

Pasture management in the US Midwest – An assessment of current practices and future opportunities

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Abstract

Managed grazing offers significant potential to improve the sustainability of livestock farms in the US Midwest, however the benefits of managed grazing are largely influenced by the management practices employed on farm. The objective of this study was to gain an understanding of current grazing practices on Midwest farms and to identify the knowledge and support needs of graziers. A total of 185 responses were received from a range of different enterprises including dairy, beef, and sheep production. Results show a substantial degree of variation in grazing management practices between respondents and highlights significant scope for improvement on farms particularly in the areas of pasture measurement and budgeting, and grazing infrastructure. Reported benefits of managed grazing included lower environmental impact, better pasture and animal performance, better animal health and welfare, and lower costs. Challenges with managed grazing included time and labor input, maintaining pasture quantity and quality during the grazing season, adverse weather conditions such as excessive rain and drought, and animal health challenges such as heat stress, parasites and in some cases coyotes. The study highlighted opportunities for research and extension providers to better support farmers with information and advice and identified knowledge gaps in areas such as pasture species selection, soil fertility, grazing infrastructure, pasture budgeting, legumes, and pasture measurement. The study successfully gained an insight into graziers in the Midwest, the outputs of which, will be valuable to a number of key stakeholders going forward, including researchers, extension agents, farmers and policy makers.

Introduction

Managed grazing offers significant potential to improve the sustainability of livestock farms in the USA, particularly in the Upper Midwest region where climatic conditions are favourable for pasture production and utilisation. Managed grazing can be beneficial in terms of its environmental impact, animal health, and profitability, when compared with cropping and confinement systems (Wang et al., 2021). The extent of these benefits however largely depends on the grazing management practices employed on farms. A previous study by Paine and Gildersleeve (2011) made a substantial contribution to the understanding of grazing practices on beef farms in Wisconsin, and now there is a renewed need to determine present-day grazing practices as well as farmer motivations and experiences with managed grazing. The objectives of the current study therefore were to establish an understanding on current grazing practices on livestock farms in the Midwest; to capture farmer perceptions on the implementation of managed grazing; and to identify knowledge and support needs to aid future research and extension programming.

Methods

An online survey was developed and distributed between July and September 2022 to graziers across the US Midwest. The survey was created using Qualtrics in a format compatible with desktop and

mobile devices and followed Dillman's tailored design survey protocols (Dillman et al., 2014). The survey was anonymous and did not involve the collection of any identifiable data. When the first phase of survey design was complete, it was pre-tested with a group of ten participants to determine usability as per Converse and Presser (1986). Final survey design was then refined based on feedback relating to question clarity, question order and flow, skip patterns, and timing. A mixture of purposive sampling (Tongco, 2007) and snowball sampling (Gerlitz and Rieder, 2013) was used. Survey responses were captured, cleaned, and then analysed using the IBM SPSS Statistics 24 software package.

Results and Discussion

A total of 185 survey responses were received from 8 separate states, with the majority (76%) coming from Wisconsin. The remaining responses came from Iowa (9%), Indiana (8%), Minnesota (3%), Michigan (1%), Missouri (1%), Montana (1%) and South Dakota (1%). Average age of respondents was 49, while 68% were male and 32% female. Beef farming was the most common enterprise (60%), followed by sheep (17%), dairy (16%), goats (5%) and 'other' (bison, swine, heifer rearing; 2%).

All respondents were graziers, with years' experience ranging from 1 to 68 years. Average number of years grazing was 13. While most farmers had significant experience with grazing, management practices varied greatly, with just over half (58%) having developed a managed grazing plan for their farm with a grazing specialist. Routine pasture measurement was carried out on 29% of farms, with 73% of these farms using the 'eyeball' method, 23% using a grazing stick, and 5% using a rising plate meter. Just 43% of respondents who measure pasture use the data to develop a pasture budget, indicating significant scope for improvement in this regard. Results suggest there is an awareness among graziers that current performance levels could be improved, with 99% of respondents stating that there is room to improve their pasture performance.

According to respondents the three main challenges with managed grazing were time and labor (moving and maintaining fences and water, close observation and planning, time constraints due to off-farm employment; 33%), infrastructure (water, fencing, handling facilities; 32%), and maintaining pasture quantity and quality during the grazing season (managing growth variability, stocking rate, grazing decisions, clipping, weed control, spring and fall grazing; 27%). Other challenges included adverse weather and soil integrity (mud season, excessive rainfall, drought; 19%), animal health and welfare (heat stress, parasites, flies, coyotes, 14%), markets and profitability (grass-fed market, farmer supports 9%), and knowledge and advice (research, extension, mindset change; 7%). Additional challenges mentioned included fragmented land structure, sourcing new grazing land, conversion from cropping to pasture, winter feed availability and cost, breeding animals at pasture, lack of focus on grazing genetics, and farmer age.

The top three benefits of managed grazing, according to respondents, were environmental benefits (soil health, less nutrient runoff, less erosion, environmentally friendly, more wildlife, carbon sequestration, sustainable, less chemicals; 74%), better pasture and animal performance (Pasture availability, utilisation, yield, quality, animal performance, grazing season length, increased SR, drought resilience, flexibility; 54%), and better animal health and welfare (less health issues, happier animals; 40%). Economics (Lower cost, less equipment and machinery, less labor, value-added product; 31%) and farmer satisfaction (Less labor, more free time, better quality of life, enjoy farming; 12%) make up the top five benefits of managed grazing.

While several challenges were highlighted 99% of respondents stated that the benefits of managed grazing outweigh the challenges. In terms of future plans, 59% of respondents plan to increase grazing on their farms in the future, 41% plan to maintain current levels, while just 1% plan to decrease grazing. Going forward, there is a need to support graziers in improving their operations, and results from this study highlight an opportunity for research and extension providers to improve in this regard. On average, respondents rated the technical information and guidance available on grazing as 6 out of 10.

The following are the top ten areas (ranked in order of importance) which graziers want more information and advice on; pasture species selection, soil fertility, grazing infrastructure, pasture budgeting, legumes, pasture measurement, fertilizer/manure application, herbs, supplementing animals at pasture, and 'other' (pasture renovation, economics, management techniques, silvopasture, genetic selection for low-input animals, specific small ruminant advice).

Conclusion

This study provides new insights into grazing practices on livestock farms in the Midwest and captures farmer perceptions on the implementation of managed grazing. It also highlights and ranks the key aspects that farmers need more information and advice on, which offers valuable guidance for researchers and extension agents in supporting graziers in the future.

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