

NUTRIENT APPLICATION REQUIREMENTS

Maryland Department of Agriculture June 2022

Authority: Agriculture Article, §§ 8-801—8-806; COMAR 15.20.07.02

I. GENERAL GUIDELINES

A. This document addresses (1) Setbacks for Nutrient Application, (2) Application Timing for all nutrients, organic and chemical, and (3) Temporary Field Stockpiling (staging) of Organic Materials. Application of nutrients may vary depending on the crop, season, nutrient source, and weather conditions. A person applying nutrients shall use best management practices, including following these “Nutrient Application Requirements,” to maximize plant utilization efficiency as described in Section I-B of the *Maryland Nutrient Management Manual*, and minimize the potential for nutrient movement to sensitive areas and losses to surrounding water bodies, including surface and groundwater.

B. This document does not supersede Maryland Department of the Environment (MDE) Animal Feeding Operations regulations in COMAR 26.08.01 and 26.08.03.09, or the MDE Sewage Sludge Management regulations in COMAR 26.04.06 regarding the requirements for sewage sludge (biosolids) storage, buffer zones, and the incorporation of biosolids into the soil by the end of each working day.

C. All materials that provide primary crop nutrients shall be included in, and managed by, a Nutrient Management Plan. These materials include chemical fertilizer, organic materials such as animal manure, biosolids, food processing wastes and residuals, spent mushroom substrate, spray irrigation from wastewater treatment plants, composts, other waste streams containing nutrients, and soil conditioners/amendments.

D. Imported organic fertilizer materials that provide primary nutrients such as food processing wastes and residuals, spent mushroom substrate, spray irrigation from wastewater treatment plants, composted wastes, other waste streams containing nutrients shall have a current registration with the Maryland Department of Agriculture (MDA) State Chemist as required by COMAR 15.18.03.02 and COMAR15.18.03.04

E. These Nutrient Application Requirements shall be followed by certified consultants in the development of nutrient management plans, and by operators and applicators during plan implementation in order to comply with COMAR 15.20.08.05H and .05I

II. DEFINITIONS

A. “Cover Crop” means a cereal grain or cereal grain mix planted in accordance with the “Maryland Winter Cover Crop Program Requirements” for seeding rates, planting dates, and planting methods, as published on the MDA website.

B. “Food Processing Residual” means an organic material generated by processing agricultural commodities for human or animal consumption. The term includes food residuals, food coproducts, food processing wastes, food processing sludges, or any other incidental material whose characteristics are derived from processing agricultural products for human consumption or animal consumption.

C. “Food Processing Residual” does not include:

1. Digester Digestate;
2. Animal and Poultry Manures;
3. Class A & B Biosolids, as defined by MDE;
4. Compost;
5. Spent Mushroom Soil; or
6. Water Plant Residuals.

III. SETBACKS FOR NUTRIENT APPLICATION

A. “Nutrient Application Setback” means a vegetated area of a prescribed width where nutrient-containing material may not be applied, as measured from the edge of surface water, including perennial and intermittent streams. An intermittent stream means a stream or the reach of a stream that is below the local water table for at least some part of the year, and obtains its flow from both surface runoff and groundwater discharge. Surface water does not include:

1. Ephemeral streams (defined as streams which flow only in direct response to precipitation in the immediate watershed and which have a channel bottom that is always above the local water table);
2. Irrigation and treatment ditches, as defined under “waters” in COMAR 15.20.08.03(B)(39), and
3. Field ditches, which, for purposes of this exception, are defined as channelized waterways that, as provided in the USDA-NRCS National Cooperative Soil Survey, are not within:
 - a. A floodplain soil mapping unit;
 - b. A hydric soil unit and mapped as a narrow, elongated feature in a fluvial/floodplain position; or
 - c. A soil mapping unit that has a “B” slope class or steeper.

