
Marketing DDGS

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Iowa Current Production

- There are currently 26 ethanol plants in Iowa producing 1.7 billion gallons of ethanol annually
- There are 21 ethanol plants under construction in Iowa that will produce 1.6 billion gallons of ethanol annually
- There are numerous other plants being talked about not yet officially recorded

So what does this mean in the way of DDGS production in Iowa???

Source: Iowa Renewable Fuels Association



Iowa Current Production

- With the 26 current ethanol plants in production, this equates to about 4.8 mmt of DDGS production annually.
- With the 21 plants expected to come into production over the next few years, this equates to about 4.5 mmt of DDGS production
(using a yield of 2.75 gallons per bushel and 17 lbs of DDGS per bushel)

So over the next couple years, Iowa stands a good chance of doubling its current capacity both in ethanol and DDGS production.



National Perspective

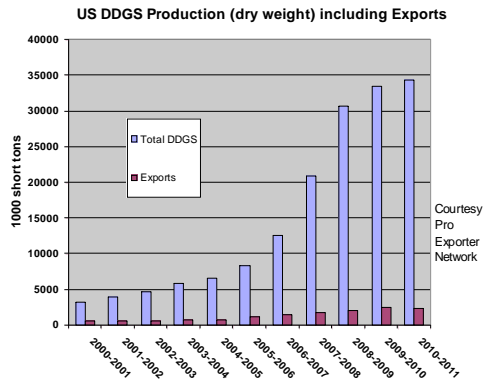
- There are currently 110 ethanol plants producing 5.5 billion gallons of ethanol annually.
- There are 73 new plants under construction and 8 plants in expansion expected to produce 6 billion gallons of ethanol annually.
- The 110 plants in production equates to 15 mmt of current DDGS production
- The plants under construction/expansion equates to almost 17 mmt of added production
- Total DDGS production has the potential to reach about 32 mmt.
(using a yield of 2.75 gallons per bushel and 17 lbs of DDGS per bushel)

Question: Where will all of these distillers go?

Source: Renewable Fuels Association



Marketing DDGS



Potential DDGS Demand – Cattle

	US	Iowa
• Dairy	6,375 mmt	130 mmt
• Feeder Cattle	15,475 mmt	828 mmt
• Beef	9,245 mmt	287 mmt
• Total	31,095 mmt	1,245 mmt

Assumptions:

US

- Dairy: 10% inclusion rate, 1533 lbs/animal/yr., 9.04 mln head
- Cattle: 40% inclusion rate, 1320 lbs/animal, 25.79 mln head
- Beef: 600 lbs/animal/yr., 33.3 mln head

Iowa

- Dairy: 10% inclusion rate, 1533 lbs/animal/yr/187,000 head
- Cattle: 40% inclusion rate, 1320 lbs/animal/yr., 139 mln head
- Beef: 600 lbs/animal/yr., 1.053 mln head

Feeding recommendations provided by Dr. Harold Tilton, SDSU, Feed



Potential DDGS Demand - Swine

	US	Iowa
• Slaughter	2,590 mmt	746 mmt
• Breeding	415 mmt	74 mmt
• Total	3,005 mmt	820 mmt

Assumptions:

US

- Slaughter: 10% inclusion rate, 55 lbs/animal, 98,919 mln head
- Breeding: 10% inclusion rate, 150 lbs/animal/yr., 6.09 mln head

Iowa

- Slaughter: 10% inclusion rate, 55 lbs/animal, 29,832 mln head
- Breeding: 10% inclusion rate, 150 lbs/animal/yr., 1.08 mln head

Feeding recommendations provided by Dr. Harold Tilton, SDSU, Feed



Potential DDGS Demand – Poultry

	US	Iowa
• Broilers	4,024 mmt	388 mmt
• Layers	1,372 mmt	205 mmt
• Turkeys	232 mmt	7 mmt
• Total	5,628 mmt	600 mmt

Assumptions:

US

- Broilers: 10% inclusion, 1 lb/bird, 8.853 bln birds
- Layers: 10% inclusion, 8.7 lbs/bird/yr., 350 mln birds
- Turkeys: 10% inclusion, 2 lbs/bird, 256.2 mln birds

Iowa

- Broilers: 10% inclusion, 1 lb/bird, 853 mln birds
- Layer: 10% inclusion, 8.7 lbs/bird, 51.765 mln birds
- Turkeys: 10% inclusion, 2 lbs/bird, 8.2 mln birds

