Economics of Feeding Grass

We have conducted a number of lactating dairy feed trials comparing grass with alfalfa, mixing grass with alfalfa, or feeding different proportions of grass in a mixed ration. We cannot change the results of those feeding trials, and we cannot change the actual rations fed. We can, however, modify the costs of ration components in our feeding trials to gain insight as to their relative importance and impact on dollar return/cow/day.

Forage, Other Feed, and Animal Costs

All feeds and supplements in rations, other than forage, were priced based on off-farm purchase. Production costs of on-farm forage were estimated using a spreadsheet program to sum all variable and fixed costs. Forage yield per acre was estimated as the average of seeding year and established stand yields over the anticipated life of the stand. Storage costs were not included in production costs.

Variable production costs included seed costs, prorated seeding costs, soil tests, fertilizer, lime, pesticides, pest scouting, equipment fuel and repairs. Variable costs also included labor and operating interest. Fixed costs included a land rental charge, and equipment depreciation, interest, insurance and housing. Production costs were used to estimate forage cost per ton of wet silage. Animal expenses per cow per day (excluding feed costs) were estimated. Milk price for this exercise was set at $13/CWT.

Seed Costs for Annual Forages

Seed costs of annual forages can impact the overall economics in certain situations. Using data from our corn silage feeding trial, we determined that BMR corn seed cost can be a significant component of the total cost if silage yield is moderately low. Seed cost of BMR was not a factor if yields were high.

Seed Costs for Perennial Forages

Seed costs need to be prorated over the expected life of the stand for perennials. We used a feeding trial balanced ration with early-cut orchardgrass forage to estimate return/cow/day, as influenced by seed costs and forage yield/acre (Fig. 1). Seed costs were either $1 or $5/lb of seed, and either 10 or 30 lb of seed sown per acre.

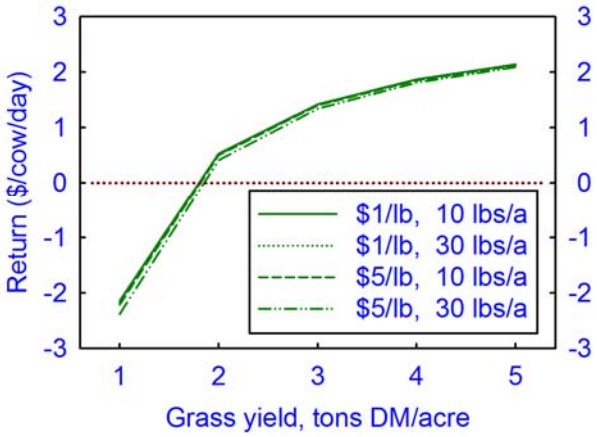

Figure 1. Economics of seed costs for perennial grass.

Forage yield per acre has large impact on economics. About 2 tons/acre were needed to break even with costs vs. milk income, based on this feeding trial. Seed costs were a very minor component, even at very low forage yields. The relatively large price/pound of seed difference and the large seeding rate difference had little impact on economics.

Seed Costs for RR Alfalfa

Roundup Ready (RR) alfalfa has recently been suggested as an establishment weed control option in the Northeast, eliminating weeds in an alfalfa stand, prior to interseeding a perennial grass to produce a mixed stand. We also assessed economic impact of price of RR alfalfa, assuming RR alfalfa seed is twice the cost of normal seed. Feeding trial results with alfalfa only were used. Even assuming there is no yield or quality advantage to growing RR alfalfa, the extra seed cost for RR had essentially no impact on dollar return/cow/day, as long as yield was 3 tons/acre or higher.

Corn Price vs. Forage in the Diet

Results from a dairy feeding trial with diets from 50 to 80% orchardgrass were used to observe the impact of corn price on return (Fig. 2). See Grass Information Sheet #30.