B. Effective January 1, 2014, a person who uses nutrients shall implement the following nutrient application setback requirements:

1. An application of crop nutrients using a broadcast method (e.g., spinners, splashes) either with or without incorporation requires a 35-foot setback.
2. A directed spray application or the injection of crop nutrients requires a 10-foot setback.
3. Excepting perennial forage crops grown for hay or pasture, vegetation in the 10-foot setback area may not include plants that would be considered part of the crop grown in the field.
4. Pastures and hayfields are subject to a 10-foot nutrient application setback.
5. Nutrients may not be applied mechanically within the setback. Except as provided in subsection III.B.6, livestock shall be excluded from the setback to prevent direct deposition of nutrients within the setback.
6. As an alternative to fencing livestock from the setback area, a person shall work with the soil conservation district to develop and implement a Soil Conservation and Water Quality Plan. The plan shall include Best Management Practices (BMPs) such as stream crossings, alternative watering facilities, pasture management or other MDA-approved BMPs that are considered to be equally protective of water quality and stream health.
7. As an alternative to a nutrient application setback, MDA may approve other BMPs that it finds equally protective of water quality and stream health.
8. Sacrifice lots (less than 75% grass or grass legume mix) shall maintain a 35-foot setback.

C. Operators are responsible for sediment and erosion control of stream crossing areas. Operators shall move livestock from one side of the stream to the other side only through stream crossings designed to prevent erosion and sediment loss. Operators shall gate crossing areas wider than 12 feet. Operators may allow livestock controlled access to streams for watering in accordance with USDA-NRCS Field Office Technical Guide standards and specifications.

IV. APPLICATION TIMING

A. The consultant, applicator, operator, and the certified farm operator shall comply with the following management requirements when recommending or applying nutrients throughout the year. These requirements separately address the use of (1) chemical fertilizers and (2) organic fertilizers. An organic fertilizer is derived from either a plant or animal product, and contains carbon, and one or more elements other than hydrogen and oxygen that are essential for plant growth. The consultant, applicator, operator, and certified farm operator shall follow the nutrient application recommendations for crops as specified in the Maryland Nutrient Management Manual Section I-B. Nutrients shall be applied as close to plant nutrient uptake period as possible.

B. Spring (March 1 through June 30)

1. A person may make a nutrient application during the spring time period (March 1 through June 30) for an existing crop or a crop to be planted during this time period in accordance with recommendations found in Section I-B of the Maryland Nutrient Management Manual.

2. Nutrient application is prohibited when the soil is saturated.

a. A person may not apply nutrients in areas of fields that have standing water because the water holding capacity of the soil has been exceeded.

b. A person may apply nutrients after the standing water has been absorbed by the soil.

3. Frozen or Snow-Covered Ground. A person may not make a nutrient application if the ground is covered with snow greater than one inch, or when the ground is hard-frozen greater than two inches.

4. Organic Nutrient Sources other than Food Processing Wastes and Residuals. Unless the farm operation is a no-till operation, a person shall directly inject the organic nutrient source into the soil or incorporate the material into the soil as soon as possible, but no later than 48 hours after application. If the farm is a no-till operation, MDA may direct the operation to incorporate the material into the soil dependent on such factors as weather, wind, and the severity of the odor caused by the material.

5. Food Processing Residuals. For all crops, except pastures and hayfields, a person applying food processing residuals shall: (a) directly inject the material into the soil; or (b) incorporate the material into the soil as soon as possible, but no later than the end of the day that the application is made. If incorporated, the incorporation must result in 95% soil coverage of the material and shall consist of heavy discing, chisel plowing, or use of other primary tillage equipment. Vertical tillage equipment may not be used to incorporate this material.

6. Pastures and Hay Fields. If a pasture or hay field has a minimum of 75% vegetation predominantly in grass or grass legume mix and legumes, a person may make a nutrient management application in accordance with recommendations found in Section I-B of the Maryland Nutrient Management Manual.

7. Emergency Situations. If a person faces an emergency situation due to an imminent overflow of a storage facility, the person shall manage the emergency in consultation with MDA. In these situations, the person shall contact the MDA regional nutrient management representative for guidance before nutrient application.

