

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

WASTE UTILIZATION

(Acre)
Code 633



DEFINITION

Using agricultural wastes such as manure and wastewater or other organic residues.

PURPOSES

This practice may be applied as part of a conservation management system to support one or more of the following purposes.

- Protect water quality
- Protect air quality
- Provide fertility for crop, forage, fiber production and forest products
- Improve or maintain soil structure
- Provide feedstock for livestock
- Provide a source of energy

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where agricultural wastes, including animal manure and contaminated water from livestock and poultry operations, solids and wastewater from municipal treatment plants, and agricultural processing residues are generated and/or utilized.

CRITERIA

General Criteria Applicable to All Purposes

All Federal, state and local laws, rules and regulations governing waste management, pollution abatement, health and safety shall be strictly adhered to. The owner or operator shall be responsible for securing any and all required permits or approvals related to waste utilization, and for operating and maintaining any components in accordance with applicable laws and regulations.

Land application of domestic wastewater residuals shall be in conformance with Florida Department of Environmental Protection (FDEP) Rule, Chapter 62-640 Florida Administrative Code (F.A.C.). Land application of septage shall be in conformance with Florida Department of Health (FDOH), Chapter 64E-6 F.A.C.

Where municipal wastewater and solids are applied to agricultural lands, the single application or lifetime limits of heavy metals shall not be exceeded.

If agricultural waste or waste residuals are applied to the land, the nutrient content shall be accounted for and shall meet the requirement of Florida NRCS conservation practice standard, Nutrient Management, Code 590.

Use of agricultural wastes shall be based on at least one analysis of the material during the time it is to be used. In the case of daily spreading, the waste shall be sampled and analyzed at least once each year. As a minimum the waste analysis should identify nutrient and specific ion concentrations. Where the metal content of municipal wastewater, sludge, septage, and other agricultural waste is of a concern, the analysis shall also include determining the concentration of metals in the material.

Where agricultural wastes are to be spread on land not owned or controlled by the producer, the waste management plan, as a minimum, shall document the date, the amount of waste to

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be transferred and who will be responsible for the environmentally acceptable use of the waste.

Records of the use of wastes shall be kept a minimum of five years as discussed in the "Operation and Maintenance" section of this standard.

Additional Criteria to Protect Water Quality

All agricultural waste shall be utilized in a manner that minimizes the opportunity for contamination of surface and ground water supplies.

Agricultural waste shall not be land-applied on soils that are frequently flooded, as defined by the National Cooperative Soil Survey, during the period when flooding is expected.

When liquid wastes are applied, the application rate shall not exceed the infiltration rate of the soil, and the amount of wastewater applied shall not exceed the moisture holding capacity of the soil profile at the time of application.

If the potential for runoff exists, waste shall not be applied to the land except in extreme climatic conditions where the safety of waste storage facilities is compromised. Documentation of this condition must be included in the waste management plan.

Additional Criteria to Protect Air Quality

Incorporate surface applications of solid forms of manure or other organic by-products into the soil within 24 hours of application to minimize emissions and to reduce odors.

When applying liquid forms of manure with irrigation equipment, select application conditions where there is high humidity, little or no wind blowing, a forthcoming rainfall event and/or other conditions that will minimize volatilization losses into the atmosphere. The basis for applying manure under these conditions shall be documented in the nutrient management plan.

Minimize the impact of odors of land-applied wastes by making application at times when temperatures are cool and when the prevailing wind direction is away from residential areas, other public areas (i.e. schools, hospital, parks), and public roads. When possible avoid application on weekends and holidays.

Handle and apply poultry litter or other dry types of animal manure or other organic by-products when weather conditions are calm and there is less potential for blowing and emission of particulates in the atmosphere. The basis for

applying manure under these conditions shall be documented in the nutrient management plan. When sub-surface applied using an injection system, waste shall be placed at a depth and applied at a rate that minimizes leaks onto the soil surface, while minimizing disturbance to the soil surface and plant community.

All materials shall be handled in a manner to minimize the generation of particulate matter, odors and greenhouse gases

Additional Criteria for Providing Fertility for Crop, Forage and Fiber Production and Forest Products

Where agricultural wastes are utilized to provide fertility for crop, forage, fiber production and forest products, the Florida NRCS conservation practice standard Nutrient Management, Code 590 shall be followed.

