

*"The first rule of sustainability is to align with natural forces, or at least not try to defy them."
Paul Hawken*

Agriculture Resiliency

Managed Grazing



Snohomish Conservation District

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MANAGED GRAZING

Once thought to be destructive to the land, we now know that if managed properly, grazing animals can actually contribute to our ecosystem, creating environments that are ecologically diverse and socially beneficial. A managed grazing system can create landscapes with rich living soils that are highly productive, beneficial to water quality, and that are even able to combat climate change by sequestering carbon.

Compared to other parts of the country, our area enjoys mild temperatures and long seasons, creating a climate ideal for pasture growth. Varying rainfall provides most of coastal moisture between the months of October to March (70%), with much less from April to September (30%). With little winter growth, most grass production occurs between April and June, creating a challenge for maintaining pasture-raised livestock year-round (Lundin, 1996). Managed grazing techniques can help maximize pasture production and prolong seasonal growth.

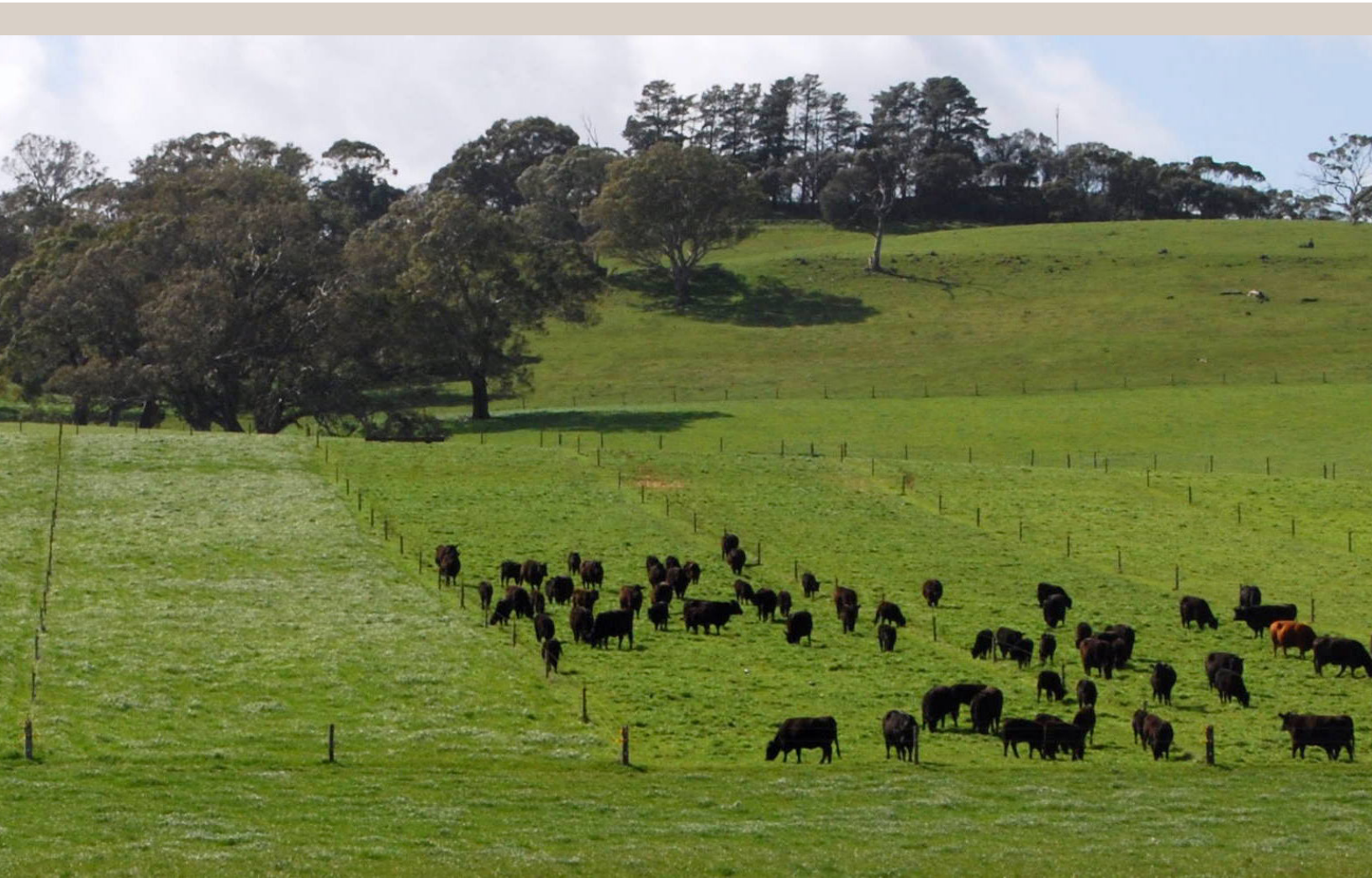
What is Managed Grazing?

Managed grazing systems imitate the natural grazing patterns of large herbivores in savannah and prairie environments. These systems focus on two key components within the grazing system:

1. How long livestock graze a specific area.
2. How long the land is able to rest before livestock return.

There are several techniques that can be incorporated to create a managed grazing system. The two that are most useful in our region are (Hawkin, 2017):

- **Rotational grazing:** moving livestock to fresh grazing paddocks or pastures, allowing already grazed paddocks to recover.
- **Adaptive multi-paddock grazing:** moving animals through smaller paddocks in quick succession, after which the land is given time to recover.



