



Integrating Livestock



Summer 2015
Continuous Living Cover Series

“First day of spring;” photo from Laura Paine

A shift to Continuous Living Cover – especially the perennial forages – carries with it an assumption that there will be more livestock on the land to utilize the forages.

Livestock = stacked enterprise in a cash grain operation

Besides the soil health, reduced erosion, and reduced nutrient loss benefits of perennial forages ...

Addition of a livestock enterprise also contributes to resiliency in the case of market fluctuations: downturns in commodity crop prices can be buffered by livestock production and sales, and vice versa.

Livestock are a potential entry point for the next generation in a farming operation.

Management of a livestock and grazing system can be contracted out to a farmer who specializes in grazing management (a grazier); or the land for managed grazing can be leased to a grazier.

Integrating Livestock into the Farm

Integration of livestock, or of perennial forages for livestock feed, into a farming system can take many forms. It doesn't have to involve year-round presence of animals on the farm. A few examples:

- Permanent pasture on marginal land or slopes > 14%; contract grazing of a neighbor's dry dairy cows by a beginning grazier whose sole investment is in temporary fencing.
- Expanded grassed waterway system; grazing and hay production on the grassed waterways to support a cow/calf herd
- Highly erodible (HEL) areas seeded into a perennial grass/legume mixture and managed grazing of:
 - Beef cow/calf pairs
 - Stocker cattle
 - Dairy replacement heifers
- Oats + two years of grass hay in the crop rotation and marketing to the horse industry
- Late-fall grazing of cover crops and cornstalks by a beef cow/calf herd

- Two years of alfalfa in the crop rotation + feedlot beef production using alfalfa hay or haylage and corn produced on the farm
- Two years of alfalfa in the crop rotation + collaboration with a neighboring farm to supply alfalfa hay or haylage to their feedlot or dairy operation

Beginning Farmers

It has been a fairly common practice in the past for beginning farmers to get started in farming either by renting and growing crops on marginal land, or by expanding acreage within a family's farm operation.

Sometimes that expanded acreage involves returning grassland to row cropping.

First, before considering cropping on marginal land or grassland, beginning farmers should take a look at a livestock-based enterprise.

Livestock and forages as an entry point offer several advantages:

- Potentially low capital investment for entry. Contract grazing arrangements can allow entry into grazing management without investment in either land or cattle; the capital investment can be solely the fencing materials. In some arrangements, even the fencing expenditure is minimal and the grazer is paid for the management of the cattle on existing pastures.
- Adding livestock to an existing family operation can be low-cost: forage can be utilized

Beginning Grazer Programs and Grazing Networks

- Greenhorn Grazing, Iowa Beef Center
<http://www.iowabeefcenter.org/events/GHgrazingflyer2014.pdf>
- Grazing information and support from Iowa Beef Center
<http://www.iowabeefcenter.org/news/grazingevents2014.html>
- Wisconsin School for Beginning Dairy Farmers
<http://www.cias.wisc.edu/dairysch.html>
- GrassWorks Grazing Networks (Wisconsin)
<http://grassworks.org/?110500>
- Livestock Program, Practical Farmers of Iowa
<http://practicalfarmers.org/member-priorities/livestock/>
- Keep Cattle in Minnesota, Sustainable Farming Association of MN
<http://www.sfa-mn.org/keep-cattle-in-minnesota/>
- MN Grazing Lands Conservation Association
<http://www.mnglca.org/>

from grassed waterways and other grassed areas established to control erosion. Grazing of cornstalks and other crop residue can reduce feed costs in the fall and winter; and the animals help cycle the nutrients out of residue back into soil.

- Custom-harvesting of forage is another potential entry point for a beginning farmer.

There is potential for farm-to-farm cooperation here: if several farmers in an area agree to add perennial forage to their crop rotation, that opens an opportunity for someone to do the forage harvesting on all of those farms.

- Grass-based dairy is a potential farming entry point in areas where dairy infrastructure exists and where equipped former dairy barns may be available to rent. A great advantage of dairy production for a beginning farmer is the regular milk check. Using forage to the greatest extent possible reduces feed input costs and often veterinarian bills as well.
- There are established apprenticeship and training programs for beginning graziers, and an extensive network of grazing groups that support learning and mentoring in Minnesota, Wisconsin, and Iowa.

