

Butcher Waste Disposal Options for Small Meat Plants Operating in ND



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Introduction:

Slaughtering will inherently involve the need to dispose of butcher waste - unused organic tissues and inedible materials (blood, hide, bones, viscera, unused fat, skulls, etc.). The regulations that the ND Meat and Poultry Inspection and USDA oversee require that every meat plant operator is responsible for disposing of all of the waste generated in an approved manner and providing documentation that all of their waste is being handled properly. The butcher waste generated from meat plants that slaughter is classified as "agricultural waste", which falls under the solid waste rules of the ND Department of Environmental Quality (NDDEQ) Solid Waste Program. The NDDEQ does not allow dumping of agricultural wastes in open pits or trenches or open burning of such waste. Proper disposal of butcher waste is imperative to prevent the potential spread of disease and to prevent the creation of insanitary conditions.

In the past, most small meat shops that generated butcher waste in ND simply had a contract with a company that would pick up the barrels of butcher waste and transport it to a rendering company. Unfortunately, most ND meat plants no longer have rendering pick-up services available, so they will need to implement an alternative butcher waste disposal method. This booklet is an overview of the options for disposing of butcher waste generated at meat plants.

Landfill:

A lot of the dry materials and garbage generated at a meat plant can be tossed in the dumpster for pick-up by the local sanitation company. The dumpster pick-up services may have limitations on the type of material allowed to be thrown in the dumpster, as landfills have to be properly constructed and permitted to accept organic waste materials. For meat plants fortunate to be near a municipal solid waste (MSW) landfill that will accept agricultural waste, they may simply dispose of all their waste generated there. Contact the MSW landfill for further information, as each landfill operation may place their own restrictions on waste generators and transporters.

Meat plants need to ensure that the butcher waste does not create unsanitary conditions prior to being transported to the MSW landfill. Meat plants must have suitable methods of storage and transportation for the butcher waste such as drums, barrels or other watertight containers. Butcher waste should be taken to the MSW landfill often, at least weekly and possibly daily during the warmer seasons, since excessive fly breeding and foul odors will or may create significant food safety hazards or develop into public nuisance complaints. A dedicated inedible cooler is useful for storing butcher waste temporarily, reducing the pest and odor issues, and providing flexibility to schedule trips to the MSW landfill.

MSW landfills are permitted for solid waste materials, so they may limit or prohibit dumping of blood and other liquids (including excessively wet butcher waste), which would then need to be handled in one of the other approved methods of disposal, as

discussed later in this document.

The list of MSW Landfills is available here:

<https://deq.nd.gov/Publications/WM/MunicipalSolidWasteFacilities.pdf>

Incineration:

Incineration of butcher waste reduces the volume of the waste which can be disposed of at a MSW landfill or spread overland following a nutrient management plan. In general, recent more stringent EPA regulations and public sentiment has resulted in less usage of incineration for disposal of wastes of all types. The cost of equipment, operation, and regulatory burden is probably not feasible for small meat plants.

Permitting of incinerators is covered by the NDDEQ - Division of Air Quality. Information is available at: [Air Quality - North Dakota Department of Environmental Quality](https://deq.nd.gov/airquality) (<https://deq.nd.gov/airquality>)

If disposal of butcher waste through incineration is desired, the Department recommends contacting the following for more information.

Division of Air Quality at (701) 328-5188 or airquality@nd.gov

Composting:

Composting is a relatively low-cost option and it is an effective method of breaking down whole carcasses or butcher waste, including bones and blood. When properly composted, butcher waste will completely break down, with minimal odor concerns and result in quality compost for use by area farmers.

If composting is the option that you want to explore, be sure you have access to a continuous supply of dry matter for compost cover and an area to establish compost piles or windrows. A small meat plant should be able to source plenty of carbon-rich compost cover by collaborating with anyone generating straw, wood chips, manure, etc., such as local farmers, custom haying operations, tree trimmers, landscape companies, dairies or municipal parks departments. With enough absorbent materials, all of the agricultural waste can be composted, which would eliminate the additional complications of blood disposal.

Compost piles rely on organic materials to cover the butcher waste, creating the environment for breaking down the hide, bones and other tissues. Loose, coarse material is better for compost cover, as it allows oxygen to penetrate into the pile. If the cover material is too dense, the compost may stall or create strong odors.

The Cornell Waste Management Institute has tips on successfully managing a compost site and many documents explaining the process, logistics, and land requirements. They also provide resources and calculation parameters to help assist in estimating the land area and volume of cover material needed for compost piles.

For example, Cornell estimates that a plant slaughtering 20 cattle per week (1040 cattle/year) will need approximately 0.3 acres of land for the compost sites, using an average waste density for cattle. The compost site would also need additional area for storing the organic materials, and the finished compost prior to spreading. The resulting compost can be land applied, beneficially reused or as a last resort, taken to a landfill.

