

Kennedy's Farm Abattoir Waste Management Plan

The Composting Pad

The pad is a 24' x 32' concrete pad, with a 4-foot knee wall around the building, 8' foot walls on the knee wall, gable trusses, shingled roof.

The pad will be one big open pad and compost will be laid in windrows where it can be rotated as required.

The windrow type composting:

- Requires no electricity in the composting process which be on a concrete slab situated on the Farm, located at Ridge Road, Freshwater, CBN, NL. The parallel windrows will be sufficiently spaced where the material will be periodically turned mechanically with a tractor.
- All material will be dumped and rotated on the composting pad with a tractor.
- Requires no water use as the material does not require water in the composting process.
- All material is collected in the Abattoir during the harvest:
 - o All feathers collected from the plucker and placed in a container outside the Abattoir door.
 - o All material from the gut is collected at table side and placed in the container outside the door.
 - o At the end of each day, the container of material is dumped onto the carbon base and covered on the composting pad by a tractor
 - o Any deceased poultry removed from the barns will be placed directly onto the carbon base on pad and covered with the carbon material.

Use of Composted Material: All material which has been completely composted through the composting process will be spread on the hay fields via the manure spreader.

- Any poultry brought onto Kennedy Farm from any other NL Farm will follow a strict procedure. No people or outside poultry can enter any other building on the property. Outside animals will only be slaughter and harvested at specific times, outside the times utilized by Kennedy Farm staff for our turkeys.
- Outside farmers will only be able to drive their poultry to the abattoir with the poultry in a safe applicable holding container.
- Outside poultry will not at any time be in contact with any live Kennedy Farm animals.

- *The acceptance of outside poultry will only be done when poultry diseases/infection level are at an acceptable within NL and the Avalon Peninsula.*

Abattoir Offal Composting Procedure

The composting of abattoir offal, animal mortalities and butcher waste is common practice in the livestock and related industries throughout North America. Composting is often the choice for waste disposal for farms, abattoirs and butcher shops because it is cost effective and has a low environmental risk, when done properly. The result of the process is that the waste is disposed of in a safe, environmentally friendly manner and as a bonus, the resulting compost is a great soil amendment and an excellent source of fertilizer. It is high in nitrogen, phosphorous, potassium and micronutrients. The compost is safe to use for forage production and potentially for many other crops.

Waste generated from the proposed facility, which will involve processing of 5500 turkeys and 200 geese/ducks on an annual basis. A total weight of 40,000 lbs. of Non-SRM is estimated to be produced annually. The offal will be composted as per *Environmental Standards for Compost Facilities Guidance Document (GD-PPD-048.6)*.

The Kennedy's Farm Abattoir proposes that it would dispose of the Non-SRM by composting it. According to the Cornell Waste Management Institute, it typically takes approximately 15 yards of carbon (sawdust) to compost 1 Imperial ton or 16.5 yards per Metric Tonne of offal. Supply of sawdust does not seem to be an issue at this time, however, if supply becomes an issue, the finished compost or another carbon sources can be used in building of the new piles. Sources for carbon, such as shredded cardboard, waste hay, waste silage, manure pack, wood chips, peat, etc. have also proven to be acceptable.

Composting Procedures

Offal, feathers and deceased birds will be removed from farm and abattoir daily and placed on a carbon base base with additional carbon material used as needed to reduce odors or dry up any dampness.

Composting Process:

The Kennedy's Farm Abattoir will compost its offal in a building with 2 windrows. The Non-SRM offal will be composted separately using the process outlined below.

Non SRM Offal Composting Process:

The building where the offal is composted will have 2 windrows within it. These will be 1 primary windrow and 2 secondary windrows. Composting will be carried out using the following process:

