Enhancing botanical composition, wildlife habitat, and carbon sequestration of pastures in south central Iowa through soil disturbance by mob grazing of beef cattle

Abstract: As Iowa pastures continue to be dominated by cool-season grass species, strategic integration of a single mob-grazing event into pasture management offers a tool to simultaneously increase productivity of pastures and to improve grassland wildlife habitat through increased biodiversity. However, the success of the maneuver depends on climate, soil and landscape.

What was done and why?

The low biodiversity of grasslands in south central Iowa results in low productivity for grazing livestock and loss of ecological services such as wildlife habitat, carbon sequestration and maintenance of water quality. However, the addition of grazing at high stocking densities for short durations may reduce the competition from dominant cool-season grasses and allow establishment of less competitive plants such as legumes and annual species. Increasing diversity of plant communities has the potential to increase the productivity and nutritional value of grasslands for livestock production, increase carbon sequestration and enhance wildlife habitat particularly for ground-nesting birds.

Objectives:

- Evaluate the effectiveness of the strategic use of mob-grazing to improve the botanical composition of the forage for grazing cattle, wildlife habitat, carbon sequestration and water infiltration in pastures in south central Iowa.
- Quantify the effects of stocking density as affected by the frequency of movement of mob-grazing and subsequent management on the botanical composition, wildlife habitat, carbon sequestration and water infiltration in pastures in south central Iowa.

What did we learn?

While a single mob-grazing event can increase the biodiversity of grassland plant communities, it is important to note that the value of this management tool is dependent on climatic, soil and landscape conditions. To optimize the use of mob-grazing on ecological services, flexibility in the use and integration of this management practice with other practices is desirable. If soil conditions are dry either during or after the grazing treatment, mob-grazing may need to be repeated more frequently than if implemented at high soil moisture levels. Also, to maximize the effects of mob-grazing on the plant community, appropriate soil pH control and fertilization is necessary. In order to graze grasslands in government contracts or used for recreational activities, issues regarding the rules for grazing land in government contracts, rental payments, the length of agreements, and responsibilities for fencing and water sources need to be considered and included in grazing contracts.

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