

**NATURAL RESOURCES CONSERVATION SERVICE
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

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:

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.

- 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.

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

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 differences 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.

Storage and Transfer of Treated Wastes. Waste stream flow to or from a waste storage facility used in the amendment treatment process shall meet the requirements of the Arkansas NRCS Field Office Technical Guide (FOTG) Section IV, Practice Standard 634, Waste Transfer.

Manure/litter stored outside must be protected from rainfall.

Adequate storage shall be provided for manure/litter or manure/litter derivatives following amendment treatment unless they are transported directly to the final utilization location.

Manure/litter transferred off farm and stored before being land applied must be protected from rainfall.

Nutrient Management Plans. Amendments will alter the characteristics of the litter or manure. The nutrient management plan shall account for the predicted effects of the amendment.

Phosphorous Binding. At a minimum amendments used to bind phosphorous must be applied at the rate that the manufacturer predicts to be effective at ammonia suppression, or at a rate that will cause a reduction of soluble phosphorous by at least 25%, whichever rate is greater.

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.

They should be periodically tested to determine the actual effects of the amendment on the nutrient content and nutrient availability.

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. As a minimum, the plans and specifications shall provide the following:

- The name of the amendment, the purpose(s) for its use, and the planned outcome(s).
- Application methodology, including rates, timing, mixing instructions, temperature requirements, etc.
- Required tests to determine the effectiveness of the amendment as appropriate.

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, NRCS Arkansas Field Office Technical Guide (FOTG), Section IV, Practice Standards and Specifications.

USDA, NRCS national Engineering Handbook, Part 651, Agricultural Waste Management Field Handbook

Moore, P. A., Jr., and Miller, D. M. Decreasing phosphorus solubility in poultry litter with aluminum, calcium, and iron amendments. *J. Environ. Qual.* 23:325-330. 1994.

Moore, P. A., Jr., Daniel, T. C., Edwards, D. R. and Miller, D. M. Effect of chemical amendments on ammonia volatilization from poultry litter. *J. Environ. Qual.* 24:293-300. 1995.

Sharpley, A. N., Moore, P. A., Jr., VanDevender, K., Daniels, M., Delp, W., Daniel, T. and Baber, A. Arkansas Phosphorus Index. University of Arkansas Factsheet FSA9531. http://www.uaex.edu/Other_Areas/publications/PDF/FSA-9531.pdf. 2009. (Fact Sheet)