

Using Distillers Grains Commercial Cattle Feeding Operations

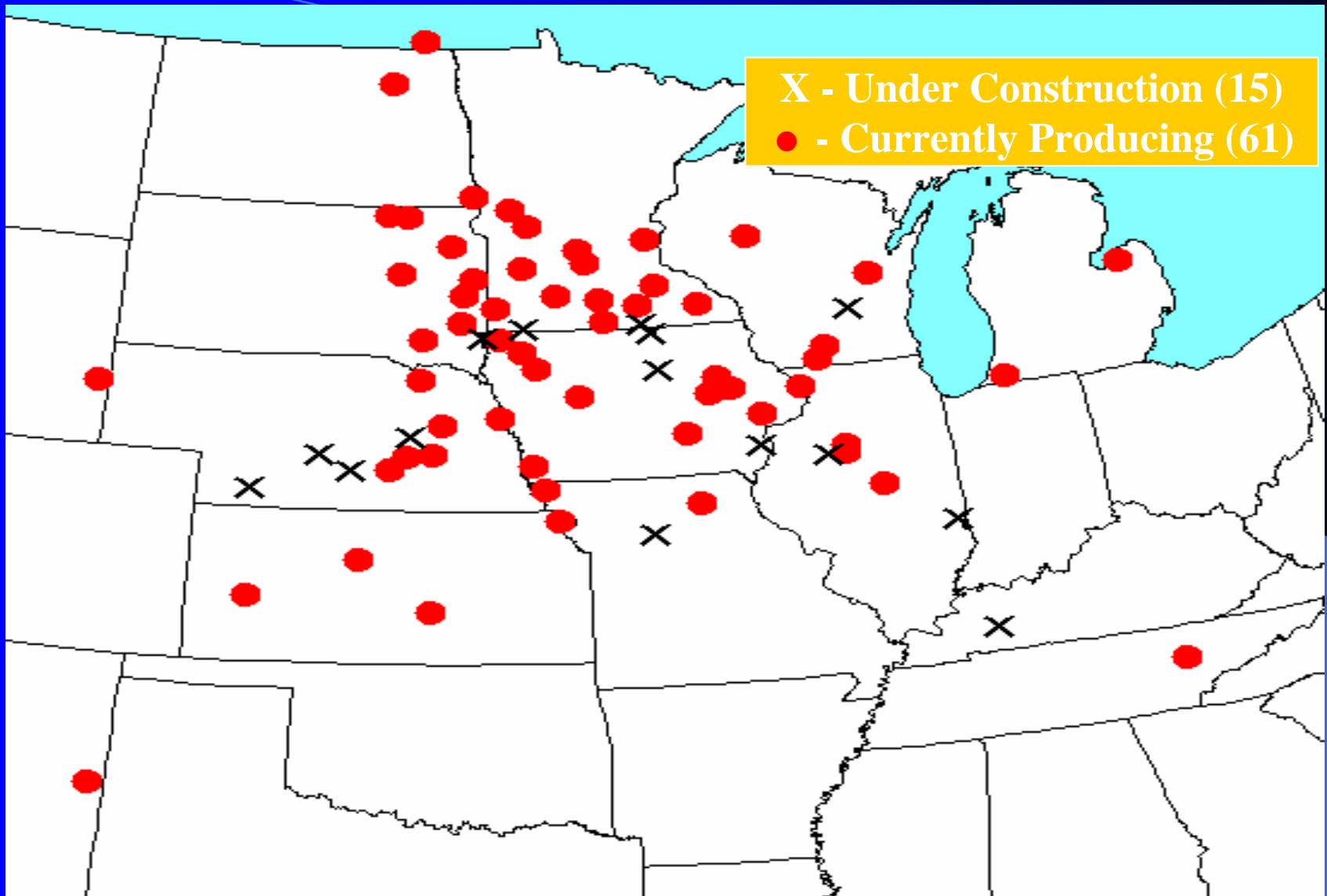
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Land O'Lakes Feed



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X - Under Construction (15)

● - Currently Producing (61)



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Outline

- ❖ **Condensed Distillers Solubles**
- ❖ **Cow Calf**
 - **Pros/Cons**
 - **Guidelines**
- ❖ **Backgrounding & Finishing**
 - **Pros/Cons**
 - **Guidelines**
- ❖ **Considerations**



What to Consider when using By-products?

