

# Defining Agronomic Practices for Forage Corn Production in Saskatchewan: Factsheet



## Objective:

1. Develop and refine seeding and fertility recommendations for corn silage production
2. Evaluate the cost of production and feed quality of corn silage grown in Western Canada

## Methodology:

The project was conducted at 6 sites (Scott, Lanigan, Melfort, Yorkton, Outlook, and Redvers) and 3 growing seasons (2016, 2017, and 2018). At each site, two corn brands were planted (Brand A and Brand B) based on the Corn Heat Units (CHU) of each location. To evaluate the effect of seeding rate and nitrogen rate on production of forage corn, the project included three seeding rates (30,350 plants/ac, 40,470 plants/ac, and 50,600 plants/ac) and three nitrogen rates (100, 150, and 200 lbs N/acre).

## Key Findings:

- Increasing the seeding rate in this study reduced crude protein (CP) and soluble protein, but increased dry matter (DM) forage yield.
- Increasing the N fertilizer application resulted in greater DM forage yield at 200 lbs N/ac, but the increase was only 0.6 Mg/ha.
- Increasing the N fertilizer application also increased CP and soluble protein concentration but only by 0.99% and 0.36% respectively. While increasing CP concentration was observed with N fertilization, it may be more economical to provide CP supplementation in a concentrate or pelleted form.
- Total Digestible Nutrients (TDN) was not affected by N rate or seeding rates; mineral concentrations for all treatments were suitable for beef-cow wintering diets.
- The cost of production per tonne of biomass yield increased with seeding rate; increasing the nitrogen rate was only economically viable at the long-season sites.

**Table 1.** Average DM yield, tonne/ha (ton/acre) for each treatment group.

	Treatment	2016	2017	2018
<b>Site</b>	Outlook	16.0 (8.5) a	18.2 (8.1) a	18.8 (8.4) a
	Redvers	18.3 (8.2) ab	15.1 (6.7) b	15.7 (7.0) b
	Yorkton	17.4 (7.8) b	14.4 (6.4) bc	11.6 (5.2) c
	Lanigan	19.1 (7.1) c	13.8 (6.2) cd	12.5 (5.6) c
	Scott	12.3 (5.5) d	12.7 (5.7) d	10.8 (4.8) c
	Melfort	10.9 (4.9) e	-	-
<b>Brand</b>	Brand A	16.0 (7.1) a	14.8 (6.6) a	13.6 (6.1) a
	Brand B	15.4 (6.9) b	14.9 (6.6) a	14.7 (6.6) b
<b>N Rate</b>	High rate	16.1 (7.2) a	14.8 (6.6) a	14.8 (6.6) a
	Mid rate	15.7 (7.0) ab	15.2 (6.8) a	14.2 (6.3) ab
	Low rate	15.2 (6.8) b	14.5 (6.5) a	13.3 (5.9) a
<b>Seeding Rate</b>	High rate	16.4 (7.3) a	15.3 (6.8) a	14.3 (6.4) a
	Mid rate	15.4 (6.9) b	14.9 (6.6) ab	14.1 (6.3) a
	Low rate	15.2 (6.8) b	14.3 (6.4) b	14.0 (6.2) a

The full report is available at: [www.warc.ca](http://www.warc.ca). Funding for the project was provided by the Saskatchewan Ministry of Agriculture through the Agriculture Development Fund, the Saskatchewan Cattleman's Association, and the Prairie Agricultural Machinery Institute.