Forage and Economic Considerations for Pasture-based Dairies

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Estimated cost of various forage systems ($/acre), Georgia 2010

- Rye
- Ryegrass
- Wheat + ryegrass
- Oat + ryegrass
- Rye + arrowleaf
- Ryegrass + arrowleaf
- Ryegrass + crimson

Forages and Hay Summary

- Slightly higher winter pasture costs.
- Larger hay stocks headed into fall.
- Expectations are for drier and warmer fall and winter.
- Should have enough hay supplies to get us through the year.
- Prices will be higher but should not get out of hand.

Something else to worry about

- Southeast Climate Consortium indicates strengthening La Nina pattern.
- Much of Southeastern US in the beginning of a drought.
- Expected to continue till at least next spring or summer.
- Major hope is active hurricane season for late season moisture for fall forages.

Economics of Pasture Supplementation
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Economics of Pasture Supplementation
- Despite claims, can’t graze year-round even in the Southeastern US; 9-10 months more realistic.
- Regardless of your production system, still get paid for pounds of milk. Trick is producing lbs. at lowest cost per cwt.

Production Cost vs. Value of Production
- Economics of supplementation depends on three things:
  - Response of cows to supplementation (function of forage quality and quantity).
  - Cost of supplementation.
  - Price of milk.
- Most pasture supplementation work done for cool-season grasses.
- Very little on warm-season grasses \( \rightarrow \) perhaps one of largest research needs.

Pasture Supplementation on Winter Annuals
- Two-year trial conducted in West Tennessee.
- Dairy cows grazed on Marshall Ryegrass and Crimson Clover.
- Four levels of grain supplementation based on milk production:
  - 0
  - 1:7
  - 1:5
  - 1:3

Economic Considerations
- MVP = Marginal Value of the Product (the value of the extra production)
  - Price of the product
  - Input-Output response
- MFC = Marginal Factor Cost (the cost of the additional input)
  - Price of the input
  - Level of the input
- Keep adding the input until just before the additional cost exceed the additional value
  \[ \text{MVP} = \text{MFC} \]

In other words
- Profits are maximized where MVP = MFC
- In other words keep adding the input until JUST BEFORE the additional cost exceeds the additional value.

Profit Maximizing Level
- Milk Yield = 44.98 + (1.80 \times \text{lbs of Grain}) - (0.01 \times \text{lbs of Grain}^2)
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Major Implications
- Economics of pasture supplementation depend on forage quality, quantity, input-output response, price of milk and price of the supplement.
- It appears that even at $12 milk some level of supplementation is economical.
- At lower feed costs differences in optimal amount are small ranging from 17.75 lbs. of grain to 20.50 depending on the price of milk.
- At higher feed costs the differences in optimal amounts increase with a range of 8.50 to 17.50 depending on the price of milk.

Questions?

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Caveats/Key assumptions
- Your grass (quantity and quality) is similar to that in this study.
- Does this input-output relationship hold up for you?
- Assumes grain and milk prices are always KNOWN.
- Can you tune your feeding system this fine?

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So what?

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<th>Milk Price ($/CWT)</th>
<th>Corn Price ($/bushel)</th>
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<tr>
<td>$12</td>
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<tr>
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<td>$30</td>
<td>$20.50 $18.75</td>
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Recently purchased grazing dairy in Florida, Uruguay. Spring 2010