

NATURAL RESOURCES CONSERVATION SERVICE
VIRGINIA CONSERVATION PRACTICE STANDARD

AMENDMENTS FOR TREATMENT OF AGRICULTURAL WASTE
(AU)

CODE 591

DEFINITION

Treatment of manure, process wastewater, storm water runoff from lots or other high intensity areas, and other wastes, with chemical or biological additives.

PURPOSE

To alter the physical and/or chemical characteristics of the waste stream to facilitate the implementation of a waste management system to:

- Improve or protect air quality
- Improve or protect water quality
- Improve or protect animal health
- Alter the consistency of the waste stream to facilitate implementation of a waste management system

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where the use of a chemical or biological amendment will alter the physical and chemical characteristics of the waste stream as a part of a planned waste management system. This practice does not include amendments added to the animal feed.

CRITERIA

General Criteria Applicable To All Purposes

Laws, Rules and Regulations. Use of amendments as a part of a waste management system shall be planned and implemented to meet all Federal, state, and local laws, rules and regulations.

Labeling and Instructions for Use. Products to be used as manure amendments shall be

labeled or accompanied by instructions containing the following information as a minimum:

- Active ingredients and their percentage of the whole. Proprietary terminology may be used as long as the actual chemical and/or biological names are included.
- The purpose(s) for which the amendment is intended.
- Recommended application rate(s) to achieve the intended purpose(s).
- Application timing and methodology to optimize the effectiveness of the amendment.
- Incorporation requirements (if any).
- Special handling and storage requirements for the amendment.
- Any safety concerns relating to the use of the amendment and recommended measures to overcome the safety concern, including any required personal protective equipment.

Validation of Product. The species-specific rate, timing and application methodology of an amendment to achieve a needed level of treatment addressing a specific purpose must be documented by a university or other independent research entity acceptable to the NRCS. Documentation from peer reviewed journals is preferable. The effectiveness of the amendment under different climatic factors shall be included in the documentation, or if there are no difference in effectiveness, the documentation shall so state. Potential adverse impacts of the amendment on the ecosystem shall also be identified in the documentation. It shall be the responsibility of the amendment

provider to furnish the documentation to the NRCS. This procedure shall be used for new products and will be completed by the NRCS State Office.

General Criteria Applicable To Improving Air Quality

Follow the manufacturer's recommendations on rate and timing of application to improve air quality.

General Criteria Applicable To Improving Water Quality

Amendments shall be applied at a rate that result in a reduction of soluble phosphorus by a minimum of 25%.

General Criteria Applicable to Alter the Consistency of the Waste Stream

Follow the manufacturer's recommendations on rate and timing of application to reduce the solids in a waste stream.

CONSIDERATIONS

The use of an amendment may alter the composition of the waste stream. The use of amendments should be limited to situations where impacts of the altered waste stream on other aspects of the planned system have been identified.

Some amendments have been shown to affect multiple purposes of this standard and other aspects of a livestock production operation. Preference should be given to amendments with the greatest environmental and economic benefit.

The use of amendments to reduce ammonia and other emissions from manure in confined spaces may allow altered ventilation strategies at an appreciable energy savings. The reduction of ammonia emissions will also increase the proportion of nitrogen in the manure.

PLANS AND SPECIFICATIONS

Plans and specifications shall be prepared in accordance with the criteria of this standard and shall describe the requirements for applying the practice to achieve its intended purpose(s). Specifications for the use of an

individual amendment will be developed in accordance with the label directions and other instructions provided by the vendor. Record all required information in a job sheet, or in another appropriate location. As a minimum, the plans and specifications shall provide the following:

DESIGN DATA

1. Completed Environmental Evaluation (Form VA-EE-1) and subsequent requirements.
2. Location map.
3. Design computations, including purpose of practice and references used, shall be recorded on the Job Sheet (VA-591-JS) for poultry litter or on a computation sheet for other amendments. It shall include:
 - a. The name of the amendment, the purpose(s) for its use, and the planned outcome(s).
 - b. Application methodology, including rates, timing, mixing instructions, temperature requirements, incorporation requirements, etc.
 - c. Calculations demonstrating the anticipated air emissions reduction, as appropriate.
 - d. Required tests to determine the effectiveness of the amendment, as appropriate. An example of this would be a test for nutrients in the manure or litter.
 - e. Special handling and storage requirements for the amendment.
 - f. Safety concerns, including any required personal protective gear.
4. Materials and quantities needed.
5. Supplemental practices required, if needed.
6. Nutrient Management Plan based on tests of amended waste material and soil tests.
7. Operation and Maintenance Plan (for applications other than poultry litter). O&M for poultry litter is included in the Job Sheet.

CHECK DATA

1. Job Sheet (VA-591-JS) or computation sheet, and variations from planned usage. Include justification for variations.
2. Operation and Maintenance Plan or Job Sheet with section on record keeping completed.

OPERATION AND MAINTENANCE

A site-specific operation and maintenance (O&M) plan shall be developed and reviewed with the operator and owner prior to implementation of the practice. The O&M plan shall be consistent with the purposes of the practice, safety considerations, and label directions and other instructions provided by the vendor.

The O&M plan shall provide sufficient detail as to amendments to be used, application rates and timing, and equipment to be used.

The O&M plan shall detail all safety precautions necessary when handling the specific chemicals or biological amendments to be used.

The O&M plan shall provide for record keeping in sufficient detail to describe the amendment's

use, actual application rates and timing, and any tests performed (including nutrient analysis).

REFERENCES

USDA-Natural Resources Conservation Service. National Engineering Handbook – Part 650, Engineering Field Handbook.

USDA-Natural Resources Conservation Service. National Engineering Handbook – Part 651, Agricultural Waste Management Field Handbook.

USDA-Natural Resources Conservation Service. Virginia Electronic Field Office Technical Guide (eFOTG), Section IV. [On-line]. Available at: <http://www.nrcs.usda.gov/technical/eFOTG>.

USDA-Natural Resources Conservation Service. Virginia Engineering Design Note #591 – Amendments for Treatment of Agricultural Waste. [On-line]. Available at: <http://www.nrcs.usda.gov/technical/eFOTG>.

USDA-Natural Resources Conservation Service. Virginia 700 Series Construction Specifications. [On-line]. Available at: <http://www.nrcs.usda.gov/technical/eFOTG>.

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