



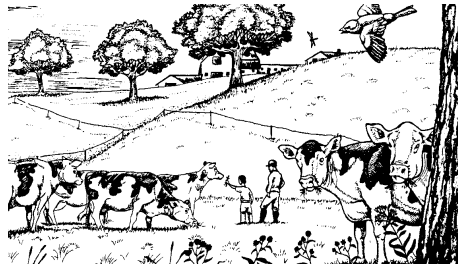
# Grass-Based Beef & Dairy Production

*This innovative system is economically viable and good for the environment.*

Since the early 1980s, an increasing amount of North American milk and beef has been produced using an innovative method called “managed rotational grazing.” This livestock product technique has proven to be a viable alternative to expensive, high-tech confinement systems.

## How it's done

Managed rotational grazing usually consists of breaking a pasture up into many small pens or “paddocks” using electric fencing. Cattle are moved frequently from paddock to paddock (sometimes as often as twice a day). When deciding whether to move stock, farmers use as their guide the condition of the grass. An ideal grazing schedule allows the grass to recover completely between grazings, spreads manure evenly over the land, and fulfills the animal's nutritional requirements.



## How it differs

Managed rotational grazing should not be confused with conventional grazing systems. The latter system usually consists of turning livestock out into an open pasture during the growing season. Under conventional grazing, animals are allowed to roam the entire pasture, often overgrazing. This method can shorten the grazing season significantly, producing erosion and concentrating manure.

The fastest growing area of livestock production consists of putting animals in confinement. Under such a system, all of the animal's nutritional needs are provided with high energy feeds such as corn, and roughage such as corn silage and haylage, which is harvested and hauled into the confinement unit. The large amount of manure produced by these animals is collected in storage pits or lagoons in a semi-liquid form (in the case of cattle and hogs) and later applied to farm fields.

## More net profit

◆ From 2000 to 2004, dairy farmers who used managed rotational grazing in Wisconsin and New York tended

to have a higher net farm income per cow and per hundred-weight of milk when compared to their confinement counterparts, according to research conducted by the Great Lakes Grazing Network.<sup>1</sup> Because of their lower operating expenses, these grazing operations were financially outperforming the large-scale confinements, although the graziers generally produced less milk per cow and had smaller herds. In some cases, the difference in profitability was significant. In 2000, the net farm income of the average Wisconsin grazing operation taking part in the study was **double that of the average confinement operation analyzed.**

## Works for beginning & expanding farmers

◆ Low-cost methods such as rotational grazing are not only viable on small farms. Farmers who have converted to management intensive rotational grazing **are able to milk more cows without having to increase their land and labor base,** according to research conducted by the University of Wisconsin's Program on Agricultural Technology Studies.<sup>2</sup>

◆ The start-up costs for a grazier are approximately **half the initial per-cow costs associated with a confined system,** according to an analysis published in *Feedstuffs* by Bud Schwart, an agricultural economist with Texas A&M University.<sup>3</sup>

◆ One analysis showed that it's possible to enter a grass-based dairy business with as little as \$50,000 on as few as 40 acres.<sup>4</sup> The study developed economic case studies for dairy farms using rotational grazing systems in southern Iowa and northern Missouri between January 2001 and December 2002. Nine of the 10 families in the last year of the project were new to the dairy business since 1996. The average milking herd size was 60 cows, and the size of the farms ranged from 40 to 270 acres. In 2002, the 10 families participating generated a total gross income of \$942,596 from the sale of milk, which in turn was used to buy feed, services and building and production supplies from local businesses. It was estimated that new dairies similar to the ones that participated in the study are likely to generate more than \$110,000 gross

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income per year.

## More profitable than corn

◆ An on-farm study conducted from 2000 to 2002 by the University of Minnesota's West Central Minnesota Research and Outreach Center found that raising dairy heifers on a well-managed pasture cost on average 93 cents per head, per day.<sup>5</sup> Raising heifers in a feedlot on average cost \$1.32 per head, per day during the same period. This study found that raising dairy heifers on **pasture produced an average net return of \$121 per acre** during the three years of the study. The average per acre net return on **corn in that part of the state was negative \$14.79** during the same period. For soybeans, the per acre net return was \$30.14 during that same period.

