

# **The Economics of Feeding Ruminants with High Priced Grains, Proteins, and Forages.**

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# Overview

- In these economic times, “deals” are fewer and the cost saving smaller.
- Best forage plan may not be decided by basic ration costs.
- Decisions may be much different for those that buy forage versus those that do not.

# Typical costs by byproduct

|          | \$/ton | lbs  | \$   | lbs  | \$   | lbs  | \$   |      |      | lbs  | \$   |
|----------|--------|------|------|------|------|------|------|------|------|------|------|
| Corn sil |        | 13   |      | 14.5 |      | 15.9 |      | 15.4 |      | 16.3 |      |
| Alf      |        | 13   |      | 14.4 |      | 15.9 |      | 15.4 |      | 16.3 |      |
| Corn     | 256    | 14.2 | 1.82 | 15   | 1.92 | 14.8 | 1.89 | 12.2 | 1.56 | 16.2 | 2.07 |
| Dist     | 255    | 11.7 | 1.48 |      |      |      |      |      |      |      |      |
| Canola   | 348    |      |      | 7.2  | 1.25 |      |      |      |      |      |      |
| CGF      | 229    |      |      |      |      |      |      | 5    | 0.57 |      |      |
| SBM      | 454    |      |      |      |      | 4.9  | 1.11 | 3.4  | 0.77 |      |      |
| Blood    | 1010   |      |      |      |      |      |      |      |      | 2.7  | 1.36 |
|          |        |      |      |      |      |      |      |      |      |      |      |
| total    |        |      | 3.30 |      | 3.17 |      | 3.00 |      | 2.90 |      | 3.43 |

# Corn Silage versus Haylage

|             | lbs  | \$     | lbs | \$     |
|-------------|------|--------|-----|--------|
| Corn silage | 10   |        | 22  |        |
| Haylage     | 20   |        | 11  |        |
| Corn        | 16.9 | \$2.16 | 12  | \$1.53 |
| SBM         | 4.1  | \$0.93 | 6.8 | \$1.54 |
|             |      | \$3.09 |     | \$3.07 |

Jan-Aug, 2012 Corn price \$7.20/bu, SBM \$454

# Corn silage versus Alfalfa

- Most of time energy versus protein in balance with each other.
- Difference between feed cost per head and return per acre.
- Recent UW spreadsheet, suggests higher return/acre for corn silage, up to \$548/acre.
- Feed cost/head/day most likely not the primary consideration.
- Knowing forage cost of production critical

[www.uwex.edu/ces/farmteam/](http://www.uwex.edu/ces/farmteam/)

# Corn Silage versus Haylage

- Bottom line is cows will milk on high quality forage.
- Agronomic decisions may outweigh feed costs.
- Nutrient management

# Alfalfa

What is the most important part of alfalfa quality.

1. Protein
2. Particle Length
3. Palatability
4. Energy?

# Value of Protein in Alfalfa

|                | lbs, dm | \$     | lbs  | \$     |
|----------------|---------|--------|------|--------|
| Corn Silage    | 14.5    |        | 14.5 |        |
| 18 CP, 125 RFV | 14.5    |        |      |        |
| 22 CP, 125 RFV |         |        | 14.5 |        |
| Corn           | 15.4    | 1.97   | 16.8 | 2.14   |
| SBM            | 5.3     | 1.20   | 3.9  | 0.88   |
|                |         | \$2.87 |      | \$3.02 |

In 2011 cost difference < 5 cents

# Value of Energy In Alfalfa

|                | lbs, dm | \$     | lbs  | \$     |
|----------------|---------|--------|------|--------|
| Corn Silage    | 14.5    |        | 16.1 |        |
| 18 CP, 125 RFV | 14.5    |        |      |        |
| 18 CP, 175 RFV |         |        | 16.1 |        |
| Corn           | 15.4    | 1.97   | 12.3 | 1.57   |
| SBM            | 5.3     | 1.20   | 4.9  | 1.11   |
|                |         | \$3.17 |      | \$2.68 |