- 1) A layer of sawdust or course wood chips 60 cm (24") deep by be laid out across the bottom of one of the primary windrows.
- 2) A layer of offal 30 – 37.5 cm (12-15") deep will be spread on top of the sawdust. The offal should not be placed less than 30 cm (12") from edge of the building.
- 3) Cover offal with a layer of sawdust/wood chips 30-45 cm (12-18") deep as soon as possible on the same day.
- 4) Add a second layer of offal in the same manner as the first and cover this with a layer of sawdust/wood chips 30 - 45 cm (12-18") deep as soon as possible on the same day. Repeat this process until the windrow is full.
- 5) The final layer of sawdust should measure 60 cm (24") deep to prevent any odors from being emitted. The windrow should reach a temperature of 40-65°C at this stage.
- 6) After filling the first primary windrow repeat steps 1 through 5 in the second primary bin. This windrow will be filled while the first windrow composts.
- 7) Once the first primary windrow has reached a temperature of 40°C for seven (7) consecutive days and then begins to drop the pile is ready to be moved to the secondary bin. At this point the pile should contain bones and minimal soft tissue. This should take approximately 3 months.
- 8) Once the composting process is complete in the first primary windrow, the second primary windrow is close to being used, transfer the material to the secondary windrow turning and mixing it in the process.
- 9) At this point the second primary windrow should be filled and going through the initial composting process. The first primary windrow can be filled again using the first 5 steps of the process.
- 10) The compost in the secondary windrow will take approximately three (3) months to finish composting. Monitor the pile regularly, when the pile has reached a temperature of greater than 55°C for more than 7 days and then drops, it has most likely finished composting. Check the pile to ensure there are no signs of soft tissue left. If there are no signs of soft tissue the bin can be emptied and the compost stored on a pad outside these building or spread on the field like manure. Large bones should be separated from the pile prior to spreading, the bones can be used for the base of new piles to aid in aeration.
- 11) The Process above will be repeated as more offal is produced.

Notes:

- If any liquid seeps out of the pile, scrape it up and put back in the pile.
- Residuals must be well covered to ensure that odors are reduced, heat is trapped in the pile and vermin/unwanted animals are not attracted to the windrow.
- The pile should not be turned too early as this can release odors and attract vermin if the offal is not sufficiently broken down. Generally, a pile can be turned after 3 months. Turning will speed up the compost process. Timing of the first turning may vary as composting times may be affected by things such as air temperature.

Monitoring the Piles:

The following actions will be taken to monitor the piles to ensure that they are composting correctly:

- 1) The temperature will be checked at each visit with a minimum of 2 visits weekly. After three (3) days the pile should have reached a temperature of 49-77 °C (120-170 °F) which will cook and decompose the offal as well as reduce harmful pathogens in the pile.
- 2) A log that records of the weight of offal added to the pile, temperature of the pile, any odor, presence of leachate, presence of scavengers and any unexpected event that occurs will be filled out at each visit. This allows the operator to ensure that sufficient temperature has been reached, acts as a record to deal with any complaints that arise and assists in adjusting the process, if necessary. These logs will be kept with the Kennedy's Farm Abattoir's records.
- 3) Monitoring the pile temperature regularly is essential to ensuring that the compost process is happening correctly. Temperature is an indicator of the rate of decomposition within the pile and is essential for the destruction of pathogenic bacteria. Optimum temperature is between 40-60°C (104-140°F). Temperature will be checked and recorded at each visit.
- 4) A sample of the finished compost will be collected from each pile and will be sent to the Provincial Soil, Plant and Feed Laboratory on Brookfield Road in St. John's when the composting process is completed. The samples will be analyzed for nutrient content, PH, Organic matter, etc. Additionally, samples of the finished, static compost pile will be sent to A&L Canada laboratories in London Ontario or another comparable accredited lab., to ensure that the finished products meets CCME standards for compost quality. The results of the analysis will be kept with the Abattoir records.

Use of Non-SRM Compost:

After the composting process is complete, the compost will be handled and used in the following ways:

- 1) After the composting process is complete, any large bones should be separated from the pile and used as part of the base for the next compost pile. These will add structure and help aerate the pile. The bones will eventually break down.
- 2) The finished compost may be used as part of the carbon source in construction of the new piles. There should be no more than 50% compost in the carbon mix. Doing this will help establish the microbial community in the new pile which will speed up the composting process.
- 3) The finished compost will be spread on the farm forage fields at appropriate times of the year. The application rate will be determined with the assistance by the Provincial Soil Specialist.
- 4) Ideally, the compost will be spread immediately after it is finished. This may not be practical or even an option depending on the time of year that a pile finishes. If the compost cannot be spread immediately after it is finished, it can be stored at either the compost facility on a storage pad or for a short time on the field in which it is to be spread.
- 5) I will have the compost tested for Salmonella and to ensure it is safe for proper use and will ensure that no compost is applied 120 days before they harvest any vegetable crops.

Impact and Control of Pests:

All usual precautions will be taken daily to ensure that pests are controlled. A pest control program which includes regular checks to bait traps for rodents and fly traps for insects.

Pest control services will be contracted to check the farm regularly for rodents and pests and initiate immediate responses.

