We celebrate the *Golden Anniversary of* the Maryland Nutrition Conference!

- **Welcome:** 1st Mid-Atlantic Nutrition Conference, and Penn State U, VPI and U of Del as additional sponsors.

- **Purpose:** Presenting recent data/interpretations from scientific research in animal and poultry nutrition to assist nutritionists and feed manufacturers in producing more beneficial, economical, and efficient feeds.
events leading to 1st Conference

- birth of Broiler Industry in MD & DE, 1929.
- coccidiosis, pullorum; rickets, crazy chick disease, curled toe paralysis, perosis
- cod liver oil not used regularly until 1930
- vit B₂ isolated 1933, vit E in 1936; Mn recognized in 1937
- Dr. Jull saw need for Broiler Substation.
- Poultry Nutrition Conference for Feed Manufacturers held in 1953.
AVERAGE 8-WEEK WEIGHTS, MALES

1930 RATION
1.62 LBS.

1938 RATION
1.89 LBS.

1946 RATION
2.17 LBS.

1954 RATION
2.81 LBS.
1954 MNC speakers
1955 MNC speakers
1963 MNC speakers
Maryland Broiler Trial results over 15 years

<table>
<thead>
<tr>
<th>trial</th>
<th>yr</th>
<th>age (wks)</th>
<th>wt (lbs)</th>
<th>feed/gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1</td>
<td>1951</td>
<td>10</td>
<td>3.06</td>
<td>2.81</td>
</tr>
<tr>
<td>S-12</td>
<td>1955</td>
<td>9</td>
<td>3.02</td>
<td>2.40</td>
</tr>
<tr>
<td>S-21</td>
<td>1957</td>
<td>8</td>
<td>3.14</td>
<td>2.25</td>
</tr>
<tr>
<td>S-49</td>
<td>1965</td>
<td>8</td>
<td>3.55</td>
<td>1.92</td>
</tr>
</tbody>
</table>

20% increase in Feed Efficiency over 12 yrs

TEN YEARS OF PROGRESS UNDER PRACTICAL BROIL.PRODUCTION CONDITIONS
scope of research covered

- nutritional requirements & management
- ingredient composition & bioavailability
- antibiotics, mycotoxins & medications
- antioxidants & stabilized fats
- C/P ratio
- biotechnology (BST, genetic engineering)
- metabolic studies (digestion, acid/base, etc)
- human nutrition concerns & consumer demand
- food safety, environmental protection & animal welfare
## fat levels in diets to 3 lb broilers

<table>
<thead>
<tr>
<th>ration type</th>
<th>% fat</th>
<th>age (d)</th>
<th>wt (lb)</th>
<th>f/g</th>
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</thead>
<tbody>
<tr>
<td>commercial std</td>
<td>8-9</td>
<td>51</td>
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<td>1.86</td>
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<td>mod. practical</td>
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<td>48</td>
<td>3.01</td>
<td>1.61</td>
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<td>24</td>
<td>48</td>
<td>3.06</td>
<td>1.32</td>
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<tr>
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<td>34-35</td>
<td>47</td>
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<tr>
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<td>1.17</td>
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<tr>
<td>exp. ingredient</td>
<td>39-51</td>
<td>51</td>
<td>3.02</td>
<td>1.08</td>
</tr>
</tbody>
</table>
Fig. 6. The feed consumption per unit of gain on a cumulative basis and its relation to body weight of birds fed the four Maryland “Super” Rations and the ANRC standard ration is graphically illustrated above. Rations 1, 2, 3, and 4 correspond to Rations A, B, C, and D, as referred to in the text.
Fig 1. Effect of Calorie-protein ratio on energy efficiency and feed conversion.(summary of trials CP-44, S-45, CP-45 and S-47, Table 5).

Protein and Limiting Amino Acids Raised in Balance

\[ \hat{y} = 0.549x + 64.1 \]

Protein Raised but Limiting Amino Acids not Raised Above 100\% of Estimated Requirement

\[ \hat{y} = 0.639x + 58 \]
Figure 1. Broiler performance as influenced by energy content of starter and finisher rations (see Table 8).
Figure 2. Relative feed cost per pound of live broiler as influenced by feeds of various nutrient density at six actual price situations.
major advances

- unexplained growth responses & antibiotics
- calorie/protein ratio & stabilized fats
- amino acid requirements, bioavailability & ingredient composition
- enzyme feeding, phosphorus availability & environmental protection
- nutrient partitioning & biotechnology
future challenges

- Many current problems will continue, even if in modified form.
- Consumer concerns about food, health & environmental protection will require more attention.
- Meeting world food needs is essential for peace. Free trade & sustainable agricultural systems, including use of food-producing animals will be critical.
Some things never change!