Feeding Value of Ethanol Coproducts

Greg Lardy
Dry Milling Schematic

Corn (whole)

[Grind, wet, cook]

Fermentation of starch

[Enzymes, yeast]

[Centrifugation]

[Evaporation]

Ethanol

Wet Mash

Still

Stillage

Distillers grain
Wet and dried

Distillers solubles

Wet distiller grain with solubles (or)
Dried distillers grain with solubles
One Bushel of Corn Produces:

- 2.7-2.8 Gallons of ethanol
- 18 Pounds of DDG
- Or 54 Pounds of WDG
- 18 Pounds of carbon dioxide
Dry Milling Schematic

Corn (whole) → [Grind, wet, cook] → Fermentation of starch → [Enzymes, yeast] → Still → [Centrifugation] → Stillage → [Evaporation] → Wet Mash ≤ Ethanol ≤ CO₂ → Wet distiller grain with solubles (or) Dried distillers grain with solubles → Distillers grain Wet and dried → Distillers solubles

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• 2.7-2.8 Gallons of ethanol
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  • Or 54 Pounds of WDG
• 18 Pounds of carbon dioxide
Corn Condensed Distiller’s Solubles or ‘Corn Syrup’
# Nutrient Content of CCDS

<table>
<thead>
<tr>
<th></th>
<th>Product A</th>
<th>Product B</th>
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</thead>
<tbody>
<tr>
<td>Fat, % DM</td>
<td>4.2</td>
<td>17.4</td>
</tr>
<tr>
<td>CP, % DM</td>
<td>15.4</td>
<td>21.6</td>
</tr>
</tbody>
</table>

- Plant to plant variation
- Day to day variation within plant

Gilbery et al., 2006
Effect of High Fat CCDS on Feed Intake in Forage Based Diets

Lin, P = 0.01

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Gilbery et al., 2006
Extension Programming

• Feeding recommendations
  • Maximum levels
  • Toxicosis

• Process methods

• Storage