

FARMER PROFITABILITY WITH INTENSIVE GRAZING

One of the first “representative” studies of dairy farms practicing intensive grazing was recently conducted by Penn State. Intensive grazing is defined as rotation of cows among several small paddocks versus continuous grazing in one large paddock. The purpose of the study was to provide farm-level information on the profitability of intensive grazing. The study analyzed farm costs and returns for January to December of 1992.

About the study: The 52 cooperating farmers were selected completely at random, with a “stratified random sample statistical design,” from among nearly 350 farmers practicing intensive grazing in a 5-county region of Northeast Pennsylvania-Bradford, Tioga, Susquehanna, Wyoming and Wayne.

Thus the results from this study reflects “typical” use of intensive grazing, and not the “outstanding cases” of success often reported in magazines and other media.

The randomness of the sample selection ensures that the results reported here are “representative,” and can be likely achieved by the typical farmer.

The sample farms were dairy farms that utilized pasture in the production of milk. The average farm size was 315 acres, with 86 acres of pasture and an average of 59 cows in the milking herd. Pasture acres were divided into an average of 6 paddocks per farm. The farmers averaged 24 years of farm experience, were between 23 and 67 years of age, and all had completed the eleventh grade, while 17 percent had more than 2 years of college.

The results of the farm-level study are presented below, in nine sections, followed by a summary.

I. WHY “TYPICAL” DAIRY FARMERS ADOPT INTENSIVE GRAZING

The study found 15 percent of dairy farmers practicing intensive grazing. The main reasons cited by farmers for adopting intensive grazing were: reduce costs and labor, “always grazed,” best land use and improved cow health.

Table 1. Reasons for Adopting Intensive Grazing

<u>Reported Reasons*</u>	<u>Response Percent</u>
Reduced costs/less labor	41
Always grazed/no specific reason	35
Best land use	15
Improved cow health	12
East of adoption	6
More time with cows, better manure Handling, best feed source	6

*Farmers were allowed multiple responses

II. “REDUCE COSTS” SPURS GRAZING

Farmers adopt grazing to lower costs-to-stay “cost competitive.” Investment in grazing systems is far less expensive than new farm machinery or livestock facilities.

Small and mid-size dairy farms view intensive grazing as technology they can readily adopt, if they choose not to expand confinement facilities.

38 percent of the grazing farmers listed “debt reduction” as a major 10-year goal for their farm.

III. BOTTOM-LINE” CROP RETURNS HIGHEST FOR INTENSIVE GRAZING

A key finding was that, while corn silage had the highest gross return per acre, intensive grazing had the highest net returns for the farmers sampled in the study (Table 2).

Table 2. Enterprise Budgets for Pasture and Forage Crops

<u>Silage</u>	<u>Intensive Pasture</u>	<u>Continuous Pasture</u>	<u>Hay</u>	<u>Corn</u>
Gross Returns in Field	\$192.92	\$112.30	\$195.81	\$313.25
Average Storage Loss	0.0%	0.0%	12.0%	13.0%
Gross Return After Storage	\$192.92	\$112.30	\$172.31	\$272.52
Total Costs	\$63.90	\$34.97	\$115.82	\$200.52
Profit	\$129.02	\$75.33	\$20.49	\$57.76

Note: Feeding loss was not measured. Pasture was valued based on dry matter nutrient value compared to the nutrient value and market price of dry hay.

- Intensive grazing had the highest net profit, after covering direct and overhead expenses, of \$129 per acre. Corn silage had a profit of \$58 per acre, less than half that of intensive grazing.
- Corn silage has the highest gross return of \$313 per acre. Hay had the next highest gross return of \$196 .
- Direct costs of \$129 for corn silage and \$54 for hay, were far higher than the \$19 cost of intensive pasture.

The “bottom line” is that the feed value of intensive pasture is highly competitive. Intensive pasture was the lowest cost feed source on the studied farms.

IV. INTENSIVE PASTURE OUT-PERFORMS “CONTINUOUS” GRAZED PASTURE

Another way to look at the decision is that if dairy farmers employ pasture as a feed source, they will produce, far more feed value with intensively grazed pasture than with continuous grazing.

- The \$129 per acre profit with intensive pasture far exceeded the \$75 profit from continuous pasture.
- The logic can be summed: “If you’re going to put cows on pasture, it pays to intensively manage the pasture to produce more feed.

The higher profit from higher management explains the rapid shift in recent years from the more traditional continuous grazing with low-management to intensive “managed” pasture.