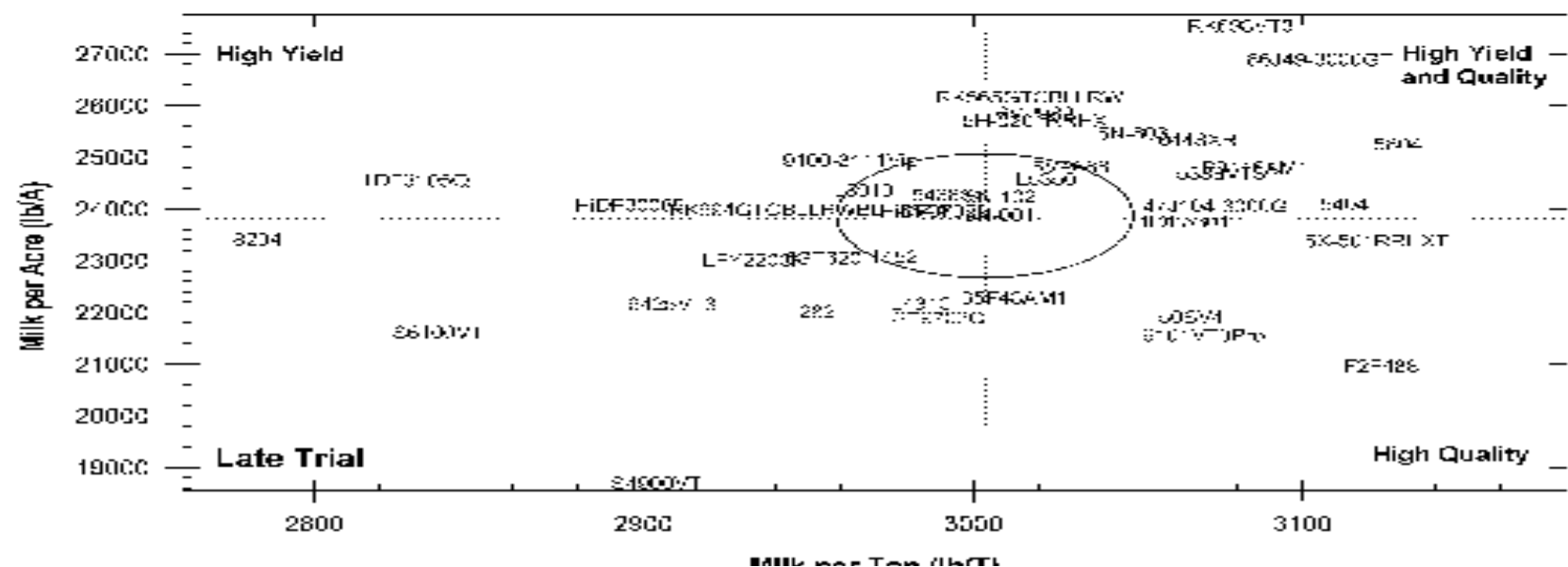
