Practical Guidelines to Assess Poultry Litter

AAAP Welfare Committee
Litter Subcommittee
Mission

As proper litter management can impact poultry health and comfort in a number of ways, it is directly involved with welfare. Thus the goal of this committee is:

- To provide practical guidance to welfare auditors on how best to assess litter conditions in the field from a welfare perspective
Methods to Accomplish Mission

- Develop a written litter assessment model outlining litter quality factors of importance if an objective measurement is required.
- Provide digital images and comments where applicable to help illustrate important criteria outlined in the litter assessment model.
- Update any new, practical methodologies which could be used in the field to help assess litter.
## Litter Management Assessment Model

**AAAP – PAACO Litter Management Assessment Model**

**AUDIT CRITERIA - Litter Quality Factors:**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caked litter present?</td>
<td></td>
</tr>
<tr>
<td>Not evident</td>
<td>100</td>
</tr>
<tr>
<td>Donuts under waterline nipples</td>
<td>90</td>
</tr>
<tr>
<td>Strip under waterlines &lt; 12 inches wide</td>
<td>80</td>
</tr>
<tr>
<td>Strip under waterlines &gt; 12 inches wide</td>
<td>70</td>
</tr>
<tr>
<td>Along sidewall footings only</td>
<td>60</td>
</tr>
<tr>
<td>End doors and corners only</td>
<td>50</td>
</tr>
<tr>
<td>In front of “Cool Cell” pads only</td>
<td>50</td>
</tr>
<tr>
<td>Sidewall to outermost nipple drinker line</td>
<td>40</td>
</tr>
<tr>
<td>Sidewall to centermost nipple drinker line</td>
<td>20</td>
</tr>
<tr>
<td>Wall to wall caked litter</td>
<td>0</td>
</tr>
</tbody>
</table>

**Litter Moisture – estimated**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry, friable, free flowing on compression</td>
<td>100</td>
</tr>
<tr>
<td>Extremely dry/dusty and very fine particles</td>
<td>80</td>
</tr>
<tr>
<td>“Sticky” on hand when compressed, clod crumbles</td>
<td>80</td>
</tr>
<tr>
<td>Forms “clod” when compressed</td>
<td>50</td>
</tr>
<tr>
<td>Very wet on compression?</td>
<td>0</td>
</tr>
</tbody>
</table>

**Bedding/Litter Quality**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uniform size bedding particles</td>
<td>100</td>
</tr>
<tr>
<td>Some larger wood chips or sharp particles</td>
<td>75</td>
</tr>
<tr>
<td>Some “chucks” of cake</td>
<td>75</td>
</tr>
<tr>
<td>Extensive large and sharp bedding particles</td>
<td>25</td>
</tr>
<tr>
<td>Extensive residual cake from previous flock</td>
<td>25</td>
</tr>
</tbody>
</table>

**Ammonia (at time of inspection)**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;25 ppm</td>
<td>100</td>
</tr>
<tr>
<td>25-50 ppm*</td>
<td>50</td>
</tr>
<tr>
<td>50-75 ppm*</td>
<td>25</td>
</tr>
<tr>
<td>75 -100 ppm*</td>
<td>0</td>
</tr>
</tbody>
</table>

*Deduct 25 additional points if birds <2 wks old.*
Caked Litter Present?

- Not evident
- Donuts under waterlines
- Strip < 12 inches / > 12 inches
- Along sidewalls
- End doors and corners
- Front of Cool Cells
- Sidewall to outer waterline / inner line
- Wall–to-wall cake

- 100%
- 90%
- 80 / 70
- 60%
- 50%
- 50%
- 40 / 20
- -0-
Important Field Realities

- You will often find a small amount of caking under the water and feeder lines.
- These are the primary areas that birds will be stimulated to excrete feces as they eat and drink, which adds moisture to the litter under these locations.
- This is not necessarily indicative of a problem.
- Take the rest of the litter area between the feeder and drinker lines into consideration.
Caking Under the Drinkers
Caking in Used Litter Around Feeders
Old Litter Without Caking
Significant Caking in Curtain Sided, Turkey House
Donuts
Caking Under Nipple Drinkers
Most companies will remove old cake crust out of the poultry house or till it into the litter between flocks.

This is a common, acceptable practice for built-up litter.

The degree of caking will be impacted by a number of other factors such as litter depth, litter age, stocking density, and type of housing/ventilation.
Before Removing Cake
After Removing Cake – Old Litter
Management Factors Impacting Litter

- Ventilation has a major impact, as it is the primary way to remove moisture from the poultry house.
- Proper temperature control, insulation, and mixing of incoming air will influence the degree of caking along the sidewalls/fans, especially during cooler weather.
- Water line maintenance and management also play a big factor.
Litter Moisture Management

- Height Adjustment
- Drinker Nipple Maintenance
- “Donuts”
Corner Caking
Cake in the Corner and Along Wall
Caking Around Fans, Cool Cells
Sidewall Caking
Sidewalls, Endwalls
## Litter Moisture

- Dry, friable, free-flowing: 100
- Dry, dusty, very fine texture: 80
- Sticky on compression, crumbles: 80
- Clod on compression: 50
- Wet: -0-
Litter Moisture – Practical Estimate
Too damp
About right
Devices Are Available to Measure Litter Moisture
Bedding / Litter Quality

- Uniform size particles: 100
- Large wood chips: 75
- Chunks of cake: 75
- Extensive large / sharp particles: 25
- Extensive residual cake: 25
Good House Litter Conditions
Good, New Litter
New Poult Set-Up with Rings
Old Litter – Good Condition
Undesirable Bedding Materials
Poor Quality Bedding – Large Pieces
Types of Material Used for Litter

- Various materials have been used for litter
- Pine shavings/sawdust, hardwood shavings, rice hulls, oat hulls, sand, newspaper pellets, and possibly other materials
- Wood shavings or rice/oat hulls are the primary materials used by the poultry industry
Pinewood Shavings
Pinewood Shavings
Sawdust
Oat Hulls
Litter Thickness – Will Vary from Company to Company
Ammonia

- < 25 ppm
- 25-50 ppm
- 51-75 ppm
- 75 - 100 ppm
- Deduct 25 additional points if birds less than 2 weeks of age

- 100
- 50
- 25
- -0-
Measure Ammonia Objectively
Ammonia – at Bird level
Committee Members

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