

Observations of Management Intensive Grazing and Forage Management

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Introduction

Management Intensive Grazing is a tool we have developed over the years to harvest forages on our 1400-acre farming operation. Our family-owned corporation consists of my father and one employee, and includes 400 acres in corn, 400 acres in soybeans, 160 acres in hay and 500 acres in pasture. We have 220 beef cows and a 400-head finishing feedlot.

Since adopting Management Intensive Grazing in 1989, it has evolved into an integral part of our operation. Today we have 12 major paddocks subdivided into 50 smaller paddocks, through which our 220 cows are rotated in four to five cycles.

First Cycle

Our first cycle starts about April 25th, when the grass is five to seven inches tall. In early spring, with rapid grass growth, we graze about six acres per 220 head of cow/calf pairs per day, just trimming the top of the grass. The short rest period is about three weeks, so we can get back quickly and top off the grass again. We use a high-tensile wire to separate our pasture, and a low-impedance fencer with four ground rods.

Second Cycle

By the second cycle through the paddock system, we slow down the pace, grazing about five acres daily using 220 cow/calf pairs. The grass is in the reproductive (seed setting) stage of growth, and has higher dry matter composition. We try to graze this stage more aggressively to keep the grass in a more vegetative stage. If the grass gets ahead of us and goes to seed, we clip or bale it. After being clipped, the grass usually stays in the vegetative stage the rest of the summer. This second rest period lasts about four weeks.

The cows eat most broadleaf weeds, if any are present. Bull thistles will have to be clipped once or twice a year, and the Canadian thistles will be clipped and spot-sprayed. The grazing cycle is very similar to mowing hay. We mow and bale it, then give the hay

field a rest for 30 days before mowing again. *The real success of Management Intensive Grazing is the rest period.* Sometimes it's referred to as grass management, rather than cow management. While most farmers are extremely efficient with crop production—tillage, seed genetics, weed control and fertility are a precision science—Management Intensive Grazing is a tool to improve pasture management with our beef cow herd.

Third Cycle

On the third cycle through the paddocks, we graze about four to five acres per day. The re-growth starts to slow down this time of year, due to higher temperatures and less rainfall. The rest period ranges from four to six weeks, depending on weather. Supplemental feed for the cows is usually necessary in August.

Fourth Cycle

This cycle is the September/October time frame, and once completed we turn to grazing cornstalks. Since we've never been able to stop the cows from eating long enough, we have been unable to stockpile grass in our grazing program. Sometimes we will graze a hay field, rather than taking a third or fourth cutting.

Benefits

Four major benefits have resulted from Management Intensive Grazing. The rest periods have given new life to forage diversification. As I walk across our pastures, I'm continually amazed at new species of grass and legumes growing through natural propagation, including white and red clover, timothy, orchardgrass and birdsfoot trefoil.

Body condition of our cows has improved. When we rotate them daily to a fresh paddock, greater palatability of the grass results. Even calves like to graze fresh vegetative grass, enabling us to eliminate creep feeding. Every day, when you open the gate, you'd better get out of the way when you offer "fresh candy!"

The third major benefit of Management Intensive Grazing that I stumbled upon, after five years of grazing, is stream bank stabilization. We have five acres of creek-bottom pasture that was continuously grazed and showing wear and tear on the banks. Downstream, where I was using Management Intensive Grazing, the stream banks were only grazed one day per month. Those stream banks had massive growth of vegetation. This tells me Management Intensive Grazing will improve pasture and riparian areas, but there is a four-to-five-year transition to get there.

The other benefit we realized is harder to define. Call it what you want: quality of life, farmer attitude, or peace of mind. I thoroughly enjoy going out on my four-wheel ATV and moving the cows to the next paddock. I have two young daughters, and want to do things with them that don't require big machinery or pesticides. Management Intensive Grazing allows me to do that. We go out and it takes about 15-20 minutes to move the cows, then we go and play along the creek for a while. It is our goal to try to solve biological problems with biological solutions, which takes time, patience and the willingness to learn and observe nature. But it results in a friendlier place to raise my family—environmentally, emotionally and economically.

Harvesting Tools

Based on topography and soil types, raising hay on our farm is a must. We have gently rolling sand hills with a CSR rating range from 12 to 40 points. The deep taproots of alfalfa can reach down to moisture, which allows us to raise four tons per acre of dry matter. As with corn and soybeans, a dry August can devastate these animal crops.

