DDGS – A World of Opportunities

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Department of Animal Science
University of Minnesota
Under Construction or proposed Ethanol Plants

Source: Jim Jolly – Land O’ Lakes Farmland Feed
U.S. DDGS Production

Source: Steve Markham – Commodity Specialists Company
Research Sells DDGS
What Nutritionists Want to Know

- **Nutrient content and digestibility** of feed ingredients.
- **Predictability and consistency** of nutrients and supply.
- **Cost** relative to competing ingredients.
- Maximum **recommended feeding levels**.
What Nutritionists Want to Know

- Knowledge of **limitations of use**.

- Knowledge of potential safety or **risk factors**.

- Handling, transport, manufacturing, and storage characteristics.
U.S. DDGS Consumption

Estimate 2001:
- Dairy: 60%
- Beef: 36%
- Poultry/Swine & Other: 4%

Estimate 2002:
- Dairy: 45%
- Beef: 35%
- Poultry: 5%
- Swine: 15%

Estimate 2003:
- Dairy: 39%
- Beef: 46%
- Poultry: 11%
- Swine: 4%
4 Million MT of DDGS Produced in the U.S. Would Disappear If...

- Every broiler, layer, and turkey ate 0.05 lbs/day
- OR
- Every beef steer, cow, and calf ate 2.4 lbs/day
- OR
- Every dairy cow ate 4 lbs/day
- OR
- Every hog ate 0.42 lbs/day
Do We Need to Develop International Demand for DDGS?

- Yes

Why?

- The U.S. ethanol industry continues to grow at a rapid rate
  - Increasing amount of DDGS available
  - 100% U.S. acceptance will not occur

- The largest growth in the livestock and poultry industry will occur in:
  - Eastern EU
  - South America
  - Asia
### Projected Development of Pork Production in Selected Countries Between 2002 and 2012 (1,000 MT)

<table>
<thead>
<tr>
<th>Country</th>
<th>2002</th>
<th>2007</th>
<th>2012</th>
<th>Increase %</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>43,163</td>
<td>47,729</td>
<td>53,155</td>
<td>23.1</td>
</tr>
<tr>
<td>Rep. of Korea</td>
<td>1,161</td>
<td>1,377</td>
<td>1,541</td>
<td>32.7</td>
</tr>
<tr>
<td>Philippines</td>
<td>1,095</td>
<td>1,200</td>
<td>1,253</td>
<td>14.4</td>
</tr>
<tr>
<td>Japan</td>
<td>1,200</td>
<td>1,224</td>
<td>1,213</td>
<td>1.1</td>
</tr>
<tr>
<td>Taiwan</td>
<td>915</td>
<td>983</td>
<td>1,009</td>
<td>10.3</td>
</tr>
<tr>
<td>Thailand</td>
<td>501</td>
<td>559</td>
<td>587</td>
<td>17.2</td>
</tr>
<tr>
<td>Indonesia</td>
<td>413</td>
<td>480</td>
<td>520</td>
<td>25.9</td>
</tr>
<tr>
<td>EU</td>
<td>17,930</td>
<td>18,370</td>
<td>19,040</td>
<td>6.2</td>
</tr>
<tr>
<td>USA</td>
<td>8,969</td>
<td>9,396</td>
<td>9,857</td>
<td>9.9</td>
</tr>
<tr>
<td>Brazil</td>
<td>2,356</td>
<td>2,723</td>
<td>3,038</td>
<td>28.9</td>
</tr>
</tbody>
</table>

Projected Development of Broiler Production in Selected Countries Between 2002 and 2012 (1,000 MT)

<table>
<thead>
<tr>
<th>Country</th>
<th>2002</th>
<th>2007</th>
<th>2012</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>5,460</td>
<td>6,317</td>
<td>7,221</td>
<td>+ 32.3</td>
</tr>
<tr>
<td>Thailand</td>
<td>1,320</td>
<td>1,574</td>
<td>1,679</td>
<td>+ 27.2</td>
</tr>
<tr>
<td>Japan</td>
<td>1,040</td>
<td>1,086</td>
<td>1,071</td>
<td>- 1.3</td>
</tr>
<tr>
<td>Philippines</td>
<td>602</td>
<td>708</td>
<td>758</td>
<td>+ 25.9</td>
</tr>
<tr>
<td>Indonesia</td>
<td>565</td>
<td>654</td>
<td>738</td>
<td>+ 30.6</td>
</tr>
<tr>
<td>Taiwan</td>
<td>611</td>
<td>640</td>
<td>670</td>
<td>+ 9.7</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>433</td>
<td>541</td>
<td>628</td>
<td>+ 45.0</td>
</tr>
<tr>
<td>EU</td>
<td>14,509</td>
<td>16,110</td>
<td>17,565</td>
<td>+ 21.1</td>
</tr>
<tr>
<td>USA</td>
<td>7,040</td>
<td>8,020</td>
<td>9,180</td>
<td>+ 30.4</td>
</tr>
<tr>
<td>Brazil</td>
<td>6,750</td>
<td>6,952</td>
<td>7,305</td>
<td>+ 8.2</td>
</tr>
</tbody>
</table>

