Using Distillers Grains
Commercial Cattle Feeding Operations

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Land O’Lakes Feed
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
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
Cow Calf

Pros
- Protein/Energy Ingredient
- Phosphorus Supply
- Potassium Supply

Cons
- Mineral Balance
- Form/Handling
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
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
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 (≈ 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 (≈ 30%)
- Safety – instead of corn use
- High in UIP, DIP needed (level dependent)
- Will need Calcium and DIP (urea)
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
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
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
- 0.34% P
- 0.19% 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
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
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
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
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)
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