



Impacts of grazing on Cicer milkvetch

Fact Sheet 2015

LOCATION: BROOKDALE SITE

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STATUS: IN PROGRESS

Impacts of grazing intensities on Cicer milkvetch (*Astragalus cicer* L.) abundance on a planted native grass pasture at the Brookdale Farm

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Background

Cicer milkvetch (*Astragalus cicer* L.) is a cool season, perennial legume native to Eastern Europe, which has been introduced to southern Europe, North America and South America¹.

Although difficult to establish, the plant is long-lived and competitive with vigorous creeping root system². This species is not known to cause bloat nor does it accumulate selenium as do certain native *Astragalus* species. Cicer milkvetch is similar in nutritive value to alfalfa and can provide forage late into fall.

However, as mentioned, Cicer milkvetch is competitive and can dominate pasture systems. Some preliminary research results have been done at the University of Alberta on the ecological and economic impacts of Cicer milkvetch in native mixed prairie grasslands. This research indicated that a presence of Cicer milkvetch increased forage quantity and quality while decreasing soil carbon and plant diversity (Dr. Cameron Carlyle, personal communication, May 29, 2015; University of Alberta). Planting Cicer milkvetch in or adjacent to natural areas or near native grasslands is not recommended due to its persistent nature and ability to outcompete many grass species³.

The north west corner of the Brookdale site of MBFI was originally native grasslands but in 2004 it was top-seeded with Cicer milkvetch. Since then the area has become dominated by Cicer milkvetch and a low abundance of the native grasses remain.



Flowering Cicer milkvetch.



Enclosure cages (used to prevent grazing in a small area) set up in a paddock with abundant Cicer milkvetch.

Objectives

- ü To compare the effect of two different grazing methods on the abundance of Cicer milkvetch;
- ü To determine if there is a difference in forage selectivity of the cattle between two grazing systems as a result of different stocking densities and length of the grazing period; and
- ü To determine the long-term impacts of the abundance of Cicer milkvetch on other groups of plant species (legumes, grasses and broadleaf species).

Planned Grazing	Rotational Grazing
5 animal units per acre	3 animal units per acre
19 fields	7 fields
Initially moved once per day	Moved every 5 days
High intensity	Moderate intensity

Observations will include:

- Ü % of area covered by live vegetation
- Ü % of area covered by bare soil
- Ü % of area covered by last year's dead material (litter)
- Ü % foliar cover of each plant
- Ü Utilization estimates
- Ü Normalized Difference Vegetation Index (NDVI) imagery which will compare vegetation over time.

Project Design and Methods

Two different rotational grazing systems have been initiated in the northwest quarter of the Brookdale Farm; a high density planned grazing system (commonly known as mob grazing) and a moderate density rotational grazing system.

Vegetation assessments were taken from three of the fields on both the planned grazing and rotational grazing fields before and after each grazing event.

What did we find?

The initial results of this study were somewhat unexpected; they indicated higher intake of Cicer milkvetch in the moderate density rotational grazing than in the high density planned grazing. The opposite was expected as cattle in the high density treatment had access to a much smaller area and forced to eat what vegetation was available. It is possible that our assumption of Cicer milkvetch being less preferred than other forages may be false. However, this analysis is done using only one year of data so results may change as data collection continues over the next 2 years.

Key Messages

Producers interested in increasing their pasture production by utilizing Cicer milkvetch should be aware of the invasive nature and persistence of this species. Also, it is recommended not to plant it near native prairies due to its competitive nature which may result in degraded grassland ecosystems.

In future study years it is planned to compare the high intensity planned grazing to a fully continuous grazing system. It is anticipated that this will result in more drastic and measurable differences in Cicer milkvetch abundance.

Further years of study are required on the effects of grazing on Cicer milkvetch abundance.

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