



April 2, 2020

Please be advised that this letter replaces the letter dated March 27, 2020.

This letter provides additional examples of heat treatment options and provides further clarification on the risks associated with in-barn composting of litter due to the high temperatures that can be generated during composting.

Raised by a Canadian Farmer On-Farm Food Safety Program and Animal Care Program

COVID-19 Related Issues

As a result of the current COVID-19 pandemic, several provincial governments have declared states of emergencies resulting in the requirement for all non-essential businesses and services to close.

As a result of these unprecedented circumstances, CFC is modifying the requirements in the On-Farm Food Safety Program and the Animal Care Program that require new bedding be placed prior to the arrival of a new flock.

This modification is an interim measure while 1) provincial governments require non-essential services to be closed; and, 2) the supply of wood shavings is not available for farmers as a result of these closures.

This modification is a temporary measure during the COVID-19 pandemic.

OFFSP and ACP Amendment – Re-use of Litter

The re-use of litter for multiple flocks will be permitted under the CFC *Raised by a Canadian Farmer* On-Farm Food Safety Program and Animal Care Program as a temporary measure during the COVID-19 pandemic due to a lack of supply of wood shavings brought on by the closure of non-essential services.

If impacted by a lack of supply of wood shavings, farmers should consider other bedding types and sources prior to re-using litter.

Considerations

The practice of growing broilers on built-up litter provides considerable management challenges. Controlling litter moisture and ammonia emission are primary areas of concern with litter re-use. The potential for problems with ammonia, disease and condemnations

increases each time another flock is grown on the same litter and intensifies the challenge of maintaining an optimal in-house environment (*Litter Quality and Broiler Performance, UGA Extension Bulletin 1267*).

Taking into account these considerations will be important when re-using litter.

Must Do Elements

If planning on re-using litter, farmers must:

- 1) Inform your provincial board office prior to re-using litter
- 2) Communicate with your processor about the change in bedding management
- 3) Involve a veterinarian in the process
- 4) Perform a heat treatment method of the litter prior to placement of the new flock
 - The intent of the heat treatment process is to remove moisture and ammonia from the litter while reducing bacteria and disease risks as much as possible
 - It is recognized that there are several heat treatment methods that can be used and which may be recommended
 - Maintain a record of the heat treatment process used
- 5) Monitor ammonia levels on a weekly basis in the subsequent flock
 - Measurements are to be taken at bird height
 - Ammonia is to be maintained below 25ppm
 - Maintain a record of the weekly ammonia measurements

Provincial boards may have additional guidelines/standards when re-using litter.

Heat Treatment Methods

There are several different heat treatment methods that can be used, and which may be recommended to farmers by veterinarians or other professionals.

Heat treatment options for consideration have been provided in this document. Farmers are open to using other heat treatment methods in conjunction with their veterinarian/professional. As with any new process, farmers are recommended to educate themselves on the process, the risks, and to consult with experts prior to implementing these on their farms.

Regardless of the method selected, these risks can vary dependent on barn management, construction, environmental conditions, etc. These may result in impacts on production, mortality, condemnations, or other consequences.

While CFC has temporarily allowed the re-use of litter, CFC is not responsible for negative impacts that may result (mortality, condemnations, or consequences resulting from the heat treatment process, etc.).

Example 1 – Heat Treatment of the Litter

This example was used in a project conducted by Les Éleveurs de volailles du Québec and led by Dr. Louise Mercier to control the spread of ILT. The pilot-project was based on procedures used in the USA and used a heat treatment of the litter with the objective of re-using the litter for the next flock.

The following procedure was used during that project.

Litter Re-use Procedure

The success of this method is based on the control of humidity (between 30-50%) to limit the level of ammonia in the barn. The drier the litter, the less health problems there will be linked to ammonia levels.

Prior to shipment of the flock

Ensure that the ventilation is increased in the last few weeks of the flock in order to dry out the litter, which will make litter re-use easier. If water nipples are leaking, these will need to be changed prior to heating the litter.

Follow these steps very closely:

1) Characteristics of ideal litter that would permit re-use:

- Ideally a minimum thickness of 4-6 inches
- Dry
- Water nipples are not dripping

It would be ideal to add 3 to 4 inches of new bedding, although this may not be possible during a period of bedding shortage. If it is possible, add new litter as a top-dress, specifically in the brooding area.

2) Preparing the litter for heating

- Do not put the litter in windrows
- Turn over the litter in humid areas of the barn, such as along the walls in order to optimize drying
- Remove caked litter (e.g. underneath the drinker lines)

3) Litter treatments

- The use of a product to dry the litter is not recommended. The development of a dry crust on top of the litter when there is high humidity underneath was observed during the pilot project

4) Before heating the barn

- Fill the water lines with disinfectant
- Rinse the water lines well after the heat treatment process is completed

5) Heat the barn to 100F for 4 days

- Maintain a minimum ventilation
 - To optimize the heating process
 - To allow humidity to exit the barn
- This temperature will kill viruses associated with infectious bronchitis

6) After heating the barn, and prior to placement of the flock

- Maintain humidity at a maximum of 30-40 % with continuous ventilation
 - Maintain temperature at 72-75F
 - Perform a good rinse of the water lines
- 7) For nipple drinkers with drip cups
- These are a risk factor if they have litter inside the drip cups
 - Remove any litter and clean the drip cups
 - Keep the drinkers high to reduce access to the drip cups, and to increase use of the nipple drinkers themselves
- 8) Disinfection of water lines
- Repeat the disinfection of the water lines before the arrival of the new flock
- 9) Prepare for the arrival of the new flock
- Cover the whole brooding area with chick paper
 - Spread feed over the chick paper
 - Prepare for the delivery of chicks
 - Consult the [Chick Champs method](#) for brooding best practices
- 10) Monitor ammonia levels during the grow-out
- Maintain ammonia levels at less than 25 ppm
 - Maintain humidity levels at less than 50-55%
 - Measure ammonia on a daily basis, on each floor, at bird height. Record these measurements.
- 11) Avoid the development of crusting on the bedding
- After 10-12 days of age, break up the chick paper and any crusting litter with your feet as you walk around the barn
- 12) Reduce dust levels at the end of the grow-out
- Specifically, during the last week of the grow-out, try to reduce the levels of dust in the air in order to prevent condemnations

Note: This protocol is the result of a pilot project that took place in 2019 on a small number of farms. Les Éleveurs de volailles du Québec and CFC are not responsible for any issues, mortality, condemnations or other consequences related to the use of this procedure.

