White Paper

Adaptive Grazing Management Benefits

The Challenge:

Most of our meat is raised and processed for efficiency and low cost food. Livestock operations have increased in size to become more operationally and economically efficient. The result of these "efficiencies" is artificially inexpensive meat, eggs and dairy, which hides the costs to the environment, human health, and small-town economies. The long-term costs of this system are now becoming known. Recent watershed assessments conducted by the Minnesota Pollution Control Agency (MPCA) found that the majority of water bodies in the state's agricultural regions are impaired.[1] The Minnesota Drinking Water Report for 2016 lists 15 public water systems that had to upgrade their equipment due to nitrogen contamination, which cost from $49 - $7900 per household in those communities.[2] These "costs" to our soil and water resources are not fully accounted for in the current food system. By not managing livestock properly, we take away all the beneficial impacts they can have on the land, and leads leads to overgrazing, soil compaction, and degrade water quality.

The Opportunity: Adaptive Grazing Management (AGM)

Through a better understanding of native ecosystems and with technological innovations in fencing and watering systems, we can now more efficiently use livestock as a driver for soil health. There is an increasing body of evidence showing that specific changes in common agricultural practices can reverse soil degradation and restore impacted landscapes.[3] Proper pasture management has the potential to improve farm income, increase soil health, and protect water quality.[4]

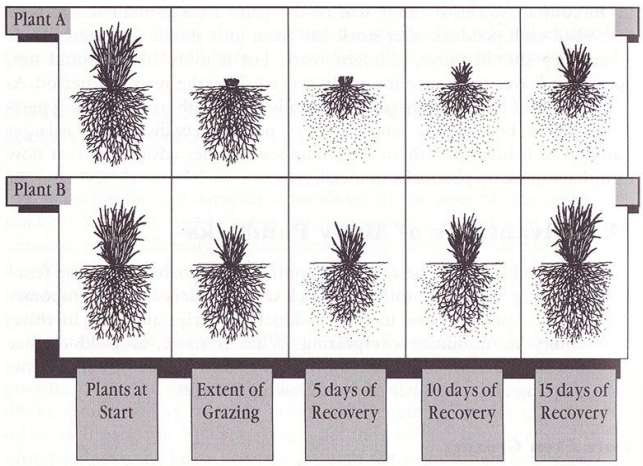

Figure 38-3 *The amount of leaf removed in a grazing affects the rate at which the plant regrows. Plant B loses far less leaf than plant A and thus draws less energy from roots, stem bases, and crowns. Less root is killed and it begins to regrow almost immediately.*

Image: New Zealand Sheep Council

Part science, part art, AGM mimics natural systems by moving animals based on forage and stocking factors. Animals in a continuously grazed system, even if technically not "overstocked," will still overgraze the best plants, compact soil in their favorite areas, and distribute nutrients unevenly. Through adapted grazing techniques livestock graze more consistently, nutrients are distributed evenly, and faster plant re-growth allows for increased stocking rates.

[1] "Minnesota's Impaired Waters List," Minnesota Pollution Control Agency, May 22, 2015, www.pca.state.mn.us.
[2] "Minnesota Drinking Water 2017 Annual Report of 2016." Minnesota Department of Health. www.health.state.mn.us/divs/eh/water/com/dwar/report2016.pdf
[3] "Agroecology for Food Security and Nutrition Proceedings of the FAO International Symposium," Food and Agriculture Organization of the United Nations, 2015, ISBN 978-92-5-108807-4.
[4] "Soil Health," Natural Resources Conservation Services, www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/.

Adaptive Grazing Management benefits:[5]

- Greater pasture production and improved weight gain
- Improved soil biology and fertility
- Better water infiltration and drought resilience
- Reduced parasite pressure on livestock
- Fewer purchased inputs and improved farm profits
- Improved soil health and increased soil organic matter (SOM)
- Carbon sequestration

Ranches utilizing holistic planned grazing can sequester 3 tons more carbon per hectare per year compared to conventional grazing.[6] *Increases of .5 to 1% SOM annually have been documented on well-managed pastures.*[7]

Conclusions:

AGM often requires systematic changes to ranch operations that can be costly and time consuming for producers. Even if farmers have knowledge of the benefits of AGM they can lack the will and/or finances to implement the practice without assistance.To increase implementation of AGM we see the following needs:

- Farmer Education - Effective means of farmer education include technical assistance from resource professionals and farmers learning from other farmers. Locally based technicians in critical watersheds housed at SWCD/NRCS offices, and farmer-led, on-farm training will be needed to increase AGM adoption.
- Farm Infrastructure - Additional cost share assistance to encourage producers to adopt and improve AGM. Work with NRCS/SWCDs and water quality focused organizations to supplement their existing cost share programs.
- Consumers - Utilize land grant Universities, Colleges, Economic Development organizations, bankers and others to educate consumers on the value of meat raised using AGM, and rebuild the infrastructure to get these products into local markets cost-effectively.
- Grazing Corps - Modeling the past success of the Civilian Conservation Corps and the more recent MN/Iowa Conservation Corps, train corps of young adults to help farmers implement AGM, better utilize cost share assistance dollars, and control invasive species. This will also help train the next generation of farmers and ranchers.

[5]"400 Plus: Improved Lamb Growth Guide." 2000. p 58. pureadvantage.org/news/2017/03/21/grazing-enhances-environment/.
[6]"Science Library." *Savory.* https://www.savory.global/holistic-management/science-library/. Accessed 28 Nov 2018.
[7]Williams, Allen. "Growing Soil the Southern Way." Grassfed Exchange Conference 2016. grassfedexchange.com/videos/gfe-2016-dr-allen-williams-growing-soil-the-southern-way.