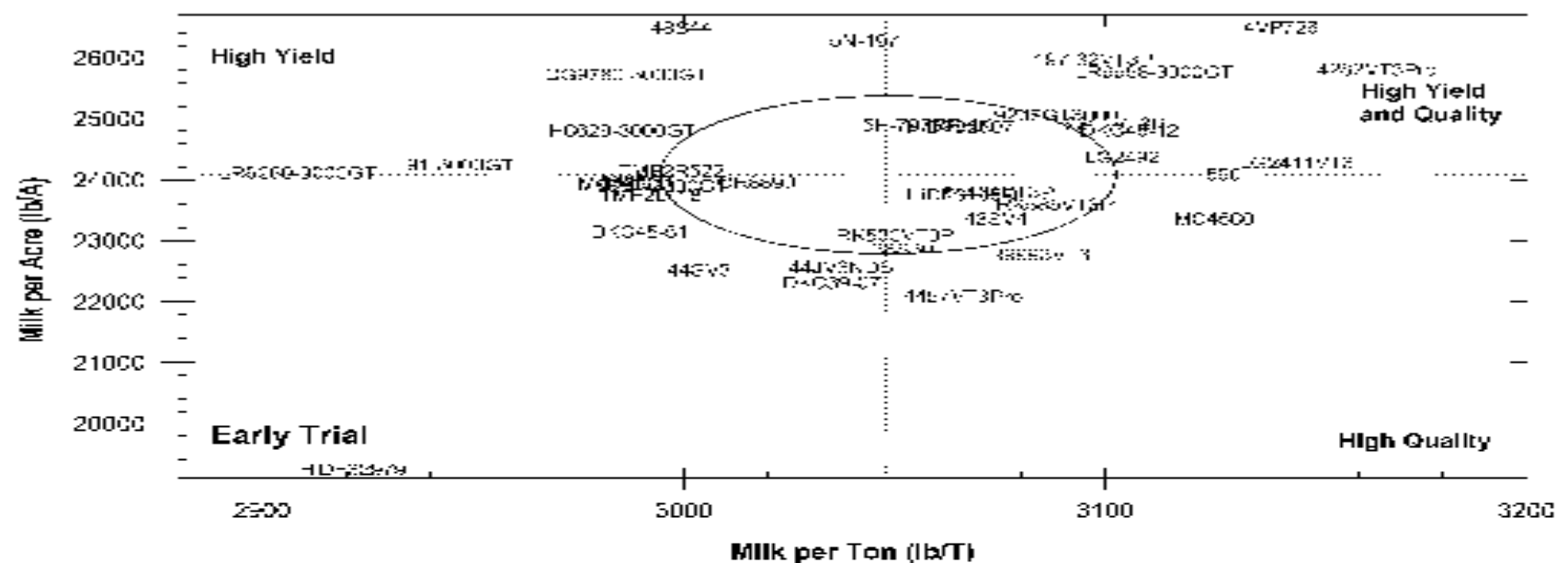
# Alfalfa Considerations

