

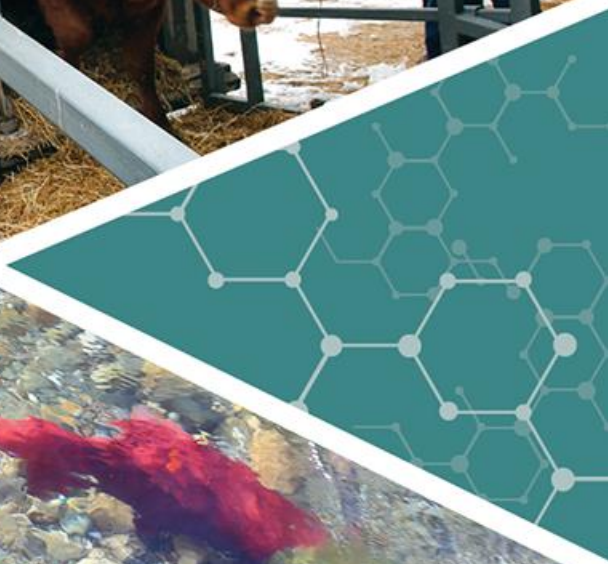


Canadian Food  
Inspection Agency

Agence canadienne  
d'inspection des aliments

# Avian Influenza Outbreak Response Disposal Method: Composting

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Canada 

# Avian Influenza in Canada

2014-2015

Highly Pathogenic Avian Influenza (HPAI) H5N2

Nearly Identical strain detected in British Columbia and Ontario, closely matched strain in USA

Fraser Valley, B.C Dec 2014 – 13 Infected Premises (IP) in total

Oxford County, ON April 2015 – 3 Infected Premises (IP) in total

# Avian Influenza in Canada

2021-2022

HPAI H5N1

Identical strain detected in Newfoundland and Labrador and Nova Scotia, 'same' strain detected in US.

Avalon Peninsula, NL Dec 2021 – 2 IP

Annapolis Valley, NS Jan 2022 – 4 IP

# Avian Influenza in Canada

2022 (continued)

HPAI H5N1

Ontario

Quebec

New Brunswick

Western Canada

[Status of ongoing avian influenza response by province - Canadian Food Inspection Agency \(canada.ca\)](#)

## Flocks in Canada where HPAI has been detected

### ▼ Estimated number of birds in flocks

This table lists the estimated number of birds in flocks impacted by highly pathogenic avian influenza by province. We update this information **weekly** by end of day Thursday with data up to and including the previous Wednesday.

**Current as of: 2022-07-15**

Province	Number of infected premises (current IPs)	Number of previously infected premises (released IPs)	Estimated number of birds impacted
Alberta	21	10	937,000
British Columbia	13	5	160,000
Manitoba	3	0	15,500
New Brunswick	1	0	<100
Newfoundland and Labrador	0	2	450
Nova Scotia	1	3	12,000
Ontario	21	5	560,500
Quebec	9	1	280,000
Saskatchewan	10	3	78,000
<b>Total</b>	<b>79</b>	<b>29</b>	<b>2,043,500</b>

# Use of composting as a disposal method

- Properly composted organic material will generate heat through an exothermic bacterial reaction
- Proper ratio of litter/carcasses:carbon, and mixing is required to get sufficient heat generated for virus inactivation

# Site assessment - CFIA

- Each Infected Premise (IP) is unique
- Site visit is required to determine the amount of materials and location of compost piles (if applicable)
- A Disposal plan will be developed by a Disposal Technical Specialist that ensures all Municipal, Provincial and Federal Regulations are adhered to.





**Turkey Barn after destruction**





**Broiler breeder barn after destruction**

# Construction of compost piles

- In barn is preferred, depending on Provincial Regulations, only option.
- Piles can be constructed outside if certain requirements met eg. covered, concrete pad, water table/waterway considerations
- Formulas used to determine height/length/width and number of windrows inside barn
- Once built, piles are capped with a carbon source (wood shavings)