- **Cost**
- **Ability to utilize**
- **Limits to Using By-Products**
- **Balancing rations**
- **Animal performance**
- **Bottom Line – “Profitability”**

Condensed Distillers Solubles

- ❖ Added to back to dried & wet grains
- ❖ Available as a liquid feed ingredient/conditioner
- ❖ Dry matter basis
 - Typical DM 25 – 50% (30)
 - 25-30% protein
 - 9-15% fat
 - 4% fiber
- ❖ Excellent source of vitamins and minerals (phosphorous and potassium)
- ❖ Highly palatable
- ❖ Protected Tank
- ❖ Aerated Tank
- ❖ Dairy = 5% of DM
- ❖ Beef = 10-15% of DM
- ❖ Current Opportunity Cost = \$43/ton



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Condensed Distillers Solubles

- ❖ **Common Usage**
- ❖ **Bunk Rations**
- ❖ **Lick Tanks**
 - **Mineral balance**
 - **Sulfur/Fat**
 - **Consumption**
 - **Delivery/Handling/Storage**
 - **Cost**

Why Distillers in Cow Calf Operations

Advantages in Forage Based Diets

- ❖ **Alternative to Hay:**
 - Hay Feeding (high \$ forages)
 - Poor Pasture/Hay Quality
 - Limited Forage Availability
- ❖ **Highly Digestible Fiber**
 - Enhance Diet Digestibility



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Cow Calf

❖ Pros

- Protein/Energy Ingredient
- Phosphorus Supply
- Potassium Supply

❖ Cons

- Mineral Balance
- Form/Handling



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Cow Supplements

- ❖ 1 lb DG = 2 lbs 15% CP hay
– **.045¢ vs .065¢**
- ❖ 1 lb DG = 2 lbs 15% CP Cube
– **.045¢ vs .185¢**
- ❖ 1 lb DG = 1 lb 30% CP Cube
– **.045¢ vs .125¢**

- ❖ **DDGS = \$90/ton**
- ❖ **Hay = \$65/ton**
- ❖ **15% Cube = \$185/ton**
- ❖ **30% Cube = \$250/ton**



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Phosphorous

- ❖ 1 lb DG @ .75% P = 3.4 g/d (\$90/ton)
- ❖ 1 oz 12% P Mineral = 3.4 g/d (\$532/ton)
 - **Different mineral strategies needed**



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Winter Cow

27-30 lbs Native Range

7-9% CP
.43% Ca
.15% P

Need Balanced Mineral

Winter Cow (Thin)

21 lbs Hay
8 lbs DDGS
.20 lbs Balancer

13.34% CP
.55% Ca
.32% P

Need High Calcium Mineral

Winter Cow (Thin)

59.5 lbs Corn Silage

5.5 lbs Alfalfa

3.5 lbs DDGS

.20 lbs Balancer

11.36% CP

.62% Ca

.29% P

Need High Calcium Mineral

Lactating Cow

21.5 lbs Hay
10 lbs DDGS
.20 lbs Balancer

14% CP
.52% Ca
.36% P

Need High Calcium Mineral

Cows/Calves

Forage Based Diet:

- Feed up to 8-10 lb per day (\approx 30%)
- Fat may limit much more
- High in UIP, may need DIP (urea)
- Usage is dependent on forage in diet

Limit-fed High Energy Diet:

- Feed up to 8-10 lb per day (\approx 30%)
- Safety – instead of corn use
- High in UIP, DIP needed (level dependent)
- Will need Calcium and DIP (urea)



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Why Distillers in Feedlot Operations

Advantages in Grain Based Diets

- ❖ **Alternative to Hay:**
 - Hay Feeding (high \$ forages)
 - Alternative Fiber Source
- ❖ **Highly Digestible Fiber**
 - Improved Ruminal Environment
 - Enhance Diet Digestibility
- ❖ **Alternative Protein Source**
 - Excellent Source of Protein



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Backgrounding & Finishing

❖ Pros

- ❖ Energy/Protein source
- ❖ Palatable
- ❖ Potassium supply

❖ Cons

- ❖ Phosphorus
- ❖ Shrink/handling
- ❖ Sulfur???