- This is why you see alfalfa priced off RFV, or in reality energy.
- Fit in crop and nutrient management
- Its protein balances out corn protein
- Particle length might allow for more byproduct
- Quality less affected by DM and processing.
- You have control over alfalfa quality

# Corn silage, what is important

- Tonnage
- Less trips over field
- Nutrient management
- Notion that it is more consistent than alfalfa
  - More dependant on DM and processing.
  - Improves with time in silo while alfalfa does not.
  - Mycotoxin

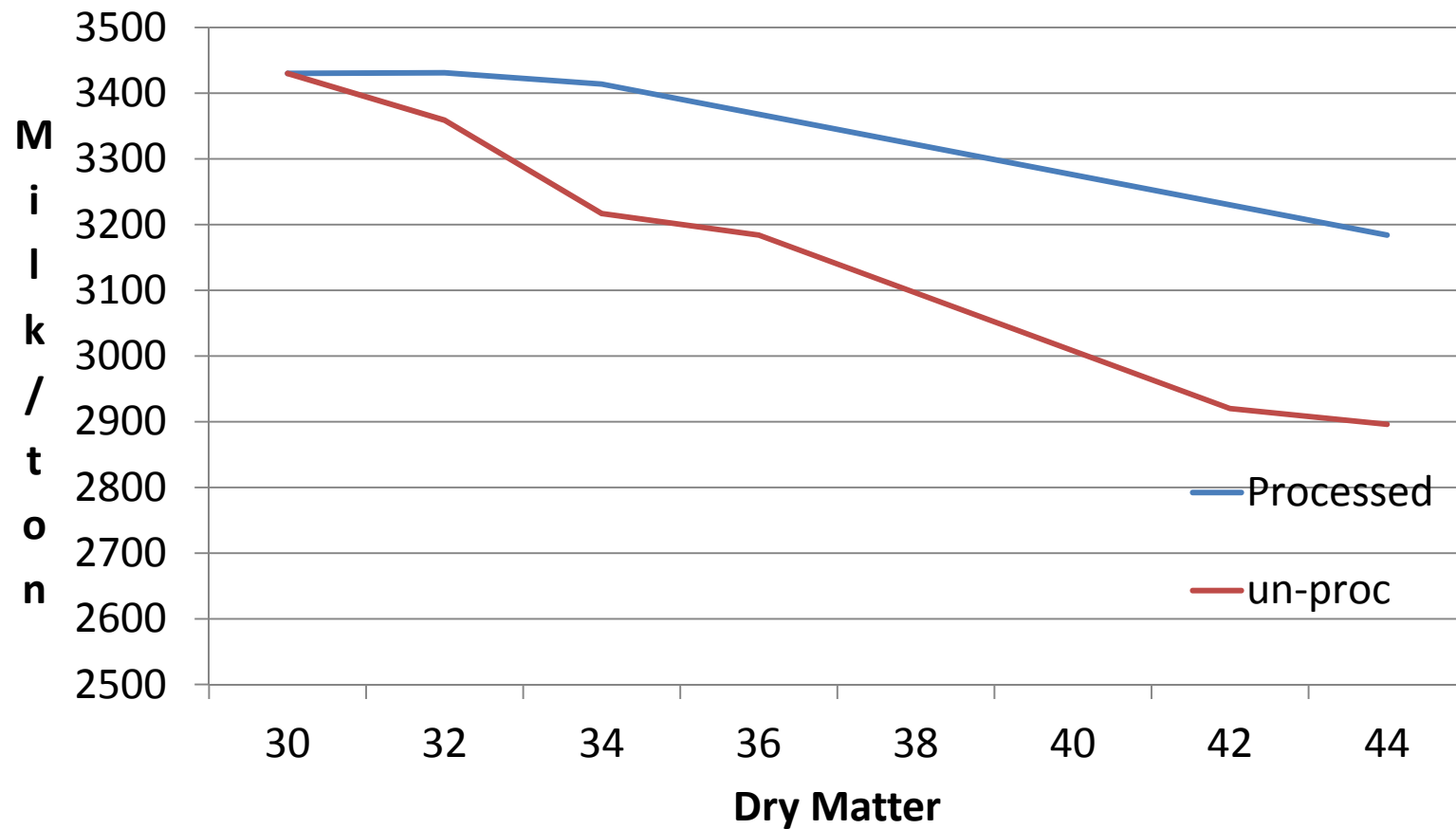
**Figure 4. Relationship between Milk per Acre and Milk per Ton of corn hybrids in North Central Wisconsin during 2011**



