - High concentrations of PM caused major issues such as:
    - reduced visibility
    - health problems for people living in the affected areas
    - deposited dust particles and eroded soil in the Dust Bowl region and beyond.



# How We have EVOLVED

- Many things have changed since those Dust Bowl days.
  - Soil Conservation Service has become the Natural Resources Conservation Service.
  - expanded our focus on soil issues to addressing the full scope of SWAPAH + E: Soil, Water, Air, Plants, Animals, Human, plus Energy considerations.
  - As NRCS employees, we help people help the land.



Founding Father: Hugh Hammond Bennett



The USDA Natural Resources Conservation Service helps private landowners conserve our natural resources, and air resources are among those. Our Air Quality resource concerns can be broadly classified into four air quality and atmospheric change issues:

- Greenhouse Gases and Carbon Sequestration
- Odor
- Ozone Precursors
- Particulate Matter





## Greenhouse Gases at a Glance

### Problems / Indicators - Greenhouse gas emissions

#### Causes

- CO<sub>2</sub> emissions from the use of fossil fuels
- CH<sub>4</sub> production from animal operations
- CO<sub>2</sub> and N<sub>2</sub>O from soil tillage
- Loss of carbon from soils and plants
- Excessive N<sub>2</sub>O emissions from cropping systems

#### Solutions

- Renewable energy (solar, wind, biofuels), and better combustion processes and efficiencies
- Anaerobic manure handling facilities
- Conservation tillage and reduced soil disturbance
- Riparian forest buffers
- Tree and shrub planting
- Nitrogen fertilizer management

## Odors at a Glance

### Problems / Indicators - Manure storage facilities, animal housing, manure and land application

#### Causes

- Confined animal areas
- Manure application
- Burning

#### Solutions

- Moisture management to control dust and odors associated with livestock confinement areas
- Manure injection for land application
- Managing manure applications to reduce odor impacts
- Manure treatments to control ammonia
- Prescribed burning management
- Windbreaks

## Ozone Precursors at a Glance

Problems / Indicators - Engines, pesticides, burning, tillage, and animal operations	
Causes	Solutions
<ul style="list-style-type: none"> <li>• Chemical storage and application</li> <li>• Combustion (engines, burning)</li> <li>• Animal operations</li> <li>• Manure handling</li> </ul>	<ul style="list-style-type: none"> <li>• Proper chemical storage and integrated pest management</li> <li>• Engine replacement and retrofit</li> <li>• Prescribed burning and alternatives, wildfire risk reduction</li> <li>• Animal housing and surface lot moisture maintenance</li> <li>• Liquid manure systems, manure covers, feed management</li> <li>• Comprehensive nutrient management planning</li> </ul>

## Particulate Matter at a Glance

Problems / Indicators - Dust, smoke, chemical and fertilizer use, animal activities	
Causes	Solutions
<ul style="list-style-type: none"> <li>• Unpaved roads</li> <li>• Bare/exposed agricultural fields</li> <li>• Operations on agricultural fields</li> <li>• Chemical applications</li> <li>• Combustion (engines, burning)</li> <li>• Animal operations</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce travel/speed and treat unpaved roads</li> <li>• Residue management, precision farming</li> <li>• Wind barriers</li> <li>• Smoke management, wildfire risk reduction</li> <li>• Engine replacement and retrofit</li> <li>• Open lot manure harvesting/removal and coverage</li> <li>• Animal housing maintenance and ventilation</li> </ul>

# Popular Areas of Assistance



## Combustion Engine Replacement

Reducing emissions by removing and destroying high-polluting internal combustion engines and replacing with new engines meeting the most current standards.

## Dust- Road Treatment

Treating dirt roads with a soil stabilizer can reduce PM-10 emissions by as much as 50%

## Conservation Tillage

Conservation tillage operations such as no-till, strip-till, ridge-till, and mulch-till are effective ways of reducing soil erosion.

## Waste Management

Manure has valuable nutrients that crops can utilize for their development, and by using Waste Utilization the operation will reduce the emissions of ammonia, volatile organic compounds and oxides of nitrogen



# Conservation Practices that Help Improve Air Quality



Surface irrigation system



Air Quality Pivot irrigation



Irrigation with residue



Combustion System Improvement



Conservation cover crop



Residue management



Dust control

# Opportunity for Financial Assistance

Farmers and ranchers who have an approved conservation plan can apply for financial assistance to install conservation practices that address priority natural resource concerns identified by the Conservation Districts







Conservation planning is the fundamental starting point for maintaining and improving the natural resources that support productive and profitable agricultural operations.



A conservation plan is simply a written record of the combination of conservation practices that the farmer or rancher plans to apply as the conservation management systems on their operation

NRCS conservation planning assistance is provided at no cost to the land user

This voluntary and confidential plan is a blueprint to manage their operation's natural resources for future generations.



- The objective in conservation planning is to help each client attain sound management of the soil, water, air, plant, and animal resources
- ensure the long term sustained use and productivity of working landscapes
- while considering the management and economic needs for maintaining viable agricultural production



1. Identify Problems and Opportunities
2. Determine Objectives
3. Inventory Resources
4. Analyze Resource Data
5. Formulate Alternatives
6. Evaluate Alternatives
7. Make Decisions
8. Implement the Plan
9. Evaluate the Plan

Although the nine steps are shown in sequence, the process is very dynamic.