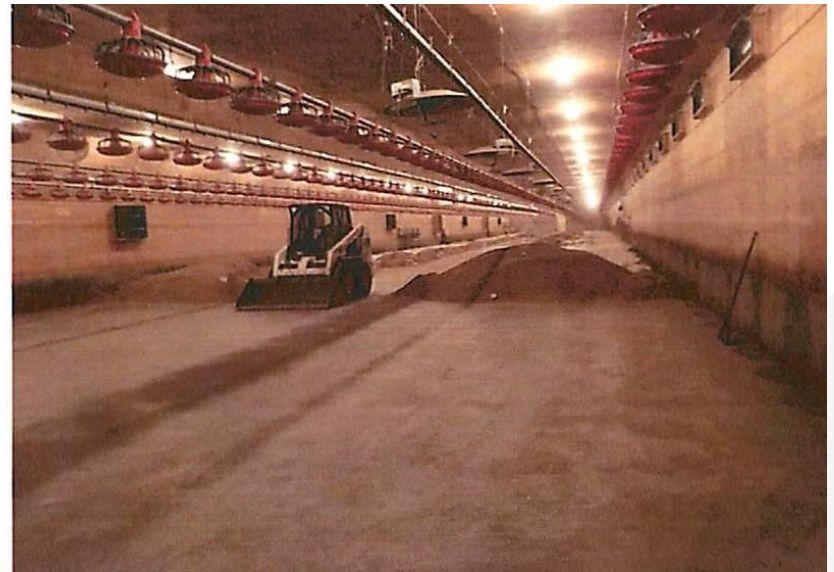


## **Broiler Breeder vs Turkey Barn**

Flooring/slats will need to be removed and stored prior to composting



# Skid Steers in two different types of barns – area prep





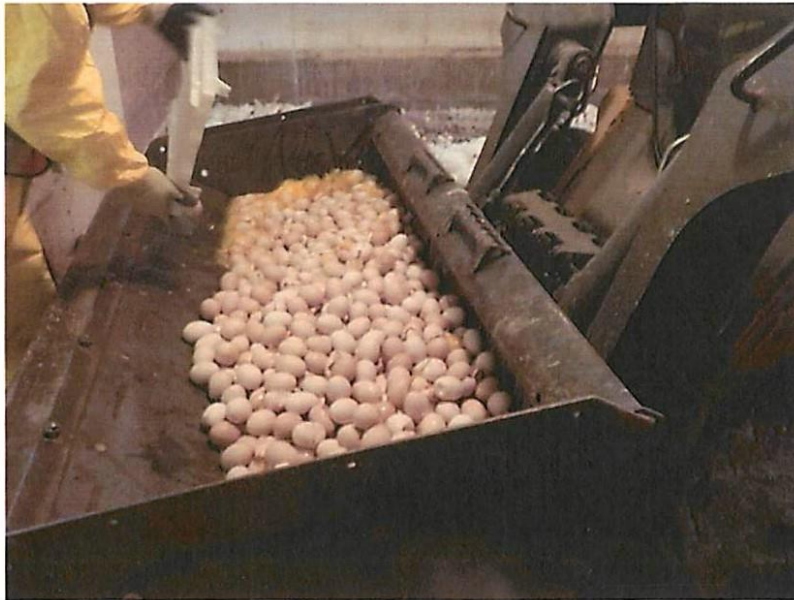
## **Clearing space/premixing**

Clearing the barn can also act as a method to help start the mixing process

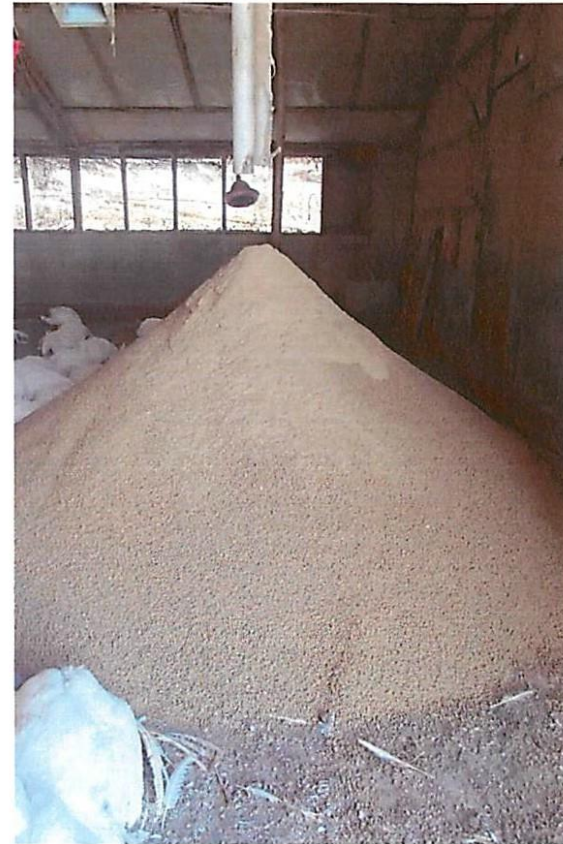


# Other potential material onsite for consideration

Number of eggs onsite



Amount of feed





# Mixing of the materials

**Disperse feed throughout**



**Break up large clumps**

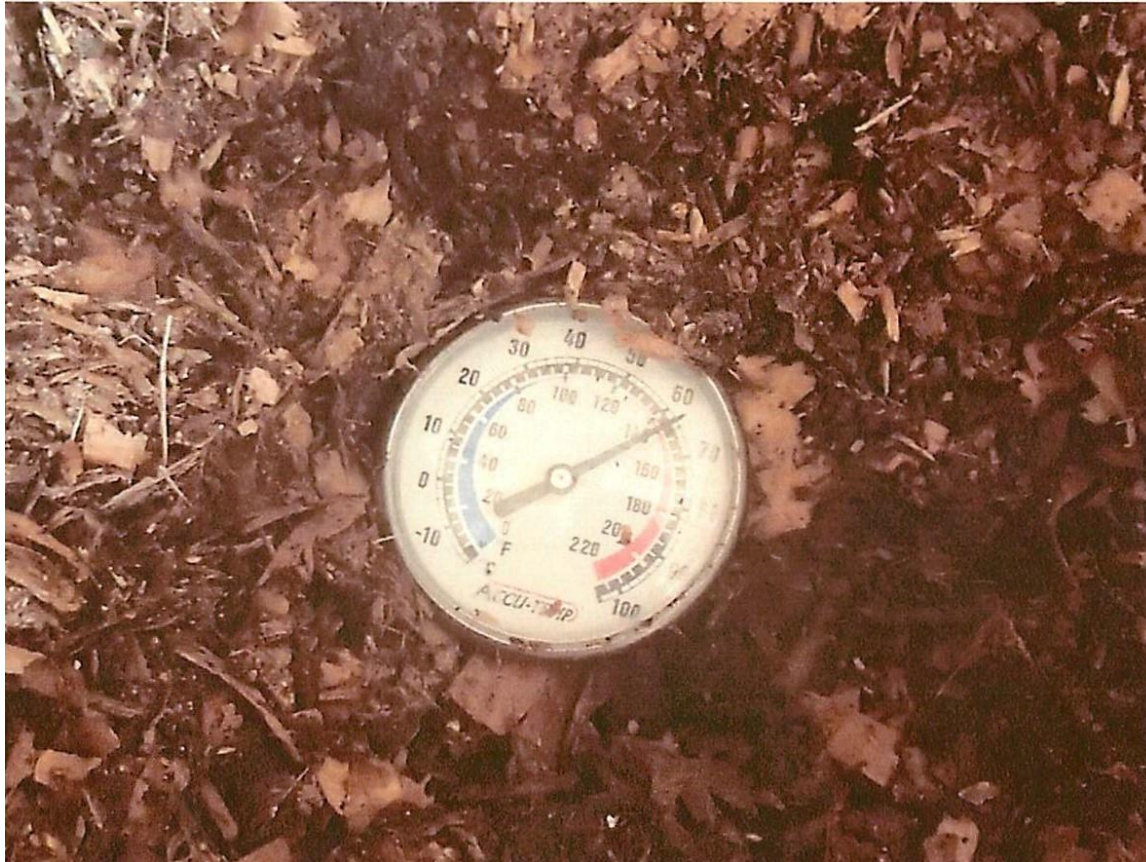




## Mixing of materials

Mixing is crucial to aerate, homogenize materials to ensure composting is successful.





## Temperature check prior to building

Temperatures exceeding 60 degrees Celsius - thorough mixing required to ensure even temperature distribution (initial temperatures will vary depending on situation – hot and cold spots are common prior to build)



**Checking mixture during a build**





**Checking temperatures and mix**



## **Marking compost pile width and start location**

Compost piles are built within guidelines to ensure proper heating, and facilitate temperature probing.





## Preparing the base

A carbon base is placed on floor to ensure pile oxygenation, and absorption of leachate that may occur as carcasses break down