Economics of Livestock Enterprises

Livestock Enterprise Budgets for Iowa

<http://www.extension.iastate.edu/agdm/livestock/html/b1-21.html>

Decision Tools and Software, Wisconsin Beef Information Center

<http://fyi.uwex.edu/wbic/decision-tools-and-software/>

Grass-fed beef

Grass-fed beef is a specialty product that can command a premium price. If a farm's situation or farmer interest bends in the direction of permanent pasture and grazing, then marketing of grass-fed beef could be a profitable option.

Agricultural Marketing Service (USDA-AMS) report on grass-fed beef prices:

http://www.ams.usda.gov/mnreports/nw_ls110.txt

Resources for Livestock Production Information

Illinois Livestock Trail

<http://livestocktrail.illinois.edu/>

Iowa Beef Center

<http://www.iowabeefcenter.org/>

University of Minnesota Extension Beef Team

<http://www.extension.umn.edu/agriculture/beef/>

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University of Minnesota Extension Dairy Team

<http://www.extension.umn.edu/agriculture/dairy/>

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Wisconsin Beef Information Center

<http://fyi.uwex.edu/wbic/>

University of Wisconsin Extension Dairy Team

<http://www.uwex.edu/ces/ag/teams/dairy/>

More Grass-fed Beef

There are several aggregator businesses active in IA, MN, and WI that buy grass-fed cattle and market the beef:

Thousand Hills Cattle Company

(source cattle in IA, MN, and WI)

<http://www.thousandhillscattleco.com/>

Wisconsin Grass-Fed Beef

Cooperative

<http://wisconsingrassfed.coop/>

Tallgrass Beef

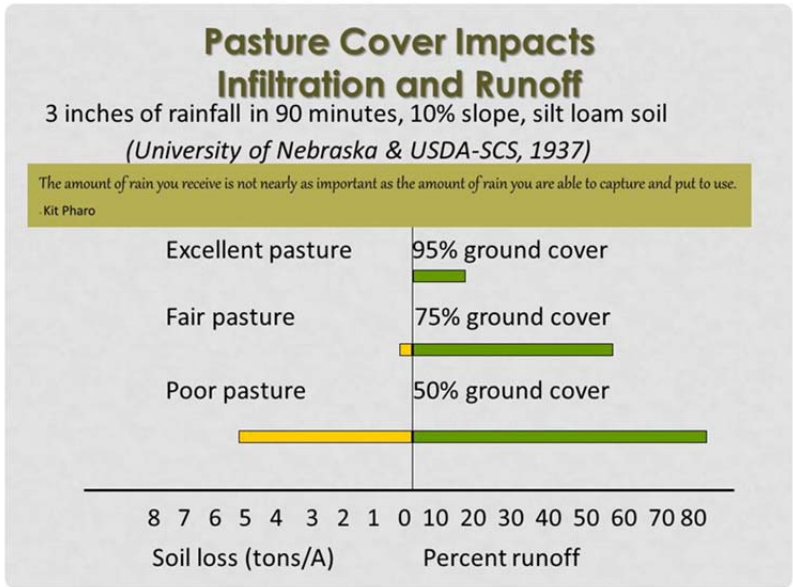
<http://www.tallgrassbeef.com/>

Managed Grazing

Having well-managed pastures is important both for livestock productivity and profitability; but also for preventing water and nutrient runoff. A continuously-grazed pasture is worse than a cornfield in terms of water infiltration rate:

60-minute water infiltration rate (inches) under six different plant species types; average of measurements in June, August, and October/November.					
Silver maple	Switchgrass	Cool-season grass mixture	Corn	Soybean	Continuously grazed pasture
15	10	9	2	4	< 2

Source: Soil-water infiltration under crops, pasture, and established riparian buffer in Midwestern USA. 2002. L. Bharati, K.-H. Lee, T.M. Isenhardt, and R.C. Schultz. *Agroforestry Systems* 56: 249–257.