We begin seeding our new field by disking once and drilling the oats at three bushels per acre, and harrowing to firm up the seedbed. We hire a three-wheel fertilizer applicator to apply a blend of fertilizer, alfalfa seed and brome grass, using an air flow system to evenly distribute the mixture. We harrow again, which allows us to drill the oats at one-inch depth and put the grass seed in the top quarter-inch of the seedbed. In the last couple of years, we chopped the oats and put them into a silage bag.

For two years, we have tried different tools to harvest the hay crop. Our primary harvest tool is the big round baler to make hay for winter feed for the beef cows. Since it takes the same amount of work to make good hay as bad, we try to make it as good as possible. To reduce storage and weathering losses, we try to store all dry hay inside. Leaving bales outside can result in 10 % or greater loss of dry matter.

My accountant told me one day of a corn farmer who thought he needed more grain bins to store his corn. The accountant asked him why he didn't store his corn along the fence line, like he did his hay bales!

We also use a forage chopper to chop a hay field and store the yield in a silage bag for our feedlot cattle. Bagging the haylage reduces protein purchases. In the past we tried tub grinding hay bales, but never liked watching the leaves blow away. It costs \$8 per ton to put haylage in a silage bag with all the leaves. We have paid \$10 per ton to grind hay and watch the leaves blow away.

Our newest hayshed tool is a bale wrapper, a machine that allows us to bale hay when the sun won't shine. Hay is very weather-sensitive. I can plant 100 acres of corn a day, but it might take me three weeks to bale 100 acres of hay. For instance, the weather forecast on Monday may show no rain for a week, so we

Table 1. Percent dry matter loss of alfalfa.

	% Moisture	Harvest loss	Storage loss	Total
Dry hay stored inside	15	15	7	22
Dry hay stored outside	15	15	20	35
Balage	40	8	8	16
Upright silo	60	5	10	15
Bunker silo covered	65	5	15	20
Silage bags	65	5	5	10

Sources: Kjelgaard (1979) Rotz (1989) Moore (1980)

	Forage analysis		
	Moisture	% Crude protein	TDN
Corn silage upright silo	66	7.3	71
Stalklage	60	6.8	50

mow 30 acres of hay. Tuesday, a 30 percent chance of rain on Wednesday is predicted, but nothing but clouds result for the rest of the week. By Saturday, the hay is finally dry enough to bale.

This is our second year to make balage. We make dry hay if we can, but if the weather forecast changes we make balage the same day. Moisture range is 25% to 50%. We use a John Deere 530 round baler, to which a scraper is placed on the front roller to reduce wrapping. Since the bales are wetter and heavier, we make them about four feet tall so we can lift them with our loader.

We try to wrap the hay with plastic within two to eight hours, but have gone as long as 24 hours. We put four wraps of plastic on each bale for an added cost of \$5 per bale. These have a shelf life of four to six months before the plastic starts to deteriorate, and the bales require a high level of management to monitor the plastic for holes to prevent spoilage.

We ask ourselves which tool gives the highest dry matter yield from field to feed bunk. Table 1 attempts to answer that question for our farm.

Last fall, we made stalklage bales and wrapped them in plastic to feed the beef cows during winter. We combined high-moisture corn and put it in a silage bag, then came right behind the combine with the baler. Since our dry corn-stalk bales molded in the past, we chose to make wet bales and keep them that way. Our bales were from 30% to 50% moisture—the wetter the better, to

push oxygen out of the bales. Our goal was to produce a bale more palatable than a dry, moldy corn-stalk bale.

Wrapping plastic around the bales added a cost of \$5 per bale, and the corn stalk bales were more difficult to manage due to more holes in the plastic. When the bales were opened, they had a nice pickled smell. Moldy ones were used for bedding. We are still in the learning process, and hope to refine and improve our stalklage method.

Conclusion

We have enjoyed the benefits of Management Intensive Grazing (MIG). Forage diversification and a rest period have brought new life to our pastures. We monitor the cows daily, and body condition scores have improved. MIG also helps us address the ecological and environmental concerns of stream bank stabilization. Moving cows and watching our kids grow has improved our quality of life.

Suggested Reference Materials

1. Missouri Grazing Manual, #157, 314-882-8237.
2. Premier Fence Supplies catalog, 800-282-6631.
3. Pastures for Profits, Booklet A3529, University of Wisconsin, 608-262-3346.
4. Pasture Management Guide, Pm-1713, Iowa State University, 515-294-5247.
5. Stockman Grass Farmer, 800-748-9808.