Research Sells DDGS

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History of U of M Swine DDGS Research

- Started with a meeting in 1997…
  - Steve Markham (Commodity Specialists Company)
  - John Goihl (Agri-Nutrition Services)
  - Dr. Jerry Shurson (U of M)
  - Several MN ethanol plant managers

- The meeting focused on 2 questions…
  - “What are we going to do with all of the DDGS?”
  - “Can it be fed to pigs?”

- A voluntary, internal checkoff program was implemented among interested MN and SD ethanol plants to collect funds to initiate swine research
North American DDGS Production

Metric Tons

- 1980: 320,000
- 1985: 900,000
- 1990: 1,800,000
- 1995: 3,000,000
- 2000: 3,500,000
- Est 2005: 7,000,000


CSC 2004
North American DDGS Consumption

Estimate 2001
- Dairy: 60%
- Beef: 6%
- Poultry/Swine & Other: 4%

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

Estimate 2003
- Dairy: 46%
- Beef: 39%
- Poultry: 11%
- Swine: 4%

CSC 2004
Key DDGS Marketing Questions

How well do you know your product?

Who are your customers or prospective customers?

How well do you know the needs of your customers?

Who makes the decision to feed DDGS?
What Nutritionists Want to Know

- Nutrient content and digestibility values for all feed ingredients they use.
- Predictability and consistency of nutrients and supply.
- Cost relative to competing ingredients.
- Maximum recommended feeding levels.
- Knowledge of limitations of use.
- Knowledge of potential safety or risk factors.
- Handling, transport, manufacturing, and storage characteristics.
Questions That Were Answered by Conducting U of M Swine DDGS Research Studies

Q: What is the nutrient content of DDGS produced by “new generation” fuel ethanol plants?

Q: How does the nutrient content of “new generation” DDGS compare to “old generation” DDGS?
A: It is higher in energy, amino acids, and P

Q: How variable is the nutrient content of DDGS among plants?
A: Nutrient variability is greater among plants vs. within plant but comparable to other by-product ingredients
<table>
<thead>
<tr>
<th>Q</th>
<th>A</th>
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<tbody>
<tr>
<td>What is the energy value of DDGS for swine?</td>
<td>Equal to the energy value of corn</td>
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<tr>
<td>How digestible is the phosphorus in DDGS for swine?</td>
<td>Highly digestible, allowing nutritionists to reduce dietary P supplementation, diet cost, and manure P levels</td>
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Questions That Were Answered by Conducting U of M Swine DDGS Research Studies

Q: How much DDGS can be added to various swine diets to provide good performance?

A: Nursery pigs > 15 lbs 25%
   Grow-finish pigs 20%
   Pregnant sows 50%
   Lactating sows 20%
Questions That Were Answered by Conducting U of M Swine DDGS Research Studies

Q: Are there any limitations of feeding DDGS to swine?

A: Yes.
- A short adaptation period is needed when feeding high DDGS diets to sows
- The high oil content of DDGS will reduce pork fat quality if fed at levels > 20% of the diet
- Digestible amino acid levels must be used if formulating diets containing > 10% DDGS
- The high N and digestible P content will limit the amount that be used in some swine diets
Questions That Were Answered by Conducting U of M Swine DDGS Research Studies

Q: What is environmental impact from feeding DDGS to swine?

A: There are no negative impacts.
- Although some pork producers claim reduced odor from feeding DDGS diets
  - We could not show any improvement in our research studies
- Feeding high levels of DDGS (>20%) could potentially increase ammonia levels in pig barns
- Feeding DDGS will increase N content of manure
- The high digestible P content will reduce the of P in manure
Questions That Were Answered by Conducting Swine DDGS Research Studies

Q: Are there any other benefits from feeding DDGS to swine?
A: Yes.

- Improved gut health in pigs infected with ileitis
- Increased litter size in sows fed high levels of DDGS
U of M Research Funding Sources

- Midwest DDGS Association
  - internal checkoff ($0.10/ton DDGS)
- MN Corn Growers Association
- MN Pork Producers Association
- IA Corn Growers Association
- CAMAS, Inc.
- Alpharma
- IL Corn Growers Association
- SD Corn Growers Association
- Hubbard Milling
Telling the Story…

