The Evolution of Broiler Production Programs since 1985 and Challenges in How Broilers Will Be Grown in Coming Years

Michael Donohue
Vice President, Agri Stats, Inc.
Southern Conference on Avian Diseases
Milton Dendy Keynote Lecture
January 30, 2017
Atlanta, Georgia
Milton Youngsett Dendy (1915 to 2017)

• Born in Marshall County, Alabama in 1915
• Served in the U.S. Army in World War II in North Africa and Europe
• B.S. in Agriculture (1947) from the University of Missouri
• M.S. in Agriculture (1950) also from Missouri
• University of Georgia Cooperative Extension Service from 1957 to 1977
• After retiring from the University of Georgia Mr. Dendy began a lengthy consultancy with the World Bank aiding poultry programs in Africa, the Middle East, Central Europe and China
• ‘kindest, most humble and gentlest of souls’
Donohue Family Motto

• ‘Saepe Iniuriam, Nunquam Incerta”
Donohue Family Motto

• ‘Saepe Iniuriam, Nunquam Incerta”

• English Translation:
  – ‘Often Wrong, Never Uncertain’
Agri Stats and the Broiler Industry

• Agri Stats – A Benchmarking Tool
  – Best Management Practice Programs

• Confidential and Verifiable Identification of Competitive Strengths and Opportunities

• Action Plans to Improve Costs and Efficiencies
Agri Stats and the Broiler Industry

- Started by Jim Cox – 1985
- Currently > 95% of U.S. Broiler Processors
- Turkey report since 2001 – 95% Industry Participation
- Egg report: > 100 Million commercial layers
- Swine report: over 1.2 million sows
- Express Markets Inc. (EMI)
  - Daily U.S. price discovery for U.S. broiler production
  - Reporting actual daily invoiced activity of over 180 million lbs. of chicken.
- Reports for Canada, Mexico, Brazil, Chile, Peru, Russia production
Topics

- Long Term Advances: Breeders and Broilers
- Current production Trends
- The Evolution of Product Mix in broiler production
- Changes in Feeding programs in recent years
- Ongoing challenges in live production and processing
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Agri Stats ‘Vital Signs’

1988 through 2016
% Production (adj to 45 Weeks of Age)
Agri Stats Vital Signs 1988 through 2016
% Hatchability (adj to 45 Weeks of Age)
Agri Stats Vital Signs 1988 through 2016
Chicks per Hen Housed
adj. to 65 Weeks of Age
Agri Stats Vital Signs 1989 through 2016
Average Broiler Wt.
Agri Stats Vital Signs 1988 through 2016

Live Wt. Kgs.

Year


1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2
Evis. Yield % of Live Wt.
Agri Stats Vital Signs 1997 through 2016
White Meat Yield
Agri Stats Vital Signs 1994 through 2016

Year

White Meat % of Live Wt.
% Whole Bird Plant Condemn

Agri Stats Inc. – Annual Reports
Topics

• Long Term Advances: Breeders and Broilers
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% Hen Day Production (adj. to 45 wks. of age)

July to December 2016 and 2017

- 2016
- 2017
- 2019
% Hatchability : Adj. to 45 Weeks of Age
July to December 2016 and 2017
Changes in Live Wt. Big Bird Deboners

Live Weight (Lbs.)

Actual Corn Cost/Bushel
September 2006 to December 2016

$2.00
$2.50
$3.00
$3.50
$4.00
$4.50
$5.00
$5.50
$6.00
$6.50
$7.00
$7.50
$8.00
$8.50
Actual Soybean Meal Cost/Ton
September 2006 through December 2016
Live Cost and Broiler Feed Ing. Cost
September 16, 2006 through December 2016
Inventory of Frozen Wings (Lbs. 000) 
July through December 2016 and 2017
Topics

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Volumes of Processed Lbs. by Plant Type
Agri Stats 2000 through 2016

[Graph showing trend lines for different plant types from 2000 to 2016]
## Percent of Kgs. by Live Wt. Category

<table>
<thead>
<tr>
<th></th>
<th>1.6 to 2.0 Kgs.</th>
<th>2.4 to 2.7 Kgs.</th>
<th>2.7 to 3.1 Kgs.</th>
<th>3.1 to 3.4 Kgs.</th>
<th>&gt;3.4 Kgs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>25.6 %</td>
<td>30.4 %</td>
<td>23.6 %</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2005</td>
<td>21.6 %</td>
<td>29.2 %</td>
<td>15.2 %</td>
<td>12.8 %</td>
<td>14.2 %</td>
</tr>
<tr>
<td>2010</td>
<td>20.5 %</td>
<td>20.4 %</td>
<td>21.8 %</td>
<td>5.7 %</td>
<td>25.8 %</td>
</tr>
<tr>
<td>2015</td>
<td>16.6 %</td>
<td>7.5 %</td>
<td>19.9 %</td>
<td>11.9 %</td>
<td>37.1 %</td>
</tr>
<tr>
<td>½ 17</td>
<td>19.4 %</td>
<td>8.2 %</td>
<td>15.6 %</td>
<td>15.8 %</td>
<td>34.9 %</td>
</tr>
</tbody>
</table>
Feed Cost as a Percentage of Total Live Cost
Plant Cost as a % of Cost in 1997

LGDB
Tray Pack
Fast Food


80% 100% 120% 140% 160%
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Seasonal % of Birds fed without antibiotics important for human medicine or ionophores
January 2013 through October 2017
# Feed Medication Programs: November 2017