# Corn silage In the Real World

- Corn silage made too dry
  - Dairyland labs 2011 64.9% DM 6.9LSD  
2010 64.5% DM 6.9LSD
  - Too many poorly processed corn silages.
  - Generally does not milk as well fresh.
  - Have very little control over chemical composition other than cutting height.

# Milk/ton versus DM



# What does milk per ton really mean

- 200 lbs milk x \$18 milk is \$36/ton corn silage
- 200 lbs milk x .35mcal / .92 mcal in corn=\$10/ton corn silage.
- That means the corn silage you paid \$60/ as fed ton for went from \$170/ton DM to \$200/ton DM, or \$.20-.25/head/day

# Cost of lower milk/ton

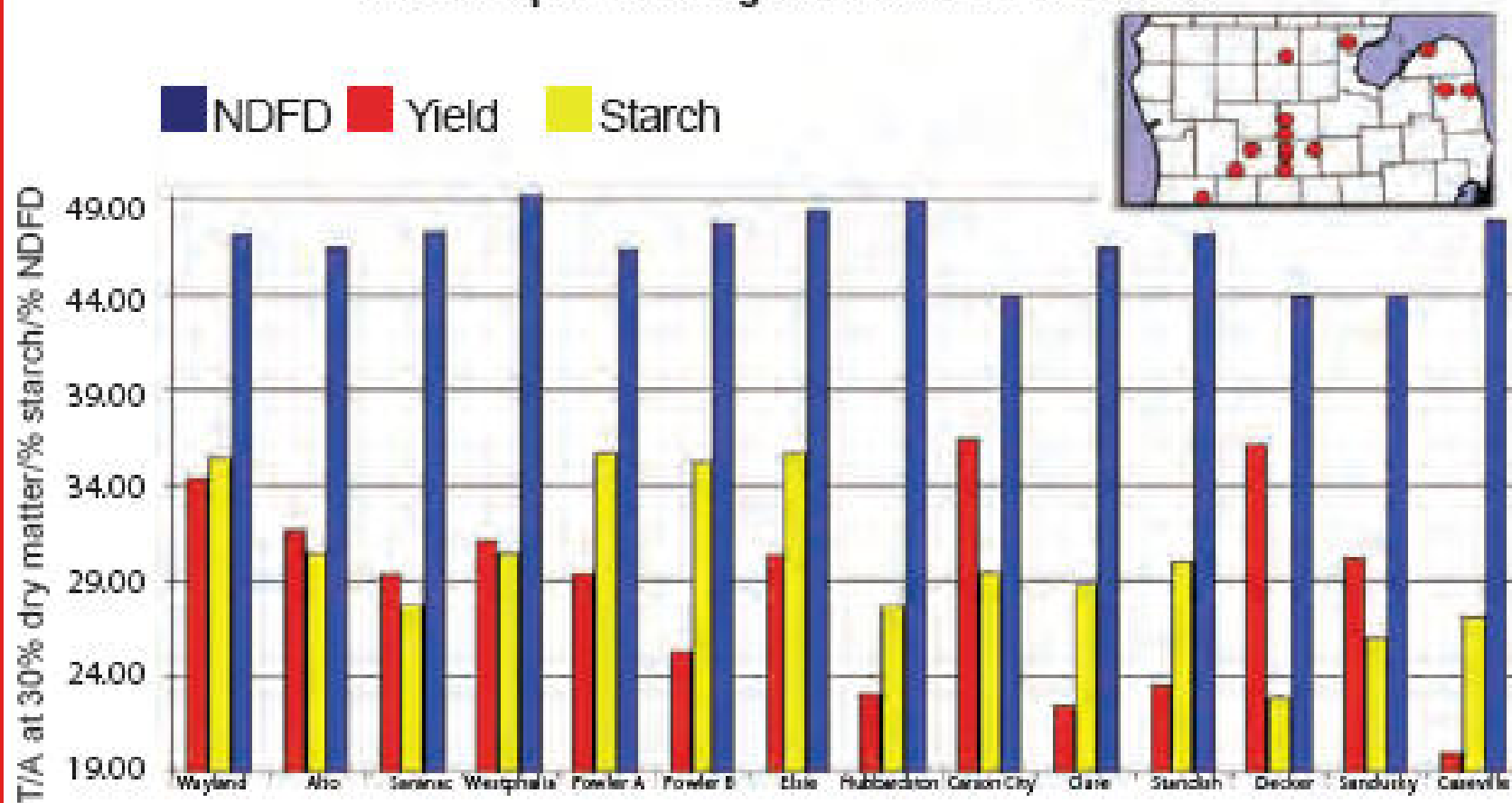
|               | lbs, dm | \$     | lbs  | \$     |
|---------------|---------|--------|------|--------|
| 3200 milk/ton | 16.1    |        |      |        |
| 3000 milk/ton |         |        | 15.1 |        |
| 22cp, 125 RFV | 16.1    |        | 15.1 |        |
| Corn          | 12.3    | 1.57   | 14.3 | 1.83   |
| SBM           | 6.9     | 1.56   | 7.2  | 1.63   |
|               |         | \$3.13 |      | \$3.46 |

Bottom line is cost reality is worse

# Corn Silage Variation

Bill Mahanna

## 1. Yield, starch content and 24-hour NDFD of the same hybrid grown in multiple Michigan locations in 2009



# Influences on corn silage

- Less than half of variation in corn silage digestible energy due to genetics(non-bmr).
- Do not assume words like soft kernel, digestible starch, etc., will compensate for poor management. They do not.
- Have one shot to get corn silage right.

# Pricing Ingredients

- Feedval commonly used to price ingredients against standard prices.
- It can be deceiving, always look at job you want ingredient to do.
- It prices all feeds off reference feeds, Blood meal, urea, corn, tallow. Feedval 2012 prices off nutrients.
- Most think of feed value in context of just purchased costs.