C. Summer (July 1 through September 9)

1. A person may make a nutrient application during the summertime (July 1 through September 9) period for an existing crop or a crop to be planted during this time period in accordance with recommendations found in Section I-B of the Maryland Nutrient Management Manual.

2. Nutrient application is prohibited when the soil is saturated.

a. A person may not apply nutrients in areas of fields that have standing water because the water holding capacity of the soil has been exceeded.

b. A person may apply nutrients after the standing water has been absorbed by the soil.

3. Organic Nutrient Sources other than Food Processing Wastes and Residuals. Unless the farm operation is a no-till operation, a person shall directly inject the organic nutrient source into the soil or incorporate the material into the soil as soon as possible, but no later than 48 hours after application. If the farm is a no-till operation, MDA may direct the operation to incorporate the material into the soil dependent on such factors as weather, wind, and the severity of the odor caused by the material.

4. Food Processing Residuals. For all crops, except pastures and hay fields, a person applying food processing residuals shall: (a) directly inject the material into the soil; or (b) incorporate the material into the soil as soon as possible, but no later than the end of the day that the application is made. If incorporated, the incorporation must result in 95% soil coverage of the material and shall consist of heavy discing, chisel plowing, or use of other primary tillage equipment. Vertical tillage equipment may not be used to incorporate this material. A person shall plant a harvestable crop or cover crop no later than fourteen (14) days after the application of the material to the field is complete.

5. Pastures and Hay Fields. If a pasture or hay field has a minimum of 75% vegetation predominantly in grass or grass legume mix and legumes, a person may make a nutrient management application in accordance with recommendations found in Section I-B of the Maryland Nutrient Management Manual.

6. Emergency Situations. If a person faces an emergency situation due to an imminent overflow of a storage facility, the person shall manage the emergency in consultation with MDA. Operators in such situations shall contact the MDA regional nutrient management representative for guidance before nutrient application.

D. Fall Application (September 10 through December 15)

1. Chemical Fertilizers. A person may make a fall application of a chemical fertilizer for an existing crop or a crop to be planted during this time period (September 10 through December 15) in accordance with recommendations found in Section I-B of the Maryland Nutrient Management Manual.

2. General Rules for Application of Organic Nutrient Sources.

a. Application of Organic Nutrient Sources other than Poultry Litter. A person may make a fall application of an organic nutrient source other than poultry litter for an existing crop or a crop to be planted either during this time period (September 10 through December 15) or the following spring (no later than June 1) provided that, for each such crop, the rates and applications are made in accordance with paragraph 2(b) of this subsection and the recommendations found in Section I-B of the *Maryland Nutrient Management Manual*.

b. Application of Poultry Litter. A person may make a fall application of poultry litter for an existing crop or a crop to be planted during this time period (September 10 through December 15) provided that, for each such crop, the rates and applications are made in accordance with paragraph 2(b) of this subsection and the recommendations found in Section I-B of the Maryland Nutrient Management Manual.

3. General Conditions for Application of Organic Nutrient Sources.

a. Nutrient application is prohibited when the soil is saturated.

(i) A person may not apply nutrients in areas of fields that have standing water because the water holding capacity of the soil has been exceeded.

(ii) A person may apply nutrients after the standing water has been absorbed by the soil.

b. Frozen or Snow-Covered Ground. A person may not make a nutrient application if the ground is covered with snow greater than one inch, or when the ground is hard-frozen greater than two inches.

c. Organic Nutrient Sources other than Food Processing Wastes and Residuals. Unless the farm operation is a no-till operation, a person shall directly inject the organic nutrient source into the soil or incorporate the material into the soil as soon as possible, but no later than 48 hours after application. If the farm is a no-till operation, MDA may direct the operation to incorporate the material into the soil dependent on such factors as weather, wind, and the severity of the odor caused by the material.

d. Food Processing Residuals.