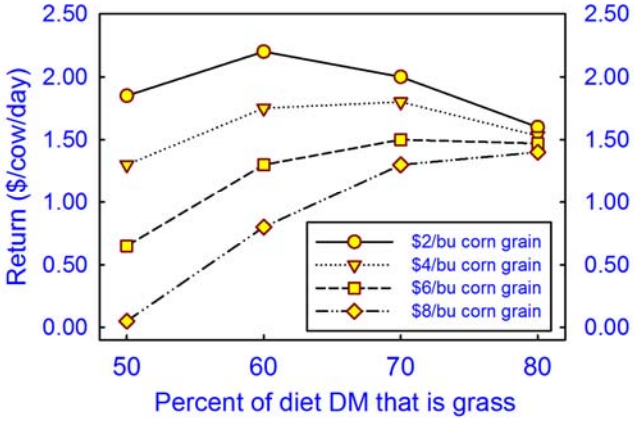

Figure 2. Economics of feeding corn.

As the diets increased in forage, the amount of corn in the diet decreased, and decreased the impact of corn price on return. Feeding trial results suggest that maximum return/cow/day is a diet with 60% forage and when corn is $2/bu. $4/bu corn results in an optimum diet of 65% forage. $6/bu corn increases the optimum diet to 70% forage. $8/bu corn results in an optimum diet of 80% forage, suggesting that $8/bu corn is too expensive to use in quantity in a dairy ration with grass.

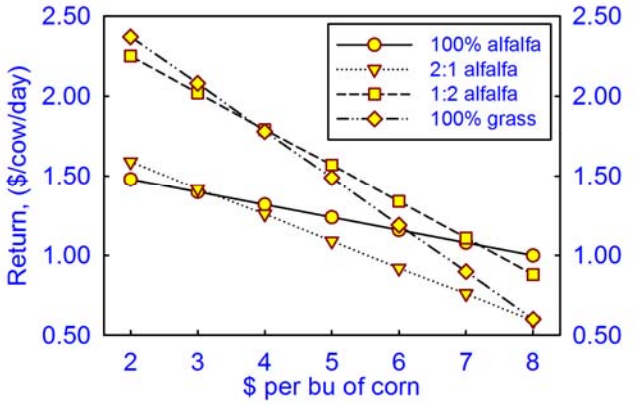

Figure 3. Return from alfalfa or grass rations as influenced by corn price.

Corn Price vs. Alfalfa or Grass in the Diet

A dairy feeding trial comparing alfalfa and/or grass in diets was used to evaluate changes in corn grain price (Fig. 3). See Grass Information sheet #31. Amount of corn in the diet and milk yield increased as the diets went from 100% alfalfa to 100% grass as the forage source.

When corn price is low, maximum returns occur with a grass diet supplemented with considerable grain. At very high corn prices, alfalfa diets produce maximum returns, even though a 100% alfalfa diet was considerably lower in milk production than a grass diet. The diet with highest returns across the range of corn prices was a 2/3 grass: 1/3 alfalfa diet.

Summary

Seed cost should not be a concern when selecting perennial forage varieties. If Roundup Ready alfalfa was used for establishment weed control, followed by interseeding grass, the additional cost of the seed would not be a concern. The other risks vs. benefits for such a mixed seeding establishment still make this practice highly questionable. The optimum forage from both animal health and economic standpoints is an grass-alfalfa mixture.

Additional Resources

- 2011 Cornell Guide for Integrated Field Crops Management. Electronically accessible at: http://ipmguidelines.org/Fieldcrops/.
- Cherney, J.H., D.J.R. Cherney, and D. Parsons. 2006. Grass Silage Management Issues. p. 37-49. In Proceedings from "Silage for Dairy Farms: Growing, Harvesting, Storing, and Feeding". NRAES-181. 23-25 Jan., 2006. Harrisburg, PA. Natural Resource, Agriculture, Engineering Service, Ithaca, NY.

Disclaimer

For more information

Cornell University Cooperative Extension

Grass Management Manual
http://forages.org

Jerry Cherney, Debbie J.R. Cherney

2011