

Air Quality Enhancement Activity – AIR01 – Injecting or incorporating manure



Enhancement Description

This enhancement is for injecting manure 2 inches or more below soil surface or incorporating applied manure within 24 hours to keep nutrients in place and manage odors from manure application.

Land Use Applicability

Cropland

Benefits

Injection of liquid manure into the soil is an effective way to reduce odor during the land application of untreated liquid manure

while keeping nutrients in place. Solid manures typically cannot be injected, so shallow tillage to incorporate applied manure can be used to reduce odors and protect water quality. Injection or incorporation allows the soil to act as both a trap for odorous gases and an aerobic treatment system. Manure injection or incorporation also reduces manure nitrogen losses to the atmosphere by reducing ammonia volatilization and improves water quality by reducing manure nitrogen and phosphorus losses via surface runoff.

Criteria for Injecting or Incorporating Manure

1. Producer's existing cropping system must include surface application of manure without incorporation.
2. Liquid manure must be injected at least 2 inches deep into the soil.
3. Dry or solid manure must be incorporated with a vertical tillage implement that minimizes surface disturbance and maintains 30% residue cover.
4. Producer must have a current soil test (no more than 3 years old).
5. Producer must have a manure nutrient analysis. At least one analysis of the applied manure must be conducted per year for each year of the enhancement. In circumstances where there is a management change that could impact the manure nutrient analysis, an additional analysis of the manure following the change must be conducted.
6. Nutrient application rates are within the "Land Grant University" recommendations based on soil tests and established yield goals considering all nutrient sources. Rates shall be consistent with the requirements of Conservation Practice Standard 590, Nutrient Management.
7. In cases where residues levels cannot be maintained above 30% for fall applications a cover crop must be planted after injection or incorporation of manure.



United States Department of Agriculture
Natural Resources Conservation Service

2011 Ranking Period 1

Documentation Requirements for Injecting or Incorporating Manure

- A map showing where the activity was applied
- Dates of application
- Acres treated
- Manure type and amount applied
- Manure application method used (liquid injection or solid incorporation)
- Soil test results
- Manure analysis results
- Crops grown and yields (both yield goals and measured yield)
- Calibration of application equipment

References

Livestock and Poultry Environmental Stewardship Curriculum Lesson 44: Emission Control Strategies for Land Application

(http://www.lpes.org/Lessons/Lesson44/44_Land_Application_Emissions.html)

American Society of Agricultural and Biological Engineers Technical Standard EP379.4 Management of Manure Odors, January 2007

(<http://asae.frymulti.com/azdez.asp?search=1&JID=2&AID=23560&CID=s2000&T=2>)

ALABAMA SUPPLEMENT TO ENHANCEMENT AIR01 INJECTING OR INCORPORATING MANURE

Injecting or incorporating manure into the soil is an effective way to reduce odor during the land application of manure while keeping nutrients in place protecting water quality by reducing manure nitrogen and phosphorus losses via surface runoff. This enhancement also reduces manure nitrogen losses to the atmosphere by reducing ammonia volatilization. This enhancement can only be applied on cropland. All applications of manure must be applied in accordance with the Alabama Conservation Practice Standard, Nutrient management (590). Refer to the national enhancement for more information.

Criteria

1. **Producer's existing** cropping system must include surface application of manure without incorporation.
2. Liquid manure must be injected at least 2 inches deep into the soil.
3. Dry or solid manure must be incorporated with a vertical tillage implement that minimizes surface disturbance and maintains 30% residue cover.
4. Producer must have a current soil test (no older than 3 years).
5. Producer must have a manure analysis of the manure to be applied. At least one analysis of applied manure must be conducted per year for each year of enhancement.
6. All nutrient application must be consistent with Alabama Conservation Practice Standard 590, Nutrient Management. If a manure application is being planned a nutrient management plan must be created. A nutrient management plan contains the following for each application site: a) aerial photographs (with buffers); b) soils map; c) crop rotation; d) soil test (no older than 3 years); e) yield goals; f) Alabama Phosphorus Index; g) nutrient budget; h) planned rates, methods, and timing; and i) guidance for implementation/operation and maintenance/record keeping.

Documentation Requirements:

1. A map showing fields where the enhancement is applied and acres treated.
2. Documentation by field for each year of the enhancement the following: crop grown and yield (yield goals and measured yield); manure type; date of application; application method; amount applied; and calibration of application equipment.
3. Copies of the current soil test results and manure analysis results.
4. Nutrient management plan

References:

NRCS, Conservation Practice Standard Nutrient management (590)
http://efotg.sc.egov.usda.gov/references/public/AL/590_11-02.pdf

ALABAMA SUPPLEMENTAL INFORMATION FOR THIS ENHANCEMENT

AIR01 –Injecting or Incorporating Manure

Documentation Form

Producer Name:		Date:
County:		
Tract Number(s)		
Field Number(s):		
Crop Grown:		
Yield Goal		
Measured Yield:		
Type of Manure Applied:		
Manure Application Rate:		
Manure Application Method:		
Date of Application:		
Producer has self certified the application of manure was within the 590 standard *		
Date Nutrient Management Plan		
Date of Soil Test:		
Date of Manure Analysis		
Date of Calibration of Application Equipment		

Attach map showing fields and acreage where enhancement applied and copies of current soil test, manure analysis, and nutrient management plan.

The supplied documentation accurately reflects the implementation of this enhancement.

* Producer must self certify that no manure application was made on any buffered portion of the field, manure application were not made within 3 days of a storm event and all other requirements for manure application contained within the 590 standard were satisfied.

SIGNATURE: _____