

Agricultural Best Management Practices and Mitigating Dust from Fallow Fields

Madeline Greenbaum
Air Compliance Officer

Luke Messer
Air Compliance Officer





Cropland Definition

“Cropland” means land on a commercial farm that: a. Is within the time-frame of final harvest to plant emergence, but does not include tillage activities; b. Has been tilled in a prior year and is suitable for crop production, but is currently fallow; or c. Is a turn-row. R18-2-610.16

Fallow Field Definition

“Fallow Field” means an area of land that is routinely cultivated, planted and harvested and is unplanted for one or more growing seasons or planting cycles, but is intended to be placed back in agricultural production. R18-2-610.20

- Weed abatement during high winds
 - In some cases: local authorities require weed abatement
- Lack of water as an option for dust mitigation
 - Increasing water restrictions
- Solution: Follow the Ag BMPs prior to following the field
 - Create soil crust

Ag BMP General Permit for Pinal Cropland

2022 Agricultural Best Management Practices General Permit Record Crop Operations – Pinal County PM10 Non-attainment Area

Name of Commercial Farm: _____ Phone: _____
Name of Commercial Farmer: _____ Email: _____
Mailing or Physical Address of Commercial Farm: _____

Complete Form annually by March 31st and retain on facility. Provide Form within two business days of notice to the Arizona Department of Environmental Quality only when requested.

Select Best Management Practices (BMP) as indicated by Category. (Underlined BMPs also count as high risk day BMPs in each specified category.) Refer to the *Guide to Agricultural PM10 Best Management Practices* for BMP information and definitions.

CATEGORY I: Tillage

Super Tillage BMP:

Selecting Reduced Tillage System or Conservation Tillage will eliminate the requirement of selecting BMPs in Category II (Ground Operations and Harvest) and Category V (Cropland)

- Reduced Tillage System
- Conservation Tillage

Otherwise select at least one of the following:

- Combining Tractor Operations
- Equipment Modification
- Multi-year Crop
- Cessation of night tillage
- Planting Based on Soil Moisture
- Precision Farming
- Tillage Based on Soil Moisture
- Timing of Tillage Operation
- Transgenic Crops
- Transplanting

High Risk Dust Generation Days BMP:

On the day before and during the day that is forecast to be high risk for dust generation by the Pinal County Dust Control Forecast a farmer must ensure that one the above underlined BMPs in category I is selected and is being implemented. If not implementing one of the underlined BMPs then the BMP below must be selected and implemented on a Pinal County high risk dust generation forecast:

- Limited Tillage Activity*

*Implemented only on the day forecast to be high risk for dust generation.

CATEGORY II: Ground Operations and Harvest

Select at least one of the following:

- Combining Tractor Operations
- Equipment Modification
- Chemical Irrigation
- Green Chop
- Integrated Pest Management
- Multi-Year Crop
- Precision Farming
- Reduced Harvest Activity
- Transgenic Crops
- Shuttle System/Larger Carrier

High Risk Dust Generation Days BMP:

On the day before and during the day that is forecast to be high risk for dust generation by the Pinal County Dust Control Forecast a farmer must ensure that one the above underlined BMP's in Category II is selected and is being implemented. If not implementing one of the underlined BMPs, then the BMP below must be selected and implemented on a Pinal County high dust generation forecast:

- Limited Harvest Activity*

*Implemented only on the day forecast to be high risk for dust generation.

CATEGORY III: Non-cropland

Select at least one of the following:

- Access Restriction
- Aggregate Cover
- Wind Barrier
- Critical Area Planting
- Organic Material Cover
- Reduce Vehicle Speed
- Synthetic Particulate Suppressant
- Watering

High Risk Dust Generation Days BMP:

On the day before and on during the day that is forecast to be high risk for dust generation by the Pinal County Dust Control Forecast a farmer must ensure that one of the above underlined BMP's is being implemented. If not implementing one of the underlined BMPs, then the BMP below must be selected and implemented on a Pinal County high risk dust generation forecast:

- Watering on a High Risk Day*

*Implemented only on the day forecast to be high risk for dust generation.



