

Novel Investment in Grazing Infrastructure: Flexible Funding for Portable, Temporary Grazing Supplies

Who and What:

Eighteen farmers received up to \$5,000 each to purchase portable, temporary grazing infrastructure such as electric fence, fence chargers and portable water tanks. Farmers reported grazing-related details before and after the infrastructure was in place, letting Practical Farmers of Iowa staff analyze changes to land use, farm and grazing management and livestock numbers.

Why:

Farmers in PFI's network have expressed interest in regenerative grazing strategies – as well as a willingness to adopt them. These include practices such as extended rest periods, adaptive grazing management, grazing cover crops and grazing small ruminants in timber and brush – all of which require farmers to be able to move their animals to different parcels of ground. The dynamic nature of these practices means portable fencing and watering systems are essential to make them feasible – but the upfront costs are often a barrier.

Adding to the challenge, infrastructure of this sort usually doesn't qualify for existing federal cost-share programs. One program farmers often rely on – the Environmental Quality Incentives Program, offered by the U.S. Department of Agriculture Natural Resources Conservation Service – requires that equipment bought with EQIP dollars be linked to a single land unit. Because fencing and watering tools used in regenerative grazing systems might get moved across land parcels, it's often ineligible for EQIP funding.



Portable electric netting keeps sheep safe while they graze and allows flexible, frequent rotations.



Hidden Hollow farm shares a photograph of an integrated multispecies grazing system: cattle roam open pastures while poultry are kept in more concentrated, safer enclosures with shelter.

In other cases, a farmer’s desired management strategy may not align with EQIP-generated management plan. To address these barriers, PFI applied for a Conservation Innovation Grant funded through Iowa NRCS. We then created our own grazing infrastructure cost-share program and distributed the funds to farmers, enabling us to offer more flexibility than EQIP.

How:

Farmers applied to our cost-share program in 2021 using an intake form that gathered information on their current operation, plans for using the funds and how those plans would affect grazing, along with some demographic details. We admitted 18 farmers to the program, who each signed agreements with PFI to use the funds based on their own plans or through a consultation call with PFI staff (or both), and to provide follow-up data. After the 2022 grazing season, we sent farmers a survey to collect data on grazing management.



Grazing timber and brush requires a different type of equipment and management!

Results at-a-Glance:

- Farmers reported grazing for more days, grazing on more acres and grazing more animals with the infrastructure (Table 1 and Table 2)
- Farmers reported direct and indirect savings on winter feed costs because they were able to graze more acres, or for longer (Table 3)
- Farmers reported longer rest periods between grazing events (Table 4)

Table 1. Days and acres grazed across all farms in 2021 and 2022 (before and after adding infrastructure).

Grazing Metrics Measured	Number of Farms	Total (across all farms)		Difference (2022-2021)	Difference (%)
		2022	2021		
Grazing season (days)	17	3,178	2,290	888	39
Perennial pasture grazed (acres)	14	3,153	1,408	1,745	124
Summer cover crops grazed (acres)	2	81	65.5	15.5	24
Fall and spring cover crops grazed (acres)	10	2,009	286	1,723	602

Table 2. Farm herd or flock sizes in 2021 and 2022 (before and after adding infrastructure).

Species	Number of Farms	Total number of animals (across all farms)		Difference (2022-2021)	Difference (%)
		2022	2021		
Cattle (beef)	12	961	861	100	12
Sheep	4	1,310	1,004	306	30
Goats	5	1,107	322	785	244
Chickens (eggs)	3	215	115	100	87
Chickens (meat)	2	3,340	500	2,840	568



Growing poultry can safely access the outdoors and forage on insects, grass, and seeds thanks to portable electric netting.

Table 3. Economic impacts of grazing infrastructure.

Economic Metrics	Number of Farms	Total value reported (sum of all farms)	Average value per farm
Value of extra forage (i.e. winter feed that did not have to be purchased)	7	\$33,316	\$4,759
Value of harvested forage (i.e. hay or silage harvested from owned or leased fields; or estimated value of stockpile)	5	\$26,876	\$5,375

Farmers estimated the infrastructure would last an average of 11 years.

Table 4. Changes in grazing management after adding grazing infrastructure.