## Projected Regional Development of Egg Production Between 2001 and 2030 (Million MT)

<table>
<thead>
<tr>
<th>Country</th>
<th>2002</th>
<th>2007</th>
<th>2012</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>2.08</td>
<td>3.21</td>
<td>5.13</td>
<td>146.6</td>
</tr>
<tr>
<td>North America and Central America</td>
<td>7.81</td>
<td>8.76</td>
<td>10.74</td>
<td>37.5</td>
</tr>
<tr>
<td><strong>South America</strong></td>
<td>2.92</td>
<td>4.13</td>
<td>5.82</td>
<td>99.3</td>
</tr>
<tr>
<td>Asia</td>
<td>33.92</td>
<td>43.37</td>
<td>56.62</td>
<td>66.9</td>
</tr>
<tr>
<td>Europe</td>
<td>9.65</td>
<td>10.64</td>
<td>11.22</td>
<td>16.3</td>
</tr>
<tr>
<td>Oceania</td>
<td>0.22</td>
<td>0.34</td>
<td>0.41</td>
<td>86.4</td>
</tr>
<tr>
<td><strong>World</strong></td>
<td>56.60</td>
<td>70.45</td>
<td>89.94</td>
<td>58.9</td>
</tr>
</tbody>
</table>

Source: GILLIN (2002)
What Are the Best DDGS Markets?

- It depends on…
  - Freight costs
  - Size and projected growth of livestock and poultry industry
  - Regulatory concerns
    - GMO
    - GMP certification
    - Antimicrobial residues
  - Tariffs
  - Availability and price of competing ingredients
  - Use in cattle or swine and poultry feeds
  - Volume of shipment
What Are the Best DDGS Markets?

- **Europe**
  - largest long-term importer of DDGS
  - limited future growth

- **Canada**
  - undeveloped market with large livestock and poultry industry
  - freight advantage

- **Latin America**
  - expanding market with greater potential

- **Mexico**
  - developing market with growing livestock and poultry industry
  - freight advantage
What Are the Best DDGS Markets?

Asia
- Tremendous growth in swine and poultry production expected
  - increased need for imported feed ingredients
- Freight disadvantage
- Prefer containers due to handling contraints
- Product definition and tariffs are being established in some countries
- Greatest success
  - Southeast Asia
  - Taiwan
- Overlooked opportunities?
  - Thailand
  - Republic of Korea
- Greatest challenge?
  - China
  - Japan
Current and Potential DDGS Export Markets

**Current**
1. Ireland
2. Denmark
3. United Kingdom
4. Spain
5. Portugal
6. Columbia
7. Mexico
8. Canada
9. Germany
10. Costa Rica

**Potential**
1. China*
2. Brazil*
3. Philippines
4. Japan
5. Thailand*
6. Republic of Korea*
7. Taiwan
8. Vietnam
9. Malaysia
10. Indonesia

* No significant USGC DDGS promotion efforts have occurred in these countries
What Are the Challenges?

1. Flowability
   - refusal of transloaders to handle DDGS from several sources
   - delayed container shipments from the west coast

2. High freight costs

3. Availability of consistent supply
   - need a system to directly connect customers to suppliers
   - poor customer service from US suppliers
   - difficult to find reliable exporters that market high quality, golden DDGS
What Are the Challenges?

4. **No grading system** to differentiate quality and price

5. **Inconsistent quality**
   - nutrient content
   - color
   - particle size

6. **Price has been too high**

7. **Critical research** is needed to improve DDGS acceptance

8. **High degree of technical support** is needed
What Are the Challenges?

9. Image that the export market is a “dumping ground” for low quality U.S. ingredients

10. U.S. suppliers don’t know/mistrust customers
   - Some customers back out of commitments when price decreases

11. U.S. suppliers view the export market as a residual market
   - only export when there is a surplus in the domestic market

12. Misrepresenting quality and nutrient specifications and blending DDGS with other ingredients

13. Tariffs
Critical Research to Improve DDGS Acceptance in the Export Market

- Methods/additives to improve flowability
- Methods for pelleting DDGS
- Presence/detection of antimicrobial residues
- Xanthophyll content and stability
- Stability and shelf life under various climatic conditions
- Aquaculture feeding trials with various types of fish
- Nutrient profile comparisons of international DDGS sources
What Does the Industry Need to Do?

- Determine the commitment to export DDGS
- Correctly define your product
- Know your product and how customers can optimize its use
- Improve customer support and technical assistance
- Fund research to support current export market development efforts
- Implement quality standards to help customers differentiate among sources and prices
- Implement a national DDGS certification program
What Does the U.S. Grains Council Need To Do?

- Devote more resources
  - technical support
  - research
  - education

- Initiate market development efforts in new countries with rapid growth in livestock and poultry

- Assemble a technical team
  - develop new definitions for distiller’s by-products
  - develop quality standards
    - by-product vs co-product vs product
  - develop a certification program

- Actively work with government officials to minimize tariffs on imported DDGS
www.ddgs.umn.edu