managed grazing for dairy profits

Raising dairy replacement heifers using managed grazing

Written by Laura Paine

Who should read this fact sheet?

Confinement dairy farmers, grazing dairy farmers, farmers with limited acres on the home farm, farmers with limited labor available, beginning and aspiring farmers.

What is managed grazing?

Managed grazing is a low-cost forage production system that uses the livestock to harvest their own feed and spread their own manure. By subdividing a large pasture acreage into small paddocks and rotating cattle through them, it is possible to double or triple forage production, making it comparable to alfalfa hay in both yield and quality. With a small initial investment in seed, fencing and watering, this perennial system requires few inputs of fertilizer, fuel and pesticides, and minimal labor.

It may cost less to pay someone else to raise your heifers on pasture than it costs you to raise them yourself!

Why you should consider raising dairy heifers on pasture.

Using managed grazing is the lowest cost means of raising high quality replacement heifers. Costs are typically 10% to 25% less than raising them in confinement. Benefits of grazing replacement heifers:

- Good gains
- Fewer health issues
- Good performance when they enter the milking string.

Raising replacement heifers can easily be managed as a separate enterprise from the milking operation. That means that dairies with limited acreage on the home farm and larger dairies, whether or not they graze their milking cows, can consider raising heifers on pasture on a separate acreage or even contracted with a custom heifer raiser. It may cost less for you to pay someone else to raise your heifers on pasture than to raise them yourself! For aspiring farmers, custom raising dairy heifers is a means of getting into farming with minimal investment (without having to

own either livestock or land).

Costs for setting up a heifer grazing operation can be kept low. Fencing, watering, and a simple handling facility is all that is needed to get started. Cost sharing through the Natural Resources Conservation Service (NRCS) may be available to help you get started.

Yes, it works.

Economics.

Raising a calf from birth to its first lactation costs approximately $2500 for many confinement dairy farms (Akins and Hagedorn 2015). Utilizing a managed grazing system for those replacement heifers has been shown to save up to $2.19 per head per day during the grazing season (Benson 2011). Table 1 shows potential cost savings during each stage during heifer growth. Savings are primarily from feed and labor costs.

Table 1. Cost to raise a dairy heifer in confinement and on pasture

Stage of growth	200-700 lb	700-850 lb	850 to calving
	Feed and labor ($/day)		
Confinement	$2.18	$2.76	$3.69
Managed Grazing	$1.30	$1.50	$1.50
Difference	$0.88	$1.26	$2.19
Savings from managed grazing for 180-day grazing season	$158.40	$226.80	$394.20

Table data source:
Benson, F., 2011. Grazing Heifers: An opportunity for large dairy farms.
https://nydairyadmin.cce.cornell.edu/uploads/doc_439.pdf

Costs and value of gain. Table 2 provides an example from heifer graziers in Minnesota and Wisconsin (Kilmer and Tranel 2014). They estimated that an acre of good quality pasture would support 1.68 head of heifers for a 210-day grazing season. At 1.7 lb of gain per head per day, there would be 600 lb of gain per acre. The table compares high ($1.50) and low ($1.00) values of gain on a per pound basis. Even at low heifer prices and relatively high land rents ($250/a), return to management is significant.

Table 2. Per Acre Returns to a Pasture Heifer Enterprise

600 lb gain per acre	Value of gain per pound	
	$1.50	$1.00
Costs		
Fencing ($75/a over 15 yrs)	$5	$5
Watering ($40/a over 10 yrs)	$4	$4
Seed ($80/a over 10 yrs)	$8	$8
Land rent per acre	$250	$250
Lane ($50/a over 10 yrs)	$5	$5
Grain (1 lb/day x 210 days x 1.68 head)	$44	$44
Labor (4.5 hr/a x $10/hr)	$45	$45
Total expense per acre	$361	$361
Total income per acre	$900	$600
Return to management	$539	$239

Table data source:
Kilmer, L. and L. Tranel. 2014. Optimizing your heifer enterprise. Iowa State University Extension.
https://www.extension.iastate.edu/dairyteam/files/page/files/Heifer%20Enterprise%202014.pdf

Health and performance.

Several studies have documented fewer health issues among replacement heifers raised on pasture when they join the milking string. One example is a 2005 study conducted by Chester-Jones et al. at the University of Minnesota. Table 3 compares grazed heifers and confinement raised heifers. Nearly all categories of health concerns were lower in grazed heifers.

