Ventilation and Brooding Pullets, Breeders and Broilers

Scott Black
Technical Advisor
### Settlement Sheet

<table>
<thead>
<tr>
<th></th>
<th>Price</th>
<th>No. Head</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>39.32</td>
<td>1521</td>
<td>10909</td>
<td>787</td>
</tr>
<tr>
<td><strong>FORREST INGRAM</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SETTLEMENT SHEET</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>28.6</td>
<td>26</td>
<td>104</td>
</tr>
<tr>
<td>Bulk Delivered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bags Delivered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bags Delivered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>635</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Feed Delivered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulk Returned</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bags Returned</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Feed Returned</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total 100-lb. Feed Used</td>
<td>1293</td>
<td></td>
</tr>
<tr>
<td>Base</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base Poundage</td>
<td>235450.2</td>
<td></td>
</tr>
<tr>
<td>Rate Per Pound</td>
<td></td>
<td></td>
</tr>
<tr>
<td>395.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base Compensation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bonus Compensation</td>
<td>343.8</td>
<td></td>
</tr>
<tr>
<td>Total Compensation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date Started</td>
<td>10/21</td>
<td></td>
</tr>
<tr>
<td>Date Sold</td>
<td>01/22</td>
<td></td>
</tr>
<tr>
<td>Average Weight</td>
<td>38.8</td>
<td></td>
</tr>
<tr>
<td>Lbs. Meat Per 100 lbs. Feed</td>
<td>21.52</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>1/23/66</td>
<td></td>
</tr>
</tbody>
</table>

Grower: John B. Ingram
The Breakdown.

- Livability 95.58
- Feed Conversion 2.94
- Brand new Firebird in 1969 was $4,366.
• 105/85 days to 6# (19 weeks)
• 1.05 livability with a 2.8 FC
What's coming down the road...
Broilers
What should you hear and see in the chicken house?

- ALWAYS some birds should be EATING
- ALWAYS some birds should be DRINKING
- ALWAYS some birds should be RESTING
- ALWAYS some birds should be PLAYING
- ALWAYS some birds should be “TALKING”
Early feed intake

Once the chick has eaten:
- Digestion starts
- Heat production starts
- Risk of too cold is gone
- Temperature control begins

But if the chick has not eaten:
- No heat production
- Lower body temperature
- More cull chicks
- Thermo competence delayed
Brooding

➢ In the first twenty four hours after placement a chick needs to consume 20-25% of its own body weight in feed

➢ Also, In the first twenty four hours after placement a chick needs to consume 40-50% of its own body weight in water

➢ Don’t fail to achieve this intake!

➢ Intake of feed and water are linked together

➢ Failure to achieve early intake results in reduced weight gain, higher mortality (because of increased culling for small non-starter chicks) and poor flock uniformity
MAIN GOAL

Feed Energy Available for Maintenance vs Growth as Temperature Rises

- Amount of energy deficit
- Amount of energy surplus available for growth and weight gain
- Optimum performance zone
- Amount of energy deficit

- Energy intake
- Maintenance energy requirements

- Increasing cold stress
- Thermal comfort zone
- Increasing heat stress

TOTAL METABOLIZABLE ENERGY

COLD COOLER WARMER HOT
44 lbs: 2017 Cobb500 vs 1956 broiler
Management Considerations
Good brooding and not so good

Average Weight Histogram

3.58 lb
11.04 CV
59.62% Unif.

4.12 lb
13.03 CV
51.76% Unif.

3.82 lb
7.60 CV
80.43% Unif.

4.44 lb
7.48 CV
79.80% Unif.
“They told me to get a .10 SP”
Cold Feet

Copyright Cobb-Vantress, Inc.
Key Points to consider

• The next flock is your most important flock.
• Pullets, there is a lot of money in those chicks. They have been under a lot of stress, and they need a perfect environment.
• Its hard to beat a good start!!!!!
• Turnout/Breakout is your second brood.
• Moisture is your enemy!!
What do you see when you look at a controller?
Might need to ask a teenager!
Data......Need to stop and read

