

# Composting and Landspreading Source Separated Solid Waste Rule Summary

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**SUMMARY:** This document describes portions of chs. NR 500, 502, & 518, Wis. Adm. Code that apply to composting and landspreading the following types of source separated materials:

- yard waste, clean chipped wood, and vegetable food waste, and
- agricultural wastes including: crop residue, manure, and animal carcasses.

## MORE INFORMATION

**Rule copies** can be obtained from the Wisconsin Department of Administration, Document Sales (608-266-3358). Rules can be viewed at the Wisconsin Revisor of Statutes Website (<http://legis.wisconsin.gov/rsb/code.htm>).

**Manure management information for large scale animal operations** can be obtained from your local WDNR office Watershed Management Program.

**Composting and landspreading information for solid waste** can be obtained by from your local WDNR office Waste Management Program, or Gretchen Wheat (608-267-0557).

**NOTICE:** This document is intended solely as guidance and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. This guidance does not establish or affect legal rights or obligations and is not finally determinative of any of the issues addressed. This guidance does not create any rights enforceable by any party in litigation with the State of Wisconsin or the Department of Natural Resources. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.

## COMPOSTING

### DEFINITIONS - s. NR 500.03(44), (45) & (253)

**COMPOSTING** must be aerobic decomposition by microorganisms or soil invertebrates. Materials must be reduced into component compounds, with primary by products of carbon dioxide & water.

**COMPOST** must be decomposed by composting to the extent that the material will not reheat due to action of microorganisms when subject to optimum oxygen, moisture, nutrients & temperature.

**VEGETABLE FOOD WASTE** is raw or cooked vegetable or fruit food waste, from residences, cafeterias, restaurants & food processors.

Includes vegetable & fruit food containers which are composed entirely of readily biodegradable materials, if the containers have been used for & contaminated with food.

Note: Vegetable food waste does not include agricultural crop residue, animal products or by-products, food containers composed of nonreadily biodegradable materials, or process wastes from food container manufacturing.

**EXEMPTIONS - s. NR 502.12(2), (3), (4), (5), (6) & (7)**

**ON-STIE HOUSEHOLD COMPOSTING** is exempt from DNR rules, if all the following are met:

Solid waste from only a single household is managed in the composting.

The composting is operated in a nuisance free & environmentally sound manner.

**YARD & VEGETABLE FOOD WASTE COMPOSTING WITH 50 CY OR LESS** total materials on site at one time are exempt from all other Waste Management Program rules, if all the following are met:

Only the following feedstocks can be accepted: yard waste, clean chipped wood, vegetable food waste, & manure.

Operate nuisance free & environmentally sound, & meet performance standards in s. NR 502.04(1) & closure requirements in s. NR 502.04(3)(a) & (b).

**ON SITE FARM CROP RESIDUE, MANURE OR ANIMAL CARCASS COMPOSTING** at the farm site where the wastes are generated is exempt from all other Waste Management Program rules, if all the following are met:

Operate nuisance free & environmentally sound, & meet performance standards in s. NR 502.04(1).

The compost is landspread in compliance with s. NR 518.04(1)(b) or (i).

If composting animal carcasses, comply with s. 95.50(1), Stats. & meet minimum operation & design standards in s. NR 502.12(10) & (11).

If yard waste or clean chipped wood are accepted from off site, meet all the following:

- Mix the yard waste & clean chipped wood with the farm wastes to increase the carbon to nitrogen ratio & porosity.
- Meet minimum operation & design standards in s. NR 502.12(10) & (11).
- Do not exceed 10,000 c.y. at one time, total combined wastes & compost.

Note: S. NR 502.12(5)(d) describes on site farm composting as follows: "All the farm wastes composted are generated from agricultural operations either under common ownership or management, or adjacent farm property."

**YARD WASTE COMPOSTING WITH 20,000 CY OR LESS & VEGETABLE FOOD WASTE COMPOSTING WITH 500 CY OR LESS** total materials on site at one time are exempt from plan submittal requirements of the Waste Program rules, if all of the following are met:

Performance standards, initial site inspection & closure in s. NR 502.04(1) & (2) & (3)(a) & (b); & locational criteria in s. NR 502.12(8);

Minimum operation & design standards in s. NR 502.12(10) & (11);

Obtain an operating license; &

Landspread the compost in compliance with the exemption in s. NR 518.04(1)(i).

