



Livestock Integration

UPDATE



Why Livestock are Integrated at Dakota Lakes

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Livestock play a vital role in harvesting cover crops and perennial forages used in crop rotations. Livestock grazing generates short-term economic returns while forages provide long-term soil benefits. Grazing crops in the field, rather than removing grain and hay, ensures that organic matter and mineral nutrients remain in place and are returned to the soil.

Perennials offer additional advantages. Their deep root systems stay active deeper in the soil and for a longer portion of the growing

season compared to annuals. These roots transport nutrients from deeper layers back to the surface, making them accessible to subsequent crops. In areas with high water tables, perennials also help reduce salinity by drawing down excess water and mitigating saline seeps. When cattle graze cropland and consume supplemental feed such as soybean meal and grain, most of the nutrients and organic matter from those inputs remain on the land, contributing to soil fertility.



January 26, 2023. An ice crust covers a cover crop swath, making it nearly impossible for cows to reach the swath without mechanical help.

March 2023

The winter of 2022–2023 posed the most severe challenges to cattle management at the Dakota Lakes Research Farm in seven years. Ice storms and heavy snow damaged electric fencing and insulated cattle from electric shocks, reducing fence effectiveness. Although cows can typically swath graze through deep snow, a thick ice crust formed during this winter, preventing access to the forage beneath. Mechanical methods were employed to break or remove the ice crust from swaths. Anecdotal reports from Canadian producers suggest that including a few horses in the herd may alleviate this issue, though this has not yet been tested at Dakota Lakes.

Two crop rotations at the farm include a 4- to 5-year perennial phase that alternates with annual grain crops. Both hay fields in this system reached full production last year, which allowed a higher number of bales to be fed this winter than in previous years. A bale processor was used to distribute bales evenly across fields, ensuring a more uniform spread of manure and urine. This even distribution is critical for maintaining consistent soil fertility across fields, particularly in a research context where fertility variability can compromise future experiments.

January 9, 2023.
To break up the ice crust on top of the swaths, Dakota Lakes used a roller-crimper. It was temporarily effective, but after a new thaw-freeze cycle, it was perhaps even worse than before the roller-crimper was used.



The cow herd recorded a pregnancy rate of 76% this season. Despite maintaining good body condition overall, cows experienced slight condition loss during extreme cold periods when ice made swath grazing difficult. Such losses during the breeding

season can lower conception rates. The breeding window was also shortened to 54 days—approximately 10 days shorter than three full cycles—contributing to the reduced pregnancy rate.



March 20, 2023.
This field was first swath-grazed, and then bales were fed with a bale processor directly onto the field. Abundant litter is visible and cowpies are distributed throughout the field. In the background, the cows are concentrated around a creep feeder and feed bunks that were located on the dirt road beside the field.



December 9, 2022. Dakota Lakes kept nine steers for field finishing. In this photo, the steers and heifers are in an alfalfa field. The alfalfa was hayed during the summer and the bales were being fed back on the field.

Nine steers were retained for field finishing. These animals grazed swaths, consumed processed alfalfa hay, and fed on corn residue alongside yearling heifers during the early

winter. On February 27, the steers were separated to receive higher grain rations, better suited for finishing, while the heifers continued with the existing forage-based diet.



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