Example 2 - Composting Litter in the Barn

Warning – It is important to note that composting will always carry the risk of fire due to the high temperatures that can be generated during composting. Further information for consideration on the risks of composting are provided below, and references have been provided at the end of this example.

As always, it is recommended to perform composting in consultation with a professional.

This example is adapted from recommended procedures used in the USA. For further information and specifics, consult the references at the end of this example.

- Remove caked sections of litter as soon as the flock is shipped
 - Caked litter has high levels of moisture and removing these from the barn will contribute to lowering ammonia levels
- Use a tractor to form the windrows
 - Pull all the litter away from the walls and expose as much of the floor as possible; build the windrows away from wood posts and structures
 - In-house windrowing is a process of forming litter into windrows approximately 18 to 24 inches in height
- The first set of windrows should be constructed within 2 days of flock removal and allowed to stay windrowed for 3 days. Then, turn the first set of windrows and form a second set of windrows that also stay in place for 3 days
 - Monitor the temperature of the windrows several times a day; ventilate the barn as needed
 - If done correctly with enough moisture in the litter (25 to 35%), the windrows should heat to 130°F
- After 3 days, level this second windrow and allow 3–4 more days before chicks are placed. This will allow for ammonia release associated with the litter cooling down and drying out
- Ensure that the litter is evenly spread throughout the barn
- Consider using a litter treatment to help control ammonia during the brooding period of the next flock
 - Examples include sodium bisulfate, aluminum sulfate and sulfuric acid clay
- Consider top dressing when bedding is available with ½” of new material prior to chick placement
- Consider heating and ventilating the barn 24 to 48 hours prior to chick placement to help release ammonia that remains trapped in the litter
- Once the next flock has been placed, increasing the level of ammonia monitoring, specifically in the first few weeks, as ammonia levels are expected to be elevated. It may be necessary to increase minimum ventilation during the first few weeks of the grow-out if ammonia levels become too high

The above guidelines were adapted from the following sources. Check these out for further information and consideration for the re-use of litter:

- University of Georgia extension services
 - [Litter Quality and Broiler Performance](#)

- Mississippi State University extension
 - [Benefits and challenges of reusing broiler litter](#)
 - [Poultry litter management](#)
 - [A practical guide for composting poultry litter](#)
- Texas A&M Agrilife Extension
 - [In-House Windrow Composting of Poultry Litter](#)

Prevention Measures for the Risk of Fires from Windrowing

While windrowing is used in the USA, specific attention needs to be paid to the risk of fire during the composting process.

For further details on the risks and measures, consult the references provided.

1) Moisture

- Critical factor!
- Fresh litter must have less than 40% moisture
 - Fresh litter contains moisture and when the litter composts much of the moisture either evaporates or is used by microorganisms present in the litter to break down organic matter, which in turn generates gas (methane) and heat
 - Therefore, if the moisture of the litter is more than 40%, conditions are right for production of larger quantities of methane and heat.
 - Spontaneous combustion of the litter pile can result from a build-up of methane and/or fires can occur if this high temperature litter pile is placed too close to wooden structures in the barn igniting the wood

2) Caked Litter

- Always separate caked litter from drier litter as caked litter contains a higher amount of moisture than litter located throughout the rest of the barn

3) Composting Location

- Only create windrows on cement or dirt floors; never windrow on upper floors
- Place windrow piles in the middle of the barn and several feet away from walls and wood posts/wooden structures

4) Windrow Size

- The windrow pile should not exceed 24 inches (2 feet high)
 - Pile height and width are more critical than pile length. Small piles provide greater surface area for heat release while large piles increase the chance for excessive heat/fire
- Never mix or stack new moist litter on top of already piled old dry litter
 - This can cause a fire due to heat of adsorption (see the resources below for more information on this)

5) Compacting

- Do not compact the litter. Compacting litter will trap methane. As such adequate pore spaces should be created in the pile to allow any methane to escape into the atmosphere

6) Monitor Temperatures

- Monitor the temperatures of the piles twice daily in various sections (e.g. every 4m) using a thermometer probe; measure the temperature inside the windrow, and not the surface temperature
- If sections of the litter pile reach a temperature of 82°C (180°F) then remove these sections carefully
- If temperatures exceed 87°C (190°F) or if the piles are smoldering notify your local fire department
 - Use extreme caution as disturbing a smoldering pile can burst into flames when exposed to air
- Keep vents open slightly to allow for fresh air flow. Monitor the temperature in the barn and ventilate as necessary

7) Equipment

- Store any equipment away from the litter piles to limit ignition sources in the barn

For more information on the above please review the following resources:

- Alabama A&M and Auburn Universities Extension: [Preventing Fires in Litter Storage Structure - Livestock and Poultry](#)
- University of Georgia Extension: [Poultry Litter Can Cause Fires if Stored Improperly](#)
- United States Department of Agriculture (USDA): [Preventing Fires in Litter Storage Structures](#)