**PERFORMANCE STANDARDS - s. NR 502.04(1)**

A composting facility may not locate where there is reasonable probability the facility would cause any of the following:

- Detrimental effect on surface water,
- Adverse impact on wetlands,
- Detrimental effect on groundwater, or
- Adverse impact on critical habitat.

**SUMMARY OF LOCATIONAL CRITERIA - s. NR 502.12(8) & (9), Table 1**

feedstock	facility size	MINIMUM SEPARATION/SETBACK BACK DISTANCE (feet)							
		g.w.	public wells	private wells	lake	river	property line	highways	airports
yard materials	20,000 cy or less	5	1200	250	250	250	100	1000	none
	greater than 20,000 cy	5	1200	250	500	250	250	1000	none
vegetable food discards	500 cy or less	5	1200	250	250	250	100	1000	5,000 & 10,000
	greater than 500 cy	5	1200	250	500	250	250	1000	5,000 & 10,000

NOTE: Floodplain locations are prohibited. Locational criteria do not apply to:

- single family;
- on site farm crop residue, manure or animal carcasses; or
- yard & vegetable food waste composting of less than 50 cubic yards (cy) at one time.

**SUMMARY OF OTHER RULE REQUIREMENTS - s. NR 502.12, Table 2**

feedstocks	facility type or size	general, s. NR 502.04	operating license	minimum operation & design, s. NR 502.12(10) & (11)
yard materials, vegetable food discards, & manure	on-site residential	None	no	no
yard materials & vegetable food discards	50 cy or less	sub. (1)	no	no
crop residue & manure	on-site farm	sub. (1)	no	no
farm animal carcasses	on-site farm	sub. (1)	no	yes
yard materials	20,000 cy or less	subs. (1), (2), (3)(a) & (3)(b)	yes	yes
vegetable food discards	500 cy or less	subs. (1), (2), (3)(a) & (3)(b)	yes	yes

NOTE: Plan submittal, additional operation & design standards, construction documentation, & monitoring & reporting requirements apply to the following facilities:

- yard waste composting greater than 20,000 c.y.; &
- vegetable food waste composting greater than 500 c.y.

## **INITIAL SITE INSPECTION - s. NR 502.04(2)**

An initial site inspection request letter must identify all of the following:

- Applicant & authorized contact;
- Type of facility & operation proposed; &
- Property ownership & location by quarter by quarter section.

Technical procedures, visuals, table of contents & appendix must meet ss. NR 500.05(5) to (8).

Include a letter from DNR Bureau of Endangered Resources (identify any critical habitat areas & state or local natural areas within 1 mile).

Include a letter from DNR identifying any historical, scientific or archaeological areas within the vicinity.

## **MINIMUM OPERATIONAL STANDARDS - s. NR 502.12(10)**

Wastes must be source separated at the point of generation; sort further if needed.

Debug wastes within 24 hours.

Grass clippings, manure, & food waste from processing: incorporate within 72 hours.

Animal carcasses & other food waste:

- Incorporate on the same day as received;
- Cover with at least 6 inches of high carbon material upon incorporation; &
- Prevent animals from reaching animal carcasses & food wastes.

Size reduce for adequate particle surface area. Mix & aerate for adequate oxygen at all times.

Minimum C:N ratio of 12:1 (optimum is 20:1 to 40:1). Maximum windrow size & minimum spacing according to equipment capability.

Wet for dust control & efficient composting (optimum moisture is 50 to 60% by wt.).

Stabilize compost to eliminate pathogenic organisms & ensure materials don't reheat.

Compost must be free of sharp particles & toxics.

## **MINIMUM DESIGN STANDARDS - s. NR 502.12 (11)**

Use slope, vegetation, ditches & retention basins to minimize erosion. Slope area to prevent ponding, & use berms or ditches to prevent run on. Discharge run-off to a gently sloped grassed area.

Size operations based on the process residence times.

## **ADDITIONAL REQUIREMENTS FOR NEW OR EXPANDED NONEXEMPT FACILITIES**

### **ADDITIONAL OPERATIONAL & DESIGN STANDARDS - s. NR 502.12(12):**

Collect waste contact run-off in a lined basin or tank (manage as leachate).

Feedstock storage, composting & compost storage on a low permeability pad.

## **PLAN SUBMITTAL CONTENT REQUIREMENTS - s. NR 502.12(13):**

Location: State plane coordinates and address.

Description of land use within 1/4 mile.

Layout drawing of operations, traffic, process flow, & property boundaries.

Brief description, area served, volumes, types of materials, & pre-processing.

