

Dairy Sense: Small Grain Silage for the Lactating Herd

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Production perspective:

Double cropping corn silage acres with a small grain is a strategy that provides additional forage inventory and maintains cover on fields, reducing sediment and nutrient loss. There are pros and cons with any cropping and feeding strategy. Recently there has been a focused approach by some consultants to produce small grain silage that mimics alfalfa, especially for protein. Optimizing fertilization should increase both forage quality and quantity. The problem is if the small grain silage does not meet that “alfalfa” quality standard it is considered a failure and not milk cow worthy. Successfully incorporating small grain silage into milk cow rations is not dependent only on fiber and protein content.

Two farms who have worked closely with Penn State Extension provided details on their financials, feeding programs and cropping strategies (Table 1). Both herds are well

managed. Their annual ration consists of corn silage and small grain silage as their only forage source for the lactating herd. The high profit herd has had a positive profit for the past three years versus the medium profit herd with only one year. Approximately fifty percent of their acreage is double cropped. Both operations have opportunities for improvement, but the recommendations will be very different.

The high profit herd's opportunity lies in their cropping program. An action plan could be developed to improve both forage quality and quantity (Table 1). The three-year average yield represents two wet and one drought year. The high profit farm has red shale and clay loam soils which are highly susceptible to compromised yields during drought. Forage quality is average, and many nutritionists would consider the ryelage low quality and unacceptable milk cow feed. This farm does rely on purchased feed to compensate for limitations related to forage quality and quantity. Their strength is excellent cow management and achieving performance from their animals to generate income that balances with their expenses.

The medium profit herd's opportunity involves feeding and cow management. Forage quality and quantity is very good and not a limiting factor. An action plan to address bottlenecks to TMR consistency, first calf heifer performance, and metabolic problems is needed. Facilities and labor are an added problem affecting feeding management and impacting animal performance. This operation has a strong foundation with the forages. Slight adjustments in feeding management practices would enable this farm to achieve higher milk income and potentially improved cash flow.

Every dairy operation is unique and "standard recommendations" related to cropping, feeding and financial strategies usually do not work. Double cropping is not for everyone, however, there are many operations successfully utilizing this strategy and making it work. Small grain silage does not have to mimic alfalfa to generate milk production and profitability. There is always room for improvement, whether it is addressing forage quality and quantity or feeding and cow management.

The SWOT approach, determining strengths, weaknesses, opportunities and threats is a valid approach to find the low hanging fruit first and then move forward on the more challenging bottlenecks. There are many viable dairies despite the market conditions from the last five years. In many instances a slight "nudge" in a management practice could

make all the difference to achieve a positive cash flow. Analyzing the whole farm system is a valid approach to decide if double cropping is the correct strategy for the operation.

Table 1. Small grain silage usage on a high and medium profit herd¹

	High profit farm		Medium profit farm	
Production: Energy corrected milk, lbs. ²	82.0		78.9	
Acreage double cropped, %	47		55	
	High profit farm Forage: CS	High profit farm Forage: Ryelage	Medium profit farm Forage: CS	Medium profit farm Forage: CS
Ration: High group, DM lbs.	30.0	1.1	25.0	6.0
Ration: 1st lactation group, DM lbs.	14.3	2.7	20.4	5.0
Yield, as fed tons ³ : (3 yr. average)	16.8	4.7	22.7	6.0
Quality ⁴ : Protein, %DM	7.4	11.4	6.9	11.0
Quality ⁴ : Neutral detergent fiber, %DM	46.7	58.4	34.3	46.0

¹Using FINPACK® to evaluate profitability, the high profit herd had a positive profit each year from 2016 through 2018. The medium profit herd had only one year of positive profit during the same time frame.

²Energy corrected milk reflects the average production for 2018.

³The three-year average reflects the harvest years of 2016 through 2018.

⁴Quality metrics are from the 2018 cropping year.