(i) September 10 through October 31 Time Period. For all crops, except pastures and hayfields, a person applying food processing residuals shall: (a) directly inject the material into the soil; or (b) incorporate the material into the soil as soon as possible, but no later than the end of the day that the application is made. If incorporated, the incorporation must result in 95% soil coverage of the material and shall consist of heavy discing, chisel plowing, or use of other primary tillage equipment. Vertical tillage equipment may not be used to incorporate this material. A person shall plant a harvestable crop or cover crop no later than fourteen (14) days after the application of the material to the field is complete.

(ii) November 1 through the end of February Time Period.

(aa) Non-Injectable Food Processing Residuals. From November 1 through the last calendar day of February of the following year, a person may not apply non-injectable food processing residuals to land but instead, must be properly stored.

(bb) Injectable Food Processing Residuals. From November 1 through December 15, a person may only inject food processing residuals that are injectable into soil growing an existing crop or cover crop. From December 16 through the last calendar day of February of the following year, a person must properly store this material.

e. Fallow Cropland. A person making a fall-application of an organic nutrient source to fallow cropland shall plant a cover crop as soon as possible after application, following the recommendations found in Section I-B of the Maryland Nutrient Management Manual. The cover crop planting shall occur no later than November 15 and be maintained until March 1

f. The rate of nutrient application shall be determined based on recommendations outlined in Section I-B of the Maryland Nutrient Management Manual using either nitrogen or phosphorus-based criteria.

g. If the application is phosphorus-based, the phosphorus application rate:

(i) For a fall-seeded crop, shall be based on the phosphorus recommendations for that crop;

(ii) For crops to be planted the following spring (no later than June 1), may not exceed the one-year crop removal rate of phosphorus for the spring-planted crop;

(iii) Shall follow the provisions of the Phosphorus Management Tool, as they may otherwise apply; and

(iv) Shall result in an application rate of plant available nitrogen not exceeding 50 lbs. per acre.

(h) If the application is nitrogen-based, the rate of application for a fall-seeded crop shall be based on recommendations for plant available nitrogen as outlined in Section I-B of the Maryland Nutrient Management Manual. If the application is

related to a crop that is to be planted the following spring (no later than June 1), the application of nitrogen may not exceed 50 lbs. of plant available nitrogen per acre.

4. Emergency Situations. If a person faces an emergency situation due to an imminent overflow of a storage facility, the person shall manage the emergency in consultation with MDA. Operators in such situations shall contact the MDA regional nutrient management representative for guidance before nutrient application.

E. Winter Application (December 16 through the last calendar day of February of the following year)

1. Chemical Fertilizers. A person may not make a winter application of a chemical fertilizer for an existing crop or to cropland. However, for small grains and perennial forage crops, a person may apply nitrogen at green-up when tillering begins as recommended in the Maryland Nutrient Management Manual Section I-B. In addition, a person may apply certain nutrients for greenhouse production and for other vegetable and small fruit crops listed in the Maryland Nutrient Management Manual Section I-B. The restriction on the application of chemical fertilizers during winter also does not apply to potash or liming materials.

2. Organic Nutrient Sources. Except as provided in §E.4 below, a person may not make a winter application of an organic nutrient source for an existing crop or to cropland. Instead, operators and generators of organic nutrient sources shall make plans for adequate storage to eliminate the need for a winter application.

3. Imported Organic Nutrient Sources.

A person may not make a winter application of an imported organic nutrient source to an existing crop or to cropland. This prohibition includes an organic nutrient source combined from on-farm generated organic fertilizers and imported organic fertilizers. In emergency situations, MDA may allow relocation of manure/organics to the best available options.