Feeding recommendations provided by Dr. Harold Tilton, SDSU, Feed



Supply/Demand Potential Summary

- | | US | Iowa |
|--------------------------|----------|-----------|
| • Total Supply Potential | 32 mmt | 9.3 mmt |
| • Total Demand Potential | 39.7 mmt | 2.665 mmt |
- Potential Demand nationally exceeds potential US supply – but in Iowa potential supply far outweighs potential demand
 - As ethanol industry grows, it is vital we will look at other DDGS markets, including:
 - SE U.S.
 - SE Asia
 - Mexico
 - Canada
 - Other alternative DDGS uses including food use, fertilizer use, and DDGS as energy source
 - Each market presents its own challenges and opportunities
 - Also need to explore fractionalization technologies



Demand Potential Points

SE US

- Corn is more expensive and could possibly be less accessible
- Consistency of supply can be problematic
- Need to educate consumer more and be willing to adapt to meet their expectations

SE Asia

- Volume has increased 5 times vs. that of 04-05
- Container business is a cheap form of transportation vs. vessel freight
- With a trade deficit, this helps keep container cost cheap

Mexico

- Volume jumped almost 3 times vs. that of 04-05
- Big demand in Mexico for the golden DDGS
- Huge demand potential this year and beyond



Demand Potential Points

Alternative uses

- Food use
- Fertilizer use
 - Current conversion of the protein, phosphorous, and potassium in DDGS converts to about a 4-1-1 for N-P-K values – which is low.
- Fuel use
 - Studies show burning DDGS produces about 5,000 btu/lb
 - Equals 3.2 mmbtu for a typical 100 million gallon facility
 - At \$8.50 nat gas, equals \$27,200,000 – equivalent of \$85/ton DDGS.
 - 100 million gallon facility uses about 3.4 mmbtu per year if drying all co products to DDGS
- Others??



Marketing DDGS – Opportunities with DDGS

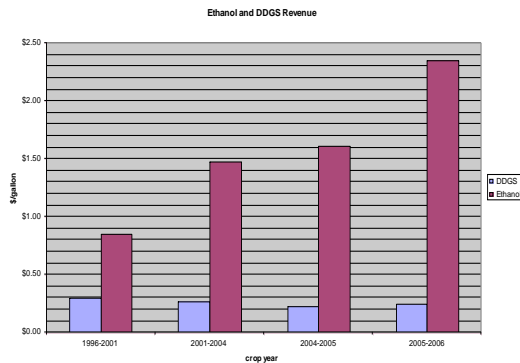
Before we can truly realize all the potential demand across the US and around the world, we need to understand the opportunities with DDGS.

Opportunities

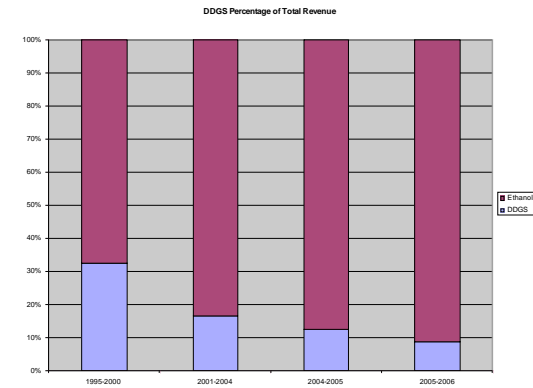
- Lack of standardized testing
- No quality standard
- Inconsistent product
- Flowability problems
- Viewed as a by-product



Marketing DDGS – Ethanol/DDGS Margins



Marketing DDGS – Revenue Percentage



Summary

- Ethanol industry will continue to grow and so will the importance of a sound marketing program for DDGS
- There is enough demand for DDGS – but in order to reach that potential, more R&D needs to be done and more education by both the supplier and end user needs to be conducted
- Exploring new markets and other alternative uses for DDGS will play a vital role in helping DDGS maintain their relative value
- Hydromilling technologies will help increase DDGS nutrient value
- Expanding into cellulosic ethanol production will help limit the production of DDGS we produce today



Company Info

Hawkeye Renewables

- We are a leading ethanol and DDGS producer with state of the art facilities
- We currently produce about 225 million gallons per year with plans to grow to over 500 millions gallons per year by 2008
- We currently produce approximately 700,000 tons of the new age, golden DDGS per year and plan to double that capacity by 2008

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