Ag BMP General Permit for Pinal Cropland

CATEGORY I: Tillage

Super Tillage BMP:

Selecting Reduced Tillage System or Conservation Tillage will eliminate the requirement of selecting BMPs in Category II (Ground Operations and Harvest) and Category V (Cropland)

Reduced Tillage System

Conservation Tillage

Otherwise select at least one of the following:

Combining Tractor Operations

Equipment Modification

Multi-year Crop

Cessation of night tillage

Planting Based on Soil Moisture

Precision Farming

Tillage Based on Soil Moisture

Timing of Tillage Operation

Transgenic Crops

Transplanting

High Risk Dust Generation Days BMP:

On the day before and during the day that is forecast to be high risk for dust generation by the Pinal County Dust Control Forecast a farmer must ensure that one the above underlined BMPs in category I is selected and is being implemented. If not implementing one of the underlined BMPs then the BMP below must be selected and implemented on a Pinal County high risk dust generation forecast:

Limited Tillage Activity*

*Implemented only on the day forecast to be high risk for dust generation.

- Equipment modification: ...modifying and maintaining an existing piece of agricultural equipment, installing shielding equipment, modifying land planting and land leveling, matching the equipment to row spacing, or grafting to new varieties or technological improvements.
- Cessation of Night Tilling: the discontinuation of tillage from sunset to sunrise on a day identified by the Pinal County Dust Control Forecast as being high risk of dust generation.
- Precision Farming: reducing the number of passes across a commercial farm by at least 12 inches per pass by using GPS to precisely guide farm equipment in the field.
- Tillage based on soil moisture: reducing PM emissions by irrigating fields to the depth of the proposed cut prior to soil disturbances or conducting tillage to coincide with precipitation.
- Limited tillage activity: ceasing tillage operations on a day identified by the Pinal County Dust Control Forecast to be high risk for dust generation.

Ag BMP General Permit for Pinal Cropland

CATEGORY III: Non-cropland

Select at least one of the following:

- Access Restriction
- Aggregate Cover
- Wind Barrier
- Critical Area Planting
- Organic Material Cover
- Reduce Vehicle Speed
- Synthetic Particulate Suppressant
- Watering

High Risk Dust Generation Days BMP:

On the day before and on during the day that is forecast to be high risk for dust generation by the Pinal County Dust Control Forecast a farmer must ensure that one of the above underlined BMP's is being implemented. If not implementing one of the underlined BMPs, then the BMP below must be selected and implemented on a Pinal County high risk dust generation forecast:

- Watering on a High Risk Day*

*Implemented only on the day forecast to be high risk for dust generation.

- Access restriction: reducing PM emissions by reducing the number of trips driven on agricultural aprons and access roads by restricting or eliminating public access to noncropland or commercial farm roads with signs or physical obstruction at locations that effectively control access to the area.
- Wind barrier: reducing PM emissions and wind erosion by constructing a fence or structure, or providing a woody vegetative barrier by planting a row of trees or shrubs, perpendicular or across the prevailing wind direction to reduce wind speed by changing the pattern of air flow over the land surface.
- Critical area planting: reducing PM10 emissions and wind erosion by planting trees, shrubs, vines, grasses, or other vegetative cover on noncropland in order to maintain at least 60 percent ground cover.
- Organic material cover: reducing PM emissions and wind erosion and preserving soil moisture by applying and maintaining cover material such as animal waste or plant residue, to a soil surface to reduce soil movement.
- Synthetic particulate suppressant: reducing PM emissions and wind erosion by providing a stabilized soil surface on noncropland or commercial farm roads with a manufactured product.
- Watering: reducing PM emissions and wind erosion by applying water to noncropland or commercial farm road bare soil surfaces during periods of high traffic until the surfaces are visibly moist.