Pasture Cover Impacts slide courtesy of Allen Williams

- Gradual accumulation of soil organic matter
- Maintenance of protective plant cover over the soil surface.

Source: Well-managed grazing systems: a forgotten hero of conservation. 2012. Alan J. Franzluebbers, Laura K. Paine, Jonathan R. Winsten, Margaret Krome, Matt A. Sanderson, Kevin Ogles, and Dennis Thompson. *Journal of Soil and Water Conservation* 67(4):100A-104A.

<http://www.iswconline.org/content/67/4/100A.full.pdf+html>

There have been a lot of words and phrases applied to various grazing schemes. The take-away message from all the diversity of grazing methods and ways to describe them is that **grazing is a highly flexible and adaptable tool for management of forage, soil health and herd health.**

The basic principle of managed grazing: balance the needs of the

managed grazing high-
density mob grazing
continuous grazing MIRG

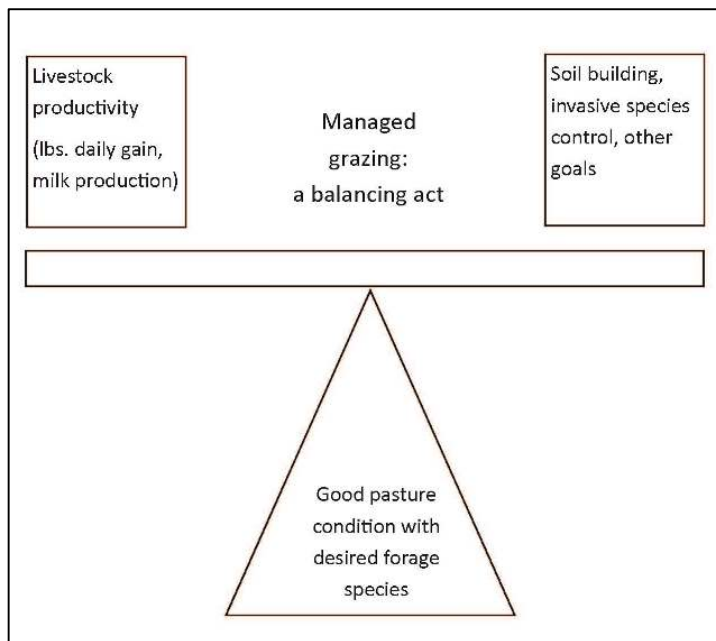
rotational grazing

MIG ultra-high-density
low-density

rest period daily moves

Characteristics of well-managed pastures include:

- High level of forage productivity and quality
- Sufficient residual forage mass left after grazing to support rapid regrowth
- Diversity of plant species to provide resilience in varying environmental conditions



animals, the goals of the producer or land manager, and the condition of the pasture.

There are lots of “right ways” to do managed grazing. Grazing systems can be adjusted to a farm’s particular:

- Layout – how the fields lie in relation to buildings and a water source
- Infrastructure – what’s in place or do-able in terms of perimeter fence, watering system, loading/unloading pens, etc.

- Goals – maximum productivity for dairy cattle, less intensive needs for beef cow/calf or dry dairy cows

Find key resources about grazing and pasture forage management on the website of the Midwest Perennial Forage Working Group:

http://greenlandsbluewaters.net/Perennial_Forage/resources.html

Contract Grazing

Contract grazing is an arrangement for the grazing of livestock on land, in which the same individual need not manage the grazing, own the livestock, and own the land.

Contract grazing is an opportunity for beginning farmers to get into agriculture with a small capital investment – they can supply the management of grazing and do not have to invest in either cattle or land ownership. Contract grazing is also an opportunity for farmers to add perennial forages to their cash grain operation but not have to either own livestock or manage a grazing system.