Example Starter Ration (Wet)

- ❖ **40.58% Wet DGS**
- ❖ 19.84% Prairie Hay
- ❖ 19.84% Alfalfa Hay
- ❖ 16.46% Cracked Corn
- ❖ **2.50% CoPro Bal R700**
- ❖ .78% SC Form
- ❖ 68.70% DM
- ❖ 16.23% CP
- ❖ .58% NPN
- ❖ 1.32% Ca
- ❖ .36% P
- ❖ .22% S (.15-.40% NRC)
- ❖ 48.00 NEg

Hay \$60/ton

Wet DGS \$40/ton

Corn \$3.93/cwt \$78.60/ton \$2.20/bu



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Example Grower Ration (Dry)

- ❖ 39.82% Corn Silage
- ❖ 33.50% Corn Stalks
- ❖ 19.47% Syrup
- ❖ 4.80 % DDGS
- ❖ 2.4% Liquid 40 (10) R550

- ❖ 62.9% DM
- ❖ 12.13% CP
- ❖ 2.54% NPN
- ❖ 1.03% Ca
- ❖ .34% P
- ❖ .19% S
- ❖ 46.87 NEg

Hay \$90/ton

DDGS \$110/ton

Corn \$3.76/cwt \$75.20/ton \$2.10/bu

HMC \$4.46/cwt \$89.20 \$2.50/bu



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Example Grower Ration (Wet)

- ❖ **38.83% Wet DGS**
- ❖ 21.24% Prairie Hay
- ❖ 21.24% Alfalfa Hay
- ❖ 16.76% Cracked Corn
- ❖ **1.94% CoPro Bal R700**
- ❖ 69.50% DM
- ❖ 16.17% CP
- ❖ .45% NPN
- ❖ 1.13% Ca
- ❖ .33% P
- ❖ .21% S
- ❖ 48.00 NEg

Hay \$60/ton

Wet DGS \$40/ton

Corn \$3.93/cwt \$78.60/ton \$2.20/bu



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Example Finisher Ration (Dry)

- ❖ 37.61% HMC
- ❖ 15.73% Cracked Corn
- ❖ 15.33% Syrup
- ❖ 13.85% Corn Cobs
- ❖ 6.97% Corn Silage
- ❖ 6.86% DDGS
- ❖ 3.65% Liquid 40 (10) R550
- ❖ 66.9% DM
- ❖ 13.00% CP
- ❖ 2.52% NPN
- ❖ .65% Ca
- ❖ .40% P
- ❖ .26% S
- ❖ 62 NEg

Hay \$90/ton

DDGS \$110/ton

Corn \$3.76/cwt \$75.20/ton \$2.10/bu

HMC \$4.46/cwt \$89.20 \$2.50/bu



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Example Finisher Ration (Wet)

- ❖ 60.22% Cracked Corn
- ❖ 30.61% WDGS
- ❖ 6.34% Mixed Hay
- ❖ 2.83% Co Pro Balancer R700
- ❖ 68.40% DM
- ❖ 12.52% CP
- ❖ .66% NPN
- ❖ .65% Ca
- ❖ .42% P
- ❖ 61.50 NEg

Hay \$80/ton

WDGS \$52.60/ton

Corn \$4.61/cwt \$92.20/ton \$2.58/bu



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FEEDING RECOMMENDATIONS

DISTILLERS GRAINS (Beef)

- Maximum 6-15% of diet DM as Protein Source (1-2 lbs/d)
- Maximum 20-40% of diet DM as Energy Source (4-8 lbs/d)
- Maximum 30% of diet DM for cows (8-10 lbs/d)
- Balance CP, DIP, UIP
- Watch Mineral Balance (Ca:P)
- Effective NDF content of distillers grains is limited
 - ❖ Does not replace all roughage sources

Considerations

- ❖ **Product Availability/Usage**
- ❖ **Product Variability (Within & Between Plants)**
 - **New mill vs old mill**
 - **Grain source**
- ❖ **Product Handling & Storage**
 - **70:30 Wet DGS:Soybean hulls**
 - **50:50 Wet DGS:Corn Silage**
 - **Dry = 2-5% Shrink**
 - **Wet = 10-50% Shrink**
- ❖ **Supplemental DIP (urea) may prove beneficial**
- ❖ **Environmental (Nitrogen & Phosphorous)**



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Considerations

- ❖ **Purchasing Considerations**
 - **Load size**
- ❖ **Mixing/Separation**
 - **Particle size**
 - **Density**
 - **Moisture**

Mixing Order

- ❖ **Dry Grain**
- ❖ **High Moisture Grain**
- ❖ **Supplement**
- ❖ **Dry Co-Product**
- ❖ **Mix for 1 minute**
- ❖ **Wet Co-Product after mixing**
- ❖ **Forage after mixing**

Wet vs. Dry

- ❖ Nutrient content of DM is the same for both
- ❖ Considerations with wet Distillers Grain:
 - 1) Can usually store only 5-7 days
 - 2) May need preservatives (e.g. propionic acid, other organic acids)
 - 3) Limited economical hauling distances (wet =120 miles)
 - 4) Rations may be too wet which could limit total DM intake, especially if ensiled forages are also fed