V. COWS DO THE PERIODIC “HARVESTING” WITH INTENSIVE PASTURE

Intensive grazing can be thought of as a feed harvesting system, with cows as the “harvesters.” The cows are rotated to a new paddock to “harvest” the grass-forage when it is at or near “peak” quality. The studied farmers found that “cow-harvest” was higher profit than “machine-harvest” with a hay-baler, or silage-cutter, pulled by a tractor.

- Intensive grazing practices can include clipping pastures to ensure uniformity of growth, haying pastures in late spring and sometimes in early fall, and moving cows and/or electric fences-often.

VI. NET CASH INCOME PER COW-WITH INTENSIVE GRAZING: \$550 TO \$650

Analysts often divide-out farm profit on a per cow basis. Net cash income per cow-averaged \$623 among the sampled farms (Table 3). This compares favorably with the range of net cash income per cow, \$200 to \$800, earned on most Pennsylvania dairy farms.

Table 3. Profit Per Cow

	<u>Grazing Systems</u>		
	<u>All Farms</u>	<u>Less Intensive</u>	<u>More Intensive</u>
	-----Dollars-----		
Net Cash Farm Income(4-5)	36,775	34,641	37,486
Cash Income per Cow	623	550	646
Cash Labor Expense	8,502	11,353	7,552
Herd Size	59	63	58
Feed Inventory	3,587	1,374	4,325

- The more intensive grazers earned \$100 more net cash income per cow, \$646, compared to the less intensive grazers, \$550.

Net cash income is used to pay for family living expenses, loan principal payment, capital purchases capital purchases and for savings and retirement.

- The sample farmers average income in the mid \$30,000's was not large enough to cover major capital purchases, but adequate for modest investments in grazing technology.

The more intensive grazers in the sample had nearly \$4000 lower cash labor expense. Only part of that savings was due to fewer cows in the herd. The most intensive grazing farms also had a nearly \$3000 higher gain in feed inventories by the end of the year.

- As dairy farmers increase their reliance on intensive grazing, two of the most visible impacts will likely be: less labor expense for feeding and manure handling, and a buildup in stored feed such as hay.
- The grazing farms milk production average of 16,045 lbs. Per cow was at the bottom end of the most profitable range of 16,000 to 20,000 lbs. for confinement dairy farms in Pennsylvania.

Farmers need to be cautioned that lower milk production can offset the benefit of lower costs – especially if rations are not properly balanced once pasture becomes the primary feed source during warmer months.

The survey results show that dairy farms practicing intensive grazing can remain competitive with the dairy industry, and achieve “profitability.” The primary advantage is that well-managed pasture can substantially lower feed costs.

VII. IDENTIFYING FARMERS THAT ARE LIKELY TO INTENSIFY GRAZING PRACTICES-PER ACRE

Willingness to practice more intensive grazing can be associated with farmers that are more used to adopting new technology, such as TMR (total mixed rations), try to minimize culling, and rely more on their milk cows to “make a living,” rather than mix of milk and crop sales. Thus one could suggest that intensive grazing is more “cow focused.”

Farmers intensifying grazing were:

- I.
 1. More willing to upgrade technology. They had more experience technology/ management changes during recent years.
 2. More dependent on milk sale. Milk was a higher proportion of total farm sales.
 3. Had a lower cull rate.
 - Two variables, “number of years practicing intensive grazing” and “total farm acres per cow,” did not influence intensification of grazing.
 - But an attitude of openness toward new ways of doing things was important to fully benefit from intensive grazing.

VII. FINANCIAL INCENTIVES TO FAVOR INTENSIVE GRAZING

Factors to explain why dairy farmers expand intensive grazing acres were analyzed in the study, and three were found to be significant.

Farmers expanding intensive grazing tended to have:

1. High debt: A higher proportion of farm assets, above 40 percent, and thus were more vulnerable to high interest expense.
2. Poor cash flows: indicating little available cash for purchases of machinery and other assets.

3. More pasture available: facilitating ease of conversion to intensive grazing practices.
Parcels of unused pasture were widely available for most of the farmers in the study.

Education level, milk production level per cow and level of crop expenses per cow were not significant factors underlying a shift to more dependence on intensive grazing.

Data from the surveyed farmers confirmed that the appeal of intensive grazing is particularly strong to “financially vulnerable” farmers.