<table>
<thead>
<tr>
<th></th>
<th>Adj Cal Conv</th>
<th>Days to 2.7 Kgs</th>
<th>% Mort</th>
<th>Avg. Live Wt</th>
<th>Birds (000)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ABF Prog</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABF (1)</td>
<td>5,607</td>
<td>45.88</td>
<td>4.55%</td>
<td>2.88</td>
<td>336,755</td>
</tr>
<tr>
<td>NAE (2)</td>
<td>5,614</td>
<td>45.84</td>
<td>4.49%</td>
<td>2.70</td>
<td>297,455</td>
</tr>
<tr>
<td>Traditional</td>
<td>5,523</td>
<td>45.45</td>
<td>4.27%</td>
<td>3.17</td>
<td>340,402</td>
</tr>
<tr>
<td><strong>Cocci Prog</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ionophore</td>
<td>5,528</td>
<td>45.46</td>
<td>4.20%</td>
<td>3.23</td>
<td>299,373</td>
</tr>
<tr>
<td>Chemical</td>
<td>5,618</td>
<td>45.92</td>
<td>4.20%</td>
<td>2.58</td>
<td>216,774</td>
</tr>
<tr>
<td>Vaccine</td>
<td>5,572</td>
<td>45.73</td>
<td>5.03%</td>
<td>3.21</td>
<td>161,607</td>
</tr>
</tbody>
</table>

(1) No Health Maintenance Antibiotic incl. BMD, Virginiamycin, Tylosin

(2) No Health Maintenance Antibiotic or Ionophore Coccidiostat but can use a Chemical Coccidiostat or vaccine for coccidiosis control
% Broiler Complexes Using Meat Products
Broiler Average Inclusion of Meat Products

### Broiler Performance vs. % Animal Protein
March 2017 – 2.4 to 3.2 kg. live Wt.

<table>
<thead>
<tr>
<th>% Animal Protein</th>
<th>Zero</th>
<th>0 to 2</th>
<th>2 to 4</th>
<th>&gt; 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adj. Feed Ing Cost</td>
<td>21.50</td>
<td>*</td>
<td>20.41</td>
<td>21.01</td>
</tr>
<tr>
<td>Adj. Cal Conv</td>
<td>5,728</td>
<td>*</td>
<td>5,570</td>
<td>5,647</td>
</tr>
<tr>
<td>Days to 2.7 kgs.</td>
<td>46.40</td>
<td>*</td>
<td>45.69</td>
<td>46.36</td>
</tr>
<tr>
<td>% Mort</td>
<td>5.52</td>
<td>*</td>
<td>4.60</td>
<td>4.99</td>
</tr>
<tr>
<td>Live Wt.</td>
<td>2.79</td>
<td>*</td>
<td>2.91</td>
<td>2.95</td>
</tr>
<tr>
<td>Cal/Lb. Feed</td>
<td>3,134</td>
<td>*</td>
<td>3,154</td>
<td>3,141</td>
</tr>
<tr>
<td>% Protein</td>
<td>19.90</td>
<td>*</td>
<td>19.52</td>
<td>20.12</td>
</tr>
<tr>
<td>% Lysine</td>
<td>1.22</td>
<td>*</td>
<td>1.19</td>
<td>1.20</td>
</tr>
<tr>
<td>% An. Protein</td>
<td>0</td>
<td>*</td>
<td>3.14</td>
<td>5.48</td>
</tr>
<tr>
<td>% Added Fat</td>
<td>2.09</td>
<td>*</td>
<td>1.63</td>
<td>1.38</td>
</tr>
<tr>
<td>% WOG Yield</td>
<td>78.17</td>
<td>*</td>
<td>79.30</td>
<td>79.22</td>
</tr>
<tr>
<td>% Bnls Yield</td>
<td>24.04</td>
<td>*</td>
<td>25.29</td>
<td>24.79</td>
</tr>
<tr>
<td># Complexes</td>
<td>20</td>
<td>1</td>
<td>13</td>
<td>11</td>
</tr>
</tbody>
</table>
% Broiler Complexes Using DDGS
For Only those using: Range 1% – 18%
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Hourly Wage Rate without Benefits
U.S. Broiler Industry

$7.00
$8.00
$9.00
$10.00
$11.00
$12.00
$13.00
$14.00
$15.00

1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 1/2 17
$/Hour

$/Hour
Human Resources Trends
U.S. Broiler Industry
% Weekly Turnover in 1st Processing
Slow Growing Broilers

• Broiler Feed Conversion
  – Live Lbs. Produced 2015
    • 49,012,810,953
    • Feed Conversion Ratio 1988  2.05
    • Feed Conversion Ratio 2015  1.89
  – Tons of Feed Required 2015
    • 46,317,106
  – Tons of Feed Required @ 1988 FCR
    • 50,238,131
  – Additional Corn Acres needed @ 1988 FCR
    • 578,743
Slow Growing Broilers

- **Growth Rate**
  - 7,854,617 140 Birds grown in 2015
    - Density: 12.4 birds per square meter
    - Growth Cycle to 2.83 kgs. in 2015: 63 days (incl. downtime)
    - Growth Cycle to 2.83 kgs. in 1988: 76 days (incl. downtime)

- Broiler Houses needed in 2015: 32,727
- Broiler Houses that would have been needed in 1998: 39,480

- Houses needed: + 6,753
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