Litter Management Strategies that Maximize Performance & Minimize Disease

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Critical components to a healthy flock

- Temperature
- Feed
- Water
- Litter
Functions of litter

- Provides comfortable surface for birds
- Dilutes fecal matter
- Absorbs spilled water
- Insulates from cold pad
Traditional litter

- Diverse environment with bacteria, viruses, fungi, gases, insects and nutrients
- Has structure with absorbency characteristics
Production management shifts

- ABF
- Organic
- Veggie based diet
- Bigger bird
- More built-up litter
- Windrowing
- Tilling
Impact on today’s litter

- Higher loads of microorganisms
- Higher amounts of nutrients (N-P-K)
- Higher amounts of ammonia
- Higher amounts of moisture
- Wetter droppings
- Degraded bedding with less absorbency
Importance of litter management

- You’re dealing with a living, breathing organism!
- Proper management directly impacts performance
- Impact starts with 1\textsuperscript{st} flock
- Each flock has direct impact on future flocks
Start off right: Bedding Depth

- Critical for regulating body temperature
- Insulates bird from cold floor
- Deeper litter base retains heat better
- Wicks more moisture away from the bird

5 inches recommended
Shallow bedding vs deeper bedding

- Shallow litter:
  - quicker contamination
  - less absorbent
  - less insulation
Most important during 1\textsuperscript{st} week

- Floor temperature
- Absence of ammonia
- Relative humidity
- These 3 factors contribute to:
  - Good bird activity
  - Full crops
  - Prevention of paw lesions
Floor temperature

- Measure at surface and litter core!
- Place temp sensors near litter
Laser infrared thermometer
Ammonia guns

• How do you know if you are controlling ammonia?
Hygrometers

- Inexpensive
- Measure at litter surface
- Maintain RH between 50-70%
- Humidity sensors on controllers don’t tend to work well
Litter management strategies
Ventilation - considerations

- Static pressure
- Directional airflow
Ventilation - considerations
Ventilation - considerations

- Obstructions to airflow
Ventilation - considerations
Ventilation - considerations

- Leaky Inlets
Ventilation - considerations

• Fan efficiencies
Ventilation - considerations

- Fan efficiencies
Moist air that didn’t exit
Don’t forget to look up!
Condensation or poor ventilation

Ammonia

Pathogens
Cumulative effect: shallow litter, leaks, minimum vent, leaky inlets, high RH, overused litter
High relative humidity
Smoke test for leaks

• Mark with chalk and seal
Chicks don’t like cold air
Waterline Management

Ammonia

Pathogens
Waterline Management
Waterline Management

• Level waterlines and manage pressure
First steps at downtime

- Walk the house
- Locate cake. Note depth of cake.
- Determine if cake is due to ventilation, insulation or water line management
- Now is the time to fix these issues!
Litter moisture

• Understand all moisture sources
• Test litter tackiness
Downtime when de-caking

• House should be closed tightly as soon as possible to retain heat in litter
• This heat will “cook off” ammonia and moisture
• Ventilate based on relative humidity and when working in house
• De-cake wet litter areas ASAP
• Run de-cake machines as shallow as possible
De-cake the sidewalls! This is where ammonia and bacteria reside.
Open vs Closed House

![Graph comparing temperature over days for open and closed houses. The graph shows a downward trend in temperature for both conditions, with the closed house remaining higher than the open house throughout the 7-day period.]
The granularity of this litter allows for water to be wicked away. This is also evidenced by the minimum thickness of cake. Litter depth should be about 4-5 inches.
This litter is too deep and too fine.
Overworked Litter
Cake - Remove!

Good Litter - Don't Touch!
Pre-placement for performance

- Pre-heating is crucial for bird health
  - Warms the air and litter
  - Purges ammonia
  - Removes moisture from litter
- Minimum of 48-72 hour pre-heat EVERY flock
Pre-Heating

- Keep houses shut tightly to save fuel and retain heat
- Run fans during driest part of day to prevent sweating.
- Ventilate based on relative humidity.
PLT application

- Open vent boxes and turn on 2 tunnel fans to purge ammonia just prior to PLT application
- Loss of ambient heat will be realized but floors will maintain heat
- Apply PLT as close to chick placement as possible
Signs of Happy Chicks

- Chicks are spread throughout the brood area, no huddling or draft avoidance
- Chicks are eating in feed pans and not sitting in them
- Chicks are not piled on top of each other
Take home message

- Start off with right amount of bedding
- Ventilate for relative humidity
- Close houses during downtime
- Minimize decaking
- Don’t increase surface area by working litter
- Properly pre-heat to purge ammonia
- Apply PLT at right dose and right time to alter pH and control ammonia
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