# Feedval price

|            | Actual cost, \$ | Calculated \$ | Value |
|------------|-----------------|---------------|-------|
| Distillers | 255             | 350           | 73%   |
| Canola     | 348             | 319           | 103%  |
| SBM        | 454             | 451           | 101%  |
| Blood      | 1010            | 933           | 108%  |

# Typical costs by byproduct

|          | lbs  | \$   | lbs  | \$   | lbs  | \$   | lbs  | \$   |
|----------|------|------|------|------|------|------|------|------|
| Corn sil | 13   |      | 14.5 |      | 15.9 |      | 16.3 |      |
| Alf      | 13   |      | 14.4 |      | 15.9 |      | 16.3 |      |
| Corn     | 14.2 | 1.82 | 15   | 1.92 | 14.8 | 1.89 | 16.2 | 2.07 |
| Dist     | 11.7 | 1.48 |      |      |      |      |      |      |
| Canola   |      |      | 7.2  | 1.25 |      |      |      |      |
| SBM      |      |      |      |      | 4.9  | 1.11 |      |      |
| Blood    |      |      |      |      |      |      | 2.7  | 1.36 |
|          |      |      |      |      |      |      |      |      |
| total    |      | 3.30 |      | 3.17 |      | 3.00 |      | 3.43 |

# Byproduct Actual Cost

|        | lbs  | \$   | lbs  | \$   | . |
|--------|------|------|------|------|---|
| Forage | 31.8 |      | 26   |      |   |
| Corn   | 14.8 | 1.89 | 14.2 | 1.82 |   |
| SBM    | 4.9  | 1.11 |      |      |   |
| Dist   |      |      | 11.7 | 1.48 |   |
|        |      | 3.00 |      | 3.30 |   |

\$0.30 reduces forage by 5.8 lbs, meaning distillers actually costs \$103/ton

# By-product Composition

| %      | Alfalfa | C.S.            | Corn  | Dist | Gluten Feed | Malt spouts | Cotton seed | Citrus | Soyhulls |
|--------|---------|-----------------|-------|------|-------------|-------------|-------------|--------|----------|
|        |         |                 |       |      |             |             |             |        |          |
| CP     | 20      | 6-9             | 6-9   | 30   | 20-22       | 18-20       | 18-20       | 7-8    | 11-13    |
| ADF    | 30-40   | 20-30           | 3-5   | 18   | 10-12       | 20          | 40          | 16     | 44       |
| NDF    | 40-50   | 32-44           | 8-10  | 30   | 36          | 40          | 50          | 24     | 60       |
| Starch | 0       | Lo 20-<br>hi 30 | 65-70 | <5   | 15-20       | 6-15        | 0           | 15-20  | 0        |

# Byproduct considerations

- Greater availability of lower starch versus higher starch byproducts, favors corn silage.
- Other than cottonseed, they do not provide effective fiber, favors proper forage particle length.
- Offer a degree of ration stabilization.
- Watch for windows of contract options.
- Are we having a shift from focusing on growing forage to growing grain.

- Cows do not have a strict requirement for starch, but rather energy.
- Fermentable carbohydrate is really what matters.

# Targeted Byproduct Usage

|          | lbs  | \$   | lbs  | \$   | lbs  | \$   |
|----------|------|------|------|------|------|------|
| Haylage  | 16   |      | 16.5 |      | 13.5 |      |
| Corn Sil | 16   |      | 13.2 |      | 16.8 |      |
| Corn     | 14.8 | 1.89 | 15.4 | 1.97 | 13.7 | 1.75 |
| SBM      | 4.9  | 1.11 | 3.0  | 0.68 | 3.8  | 0.86 |
| Dist     |      |      | 3.6  | 0.45 | 3.7  | 0.47 |
|          |      | 3.00 |      | 3.10 |      | 3.08 |

Distillers has net cost of \$55/ton when replacing corn silage or \$45/ton when replacing haylage.

# Bottom Line

|                    | lbs  | \$     | lbs  | \$     | . |
|--------------------|------|--------|------|--------|---|
| 3200 milk/ton      | 17   |        |      |        |   |
| 23 CP 175 RFV      | 17   |        |      |        |   |
| 3000 milk/ton      |      |        | 13.7 |        |   |
| 18 CP 125 RFV 16.1 |      |        | 13.7 |        |   |
| Corn               | 12.8 | 1.63   | 17.1 | 2.18   |   |
| SBM                | 4.6  | 1.04   | 7.5  | 1.70   |   |
|                    |      | \$2.67 |      | \$3.88 |   |

Or, \$1.21 lowered forage fed by 6.6 pounds, but that dry matter still cost \$366/ton dry matter