Benefits

Managed grazing realizes both ecological and economic benefits. One of the main advantages of a managed grazing system is the time provided for the land and forages to rest and regain sufficient growth before they experience grazing pressure again. By increasing the density of livestock into smaller rotational paddocks, manure is distributed more evenly and livestock are forced to utilize the forage in a paddock more efficiently, wasting less (Penn State).

Soil Increased production of forage: When overgrazing is minimized, pastures in a managed grazing system can increase in productivity by 30-70%. Grasses and legumes that are constantly grazed have little time to recover from the injury of grazing before they are re-injured. This causes plants to lose root mass, energy reserves, and greatly decreases their production. Plants that are given time to recover from grazing retain more resources to regain growth quickly thereby increasing production. For example, a half-inch grass leaf has very little surface area for photosynthesis while a grass leaf of two to three inches has much more opportunity to regain growth quickly. Most grass plants should not be grazed below three inches in height (Morgan).

Increased soil fertility and reduced compaction: In smaller grazing paddocks, livestock concentrations are greater and manure is more evenly spread throughout, increasing organic matter and nutrients available to forage plants. Allowing paddocks to rest after grazing also allows forage plants to utilize nutrients from manure more readily. As a result, less fertilizer is needed. Fewer herbicides are also required, as healthy forage plants are much more able to outcompete weeds. This reduction in the need for fertilizers and herbicides saves time and money for livestock owners, and also helps to protect water quality by decreasing the potential for runoff or groundwater contamination. Managed grazing also reduces compaction by allowing more evenly spaced hoof traffic over pastures. Rotating animals off of pasture during winter months is particularly important in reducing soil compaction. Allowing plants to rest through dormant months also results in better forage growth.

Resistance to drought: Healthier forage plants have deeper root systems, increasing their ability to withstand periods of drought. Reducing compaction decreases surface water runoff, allowing more water to penetrate into the soil profile. Organic matter from manure also increases the water-holding capacity of the soil.

Control of forage species: When livestock are left in one large pasture they selectively graze, always choosing the young growth of the same plants while allowing other grasses to become too old and unpalatable. Large open pastures are left with clumps of mature grasses and spots of overgrazed and weakened plants. This can lead to reduced production, reduced quality, and weed infestations. The best way to avoid these issues is to reduce paddock size and rotate livestock through these smaller spaces until they uniformly graze down the pasture to around three inches. Grazing livestock in smaller paddocks encourages them to consume some of the less desirable forage species allowing for the control of these species by over-grazing them and allowing more desirable species to take over. Allowing desirable species like annual rye or vetch to go to seed while grazing less desirable areas will allow for desirable species to become more plentiful as well (Morgan).

Assessment of the herd: Moving animals more often from paddock to paddock allows more interaction with a herd overall. Injured or ill animals are more readily noticed and problems can be addressed quickly.

Carbon Sequestration: Managed grazing may also be an effective tool in combating climate change. Healthy forage plants with deep roots prevent soil from being exposed and eroded, reducing the release of carbon into the atmosphere. Healthy soils are also better able to store atmospheric carbon. Productive pasture keeps plants in a vegetative state allowing grasses to utilize more carbon from the atmosphere (carbon sequestration) through increased photosynthesis. Carbon that is sequestered offsets carbon that is released to the atmosphere through the burning of fossil fuels, tillage, and deforestation. Managed grazing has the potential to realize carbon sequestration gains in soil and vegetation at between one-half to three tons of carbon per acre (Hawkins, 2017).

In general, managed grazing creates a system that is more productive in normal years and more resilient in years with extreme weather events. Resistance to drought is an issue of increasing importance in the coming decades as climate change impacts coastal pastures.

Getting Started

Matching management with production goals is important. The intensity of a management system will depend on the species of livestock being grazed and the time a producer has to devote to management. The more intensely the pasture is managed, the higher the return on investment and the higher the realization of the previously mentioned benefits (Lundin, 1997). When starting a managed grazing system, consider layout of smaller rotational grazing paddocks across your landscape. Factors such as water availability, timing, and logistics of rotating livestock should be taken into consideration. Temporary electric fencing is a common and easy way to manage the size of paddocks, allowing the manager to control access to forage to balance the nutritional needs of livestock with the production and quality of forage on the land (Morgan). Keep in mind that species of livestock, species of forage, and the grazing management will determine the forage supply for the grazing season.

For assistance in evaluating managed grazing systems for your property contact the Snohomish Conservation District at (425) 335-5634.

Find out More

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Pasture and Grazing Management in the Northwest

- <https://snocd.org/pnw0614>

Stockman Grass Farmer Magazine

- <https://www.stockmangrassfarmer.com>

Management-intensive Grazing: The Grassroots of Grass Farming. 2004. Jim Gerrish. Green Park Press. An excellent book for the beginner and experienced alike covering soils, management, forages, etc. Order from Jim Gerrish directly at www.americangrazinglands.com or from the SGF website, www.stockmangrassfarmer.com (look for the link to Bookshelf) or call 800-748-9808.

Cows, Carbon and Climate | Joel Salatin | TEDxCharlottesville 2016

- <https://snocd.org/cows-carbon>

References

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Penn State Managed Grazing: <https://snocd.org/penn-state-article>

Benefits of Managed Grazing: <https://snocd.org/6614>

Jim Morgan, PhD. Advantages of Rotational Grazing: <https://snocd.org/joe-morgan>

FAO Managed Grazing and Carbon Sequestration: <https://snocd.org/fao-man-grazing>

Lundin, F. Coastal Pastures in Oregon and Washington. Pasture Management Guide. 1996 Oregon State University Extension.