

Conservation Fact Sheet:

Minimum Disturbance

Manure Injection Equipment

What is Manure Injection?

In Maryland, manure is typically applied to the soil's surface. Traditionally, the only way to get manure below the surface was through tillage, making no-till systems incompatible.

There are several new technologies available to partially incorporate or directly inject manure below the surface, such as vertical tillage or the use of a manure injection system. Other instruments include those that use chisels instead of disks to open the injection slit, and aerators that help manure infiltration. Currently there is only technology available for the injection of liquid manures that can be pumped, although technology is being developed to inject poultry litter.

NRCS technical and financial assistance is available for eligible landowners to implement these technologies through our conservation programs.

NRCS Payments per acre

AerWay System- \$16

Manure Injection- \$45

Vertical Tillage -

Dry Manure- \$10

Liquid Manure - \$13

A three-year commitment is required.

Contact your local USDA service center for more information and assistance.

The Natural Resources Conservation Service (NRCS) has funds available to farmers in Maryland who are interested in using conservation- tillage technology to partially incorporate manure in reduced tillage grain production systems. This technology uses minimum disturbance or no-till manure injection and incorporation equipment to

- Preserve surface residue and soil conservation conditions
- Reduce Nitrogen and phosphorus losses



Photo © Dan Bard

Vertical Tillage



Photo © Dan Bard

Injector

Producers and the environment save

Minimum disturbance equipment works well with no-till planting and allows farmers to experiment with new methods of preserving nitrogen to save on fertilizer costs. In addition to the economic benefits, waste utilization benefits the environment by ensuring efficient nutrient use and improved soil and water quality.

Agronomic Benefit: Greatly improved Nitrogen use efficiency. Surface application of manure results in losses of ammonia-nitrogen through volatilization, while injecting manure or incorporating it just below the soil surface can reduce or eliminate these losses.

Environmental Benefit: Manure injected or incorporated just below the soil surface also has environmental benefits, as surface applications of manure have been shown to increase nitrogen and phosphorus runoff to rivers and streams, while injection/incorporation places manure below the surface where it doesn't interact with runoff water during storms.

Manure Injection and No-till

Certain injection implements are compatible with no-till. However, as the precise definition of no-till varies by agency, there is some gray area between what is and is not compatible. Less aggressive implements are considered compatible. Implement characteristics such as spacing of injection bands, amount of soil disturbance and residue cover all affect whether or not manure injection will be allowable under the definition of no-tillage used by various agencies. If you receive cost share for no-till, check with the agency providing it.



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NRCS Conservation Fact Sheet: **Manure Injection**

About NRCS

The USDA Natural Resources Conservation Service (NRCS) works to protect and conserve natural resources on our nation's private lands.

A part of the U.S. Department of Agriculture, NRCS administers conservation programs funded primarily through the 2008 Farm Bill.

The conservation provisions in the 2008 Farm Bill will affect farmers for years to come. New provisions continue to build on the conservation gains made by U.S. citizens over the past decade. Existing programs have been simplified and new programs created to address high priority environmental protection goals.

In addition to addressing a broad range of environmental goals, the 2008 Farm Bill includes increased financial assistance for new, limited resource and socially disadvantaged farmers.

Helpful resources:

- NRCS nutrient management resources <http://www.nrcs.usda.gov/technical/nutrient.html>
- Maryland Department of Agriculture Resource Conservation http://www.mda.state.md.us/resource_conservation/index.php

Allegany: 301-777-1494
Anne Arundel: 410-571-6757
Baltimore County: 410-666-1188
Calvert: 410-535-1521
Caroline: 410-479-1202
Caroll: 410-848-6696
Cecil: 410-398-4411
Charles: 301-934-9588

NRCS and the Maryland Department of Agriculture (MDA) are working together to provide you with sound technical advice and valuable financial assistance for adopting minimum disturbance manure injection technologies.

NRCS Programs

Both the Environmental Quality Incentives Program (EQIP) and the Chesapeake Bay Watershed Initiative (CBWI) offer compensation for manure injection equipment through the Waste Utilization practice.

Environmental Quality Incentives Program (EQIP)	EQIP helps promote farm and forest production by enhancing the environmental quality of soil, water, air, plants and animals.
Chesapeake Bay Watershed Initiative (CBWI)	CBWI helps agricultural producers minimize nutrient and sediment losses in order to restore, preserve, and protect local water quality and the Chesapeake Bay.

Who can apply?

- Private agriculture and forest land owners who are engaged in livestock, agricultural or forestry production can apply for NRCS assistance.
- There is no minimum acreage requirement to apply for EQIP or CBWI, however, projects that address significant resource concerns are more likely to receive funding.

How do I apply?

- Contact your local USDA Service Center to speak to one of our conservation professionals to begin the program application process.

When should I apply?

- Applications may be submitted anytime. All applications will be evaluated monthly in a competitive ranking process as funding becomes available. Ranking criteria for each program is available on our website.

Please call your local USDA service center or visit us online for more information.

Dorchester: 410-228-5640
District of Columbia: 202-535-2242
Frederick: 301-695-2803
Garrett: 301-334-6950
Harford: 410-838-6181
Howard: 410-489-7987
Kent: 410-778-5353
Montgomery: 301-590-2855

Prince George's: 301-574-5162
Queen Anne's: 410-758-1671
St. Mary's: 301-475-8402
Somerset: 410-651-0370
Talbot: 410-822-1577
Washington: 301-797-0500
Wicomico: 410-546-4777
Worcester: 410-632-5439