Where municipal wastewater and solids are applied to agricultural lands as a nutrient source, the single application or lifetime limits of heavy metals shall not be exceeded. The concentration of salts shall not exceed the level that will impair seed germination or plant growth.

Additional Criteria for Improving or Maintaining Soil Structure

Wastes shall be applied at rates not to exceed the crop nutrient requirements or salt concentrations as stated above.

Solid wastes shall be applied at times when the waste material can be incorporated by appropriate means into the soil within 72 hours of application on annually tilled lands. Residue management practices shall be used for maintenance of soil structure.

Additional Criteria for Providing Feedstock for Livestock

Agricultural wastes to be used for feedstock shall be handled in a manner to minimize contamination and preserve its feed value. Waste stored for this purpose shall be covered. A qualified animal nutritionist shall develop rations that utilize wastes.

Additional Criteria for Providing a Source of Energy

Use of agricultural waste for energy production shall be an integral part of the overall waste management system.

All energy producing components of the system shall be included in the waste management plan

and provisions for utilization of residues for energy production identified. Where the residues of energy production are to be land-applied for crop nutrient use or soil conditioning, the criteria in sections "*Additional Criteria for Providing Fertility for Crop, Forage and Fiber Production*" and "*Forages and Additional Criteria for Improving or Maintaining Soil Structure*", respectively.

CONSIDERATIONS

The effect of waste utilization on the water budget should be considered, particularly where a shallow ground water table is present or in areas prone to runoff. Limit waste application to the volume of liquid that can be stored in the root zone.

Wastes may contain pathogens and other disease-causing organisms. Wastes should be utilized in a manner that minimizes on-site and off-site impacts from disease.

Priority areas for land application of wastes should be on gentle slopes located as far as possible from waterways, wells, property lines, residences, etc. When wastes are applied on more sloping land or land adjacent to waterways, other conservation practices should be installed to reduce the potential for off-site transport of waste. The non-application buffer widths outlined in the Florida NRCS conservation practice standard, Nutrient Management, Code 590 shall be used to minimize impacts of surface and ground water supplies and odors.

It is preferable to apply wastes on pastures and hayland soon after cutting or grazing before re-growth has occurred.

Consider the impact to plant health and vigor of plants when surface applying waste to plant foliage.

Minimize environmental impact of land-applied waste by limiting the quantity of waste applied to the rates determined using the Florida NRCS conservation practice standard Nutrient Management, Code 590.

Consider the net effect of waste utilization on greenhouse gas emissions and carbon sequestration.

Excessive levels on one nutrient in the soil may induce deficiencies of other micronutrients. Consider the effects of soil erosion control practices used to reduce soil loss, runoff, transport and leaching of dissolved and attached nutrients and elements.

PLANS AND SPECIFICATIONS

Plans and specifications for waste utilization shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. The waste management plan shall account for the utilization or other disposal of all wastes produced. All waste application areas shall be clearly indicated on a plan map.

OPERATION AND MAINTENANCE

Records shall be kept for a period of five years or longer, and include where applicable:

- Quantity of manure and other agricultural waste produced and their nutrient content and where applicable heavy metal content.
- Frequency of testing the waste material.
- Describe climatic conditions for waste application: time of day, temperature, humidity, wind speed, wind direction, soil condition, and other factors as necessary.
- Soil test results. A minimum of one soil test shall be taken every year on each field where waste is applied.
- Date, location (field), and amount of waste applied.
- The dates and amounts of waste removed from the system due to feeding, energy production, or export from the operation.
- Dates and entities that received the exported material.
- Waste application methods.
- Crops grown and yields (both yield goals and measured yield).
- Other tests, such as determining the nutrient content of the harvested product.
- Calibration of application equipment.
- Dates of periodic inspections.
- Maintenance of equipment and facilities used in waste utilization, including what is to be inspected or maintained, and a general time frame for making necessary repairs.

REFERENCES

FDEP Rule, Chapter 62-640 F.A.C.
FDOH, Chapter 64E-6 F.A.C

Florida NRCS Conservation Practice Standard
Nutrient Management, Code 590
National Cooperative Soil Survey