Table 3. Comparison of health of first lactation cows raised on pasture and in feedlot

	Rotationally grazed paddocks	Feedlot raised
# of animals	21	21
Displaced abomasum (DAs)	2	7
Difficult calving	3	5
Metritis	0	1
Ketosis	0	3
Skeletal injury	2	2

Table data source:
Chester-Jones, H., M. Rudstrom, and L. Torbert. 2005. Grazing systems and management for heifers: Nutritional management and animal responses. *Proc. Dairy Calves and Heifers: Integrating Biology and Management*, Holiday Inn, Syracuse, NY. NRAES-175, Jan. 25-27. pp. 160-175.

Research also documents comparable weight gains and lactation performance in heifers raised on pasture. Table 4 shows some results from a ten-year study at the Wisconsin Integrated Cropping Systems Trial. Hedtcke (2012) found that rotationally grazed heifers supplemented with 2.5 lb

of grain per day gained an average of 1.97 lb/day, while confined heifers fed a total mixed ration gained an average of 1.86 lb/day (both close to the recommended 1.8 lb of gain per day). At first lactation, the heifers raised on pasture produced more milk than the confinement heifers in their 305 day adjusted lactation. This effect continued throughout the life of the cow.

Table 4. Comparison of first lactation performance of cows raised on pasture and in confinement

	Rotationally grazed + supplement	Confinement + TMR
# of animals	37	48
Average Daily Gain, pre-calving	1.97 lbs.	1.86 lbs.
1st Lactation Production, 305-day adjusted	25,328 lbs.	23,415 lbs.

Table data source:
Hedtcke, J. 2012. Pastured heifers grow well and have productive first lactations. CIAS Research Brief #89. https://www.cias.wisc.edu/pastured-heifers-grow-well-and-have-productive-first-lactations/

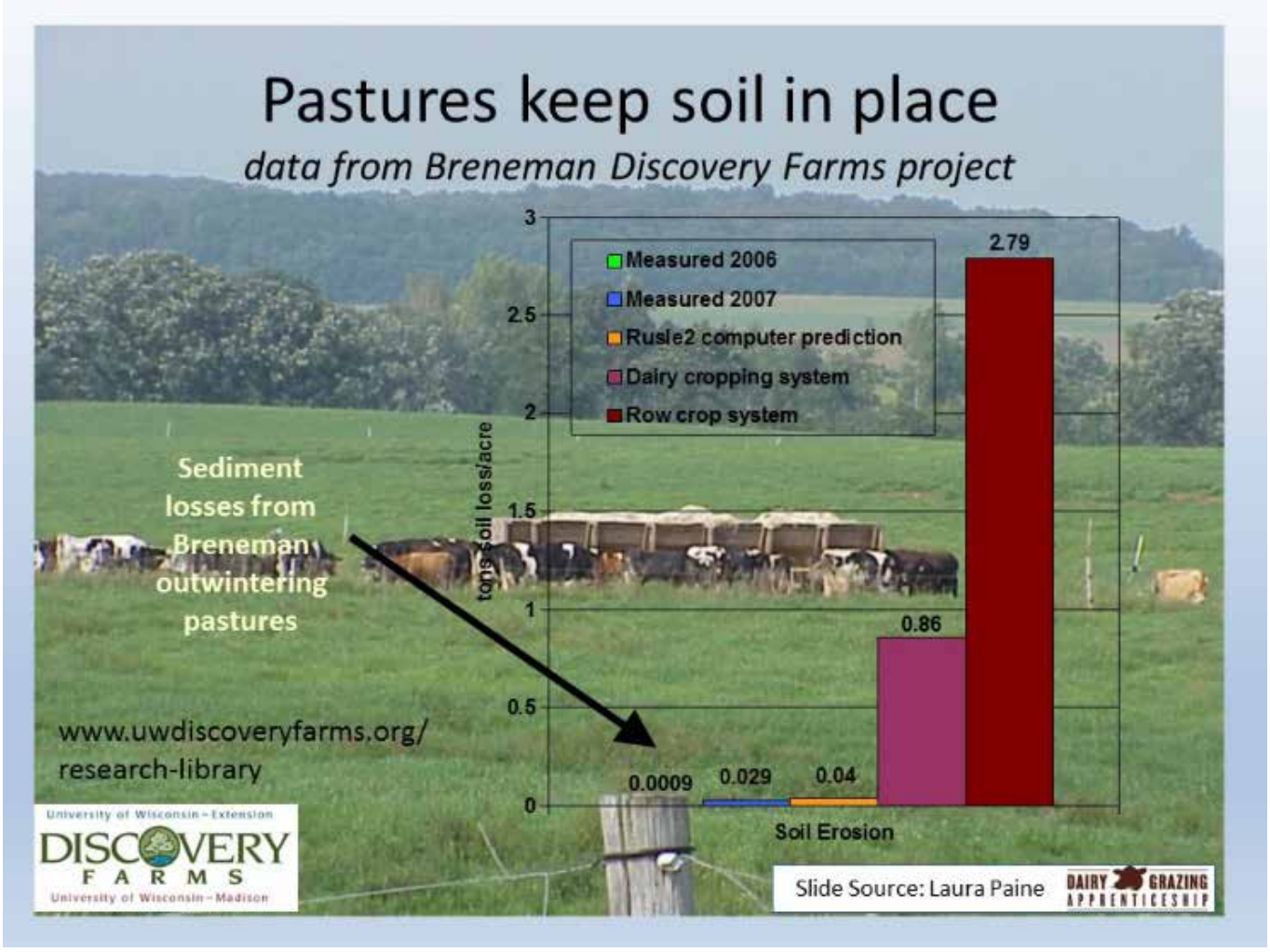
Soil health and environmental benefits.

