

**NATURAL RESOURCES CONSERVATION SERVICE
INTERIM CONSERVATION PRACTICE STANDARD
FIELD OPERATIONS EMISSIONS REDUCTION**

(Ac.)

CODE 756

DEFINITION

Implementing and adjusting field operations and technologies to reduce particulate matter (PM) air emissions from land preparation, planting, harvesting, and other field operations.

PURPOSE

Improve air quality by reducing emissions of particulate matter.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to cropland (including orchards and vineyards), pastureland, and forest land

CRITERIA

General Criteria Applicable for all Purposes

There shall be a demonstrated reduction in PM emissions from the benchmark (current system) to the planned system by using one or more of the techniques below:

Combined Tillage Operations

Utilize equipment that allows multiple operations in a single pass to reduce number of field passes per crop rotation.

Precision Guidance Systems

Use global positioning system (GPS) and steering technologies for soil disturbance operations that reduce overlap of field passes.

Alternative Equipment Technology

Use alternative equipment and/or equipment retrofits that reduce air emissions. This can include dust-reducing land preparation, planting and harvesting technology (such as misters, deflectors, etc.), increasing equipment

size to reduce net field passes, and changes to bed/row size or spacing.

Timing of Field Operations

Modify the timing of field operations so that PM air emissions are reduced. This can include conducting operations when relative humidity and/or soil moisture levels are higher, winds are lighter, limiting operations during high-wind events, and otherwise conducting operations at a time that will minimize emissions. This could also include a reduction in the amount of time between seedbed preparation and planting, and other such timing modifications that reduce air emissions.

Modify Crop Cultural and Harvest Methodologies

Modify operations to use other means of cropping/harvesting such as performing soil disturbance and/or harvest operations at slower speeds,

Harvesting a forage crop without allowing it to dry in the field, hand harvesting, applying water or other soil stabilizing material prior to soil disturbance or harvest, using transplants instead of direct seeding, and applying chemicals and fertilizers via irrigation to reduce field passes.

For applicable nut operations utilize floor management, including maintaining a smooth, clean, flat, and firm soil surface for harvest to reduce emissions from re-entrainment of soil and residue particles

CONSIDERATIONS

Managing higher levels of crop residue can reduce the potential for PM emissions from wind erosion and increase the potential for carbon sequestration.

Maintaining permanent or temporary cover between rows or on alternate crop rows will reduce the potential for wind erosion and the number of soil disturbing passes.

Using a flail mower or low volume sprayer or heat delivery system as a harvest pre-conditioner can reduce the number of soil disturbing passes.

Increasing the time interval between uncombined tillage passes (e.g., disking) may help reduce PM emissions by reducing the effects of thermal profile changes that cause additional entrainment of the soil particles.

Reducing the number of tillage passes can reduce energy use via the reduction in engine runtime. In some cases, energy use may increase, due to the use of heavier equipment.

PLANS AND SPECIFICATIONS

Plans and specifications shall include:

- field number and acres
- purpose(s) of the emission reduction
- listing of the current benchmark field operations system

- listing of the planned field operations system
- listing of emission reduction activities and when and how the activities will be applied.
- special considerations

Specifications shall be recorded using the approved implementation requirements specification document.

OPERATION AND MAINTENANCE

The emission reduction activities shall be reviewed seasonally or annually as appropriate to ensure the appropriate emission reduction activities are working properly and determine if modifications are needed.

REFERENCES

Agricultural Air Quality Conservation Management Practices for San Joaquin Valley Farms. 2004. San Joaquin Valley Air Pollution Control District and USDA-NRCS. 14 pp.