4. Emergency Situations pertaining to imminent overflow of on-farm generated nutrient sources.

- a. A person may make a winter application of an organic nutrient source to an existing crop or cropland only if:
 - (i) The operation has inadequate storage for on-farm generated organic nutrient source (i.e., the liquid storage capacity will be exceeded before the March 1 winter application restriction);
 - (ii) The nutrient source is non-stackable (greater than 75% moisture content); and
 - (iii) There is no other reasonable option to manage it.
- b. Applications required in emergency situations due to an imminent overflow of a storage facility from on-farm generated organic nutrient source(s) shall be managed in consultation with MDA before nutrient application.
- c. Operators in such situations shall contact the MDA regional office for guidance and verification of the necessary application.
- d. Any such application shall be made in accordance with Section I-B of the Maryland Nutrient Management Manual.
- e. The following restrictions apply to any such winter application:
 - (i) Nutrient application is prohibited during the winter if the organic nutrient source is stackable (equal to or less than 75% moisture content, such as poultry litter) or adequate storage is available.
 - (ii) Nutrient application is prohibited when the soil is saturated.
 - (aa) A person may not apply nutrients in areas of fields that have standing water because the water holding capacity of the soil has been exceeded.
 - (bb) A person may apply nutrients after the standing water has been absorbed by the soil.
 - (iii) Frozen or snow-covered ground. A person may not make a nutrient application if the ground is covered with snow greater than one inch or when the ground is hard-frozen greater than two inches.
 - (iv) Nutrient application is prohibited to land with a slope greater than 7 percent.
 - (v) Rates of application shall be minimized and available acreage used to the greatest extent practical. In no case shall the application rate per acre exceed the one-year phosphorus removal rate or 50# of plant available nitrogen per acre for the next harvested crop. Any winter applied nutrients will be deducted from the recommendations of the next harvested crop.
 - (vi) Winter applications shall be made on existing vegetative cover, small grain crops, or established hay fields and pastures and maintained as such until March 1st.
 - (vii) A setback of at least 100 feet from all surface waters shall be maintained, unless best management practices providing water quality protection equivalent to such a setback are in place. (Surface water is defined as any permanent or intermittent, continuous, physical conduit for transporting water. Shovel ditches and water leads are not included as surface waters for purposes of this policy).

V. TEMPORARY FIELD STOCKPILING (STAGING) FOR STACKABLE ORGANIC NUTRIENT SOURCE MATERIALS (EQUAL TO OR LESS THAN 75% MOISTURE CONTENT)

A. General Provisions

1. When other immediate use options and alternatives are not available, temporary field stockpiling (staging) of organic nutrient source-materials (equal to or less than 75% moisture content) is allowed. Temporary field stockpiling (staging) provides greater environmental protection than a fall or winter application of nutrients or applying nutrients too far ahead of normal planting time and crop uptake.

2. To minimize the duration of temporary field stockpiling (staging), operators shall coordinate with integrators to schedule cleanouts as close to spring planting as possible, thereby providing a source of nutrients that is in phase with crop nutrient needs.

3. Existing storage shall be fully used prior to stockpiling material in the field.

4. Any material staged in a temporary field stockpile shall be land applied in the first spring season (no later than June 30) following the placement of the stockpile.

B. The temporary field stockpiling (staging) shall be located:

1. If a vegetated buffer is not in place, at least 100 feet from any surface water as defined in COMAR 15.20.08.03(B)(39) and any irrigation or treatment ditches; and if a vegetated buffer is in place, at least 35 feet from any such water;

2. At least 100 feet from wells, springs, and wetlands; however, if the well is located down gradient from the temporary field stockpiling (staging) area, at least 300 feet from the well;

3. At least 200 feet from any residence outside the operator's property;

4. Outside flood prone areas and areas subject to ponding;

5. If located on more than a 3% grade slope and no diversion installed, no farther than 150 feet from the top of the slope.

C. All organic nutrient source materials shall be stacked at least 6 feet high and peaked to prevent precipitation from soaking into the pile.

D. Materials shall be field stockpiled (staged) temporarily in a manner that prevents nutrient runoff.

Temporary field stockpiling (staging) locations for subsequent piles should stay at the same location, rather than be moved from place to place.

F. All organic nutrient source materials shall be removed from the temporary field (staged) stockpile and the ground area thoroughly scraped or cleaned when the application of the materials takes place.

G. Temporary field stockpile (staged) areas shall be restored to its original condition and, if necessary, reseeded with grass or an agronomic crop to facilitate nutrient uptake.