Raising heifers on pasture can reduce manure management costs and increase acreage of perennial forages as part of a sound nutrient management plan. Compared to annual crop fields with average losses of 3.5 tons of soil per acre annually, each acre of pasture loses less than half a ton (UW Discovery Farms 2009).

The diverse perennial plant community provides high quality habitat for wildlife and pollinators and contributes significantly to soil health by providing an ideal environment for a healthy soil microbial community.

Soil Health Principles

Keep the ground covered
Grow a diverse mix of plants
Living roots year round
Minimize tillage
Integrate Livestock



How to get started.

- **PLAN** on 10 acres for every 15 to 20 head. An acre of pasture on well-drained, fertile soil will yield three to four tons of dry matter per acre and support between one to two heifers for the grazing season depending on breed, size, and supplementation.
- **READ** Pastures for Profit (Undersander 2014) or other grazing guide to understand the basics. Rotation and rest are the keys to getting the pasture productivity and quality you want. It is a flexible system that you can adapt to your operation.
- **TOUR** other farms that are grazing their heifers and/or milking herd. Attend pasture walks. There are many ways to develop a grazing system and the more farms you visit, the more ideas you'll have to use in developing your own system.
- **DEVELOP** a grazing plan, or ask your local Natural Resources Conservation Services (NRCS) office to help you. You can plan your grazing system for daily up to weekly moves—whatever fits your schedule best.•
- **VISIT** your local NRCS office to determine if you are eligible for cost-sharing for your grazing system. Cost share can help pay for seeding, fencing, watering, lanes, heavy use areas, and grazing planning and more!
- **BUILD** strong perimeter fences, and subdivide the pasture area into large blocks that can be further divided into paddocks with temporary fencing.
- **PLANT** a high quality pasture seeding mix. Your pasture is a crop and using the best seed will ensure the highest quality, productive, longest lasting pasture.
- **TEST** soils and correct any fertility deficiencies, including lime.
- **MANAGE** your risk. Consider purchasing Pasture, Rangeland, and Forage Insurance to reduce risk associated with variable rainfall. Visit the USDA Risk Management Agency website for more information: https://www.rma.usda.gov/policies/pasturerangeforage/

Resources

Akins, M.S. and M.A. Hagedorn, 2015. The cost of raising replacement heifers-2015 update.

https://fyi.uwex.edu/heifermgmt/files/2018/06/2015-Cost-of-Raising-Replacements-Factsheet-Final.pdf

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Undersander, D.J., B. Albert, D. Cosgrove, D. Johnson, and P. Peterson. 2014. Pastures for Profit: A guide to rotational grazing. UW Extension publication #A3529.https://learningstore.uwex.edu/Assets/pdfs/A3529.pdf

UW Discovery Farms. 2009. Discoveries on a Grass-Based Dairy System. http://www.uwdiscoveryfarms.org/UWDiscoveryFarms/media/sitecontent/PublicationFiles/farmbrenaman/Breneman-Farms-Project-Summary-file.pdf?ext=.pdf

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