## Environmental benefits

Within the past few years, agriculture has emerged as one of the leading sources of nonpoint water pollution in the country. Managed rotational grazing is seen by many environmentalists and government pollution officials as a way to dramatically reduce the negative impacts of meat and milk production.

◆ A three-year study by the Minnesota Cooperative Fish and Wildlife Unit of six farms practicing managed rotational grazing in southeast Minnesota found that this technique can **significantly reduce the amount of sediment** flowing into a waterway. The study also found that a stream degraded by overgrazing starts to recover as it flows through a rotationally grazed area. **Fecal coliform levels in waterways were consistently lower** in the rotationally grazed sites when compared to continuously grazed sites.<sup>6</sup>

◆ Studies done in Minnesota's Sand Creek watershed documented how each acre of a cornfield lost **10 tons of soil** during a rainstorm. Up the road, each acre of a field covered in grasses and hay lost **53 pounds of soil** during the same storm.<sup>7</sup>

◆ Nitrate-nitrogen runoff from fields planted to perennial plants such as grass can be **30 to 50 times lower** when compared with fields in a corn-soybean row crop system, according to an ongoing University of Minnesota Study that's been conducted in the southern part of the state since 1973. Grazing makes it financially feasible to establish large tracts of perennial grasses in runoff-prone areas.<sup>8</sup>

◆ A University of Wisconsin study recorded **more than twice the number of nesting grassland songbirds in rotational paddocks** when compared to the same acreage of continuously-grazed pastures.<sup>9</sup>

## Sources

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<sup>2</sup> Jackson-Smith, D. and M. Ostrom. *The Use and Performance of Management Intensive Rotational Grazing Among Wisconsin Dairy Farms in the 1990s.* August 2000. University of Wisconsin-Madison. [www.pats.wisc.edu](http://www.pats.wisc.edu)

<sup>3</sup> Jensen, Kay C. "Grazing trend changes feed company opportunities," *Feedstuffs*, July 17, 1995, p. 12

<sup>4</sup> Miller, Laura. "Grass-based dairies hold promise for southern Iowa producers." *Leopold Letter*. Summer 2003. [www.leopold.iastate.edu/pubs/nwl/2003/2003-2-leoletter/dairies.htm](http://www.leopold.iastate.edu/pubs/nwl/2003/2003-2-leoletter/dairies.htm)

<sup>5</sup> Rudstrom, Margot. "Pasture Versus Feedlot Growing Dairy Heifers: Summary of results for 2000, 2001 and 2002." 2003. University of Minnesota West Central Research & Outreach Center. <http://wcroccoafes.umn.edu>

<sup>6</sup> Sovell, L.A., B. Vondracek, J. A. Frost and K. G. Mumford. 2000. "Impacts of Rotational Grazing and Riparian Buffers on Physicochemical and Biological Characteristics of Southeastern Minnesota, USA, Streams." *Journal of Environmental Management*. 26(6): 629-641. [www.springerlink.com/content/d3eeqtfc84t2rge2/](http://www.springerlink.com/content/d3eeqtfc84t2rge2/)

<sup>7</sup> DeVore, Brian. "Same Storm—Different Outcomes." April/May/June 2001. *Land Stewardship Letter*. Land Stewardship Project. [www.landstewardshipproject.org/lsl/lspv19n2.html](http://www.landstewardshipproject.org/lsl/lspv19n2.html)

<sup>8</sup> University of Minnesota Extension Service News. Nov. 11, 2000. "Row crops have 30 to 50 times higher nitrate losses than perennials." University of Minnesota, St. Paul, Minn. [www.extension.umn.edu/extensionnews/2000/RowCropsCanHave30To50Times.html](http://www.extension.umn.edu/extensionnews/2000/RowCropsCanHave30To50Times.html)

<sup>9</sup> Paine, Laura. "Pasture Songbirds," *Pasture Talk*, May 1996, pages 8-9



*This fact sheet is brought to you by the members and staff of the Land Stewardship Project, a private, nonprofit organization devoted to fostering an ethic of stewardship for farmland and to seeing more successful farmers on the land raising crops and livestock. For more information, call 651-653-0618 or visit [www.landstewardshipproject.org](http://www.landstewardshipproject.org)*