NDDEQ covers the permitting requirements for composting. All sites for butcher waste composting need to be permitted, which is the responsibility of the person or company that will be maintaining the compost pile (covering, turning, spreading, etc.), not necessarily the landowner of the compost site. Composting requires an area of land to create the compost piles, organic cover material (straw, woodchips, manure, etc.) used to cover the waste, and machinery to transport and turn the piles. Proper site location and solid ground conditions are important for year-round access, and to prevent any leaching into ground water or runoff into a nearby waterway.

Compost Guidelines

- Guideline 32 Composting Poultry And Other Dead Animals,

<https://deq.nd.gov/Publications/WM/Guideline32CompostingPoultryAndOtherDeadAnimals.pdf>

Liquid Waste Control:

Blood is a liquid waste material that must be dealt with, as well. Some cities may allow the blood and grey water to enter the city sewer system. In that situation, the meat plant can simply wash the blood down the floor drain. The meat plant would need documentation from the sanitarian, approving that the blood may enter the sewer system.

Many town sewer systems may not have sufficient treatment methods to handle the blood and blood does not break down well in septic systems, so many slaughter facilities are required to catch and dispose of the blood separately. The blood and water can be applied directly to land, as long as the plant follows an approved nutrient management plan. The plant may also have the option of installing an industrial drain field, which would be permitted as Class V injection well. Either option would need to be approved through the NDDEQ.

Nutrient Management Plan (NMP):

A nutrient management plan allows for the application of waste materials directly back to fields as a soil amendment. Soil types can vary greatly, so application of compost or liquid waste materials must be controlled to keep the nutrient balance of the soils in check.

Overapplication of compost can reduce soil health and decrease productivity of land or even contaminate nearby surface water with excessive nutrients in the runoff.

Composting and incineration may be effective at reducing the volume of waste and the pathogenic dangers, but there will always be some materials that will need to be disposed of. Eventually, the compost and ash will need to be either taken to a landfill or applied to fields. A nutrient management plan is required prior to application of any waste material to fields.

The NDDEQ Guideline 30: Nutrient Management Plans for Agricultural Processing Facilities

- <https://deq.nd.gov/Publications/WM/Guideline30NutrientManagementPlansForAgriculturalProcessingFacilities.pdf>

The NDDEQ worksheet for Nutrient Management Plan

- <https://deq.nd.gov/Publications/WM/NutrientManagementPlanLandApplicationWorksheet.pdf>

Agricultural Waste Transportation:

Butchers and meat processors may transport the waste they generate. A third-party person or company that will transport agricultural waste will need a permit to transport solid waste. Anybody that decides to provide pick-up and transfer services for anyone other than themselves, will need a permit to transport the butcher waste.

Permit to Transport Solid Waste

- <https://deq.nd.gov/Forms/WM/PermitApplicationForTransportingSolidWaste.pdf>

NDSU Extension:

NDSU Extension has a specialist that is available to discuss agricultural waste disposal. Mary Keena, based at the Carrington Research Extension Center, has worked extensively with meat plants and cattle producers. She specializes in mortality and butcher waste composting, and she provides training and resources for setting up a compost site. She also works with the NDDEQ to assist with the permitting requirements. You can email Mary.Keena@ndsu.edu or call 701-652-2951. You can also contact your local Extension agent: <https://www.ndsu.edu/agriculture/ag-home/directory> for assistance.

Contacts for Permitting and Planning Assistance:

Department of Environmental Quality

918 E. Divide Ave
Bismarck, ND 58501
Phone- 701-328-5150
Fax- 701-328-5200
Email- deq@nd.gov

NDSU Extension
Mary Keena
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663 Hwy. 281 NE
PO Box 219
Carrington, ND 58421
Phone- 701-652-2951
Fax- 701-652-2055

Resources:

Composting Informational Documents:

- Cornell Waste Management Institute Composting Fact Sheets
 - <http://cwmi.css.cornell.edu/factsheets.htm>
- Cornell Waste Management Institute: “The Space it Takes”
 - <http://cwmi.css.cornell.edu/spaceittakes.pdf>
- Natural Rendering: Composting Livestock Mortality & Butcher Waste (20 min video)
 - <https://ecommons.cornell.edu/handle/1813/7870>
- NDSU Extension 4 Easy Steps for Composting Dead Livestock
 - <https://www.ndsu.edu/agriculture/ag-hub/publications/4-easy-steps-composting-dead-livestock>
- NDSU Extension Animal Carcass Disposal Options
 - <https://www.ag.ndsu.edu/publications/environment-natural-resources/animal-carcass-disposal-options-rendering-incineration-burial-composting>