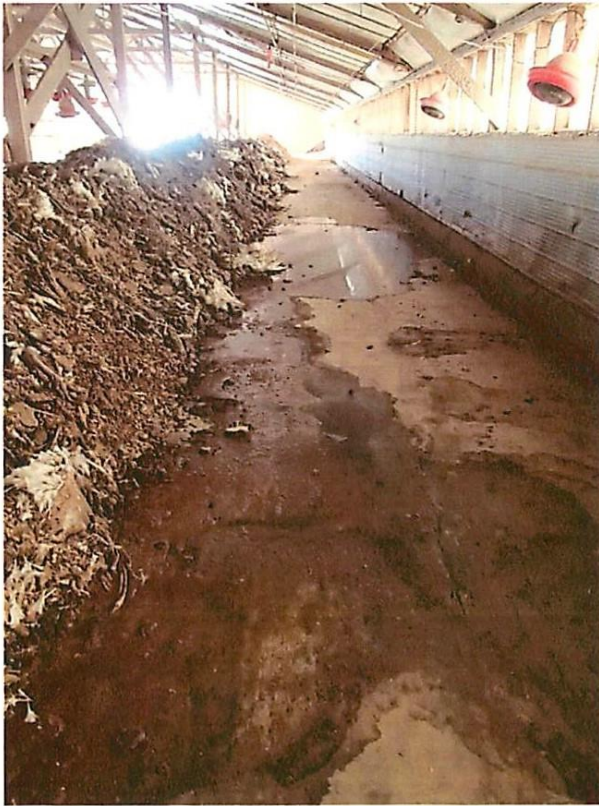
## **Adding mixture on base**

Ensuring equipment does not drive on and compress shavings base



# Potential issues during build

**Excessive moisture**



**Pests**





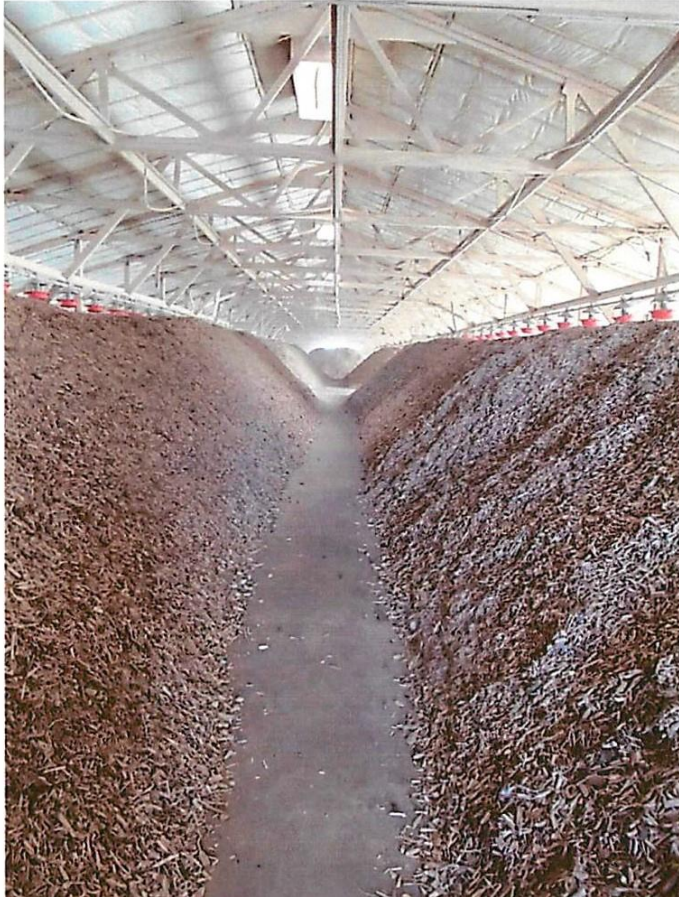
**Mixture on shavings prior to capping**



# Finished compost piles



# Finished compost piles







## **Finished (capped) pile**

Barn layout needs to be taken into consideration when determining final location

# Probing of Compost Piles

- Time/Temperature parameters used based on a Hazard Analysis
- 6 consecutive days, minimum 37°C with a 95% CI, statistical analysis
- Validation layer, inner and outer temperature.
- 6 ft probes and data loggers to gather information



# Inserting probes into piles





## Probing

Recording temperatures of the compost piles



# Release of Piles after BHT Monitoring

- BHT = Biological Heat Treatment
- 1<sup>st</sup> phase of the composting (6 days) is insufficient to produce a useable product.
- After BHT, compost is released for secondary composting
- Based on Provincial regulations and producer/owner specifications

# Considerations for pile building

- Amount of material to be composted
- Eggs
- Type of building available (Freespan vs. Layer)
- Floor appropriate
- Height/width of building
- Equipment to be used
- Carbon source
- Compactness/anaerobic – compost needs to 'breathe'
- Ammonia/Smells
- Leachate



# Considerations for pile building

- Feed and water lines
- Laying boxes
- Fans/Heaters
- Wooden posts
- Size of piles/multiple piles
- Weather conditions
- Too dry/too moist
- Pests
- Soil
- Protect finished pile

# Questions?

