

# Dairy Sense: Home Raised Feed Costs vs. Market Costs

Costs associated with the cropping enterprise are extremely important whether a producer has a livestock operation or growing cash crops. Accounting for all the expenses need to be included to accurately determine the bottlenecks to profitability.



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## Production perspective

Costs associated with the cropping enterprise are extremely important whether a producer has a livestock operation or growing cash crops. Typically seed, fertilizer and chemical costs are the perceived high expense items in raising forages and grains. Data extracted from the Extension dairy team's Crops to Cow project show a different culprit. As with any on-farm enterprise, accounting for all the expenses, both direct

and overhead, need to be included to accurately determine the bottlenecks to profitability.

Twenty-five dairy producers participated in the Crops to Cow project in 2016 and 2017 and over 75% implemented the strategy of double cropping small grains with corn silage. The benefit to the environment is providing a cover that helps minimize field nutrient losses and it also provides additional forage for the livestock operation. The small grain is planted soon after corn silage is removed in the fall and then harvested in the spring as silage. To accurately determine the unit cost per ton for each forage, direct costs including seed, fertilizer, chemical, custom hire and land rent are partitioned accordingly. Overheads including equipment repair, fuel, hired labor, loan payments as well as other expenses are partitioned for each crop. Yields are determined based on the storage structures and the feed usage on farm. This provides the needed information to calculate cost per ton for home raised feeds (Table 1).

FinPack® software was used to divide farms into three profit groups. High profit showed a positive return for both years; the medium group showed a positive return for only 1 year and the low group had negative returns both years. The high profit group consistently produced the most tonnage with the lowest inputs. For corn silage production, 64% of their expenses went to direct costs and 36% for overhead expenses. The low profit group had 70% of their expenses going towards direct with 26% of that going to custom hire. This group had the lowest yields and highest costs. On the surface it appears the custom hire strategy may not be effective when yields are sub-optimal. The ripple effect is a unit cost close to market cost and if forage inventories are compromised this could lead to overall higher feed costs.

For the small grain silage, the breakdown was very different compared to corn silage. The high profit group had 70% of direct costs going towards production with land rent making up a large portion of that expense. This group had great yields and again overall low costs. The low profit group had 55% of expenses going towards directs with 45% going to overheads. Most likely this would be labor and debt affecting this number in combination with their very low yields. The low profit group is producing small grain silage at market cost. It is interesting to note that seed, fertilizer and chemical costs were very similar among all three profit groups and are not showing up as the problem areas in the cropping enterprise.

The ideal way to determine costs per crop is keeping good records, properly setting up the operation's chart of accounts, and tracking forage inventories. This approach is not perfect but when using Penn State's Excel Cash Flow Spreadsheet, the total dollars are tracked for all crop expenses. This serves as a check and balance that the allocation of expenses per crop adds up to the total dollars spent for home raised feeds. Problems in the cropping enterprise can result in the whole farm profitability being compromised.

**Table 1. Corn Silage and Small Grain Silage Enterprise Analysis<sup>1</sup>**

	High profit	Medium profit	Low profit	Ma
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<b>Number of farms</b>				
Corn silage	17	17	16	
Small grain silage	14	13	13	
<b>Acres, average</b>				
Corn silage	152	306	212	
Small grain silage	270	184	176	
<b>As-fed tons/acre</b>				
Corn silage	21.60	19.83	15.25	
Small grain silage	8.20	5.67	5.52	
<b>Cost per ton, \$</b>				
Corn silage	22.58	31.43	40.51	44.
Small grain silage	33.85	40.12	61.60	61.

Note: Crop enterprise analysis combined for years 2016 and 2017 and sorted by return over labor and management (high, medium and low profit).

Market costs are taken from the Penn State Feed Price list and are averaged for 2016 and 2017.

<sup>1</sup>Based on 25 Pennsylvania farms participating in two-years (2016-2017) of the Crops to Cow project. Analyzed with RankEm software (Minnesota, 2018)

### **Action plan for determining actual costs for home-raised feeds**

**Goal** – Compile financial data for the operation and itemize expenses based on the various crops grown on an annual basis.

**Step 1:** Using the Penn State Excel spreadsheet, enter the rations for all animal groups that are representative of the year. Confirm that inventory usage matches with storage capabilities.

**Step 2:** Enter in acres and yields per crop. Check that yields match with storage and feed out usage.

**Step 3:** Enter seed, chemical, fertilizer, rent and custom hire expenses per crop. Enter in total overhead expenses. Labor hours per crop are provided in the Excel spreadsheet.

**Step 4:** Check that total expenses for direct and overheads match with the operation's end year analysis.

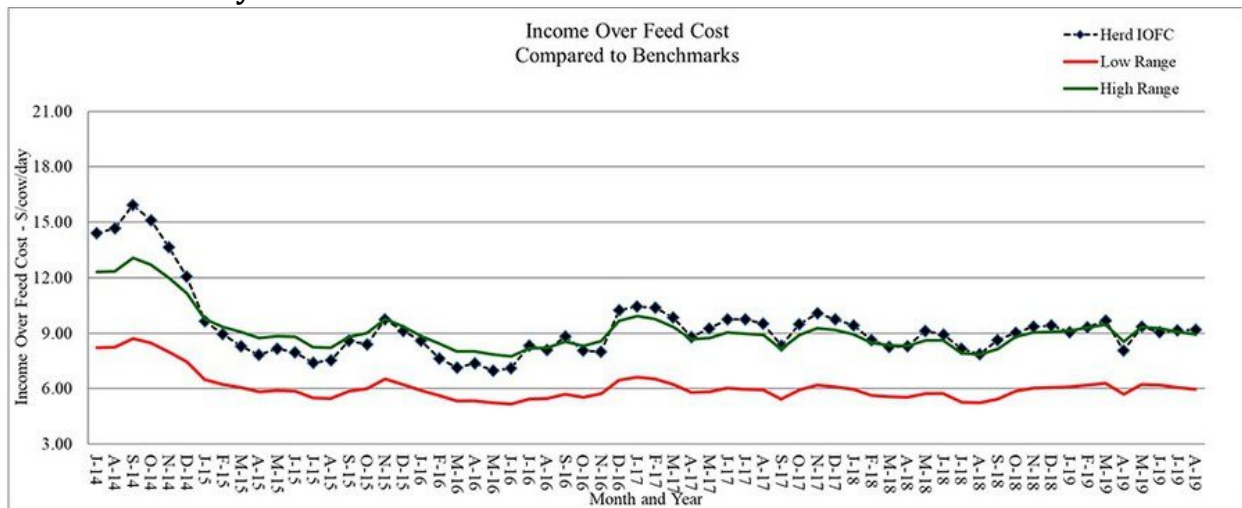
**Step 5:** Compare home-raised feed costs with market costs. If actual costs are too high, work with a consultant to examine time management and agronomic factors limiting yields and efficiencies.

## 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 costs 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 costs 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: August's Penn State milk price: \$18.88/cwt; feed cost/cow: \$5.73; average milk production: 79 lbs.

### Feed cost/non-lactating animal/day

