

ROTATIONAL GRAZING SYSTEMS

PASTURE & SOIL HEALTH

Rotational grazing systems incorporate many soil health principles:

- **Perennial living roots** feed soil microbes and attract diverse microbial populations.
- Animal manure and plant roots **add organic matter to soil**, supporting a healthier soil ecosystems (including increased soil carbon storage and stability¹).
- Perennial pasture **keeps the soil covered**, thus supporting biodiversity, reducing erosion, and supporting nutrient management.
- Perennial pasture **minimizes soil disturbance**, reducing erosion potential, building soil biology, and enhancing wildlife habitat.

Rotational grazing is a livestock management practice that aims to increase the productive capacity and resilience of pasture by allowing pasture to rest and recover between grazing events. It seeks to optimize the production per acre rather than using the pasture for each animal to maximize its size.

For a herd or flock, this means higher stocking rates, more days on pasture and lowered feed costs.

USING GROUND WELL

“Caring about the animals is a key ingredient to making rotational grazing work”, says Steve Cooper of Cooper’s CSA Farm. “Because from there, every farm is going to be different; every bit of ground will have its own challenges and every soil will respond differently.”

““ We don’t have hordes of cheap land, so rotational grazing helps us be really effective with the small amount of land we have. The longer the cattle are walking and eating, the better it is for my pocketbook.” | Cooper

¹Climate smart grazing: The impact of adaptive multi-paddock grazing on soil carbon stocks, organic carbon stability and soil health in southern Ontario. MSc. Thesis. By J. Mehre. https://atrium.lib.uoguelph.ca/xmlui/bitstream/handle/10214/27495/Mehre_Jessica_202303_MSC.pdf?sequence=1.



Steve and Lisa Cooper run Cooper’s CSA Farm in Zephyr ON. It is a 400 ac mixed farm, that includes direct-market vegetables, beef, pork, poultry, maple syrup and agri-tourism.

Get started, take note, then adjust

When the Coopers got back into beef, they were rotating the cattle weekly. They ended up with an intensely-grazed pasture full of weeds. In 2015 they tried mob grazing, moving the fences daily. The cattle would eat down the pasture about 60-70% before moving on. The results?

Improved weed control: By moving the fences daily, the animals’ eating habits changed, and it dealt with the weeds better.

“The neighbours were asking if we’d sprayed our pasture for weeds, but we hadn’t!” | Cooper

Better drought resilience: During the really hot, dry stretches of summer, Cooper noticed the pastures that had been eaten down 100% short would brown out.

“But the pasture with plants that had been left a bit longer by the animals, those would green up much faster once the rain came.” | Cooper

Longer grasses have roots that go deeper into the ground compare to short-cut grasses.

WHAT'S THE BOTTOM LINE?

A study for the Greenbelt Foundation looked at what the research says about the economics of Rotational Grazing practices in Ontario conditions (Table 1). Values have been modified from the original report to reflect updated values. Profitability will vary with fluctuations in prices and costs.

Table 1 | Comparing the carrying capacity, annual income and costs of a 100-acre pasture managed using continuous and rotational grazing strategies; values are adapted from OMAFRA's 2020 Beef Cow Cost of Production Calculator, use an estimation for the annualized cost of portable fencing, and consider some additional unmonetized benefits.

Grazing Strategy	Continuous Grazing	Rotational Grazing
Size of Pasture	100 ac	100 ac
# of Cows on Pasture	95	119
Avg. Cow Weight (lbs)	1400	1400
Days on Stored Feed	210	171
Days on Pasture	155	194
# of Calves Marketed	87	109
Estimated Net Income (\$/Cow)	\$749	\$874*
Pasture Condition Information (un-monetized)		
Reduced pasture weed pressure ^a	-	✓
Increased pasture drought resilience ^a	-	✓
Increased storage and stability of soil carbon levels ^{B1}	-	✓

*Includes cost of 1.6 miles of portable fencing for a maximum 10 ac paddock (\$574 per year)

THINK OF THE BIG PICTURE

It's important to think about rotational grazing as part of a larger system – and then make it work for you. For example, the Coopers use composted manure from the winter as nutrients for their market-vegetable production and the picturesque cattle on pasture is an additional draw of customers to their agri-tourism and direct-to-market business. These value propositions don't show up in the Table 1 balance sheet.

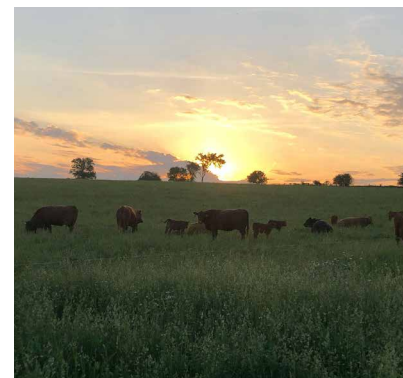
Additional resources:

Towards a Business Case for Soil Health: A Synthesis of Current Knowledge on the Economics of Soil Health Practices in Ontario. 2022. The Greenbelt Foundation. www.greenbelt.ca/business_case_soil_health

OMAFRA's Publication 19: Pasture Production. <https://www.ontario.ca/page/pasture-production>

Possible funding programs to support equipment modifications, purchase, new practices, etc., consult:

- Your local Conversation Authority
- OMAFRA Programs
- Ontario Soil and Crop Improvement Association, or your local Soil and Crop Group



Pro Tips:

Find your people. Learn from those who have experience in rotational grazing. They can help problem-solve, access existing resources, and help you gain confidence.

Design a flexible system. For example, graze when you can, cut and bale un-grazed forage for winter months, or plant cover crops that could double as pasture.

Train livestock to an electric fence. Electric fences are not strong enough to physically contain animals. They work when the animals know that the fence is unpleasant to touch.

Labour requirements for fence-moving and animal access to water need to be considered and planned for:

“With equipment prices and diesel fuel prices the way they are, it's easier to go out and move a fence line with a side-by-side than it is to fire up a tractor, use a TMR mixer and spend all that time and energy.” | Cooper

Tap into incentive programs. Use available funding programs to help offset new costs, including fencing and water systems.

This factsheet is a summary of key findings from the report, Towards a Business Case for Soil Health. Soil health practices considered in the report and this Factsheet Series are: reduced tillage, cover crops, crop rotation, manure amendments, rotational grazing and various 4R nutrient practices. The report estimated that Ontario farm net returns would increase by approximately \$14.6 million dollars per year if an additional 10% of the agricultural land in Ontario were to be managed to support soil health.

The numbers come from peer-reviewed, Ontario-based research and the analysis is based on financially-representative, farm-level budgeting techniques for Southern Ontario. Estimates are conservative and do not represent profits possible with experienced management.