23rd Annual Distillers Grains Symposium

DISTILLERS GRAINS TECHNOLOGY COUNCIL

“Increasing the awareness of the value of Distillers Grains”
WELCOME TO MINNESOTA!
Mitch Coulter
Commodity Marketing & BioFuels Director

CORN is COOL
Learn more at mncorn.org.

mncorn.org
MN CORN GROWERS DEFINED

- TWO ORGANIZATIONS
  - Minnesota Corn Growers Association
  - Minnesota Corn Research and Promotion Council

- 25,000 Corn Farmers in Minnesota
- 6,500 Active/Engaged members
- 2nd Largest Corn Organization in Membership
Mission

• Two organizations with a common mission:
  ◦ Identify and promote opportunities for corn growers while enhancing quality of life.
MINNESOTA BIOFUELS INDUSTRY

- 19 Ethanol Plants = 1.27 billion gallons (4th nation 2018)
- 450 million bushels of corn (33% total corn crop)
- 3.3 million tons of DDGS (Feeds 2.5 million cattle)
- 283 million pounds of corn oil (45% of MN biodiesel capacity)
- 60% of Biofuel plants are farmer owned in Minnesota
- 18 Dry Mill plants and 1 Wet Mill
- 3 BioDiesel Plants = 87.5 million gallons of Biodiesel (20%)
Buildout of Ethanol Infrastructure in the State of Minnesota

Biofuels Infrastructure Partnership Grant (BIP)

- APPROVED – USDA FUNDING = $8 MILLION
- APPROVED – PARTNER MATCH = $6.11 MILLION

GRANT ACHIEVEMENT:

- 137 Gas Stations, 352 Blenders, 808 Dispensers, 46 Tanks, 3 Tank Farms
  - TANK FARM – BLENDING & DISTRIBUTION
    - WATERFORD OIL (NORTHFIELD, MN)
    - RAINY LAKE OIL (INTNL’ FALLS, MN)
    - NORTHDALE OIL (BEMIDJI, MN)
- 400+ E85 & 300+ E15 Stations (2018)
  - 2013 – 42,000 gal. (1st E15 station)
MN LIVESTOCK FEED USE CORN + DDGS

LIVESTOCK FEED USE (mil bu) PRX DATA

- **DAIRY**
- **BEEF CATTLE**
- **HOGS**
- **POULTRY**

Bar chart showing livestock feed use from 2010 to 2018, with distinct sections for each category.
### MCR&PC research investment in DDG(S) since 2007

<table>
<thead>
<tr>
<th>Category</th>
<th>Projects</th>
<th>Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef/Dairy</td>
<td>13</td>
<td>$863,984</td>
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<tr>
<td>Human Consumption</td>
<td>3</td>
<td>$780,590</td>
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<tr>
<td>Swine</td>
<td>14</td>
<td>$435,231</td>
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<tr>
<td>Biochar/Fertilizer</td>
<td>4</td>
<td>$366,450</td>
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<tr>
<td>Shrimp/Fish Production</td>
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<tr>
<td>Digestibility &amp; Nutrient Consistency</td>
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<td>$158,226</td>
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<tr>
<td>Biofuels</td>
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<tr>
<td>Poultry</td>
<td>2</td>
<td>$96,985</td>
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</tbody>
</table>

**Total Research investment:** $3,135,482
Selected projects

“Nutritional improvement of corn ethanol co-products via yeast engineering” Dr. Bo Hu – UMN. This research was conducted to investigate improvement of DDGS feed value for livestock via development of genetically modified yeast strains which produce excess arginine, lysine, and tryptophan amino acids without drag in fermentation efficiency. Yeast were successfully transformed that demonstrated normal fermentation capacity as well as greater arginine and tryptophan production which remained in the DDGS following the fermentation process.

“Food grade DDG for human consumption – value enhancement of a corn co-product” Dr. Padmanaban Krishnan – SDSU. This research was conducted toward commercial development of Food Grade Distillers Grains (FFDG) and successful inclusion into food products/testing plausibility of commercial production. An inclusion of FDDG flour at 10% volume, resulted in baked breads with a significantly lowered glycemic response with no detrimental impact on bread taste or color. Generally Regarded as Safe (GRAS) status, which is important toward food industry utilization, has been applied for and is proceeding. FFDG was also utilized to develop and test high energy biscuits, cookies, and puffed snack products.
THANK YOU!

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