Ag BMP General Permit for Pinal Cropland

CATEGORY V: Cropland

Select at least one of the following:

- Wind Barrier
- Cover Crop
- Cross-wind Ridges
- Chips/mulches
- Sequential Cropping
- Residue Management
- Surface Roughening

And select at least one of the following:

- Multi-year Crop
- Permanent Cover
- Stabilization of soil prior to plant emergence

- Cover crop: establishing cover crops that maintain a minimum of 60 percent ground cover. Native or volunteer vegetation that meets the minimum ground cover requirement is acceptable.
- Cross-wind ridges: stabilizing soil and reducing PM emissions and wind erosion by creating soil ridges in a commercial farm by tillage or planting operations. Ridges should be...aligned as perpendicular as possible to the prevailing wind direction.
- Chips/mulches: reducing PM emissions and soil movement and preserving soil moisture by applying and maintaining nontoxic chemical or organic dust suppressants to a depth sufficient to reduce PM emissions.
- Residue management: reducing PM emissions and wind erosion by maintaining a minimum of 60 percent ground cover of crop and other plant residues on a soil surface between the time of harvest of one crop and the commencement of tillage for a new crop.
- Surface roughening: reducing PM emissions or wind erosion by manipulating a soil surface by means such as rough discing or tillage in order to produce or maintain clods on the land surface.

AgBMPs Related to Fallow Fields: Tillage Based on Soil Moisture



AgBMPs Related to Fallow Fields: Critical Area Planting



DITAT DEUS



AgBMPs Related to Fallow Fields: Surface Roughening



AgBMPs Related to Fallow Fields: Cover Crop/Residue Management

AGRICULTURE
DITAT DEUS

Before



After



AgBMPs Related to Fallow Fields: Cover Crop/Residue Management



Dust Risk-Based Forecast | Pinal County

Updated On: 03/03/2022 - 9:19 AM

Friday



Stagnation: Light morning stagnation

Wind: Southwesterly winds of 15-30 mph with higher gusts

Saturday



Stagnation: Light morning stagnation

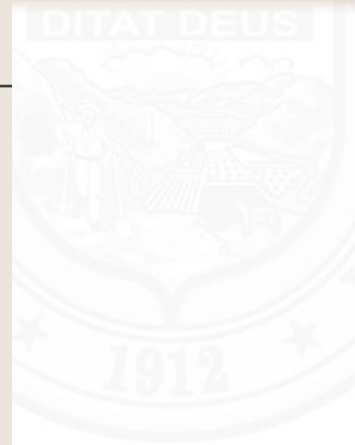
Wind: Southwesterly winds of 15-25 mph with higher gusts


Sunday



Stagnation: Light morning stagnation and evening stagnation

Wind: Westerly winds of 5-15 mph



Select Language 



DUST MITIGATION HANDBOOK

ONE STOP GUIDE TO DUST MITIGATION

A PRODUCT OF THE USDA
SOUTHWEST AND SOUTHERN
PLAINS CLIMATE HUBS

USDA United States
Department of
Agriculture

- NRCS – Dust Mitigation Handbook
 - Other BMPs that are not included in the Ag BMPs
- Studies on volunteer crops for best coverage

NRCS 98 Ranch Revegetation



Figure 4: 98 Ranch abandoned farmland, May 2016, looking north

- Be mindful that farming practices are dusty but can be managed.
- In conclusion, if you are unsure about an agricultural activity, contact us and we will check it out.

Contact:

Madeline Greenbaum

Air Compliance Officer

Ph: 602-771-2370

M: 602-568-1678

Email:

Greenbaum.Madeline@azdeq.gov

Luke Messer

Air Compliance Officer

Ph: 602-771-4695

M: 602-399-1982

Email:

Messer.Luke@azdeq.gov