State and National Nutrition Conferences
- Michigan Professional Pork Producers Symposium - 2004
- AFIA Swine Nutrition Committee - 2003
- National Alternative Feed Ingredient Conference – 2003
- Iowa Institute for Coops Annual Meeting - 2003
- Minnesota Pork Congress - 2003
- Iowa Feed and Nutrition Conference – 2003
- Nebraska Pork Expo – 2003
- Iowa State University DDGS Workshops – 2003
- Midwest American Society of Animal Science Meetings
- Carolina Nutrition Conference - 2002
- NCGA Distiller’s Grains Conference – MN, IA, TX (2002
- MN Ag Expo - 2002
- Ethanol Co-products Workshop – Lincoln, NE (2001)
- Turtle Lake Pig Science Conference - 2000
Telling the Story…

Regional and National Feed Companies

- Ridley-Hubbard Milling – 2003
- Land O’ Lakes/Farmland Feed – 2003
- ADM Alliance Nutrition – 2003
- Standard Nutrition – 2003
- Vita Plus – 2003
- International Alltech Conference – 2003
- DeKalb Feeds - 2003
 evaluating distiller's dried grains with solubles

the use of "new generation" distiller's dried grains with solubles (ddgs) in swine feeding programs is increasing dramatically.

new cafo rules target large units

six strategies to cut phosphorus
New, patented Roundup WeatherMAX™
was made for days like these.

Make money selling DDGS from the ethanol blend: x By Randy Fransen and Len Dawson

The University of Minnesota (Crop
Grazing, Soil, Water, Agricultural and Food Sciences) - and the Minnesota Department of Agriculture have
been working with farmers on developing a new product called Roundup WeatherMAX™. This product is designed to
improve the shelf life of ethanol blends by reducing the amount of water that is present in the blend.

According to the University of Minnesota, the shelf life of ethanol blends is often limited due to the presence of water. The Roundup WeatherMAX™ product is claimed to extend the shelf life of ethanol blends by reducing the amount of water present.

The product works by forming a protective layer on the surface of the ethanol blend, which helps to prevent moisture from entering the blend. This prevents the blend from becoming cloudy or cloudy, which can lead to the loss of quality and value.

The product is easy to use and can be applied to the surface of the ethanol blend before it is stored. The application process is quick and simple, and the product can be easily reapplied as needed.

The Roundup WeatherMAX™ product is available for purchase through the University of Minnesota Extension Service.

For more information, contact your local University of Minnesota Extension Service representative or visit the University of Minnesota Extension Service website.

This is an advertisement for The Farmer magazine. The content is not related to the main article and is placed at the end of the page.
DDGS to swine

Feeding new generation

by Jerry Shinnan, PhD

O ut on the horizon is a new generation of feed ingredients that are set to disrupt the DDGS market. DDGS (distillers dried grains with solubles) are currently one of the most valuable feed ingredients for swine nutrition, providing a high-quality, low-cost source of nutrients. But, with the rise of new feed ingredients, such as DDGS, the market is set to change.

What's new?

Feeding DDGS to swine poses unique challenges and opportunities. The use of DDGS in pig diets can improve performance and increase feed efficiency. However, there are also some concerns about the use of DDGS in pig diets, such as the potential for increased voluntary water consumption and the impact on the environment.

Benefits of feeding DDGS

1. High protein content
2. Cost-effective source of nutrients
3. Improves feed efficiency
4. Low in NSP

Feeding DDGS to swine can provide a sustainable and cost-effective solution for swine producers. It can help improve performance and increase feed efficiency, while also being a low-cost source of nutrients.

References:


For more information on feeding DDGS to swine, visit www.feedmanagement.com/ddgs
We Created a DDGS Web Site to Serve as a Technical Library of Information on Feeding DDGS to Livestock and Poultry

www.ddgs.umn.edu
The Value and Use of Distillers Dried Grains with Solubles (DDGS) in Livestock and Poultry Feeds

Welcome to the University of Minnesota DDGS Web site!

This site was developed to provide its users a “one stop” place to find all of the most current information related to using DDGS in dairy, beef, swine and poultry feeds.

