

Source Category: Fugitive Dust from Agriculture Tilling

SCC Code: 2801000003

Pollutants of Concern: PM2.5, PM10

How is the PM National Air Pollutant Emission Trends inventory developed for this category?

Current Methodology:

- TSP emissions are calculated by an equation that includes the following parameters: a constant factor of 4.8 lbs emissions/acre-pass, county-specific silt content factor, and the number of acre passes/year.
- This is multiplied by data on acres planted for each crop by county.
- Corrections are applied to account for crop lands subject to no till, ridge till, and mulch till practiced by county.
- Size distribution multipliers (0.21 for PM10 and 0.042 for PM2.5), based on measurement data are applied to the TSP emission estimate.

The specific crop types included in the methodology are: corn, spring wheat, rice, fall-seeded small grain, soybeans, cotton, sorghum, forage, permanent pasture, other crops, fallow.

Uncertainties / Shortcomings of Current Methods:

- Emission factors for PM are derived from limited testing and may not be geographically representative.
- Estimates for the number of tillings per year by crop for conservation tilling and conventional tilling derived from a study in 1996 are used for the entire country.
- Obtain locally representative estimates for silt content.

How can State, Local, and Tribal agencies improve upon this methodology?

NOTE: The national methodology will provide a reasonably accurate method for this category in many locations. State, local and tribal agencies should review the emissions potential of this category to decide if this category is a high priority.

- Determine the silt content using the AP-42 Laboratory Method.
- Develop specific temporal operating parameters for each crop in the region.

Activity Variables Used to Calculate Fugitive Dust from Agricultural Tilling

Current Variables/Assumptions Used:

- Silt content of surface soil by county (*USDA soil map*)*
- Number of passes or tillings in a year, by crop type (*CTIC*)*
- Acres of land planted by county, crop type, tilling method (*CTIC*)*

*(see 4.8.1.2 of National air Pollutant Emission Trends Procedures Document for 1900-1999.)

Suggestions for Improved Variables:

- Local data on number of acre-passes for each crop type.
- Use local emission factors if more appropriate.
- Use local silt content percentage of surface soil in the fields. [*Field Study*]
- Determine local planted acres by crop type if appropriate. [*State Department of Agriculture or Agricultural Extension Service*]
- Specify local planting, tilling temporal distribution factors. [*State Department of Agriculture or Agricultural Extension Service*]

Where can I find Additional Information and Guidance?

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National Air Pollutant Emission Trends Procedures Document for 1900-1999	http://www.epa.gov/ttn/chief/publications.html NOTE: This document is being revised.
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Procedure for Laboratory Analysis of Surface/Bulk Loading Samples	http://www.epa.gov/ttn/chief/ap42/appendix/ap-p-c2
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NEI Methodology Description	http://www.epa.gov/ttn/chief/publications.html#reports
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National Air Pollutant Emission Trends 1900-1998	http://www.epa.gov/ttn/chief/trends/trends98/br owse.html
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