<table>
<thead>
<tr>
<th>Max Temp</th>
<th>Min Temp</th>
</tr>
</thead>
<tbody>
<tr>
<td>84.8</td>
<td>72.8</td>
</tr>
<tr>
<td>86.2</td>
<td>73.4</td>
</tr>
<tr>
<td>88.4</td>
<td>71.7</td>
</tr>
<tr>
<td>86.6</td>
<td>72.1</td>
</tr>
<tr>
<td>85.8</td>
<td>72.4</td>
</tr>
<tr>
<td>86.6</td>
<td>73.7</td>
</tr>
<tr>
<td>86.3</td>
<td>70.9</td>
</tr>
<tr>
<td>86.7</td>
<td>74.4</td>
</tr>
<tr>
<td>86.6</td>
<td>75.5</td>
</tr>
<tr>
<td>86.9</td>
<td>76.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
</tr>
<tr>
<td>02:00 am 72.4</td>
</tr>
<tr>
<td>10:25 PM 71.8</td>
</tr>
<tr>
<td>12:36 am 75.0</td>
</tr>
<tr>
<td>07:16 am 73.5</td>
</tr>
<tr>
<td>11:21 PM 74.7</td>
</tr>
<tr>
<td>07:19 am 78.4</td>
</tr>
<tr>
<td>02:34 am 77.2</td>
</tr>
<tr>
<td>04:54 am 75.9</td>
</tr>
<tr>
<td>08:33 PM 76.9</td>
</tr>
<tr>
<td>06:24 am 80.6</td>
</tr>
</tbody>
</table>

Copyright Cobb-Vantress, Inc.
Controlling incoming air is a MUST in proper minimum ventilation

Keep the cold air next to the ceiling as long as possible to:
- maximize heating of incoming air,
- maximize moisture holding ability of the incoming air,
- and to minimize drafts.

Picture courtesy of Dr. Mike Czarick – University of Georgia
Cross Flow Ventilation – Ideal Setup
3 “Must Have’s” of Minimum Ventilation
Results of improper ventilation rates – day after day

Picture courtesy of Dr. Mike Czarick – University of Georgia
Which one is right?
Propane!!!!!!!!!!!!
Brooders burn the same amount of gas - clean or dirty but clean brooders will give you more heat.
Pullets
What are the issues for pullets

- Ammonia control.
- Caked houses.
- Cocci Control.
- Dust.
- Drinker management.
How to Prevent the Winter Time Blues

- Proper static pressure and vent opening.
- Smoking houses.
- Close vents
- Litter is a sponge
Prevent Defense

- Moisture is an emergency!!!!!!!
- Weekly increases in feed = Weekly increases in water = Weekly increases in ventilation.
- Stir Fans are critical to success.
Curtain-sided house

Picture courtesy of Dr. Mike Czarick – University of Georgia
Minimum Inlet Opening?
Cool Down Program

• How cool is too cool?
• How long should we go past feeding?
• Going Up?????
A bird releases excess body heat in 2 ways:

1. To the air around it (Sensible Heat) 11BTU/kg/hr or 5BTU/lb/hr
   - The cooler the air the greater the amount of heat loss. The warmer the air, the smaller the amount of heat loss

2. Through evaporation of moisture from respiratory system – Latent Heat – 15BTU/kg/hr or 7BTU/lb/hr
   - the amount of heat a bird loses through the evaporation of moisture off of its respiratory system depends on the relative humidity of the air it breathes
Pullets Heat Signature
New, Perfect Right???

New and solid wall houses need more time than older looser houses.
Tight Houses

Totally enclosed house

Picture courtesy of Dr. Mike Czarick – University of Georgia
When it's done right!!!
PROS / CONS

- Flame in Tube = Medium Efficiency
- Flame in Tube = High Safety
- Enclosed Burner = Ease of Maintenance
- Enclosed Burner = Cleaning Optional
- Fewer Units = Ease of Maintenance
- Fewer Units = High Degree of Necessity
- Stir Fans – Mandatory
The Longer the Tube – The Greater the Temp Variance

15' Down the Tube
6' - 8' Away
Breeders
Birds struggle with heat stress and need increased ventilation

Both Hens and Pullets
Why windspeed??
Cool Down

• Why???? Removing metabolic energy.
• Needs to start at feeding.
• 1-5 fans depending on temperature and season.
• Can be programed or manually executed.
• Summertime: be aggressive to combat humidity.
• Wintertime: don’t exhaust all your heat.
• Inlets and tunnel opening to blend during spring and fall months.
Fans
Run Time for Hens is critical….

- To control moisture
- Keeping the floors and scratch good for LOF
- Adjustments need to be made.
Heat Exchange
Looks good right??
Thank You!!
Weight Distributions of Two Flocks

Sample reflects high end of this flock

Sample reflects low end of this flock

Selected Weight for sample
Tight houses
4 lbs: 2017 Cobb700 vs Cobb500