The Midwest Perennial Forage Working Group has developed a series of fact sheets on contract grazing:

The Basics of Contract Grazing

http://greenlandsbluewaters.net/Perennial_Forage/CG_Basics_final_0313.pdf

Evaluating Land Suitability for Grazing Cattle

[http://greenlandsbluewaters.net/Perennial Forage/CG Evaluating%20Land final 0313.pdf](http://greenlandsbluewaters.net/Perennial%20Forage/CG%20Evaluating%20Land%20final%200313.pdf)

Pasture Rental and Lease Agreements

[http://greenlandsbluewaters.net/Perennial Forage/CG ContractLeases final 0313.pdf](http://greenlandsbluewaters.net/Perennial%20Forage/CG%20ContractLeases%20final%200313.pdf)

Rates Charged for Contract Grazing Agreements

[http://greenlandsbluewaters.net/Perennial Forage/CG Rates final 0313.pdf](http://greenlandsbluewaters.net/Perennial%20Forage/CG%20Rates%20final%200313.pdf)

Additional contract grazing information:

[http://greenlandsbluewaters.net/Perennial Forage/contract.html](http://greenlandsbluewaters.net/Perennial%20Forage/contract.html)

Integrating Livestock with Agroforestry

Livestock benefit from access to shade in summer and access to shelter in winter.

Both of these benefits can be provided by agroforestry practices.

Silvopasture is the combined production of trees for timber, fruit, or nut production; and the grazing of livestock on forage planted under the tree canopy.

Windbreaks or shelterbelts can provide significant reductions in windspeed on the downwind side, and are a useful enhancement for livestock on a farm.

These agroforestry practices can be located in strategic areas to solve a water or wind erosion problem or a water and nutrient runoff problem, or to put a productive use on marginal land that is difficult in some way for row-crop agriculture.

More information about how to install and use these practices:

Importance of Shade for Livestock

Following a day of extreme heat + high humidity in Iowa in 1995, feedlot producers were surveyed about death losses due to the heat.

Feedlots with shade: 0.2% loss

Feedlots without shade: 4.8% loss

Source: Heat Stress In Feedlot Cattle: Producer Survey Results. A.S. Leaflet R1348. Darrell Busby and Dan Loy.

<http://www.iowabeefcenter.org/Cattlemen'sConference/heat%20stress%20study.pdf>

Extreme weather events including deadly heat + humidity are becoming more common. Integrating livestock production with agroforestry practices for shade is good insurance for the livestock, as well as providing reduction of soil erosion and runoff.

Chapter 4: Silvopasture. In Training Manual for Applied Agroforestry Practices - 2013 Edition. Center for Agroforestry, University of Missouri.

<http://www.centerforagroforestry.org/pubs/training/chap4.pdf>

Chapter 6: Windbreaks. In Training Manual for Applied Agroforestry Practices – 2013 Edition. Center for Agroforestry, University of Missouri.

<http://www.centerforagroforestry.org/pubs/training/chap6.pdf>

Integrating Livestock with Cover Crops

Cover crops that have significant above-ground fall or spring growth are a potential source of forage for grazing cattle. Even a few days of grazing on a cover crop in the fall can improve the profitability of livestock production by delaying or reducing the amount of stored feed that must be fed.

Cover crops on large corn and soybean acreage can be grazed using portable, temporary fencing technology. This can be an opportunity for contract grazing as well. Grazing of cover crops is allowed after November 1 on preventive planting acres. On other acres with cover crops, grazing is allowed for crop insurance purposes; but may be restricted by other programs if program dollars paid for establishment of the cover crop. Rules are changing between 2013 and 2014 crop years to allow haying or ensiling of cover crops as well. Which rules apply depends on contract date; see the FAQs link, below.

References:

NRCS Cover Crop Termination Guidelines: Non-irrigated Cropland. June 2013.

http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1167871.pdf

NRCS Cover Crop Termination Guidelines: Non-irrigated Cropland. December 2013.

<http://efotg.sc.egov.usda.gov/references/public/MN/340TerminationGuideline.pdf>

Cover Crops – Iowa, Minnesota, and Wisconsin. January 2014. Risk Management Agency Fact Sheet.

http://www.rma.usda.gov/fields/mn_rso/2014/covercrops.pdf

Crop Insurance, Cover Crops and NRCS Cover Crop Termination Guidelines FAQs

<http://www.rma.usda.gov/help/faq/covercrops2014.html>