



Composting of Dead Birds and Manure

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Objectives



By the end of this session, participants will be able to:

- Describe different methods for safe disposal of poultry manure and carcasses
- Explain what are the steps of composting process
- Explain the advantages of using composting for the disposal of poultry manure and carcasses



Questions

1. How do you dispose dead birds or manure?
2. What do you know about other disposal methods?
3. How would you rank the different methods in terms of:
 - a. safety
 - b. friendliness for the environment
 - c. costs or profitability

Dead birds

The accepted level of mortality (Normal)

Broiler flock: 3 – 6 % per cycle

Layers flock: 0.5 – 1 % per month

During disease outbreak or culling: up to 100%

(ND, HPAI, Gumboro)



Dead birds disposal



- **Incineration**
 - air pollution
 - expensive fuel
- **Burial**
 - ground water contamination
 - carcasses might be dug out by scavengers (spread of diseases)
- **Rendering**
 - required expensive equipment
 - transport of carcasses to plant might spread diseases
- **Composting**
 - safe, cheap and environment friendly solution

Composting can be used for the disposal of poultry carcasses and poultry manure



What is composting?



Composting is a natural process where beneficial bacteria and fungi, convert

- poultry carcasses
- poultry manure
- straw, wood shaving

into a safe high quality fertilizer = compost that provide extra income to poultry producers





- Meat from carcass is broken down in about 1 to 2 weeks.
- Bones and feathers gone in 4 weeks.

Composting after 2 weeks



The advantages of composting

- Safe disposal of dead chickens and manure that ensure the killing of Viruses, Bacteria, Fungi, Parasites (the composting mixture reach temperature of **60 - 70° C**)
- Cheap way of dead chicken's disposal
- Reduces environmental contamination
 - Pollution of water source
 - Bad odors
- The final product, a high quality fertilizer - extra income



What do you need for composting ?



1. One part - Chickens carcasses
2. One part - Chicken manure
Provide the beneficial bacteria and fungi that initiate the composting process
3. Two parts - Bulking materials (straw, wood shavings)
The bulking material needs to be porous to allow air to pass through the compost
4. As needed - Water (the mixture must be moist ~50%)
For the beneficial bacteria activity



Making Compost

Common Methods:

- Layering
- Windrows
- In house composting



Layering

30 cm of straw or wood-shavings - Capping

15 cm of chicken manure

Single layer of chicken carcasses

15 cm of straw or wood-shavings

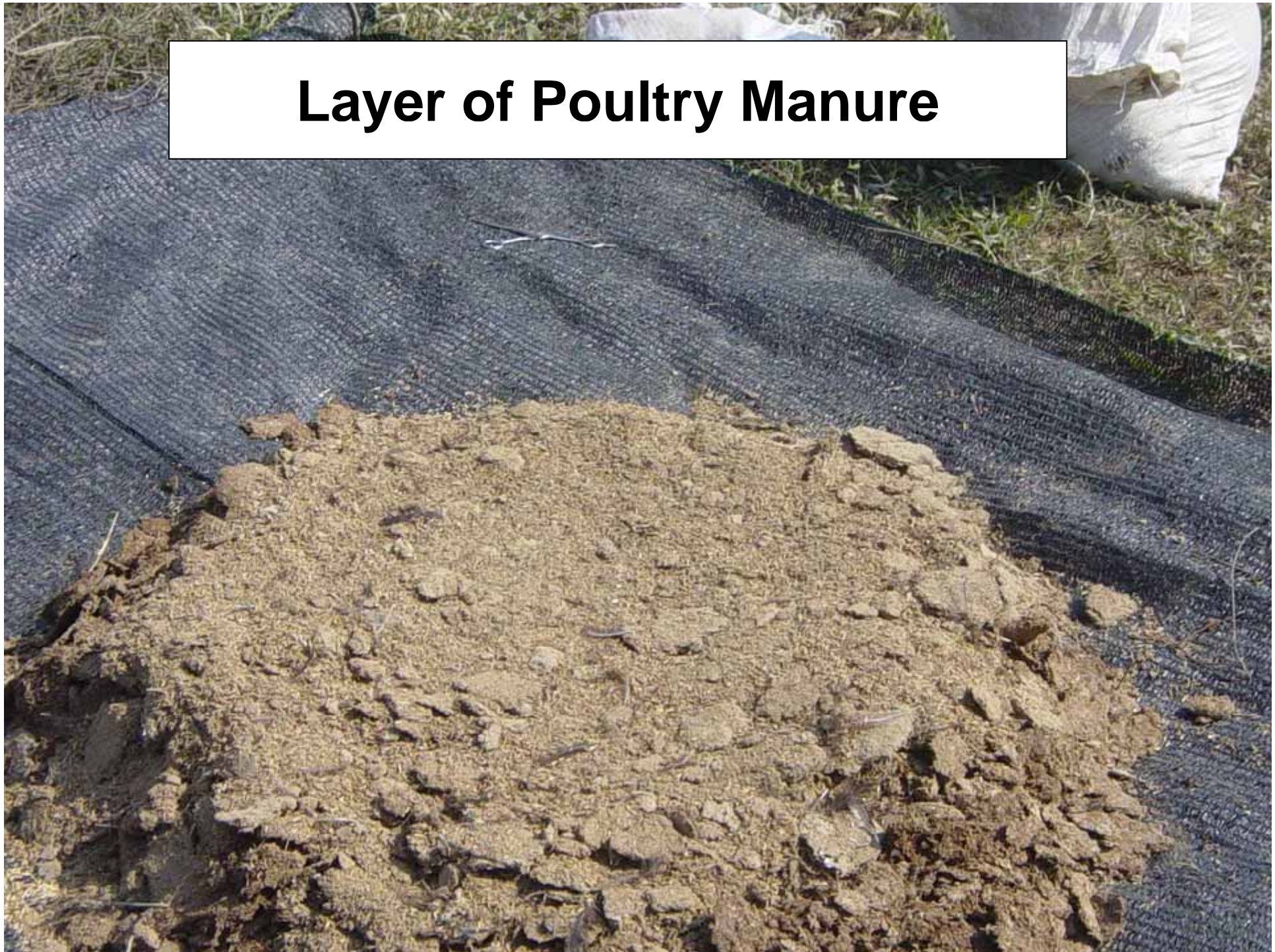
15 cm of chicken manure

30 cm of straw or wood-shavings

Straw or wood-shavings Base



Layer of Poultry Manure



**Add water until moist
feels like wet sponge**



**Add chicken carcasses
in a single layer**



Cover with a layer of straw or wood-shavings



Another layer of manure



Add more water



Cap with 30 cm of straw or wood-shavings

to cover any exposed
carcasses on the
surface.

Also to reduce odor
and flies.



The composting site



- Can be placed at the edge of the farm
- Kept at a distance from wells, water ways, etc.
- The site should be well drained and elevated
Rain or ground water cannot get in
- No access to scavengers (rodents, dogs, cats, foxes)

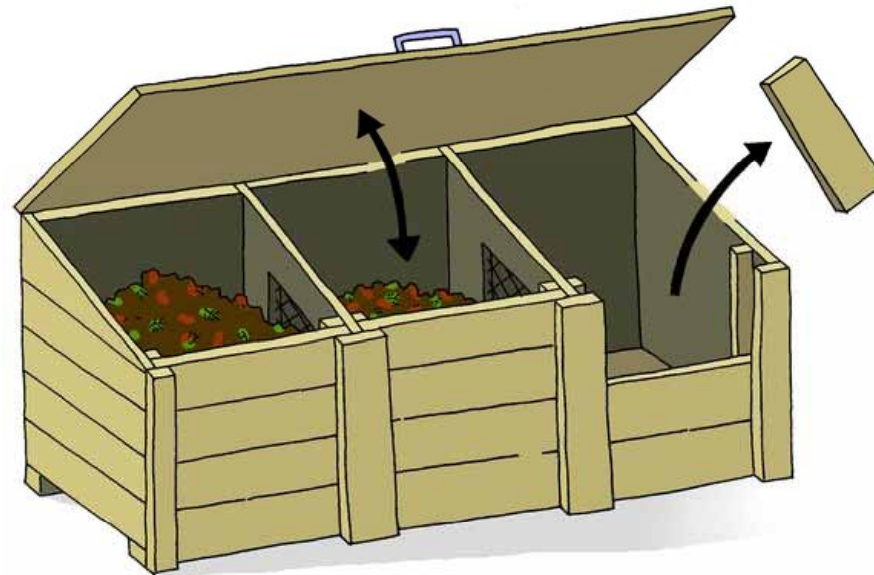
The Composter



- **Concrete floor** to prevent possible leaching of nutrients from the compost into the soil and to prevent scavengers from burrowing under the compost
- **Walls** made of timber with a front door easy to open for loading and unloading
- **2 compartments** for two cycles of the composting process
- **A roof or cover** to control the moisture

Composter size

1 m³ for 17 Kg of dead chickens



Bin size large enough to accommodate one day mortality in one layer

Windrow Method

(used in case of high mortalities)



- Spread a layer of 200mm of straw or wood-shavings to absorb any excess moisture.
- Build a windrow of poultry litter and place poultry carcasses inside.
- Water until moist,
- Cap with fresh material



In-house composting (Used in case of very high mortality or culling)



In large houses, the birds can be culled and compost pile constructed in the house.

This method saves moving birds and spreading disease.





The Composting Process

Decomposition occurs by action of bacteria and enzymes from the bird carcasses and manure.

Heat is generated at 60°C to 70°C during the first few days. (this high temperature kills disease agents)

Over the first week the temperature will slowly drop

After 3 days



After 8 days



The Composting Process



Oxygen inside the pile is used up and the bacteria population starts to decrease

Moisture % is also dropping

So the temperature drops



When temperature drops below 50° C
you need to help the process start again
by turning the pile and adding water

Turning the pile
and adding water



Temperature monitoring

Important!

Monitor daily
the temperature of the pile

Temperature is indicator of the
of biological activity in the pile

If the temperature is too low,
the composting process will take longer or
not work at all.

Long probe thermometer



Long steel rod method

(if you don't have a long probe thermometer)

Use a long steel rod and place at the centre of the compost pile for 5 minutes

Remove and quickly touch the rod:

- If you can touch at least two times before your finger gets too hot – means the temperature is about 60°C.

- If you can touch rod four or more times then the temperature is lower than 50°C.



Summary

- Beneficial bacteria breakdown manure and chicken carcasses within 2 to 4 weeks
- Kills HPAI, NDV and other disease agents within 3 days due to the high temperature generated
- Low odour method of carcass disposal
- Easy and simple system to learn and cheap to implement
- Produce high quality fertilizer = additional income

Acknowledgment:

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