The ethanol industry is one of the most rapidly growing agricultural industries in the U.S. Currently, dry mill ethanol plants produce over 3.8 million metric tonnes of DDGS annually. Industry experts predict that the volume of DDGS produced will increase to over 5.5 million metric tonnes by the year 2005. Because of the large supply of DDGS available to the feed and livestock industry, researchers at several Land Grant Universities have been conducting experiments to evaluate the nutritional value of DDGS in order to develop feeding recommendations for dairy, beef, swine, and poultry. In addition to DDGS research conducted by scientists in the Department of Animal Science at the University of Minnesota, we are pleased to provide you with research and technical publications from researchers at:

University of Georgia
Kansas State University
University of Nebraska-Lincoln
South Dakota State University

The majority of DDGS produced by ethanol plants in the US today is derived from corn. However, there is also a small but increasing amount of DDGS that is produced from sorghum (milo). The majority of information included on this Web site involves the evaluation of corn DDGS in livestock and poultry feeds. However, we have also included a section for research and technical information specific to sorghum DDGS (see Other Types of DDGS).
There is considerable variation in DDGS quality, nutrient composition, and nutrient digestibility among sources. Research conducted at the University of Minnesota has shown that corn DDGS produced by modern, dry mill ethanol plants in Minnesota and South Dakota is of much higher quality and nutritional value for swine and poultry than DDGS produced by older, more traditional ethanol plants. Distiller's dried grains with solubles produced by these "new generation" ethanol plants is an excellent source of energy, digestible amino acids, and available phosphorus for swine and poultry diets.

Currently, DDGS is an economical, partial replacement for corn, soybean meal, and dicalcium phosphate in livestock and poultry feeds. Historically, over 85% of DDGS has been fed to dairy and beef cattle, and DDGS continues to be an excellent, economical feed ingredient for use in ruminant diets.

Please email us with your comments.

Acknowledgments.

The University of Minnesota is an equal opportunity educator and employer.
URL: http://www.ddgs.umn.edu
Modified 9/11/03 by Bonnie Rae
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US Grains Council Target Export Markets Are Also Using This Information
Telling the Story…

- International Feed Companies and Producer Audiences
  - China - 2002
  - Japan – 2001, 2002
  - Taiwan – 2002, 2003
  - Korea – 2003
  - SE Asia – 2004
  - Mexico – 2003
  - Canada – 2003, 2004
  - Central & South America – 2002
  - Spain – 2003
  - Germany - 2003
Japan

- emerging market
- initial interest in dairy rations
- Japan Science Feed Association
  - currently updating nutrient values of samples from 7 “new generation” plants to establish new DDGS nutrient specifications
  - conducted a feeding trial with small ruminants
  - future use will also focus on swine and poultry
Taiwan

- have been importing containers of DDGS for the past 18 months
- primary interest in swine and poultry diets
- summer feeding trials with growing pigs, broilers, and dairy cows are completed
- currently conducting winter feeding trials this year with growing pigs and broilers
- nutrient values and research information from swine and poultry studies conducted at the University of Minnesota are being used in these trials
- based upon research results from the dairy feeding trial, 20 commercial dairy herds are now using DDGS
South Korea

- potential DDGS market
- significant interest in importing DDGS
- has not been a target market for USGC
- primary use would be for swine & poultry
Southeast Asia

- Malaysia has started importing containers of DDGS during the past 6 months
- relatively small DDGS market
- high interest in importing DDGS
- used primarily in swine & poultry feed
Canada

- existing DDGS market with huge potential for increased DDGS exports
  - large livestock and poultry industry
  - relatively close to upper Midwest ethanol plants

- currently produces 200 million liters of ethanol/year

- U.S. produces about 7 billion liters/year

- Canada ethanol industry is starting to grow
  - feeding trials are being planned for 2005
  - both corn and wheat DDGS will be produced
Mexico

- emerging DDGS market with potential for increased DDGS exports
  - large livestock and poultry industry

- Swine and layer trials were completed in 2003

- DDGS distributors established in Jalisco

- Various states in the upper Midwest are working to develop this market
Europe

- has historically been the primary DDGS export market

- approximately 770,000 tons of DDGS are exported annually

- considerable interest in conducting swine feeding trials in Spain
Challenges for Marketing YOUR Distiller’s By-Products Now and in the Future

- Who will evaluate new distiller’s by-products?

- Who will educate prospective customers on how to use distiller’s by-products effectively?

- Who will fund the research?
Current DDGS Swine Research Projects at the U of M

- Impact of feeding DDGS on pre-harvest food safety (Salmonella)
  - Mindy Spiehs, PhD candidate

- Spray-dried distiller’s solubles fractions in baby pig diets
  - Jeff Knott, PhD candidate

- Impact of adding DDGS and phytase on manure P content and chemical forms of P
  - Mark Whitney, PhD

- Correlation between DDGS color, ADICP, and true amino acid digestibility in poultry

- Nutrient profiles of DDGS from various Midwestern ethanol plants

- Stability and preservation of DDGS in various climates