Compared to previous years, did the following change with the addition of infrastructure?	Number of farms responding			
	Increased	Decreased	Remained the same	N/A or Can't tell
Rotation frequency (how often animals were moved to fresh forage or a new area)	2	2	11	3
Grazing frequency (how many times animals grazed a given area)	7	4	2	5
Rest periods (amount of time between grazing events on a given area)	13	0	1	4

Discussion and Implications

Feed is the single largest expense for beef cattle operations (Schwab et. al 2019), and minimizing feed costs is a focus of most livestock farm operations. Interestingly, the cost of owning and managing pastureland is often less than the cost of purchasing a similar amount of feed (Schwab et. al 2019). Thus, finding ways to extend the grazing season can help farmers save money by reducing how much feed they need to buy.

With the portable grazing infrastructure farmers purchased through PFI's cost-share program, farmers were able to do just that – graze more days or acres, thus extending the grazing season. In some cases, this was as simple as providing a portable water source that could reach a distant field with no existing water availability. In other cases, the infrastructure enabled grazing on a neighboring row crop field that had been seeded with cover crops.

Grazing Covers and Saving on Feed

Grazing cover crops is a practice that's highly beneficial to both livestock and row crop farmers. But the logistics of transporting animals, figuring out fencing and watering – and more – are often barriers to adoption. The portable fencing and watering equipment were practical solutions to these challenges. By supporting access to more acreage, the infrastructure also led to direct and indirect feed savings.

With a longer grazing season, for instance, farmers needed less winter hay to feed their animals. Extended grazing also let some farmers harvest more forage from their existing acres to store for later use, either by directly cutting hay or silage off the land or leaving some forage standing in the field for winter grazing, a practice referred to as stockpiling .

Supporting Rotational Grazing

The new fencing and watering systems farmers installed also made it easier to adopt rotational grazing practices, which improve pasture health and have other landscape benefits. Allowing livestock to roam freely over large acreages is a low-labor and low-maintenance model of grazing; it is also low-cost because it does not require much fencing or watering infrastructure beyond a perimeter fence and single water source. However, letting animals wander and graze at will harms pasture quality and can degrade soil and water resources. It's also an inefficient use of the land.

Keeping herds in smaller sections of pasture and deliberately rotating them to new forage encourages animals to graze more efficiently. How? Cattle tend to eat their favorite plants first. In unmanaged grazing, these desirable plants start to

regrow but are quickly munched again, depleting their energy stores and stunting their growth. They are then out-competed and overgrown by less palatable plant species that are not as intensively grazed. In rotationally grazed pastures, however, these desirable plants can recover and reproduce while less desirable plants are either trampled or grazed by cattle who are nudged to eat what's right in front of them. Over the long term, rotational grazing can boost pasture productivity.

Indeed, farmers who participated in PFI's grazing infrastructure cost-share reported that their grazing management changed, most noticeably in the amount of rest days a given pasture received between grazing events. This is likely a component of the greater availability of forage throughout the season and the extended grazing seasons; more productive pastures and more efficiently harvested pastures are depleted less rapidly.

Another benefit of rotational grazing is its effect on soil and water quality. Because the animals move to different sections of pasture more often, their manure and urine deposits are spread out, which adds fertility to the soil while avoiding negative changes that happen when waste material is concentrated too heavily in an area.

Other Benefits

Financial benefits reverberated beyond the feed savings. Thanks to the portable infrastructure, farmers were able to retain more animals. For some farmers, this meant more market animals to sell. For others, it meant the ability to expand their breeding herd or flock without having to purchase animals from other farms.

Quality of life also improved for farmers. Because the infrastructure was adaptable to farmers' needs, participants reported that moving animals and supplying water was more convenient and less labor-intensive. This turned out to be another positive outcome of the program.

Outlook and Future Work

This project demonstrated that a modest investment in portable grazing infrastructure led to significant and measurable financial benefits, and noticeable increases in adoption of grazing practices that contribute to soil, water and pasture health. PFI has received additional funding to continue this work, focusing this time on small-scale and beginning farmers who wish to capitalize on and improve their use of smaller acreages.

Our hope is that more funders, and the NRCS, will see the benefits of flexible infrastructure not tied to a specific acreage and will be more willing to fund these portable tools to get more regenerative grazing on more acres.



Portable, weather-safe feeders give turkeys the extra nutrition they need and can be moved from paddock to paddock.



Steep, brushy, timbered areas aren't suitable for permanent fence installation, but sheep and goats can be effectively grazed when portable netting is used.

Citation:

D. Schwab; Sellers, J.; Euken, R. 2019. Cost of production comparisons from three different cow-calf systems in Iowa. Iowa State University Animal Industry Report 2019. <https://www.iastatedigitalpress.com/air/article/id/7173/>