- Intensive grazing can lower feed and labor costs, and at the same time reduce the need for bank credit to finance new machinery purchases.
- For numerous dairy farmers, increasing use of intensive grazing may be one of the few remaining options to lessen dependence on debt financing.

IX. OTHER BENEFITS AND FEATURES OF INTENSIVE GRAZING

Intensive grazing is:

- flexible – not an “all or none” technology. The surveyed farmers displayed widely ranging approaches to intensive grazing. This flexibility allowed most of the sampled farmers to slowly increase on grazing their dairy management.
- Not necessarily a “textbook formula” technology. Although there are recommended practices, such as taking forage samples of pasture, most of the surveyed farmers were applying only parts of the intensive grazing “formula” and achieving varying levels of success with their individual approach to intensive grazing practices. However, profitability increased with more intensive grazing management by farmers.
- relatively low cost – does not typically require large outlays. Investment in intensive grazing technology, for fencing and water sources for individual paddocks, was typically very modest compared to the cost of new 100 hp tractor.
- Suitable for small and medium size dairy farms. The survey found few representative dairy farms practicing intensive grazing with more than 100 to 125 cows.
- Associated with low cull rates and herd health costs. Veterinary and medicine costs, averaging about \$44 per cow, were relatively low.

For the surveyed farmers, intensive grazing was viewed as a flexible, “learn-as-you-go” technology that permitted a slow evolution of farm management practices to accommodate the needs, resources and styles of individual farmers.

A “common sense” perspective on grazing is that farmers can vastly increase the feed value obtained from pasture, by injecting “intensive management practices” to pasture, similar to the intensification of raw crop production after about 1950.

X. SUMMARY OF KEY FINDINGS FROM THE FARMERS SURVEYED

- I. Farmers cited several reasons for intensive grazing, ranging from best land use to improved cow health.
- II. Cost-cutting was viewed as the primary benefit.
- III. Intensively grazed pasture had the highest profit of any crop.
- IV. Intensive grazing out-performed continuous grazing in Northeast Pennsylvania-by a wide margin.
- V. Farmers can view intensive pasture as
 - substitution of cows for machines to harvest forages, which lowers harvest costs
 - increasing feed produced per acre of pasture, which lowers feed costs

- VI. The randomly selected intensive grazing farms were profitable.

Net cash income of about \$500 to \$700 per cow is feasible with reliance on intensive grazing, even without practicing “textbook” management of the grazing enterprise.

- VII. Farmers more dependent on milk sales, with low cull rates and with more experience in adapting new technology, were most likely to intensify grazing management practices on a per acre basis.
- VIII. Financially vulnerable farmers with high debt or poor cash flows, that face “tight credit” from lenders, can view intensive grazing as a production alternative that lowers interest and investment expenses.

Farmers can shift gradually to increase reliance on intensive grazing as the primary source forages. Intensive grazing was not an “all-or-nothing” technology among the surveyed farmers.

- IX. Intensive grazing requires relatively low investment in fencing and materials for water supply to separate paddocks.
 - Intensive grazing can achieve herd cull rates that are lower than average, due to less hoof damage and more close observation of cows when moving them to paddocks and between paddocks.

The primary economics benefit from intensive grazing is lower feed costs. Although solidly profitable, the per cow production levels on the surveyed farmers were at the lower end of the most profitable range for the typical confinement herd in Pennsylvania.

Thus, the major disadvantage of intensive grazing for many producers is that balancing is that balancing rations to maintain milk production levels can be more difficult.

The study of farmers practicing intensive grazing confirms that there is a profit basis for the adoption of this new approach to achieving greater benefit from pasture forages. While the randomly selected farmers chosen for the study tended to be successful in their intensive grazing, their management practices were less than optimal. This inspires a closing of caution that intensive grazing, as is the case with any technology, requires close attention to the challenging details of management.

Staying economically competitive will remain a challenge for dairy farmers throughout the 1990s. Consider that:

- Large confinement-based dairy farms are expanding rapidly, particularly in Western states Texas to Washington.
- Passage of free trade agreements NAFTA and GATT will eventually result in a competitive “free” market in dairy products between the U.S., Mexico, Europe and other countries.
- Farm Legislation is shifting more “risk” to farmers’ shoulders.

Intensive grazing offers the potential benefits to help dairy farms meet the “competitiveness” challenge.

THE STUDY LEADERS, LLYDIA CUNNINGHAM AND DR. GREGORY HANSON OF PENN STATE, EXPRESS THEIR SINCERELY APPRECIATION TO THE FARMERS
--