Action plan for examining small grain silage as a viable approach to cropping and feeding strategies.

Goal – Complete a cash flow plan including the whole farm, dairy and cropping enterprises.

Step 1: Using Penn State Extension’s Excel spreadsheet, complete a year end analysis for 2018 on both a cash and accrual basis.

Step 2: Record the amounts fed of all home-raised and purchased feeds for all animal groups. Incorporate rations that include small grain silage as a comparison.

Step 3: Develop the cropping enterprise including all home-raised feeds, yields, direct expenses and overheads. Decide on the number of acres to be double cropped and the expected tonnage needed to feed the various animal groups (use this to compare against the current program)

Step 4: Evaluate the impact of incorporating double cropping into the whole farm system compared to the current cropping and feeding program.

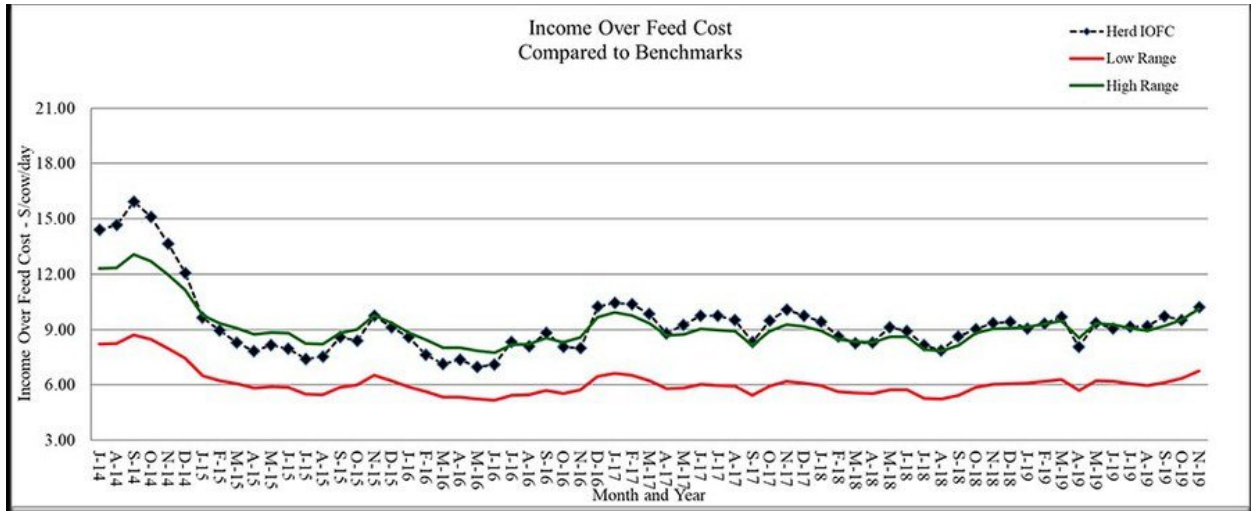
Step 5: Work with the appropriate consultants to discuss bottlenecks to implementation.

Economic perspective:

Monitoring must include an economic component to determine if a management strategy is working or not. For the lactating cows, income over feed cost is a good way to check that feed costs are in line for the level of milk production. Starting with July 2014's milk price, income over feed cost was calculated using average intake and production for the last six years from the Penn State dairy herd. The ration contained 63% forage consisting of corn silage, haylage and hay. The concentrate portion included corn grain, candy meal, sugar, canola meal, roasted soybeans, Optigen and a mineral vitamin mix. All market prices were used.

Also included are the feed costs for dry cows, springing heifers, pregnant heifers and growing heifers. The rations reflect what has been fed to these animal groups at the Penn State dairy herd. All market prices were used.

Income over feed cost using standardized rations and production data from the Penn State dairy herd.



Note: November's Penn State milk price: \$20.32/cwt; feed cost/cow: \$6.67; average milk production: 83 lbs.
 Feed cost/non-lactating animal/day.