For each feedstock & feedstock mix (recipe) tell all the following: C, N, P, K, pH.

Methods to measure critical parameters, & methods to ensure parameters are met: C:N, temperature, moisture, pH & stability.

Tell holding time, turning frequency, response to odors, & maximum size of staging, windrows, curing & finished compost.

Vehicle types for feedstock & finished compost transport to & from facility.

Equipment for turning, mixing & screening.

Potential markets & quality needed, including nutrient, pH, particle size, appearance, moisture holding capacity & other pertinent specifications.

Identify noncompostable waste generated, such as bags, & the names & location of facilities for disposal of that waste.

Specify design & documentation for the low permeability pad, including materials, thicknesses & testing.

Estimate closure costs if the waste on site at any one time will exceed:

- 40,000 c.y. of yard waste & clean chipped wood; or
- 1,000 c.y. of food waste.

## **CONSTRUCTION DOCUMENTATION - s. NR 502.12(14):**

Prepare according to plan approval & general submittal requirements (s. NR 500.05).

Include proof of financial responsibility for closure (if applicable), & obtain construction documentation approval before licensing & waste acceptance.

## **MONITORING & REPORTING - s. NR 502.12(15):**

Finished compost:

- Collect samples each 1000 c.y. or 3 times/yr, whichever is more frequent; &
- Test for C, N, P, K & pH.

Leachate:

- Collect unfiltered samples quarterly for 4 quarters & annually after; &
- Test BOD, COD, field pH & conductivity, nitrates & total dissolved solids.

# LANDSPREADING

## **LANDSPREADING EXEMPTIONS - s. NR 518.04(1)(b), (h) & (i), (2) & (7)**

The following wastes are exempt from ch. NR 518 requirements, if used as soil conditioner or fertilizer by accepted agricultural practices, & operated & maintained safe & nuisance free manner:

- Agricultural wastes (manure & crop), landspread on a farm; (Note: Large animal operations may be subject to WDNR manure management standards.)
- Raw vegetable wastes from canned, frozen or preserved food processing, & raw yard wastes; &
- Composted leaves, grass, brush, vegetable food waste & similar composted matter.

**OPERATIONAL PRACTICES ALL LANDSPREADING SHOULD MEET:** Don't exceed plant nutrient needs. Incorporate immediately, & avoid frozen or excessively wet ground conditions. Avoid areas with slopes in excess of 12%.

Maintain the following minimum setbacks:

- 100' from floodplains, wetlands, lakes, streams & rivers;
- 200' from water supply wells; &
- 500' from residences.

**RESEARCH PROJECTS:** When directed by a professional engineer registered in Wisconsin, or a scientist employed by the University of Wisconsin, research projects are exempt from the plan submittal requirements in s. NR 518.06, if the following minimum submittal requirements are met:

A proposal is submitted before project initiation, documenting all the following:

- Maximum 4 acre (actual landspreading area);
- Available N & heavy metals don't exceed ch. NR 204 rates for municipal sewage sludge or those identified in literature as toxic to specific plants; &
- Developed, operated, monitored & maintained safe & nuisance free.

A final report is submitted detailing the research findings.

## **FISH, BUTCHERED ANIMAL REMAINS OR SIMILAR WASTES MAY OBTAIN AN EXEMPTION:**

All of the following must be met to become exempt from other requirements of ch. NR 518:

- Submit exemption request with analysis in accordance with s. NR 518.06(1), & tell the location, application rates, incorporation method & project duration;
- Obtain a written exemption from the department.
- Use the wastes as a soil conditioner or fertilizer according to accepted agricultural practices; & operate & maintain the facility in a safe & nuisance free manner.

## **LOCATION & PERFORMANCE STANDARDS FOR LANDSPREADING - s. NR 518.05**

All solid waste landspreading must meet location & performance standards. Plan submittal, if required, must demonstrate compliance. Performance standards for landspreading are the same as for composting (see above).

Locations prohibited:

- Within 100 feet of any navigable body of water;
- Within 10,000 feet of turbojet airport runways, 5,000 feet of piston aircraft airport runways, or areas where substantial aircraft bird hazard would be created;
- Within 1,000 feet of public water supply wells or 200 feet of private water supply wells;
- Within 500 feet of any residence, unless the resident's written consent is obtained.

Contact 608/266-2111 or [DNRWasteMaterials@Wisconsin.gov](mailto:DNRWasteMaterials@Wisconsin.gov) for further information.

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