All waste will be added to the compost daily and covered with a carbon base.

Off Farm Poultry:

Kennedy's Farm will process poultry from neighboring properties, if the properties are inspected and do not appear to have any diseases etc. All machinery will be properly sanitized once the outside poultry is complete.

The Outside poultry harvested will depend with all consideration to Bird Flu/diseases advisories from Government Agencies with all necessary precautions taking place.

Use of Turkey Manure:

As the three different batches of turkeys are raised and harvested, the two-storey barns are cleaned out within three days of harvest, weather permitting

Turkey Batch	Harvest Date	Manure Procedure
April (1000 Turkeys)	Late July	Applied to fields
June (2500 Turkeys)	Late Sept – Early October	Applied to fields
August (1500 Turkeys)	Late November - December	Applied to fields
Once manure is removed from the barns it is applied to the fields unless the ground is snow covered or frozen. If snow covered or frozen, the manure is held in the turkey barns until spring or placed in the compost pad.		

Environment Considerations:

There will be no potential threats to the environment, and perhaps even less considered the travel required to get the offal to the composting pad. By utilizing an onsite composting pad, the need to truck two fish vats full of offal and feathers 45 km (90 km return) to Viking Farm is not required. Thus, reducing the chance of a spillage of material

Waste

All processing follows the guidelines as set out by the Government of NL.

The waste will be collected during the butchering process and stored in vats until the end of each day. The vats will then be dumped onto a carbon base layer (ex: chafe, sawdust, wood chippings) and rotated accordingly to ensure composting.

Specific Risk Material (SRM):

During the butchering of poultry there is no SRM present. If any issues arise, all rules and regulations as set by the Pollution Prevention Division of the Department of Environment and Climate Change will be followed.

Animal Waste Amounts:

In 2022 approximately 4250 turkeys were harvested. It is hoped that the total yearly harvest will expand to 8000 turkeys by 2025.

All waste was trucked to Viking Fur Farm in 2022 and 2023 with no issues. Yet the cost in fuel, employee hours and vehicle maintenance as well as the carbon foot

print of transporting the material is not financially prudent, thus the on farm compost pad was required.

Pathogen Control:

Harmful pathogens will be killed when the temperature throughout the pile reaches 55°C (131°F) for three (3) consecutive days. This is monitored 15-20 cm (6"-8") from the top of the pile. Turning the pile when the temperature drops below 38°C (100°F) is recommended to stimulate the composting process and raise the temperature again. Repeated cycles over 55°C (131°F) will further reduce the presence of harmful pathogens.

Composting Times:

The windrow will require 4-6 months to ensure it is properly degraded. This may be change based on environmental conditions such as air temperature.

General Notes:

The following are some general practices and notes related to composting offal:

- Previously finished compost can be added to pile to speed up establishment of microbial community thereby speeding up the compost process.
- Ensure the site is kept clean to deter scavengers, keep odors to a minimum and ensure good neighbor relations.
- If sawdust supply becomes limited other sources of carbon that can be used to build the pile/windrow are spoiled silage, dry bedded pack manure, shredded cardboard, finished compost, leaves and other high carbon organic material.

Troubleshooting Table:

Symptom	Problem	Recommendation
Pile fails to reach temperature	Material is dense. Not enough air circulation.	Rebuild pile with more chunky carbon. *If it is an odor sensitive area and cannot move pile, let process run its course and turn in 4-6 months.
	Pile too small.	To heat pile needs to be greater than 4'x4'x4'
	In winter, too much ice on pile.	Keep ice out of pile. Add warm manure and cover.
Insect and animal attracted to pile.	Meat waste not covered well.	Cover carcass or residual well with carbon.
	Leachate puddling on pad surface.	Pad should have a 1-2% slope and fill holes in to avoid standing water.
High pathogens.	Need to ensure biosecurity at facility.	After 4-6 months of composting turn pile for 2-3 weeks make sure temperatures are between 40-60 °C (104°-140 °F)
Carcass uncovered.	May not have lanced rumen or other large organs resulting in carbon being thrown off the pile.	Lance large organs before animal is put into pile.
Standing water/surface ponding.	Inadequate slope.	Establish a 1-2% slope with proper grading.
	Improper windrow/pile alignment.	Improve drainage, add absorbent. Run windrows/piles downslope not across.
	Depression in high traffic areas.	Fill and grade

Taken from: *Natural Rendering: Composting Livestock Mortality and Butchering Waste*, Cornell Waste Management Institute