- Financial assistance programs provide incentives for farmers and ranchers to implement their conservation plan.



# EQIP AIR QUALITY

Agriculture producers seeking to reduce PM-10 and other forms of air pollution can apply for help from the NRCS. There is funding in Arizona, and technical expertise, that is available to farmers and ranchers to improve air quality, through the “Air Quality Enhancement Program”, an “Environmental Quality Incentive Program” from the 2014 Farm Bill

April 1<sup>st</sup> is the deadline to apply for assistance for the 3<sup>rd</sup> quarter, July 1<sup>st</sup> for the 4<sup>th</sup>

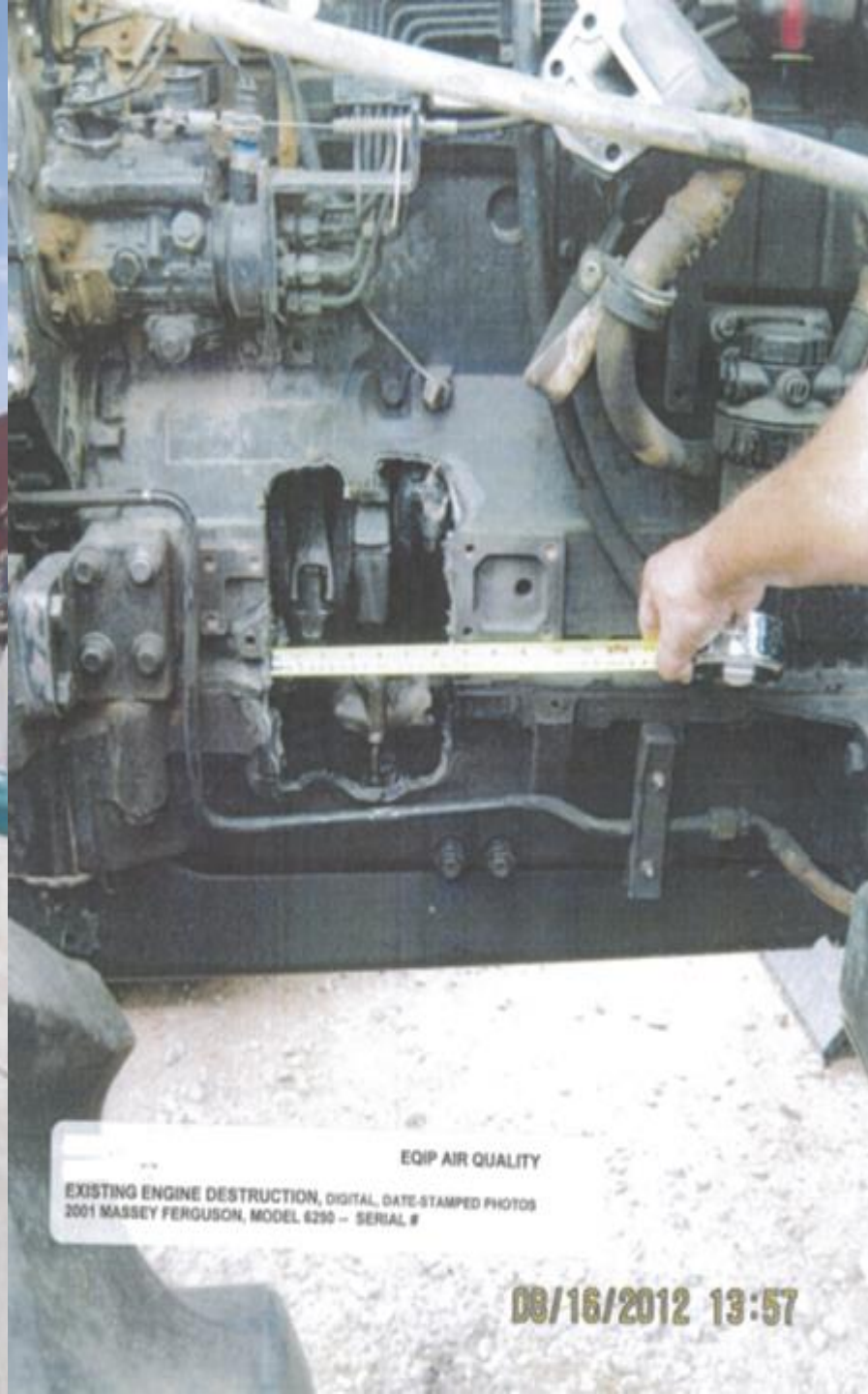
Approved applicants may receive up to 90% of the project paid for.

Cochise, Gila, Maricopa, Pima, Pinal, Santa Cruz, and Yuma counties have been identified as non-attainment areas by the Environmental Protection Agency.





07/17/2012 13:48



EQIP AIR QUALITY  
EXISTING ENGINE DESTRUCTION, DIGITAL, DATE-STAMPED PHOTOS  
2001 MASSEY FERGUSON, MODEL 6290 - SERIAL #

08/16/2012 13:57



Nov 21, 2012 7:10:59 AM

“USDA is an equal  
opportunity provider and  
employer”

Questions?

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