

Trial Summary

Canola Nitrogen Rate Trial

Research Question:

Are N rates being used on canola across Manitoba sufficient for optimizing yield and nitrogen efficiency?

Treatments:

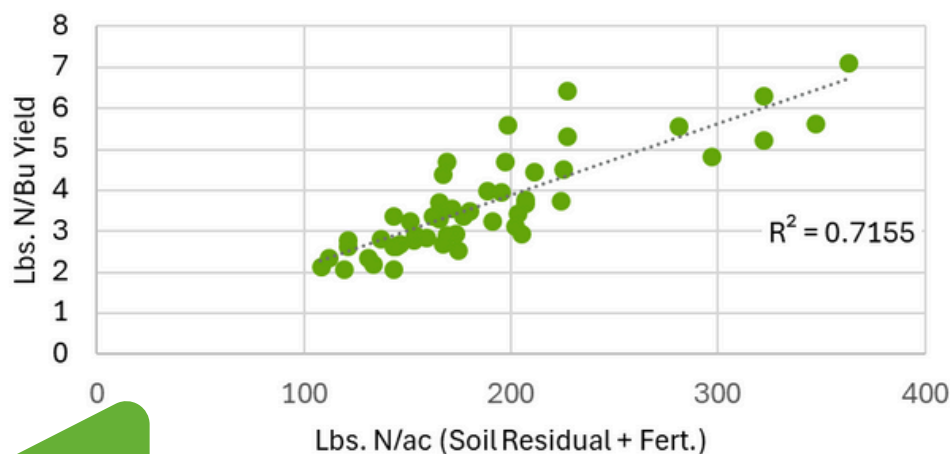
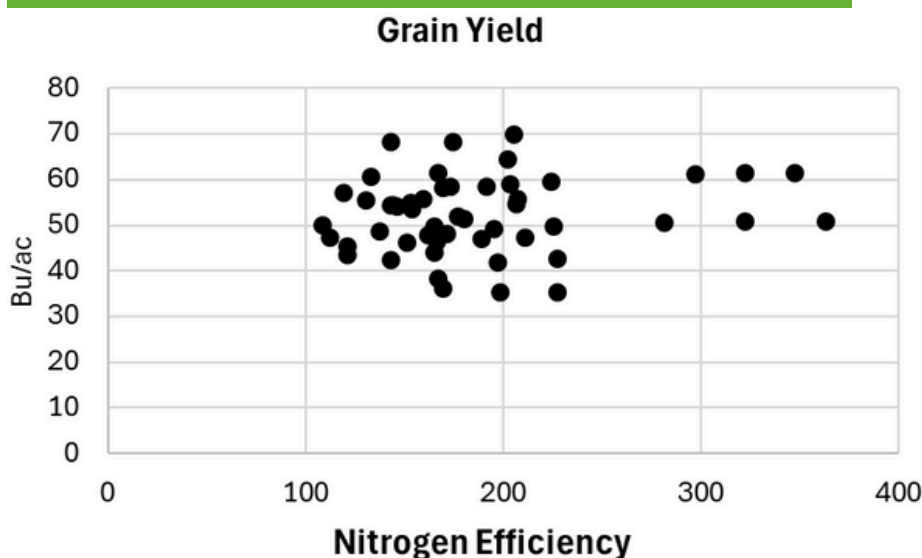
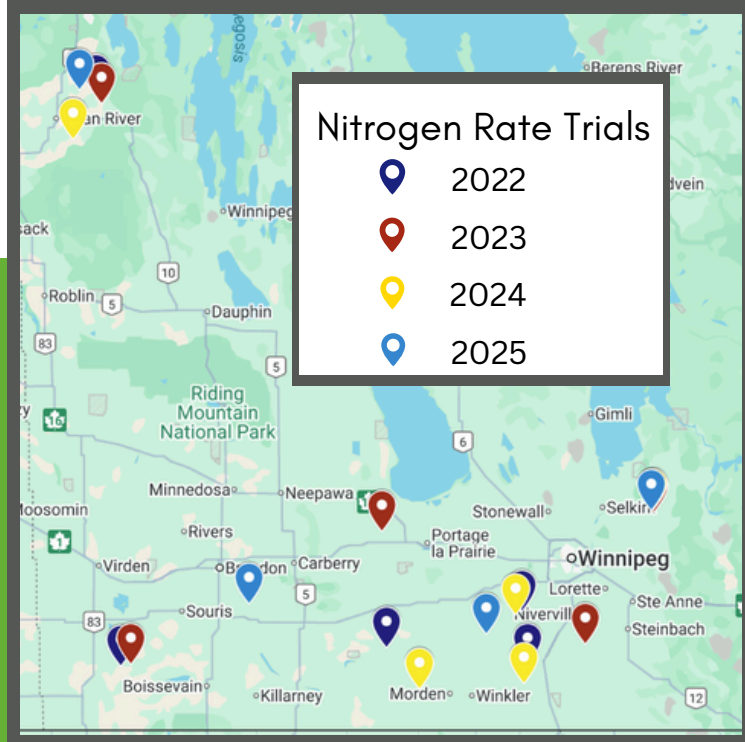
1. Reduced N Rate (75%)
2. Standard N Rate (100%) – Farm Normal for Field
3. High N Rate (125%)

Trial Setup:

Randomized complete block, each treatment was one equipment width x field length, with 4 replicates per locations (12 strips per location)

Data Collection:

Plant Counts, Tissue N (bolting), Yield, Protein, Oil Content



Background: Current research indicates that canola uptakes an average of 2.6 lbs. of N per bushel of grain yield, with a wide range of 1.3 to 3.6 (Walley et al. 2023). The amount of N available to the crop during the growing season from fertilizer applications and soil supplies can vary widely depending on management and growing season conditions. This makes understanding crop N use on a farm level a major priority for farmers to ensure they are supplying canola with sufficient N while maximizing return on investment.

2022 – 2025 Summary: The vast majority (95%) of fields tested in this trial since 2022 were supplying sufficient N with their current practices, seeing no significant increase in grain yield with a 25% increase in N rate (95% confidence).

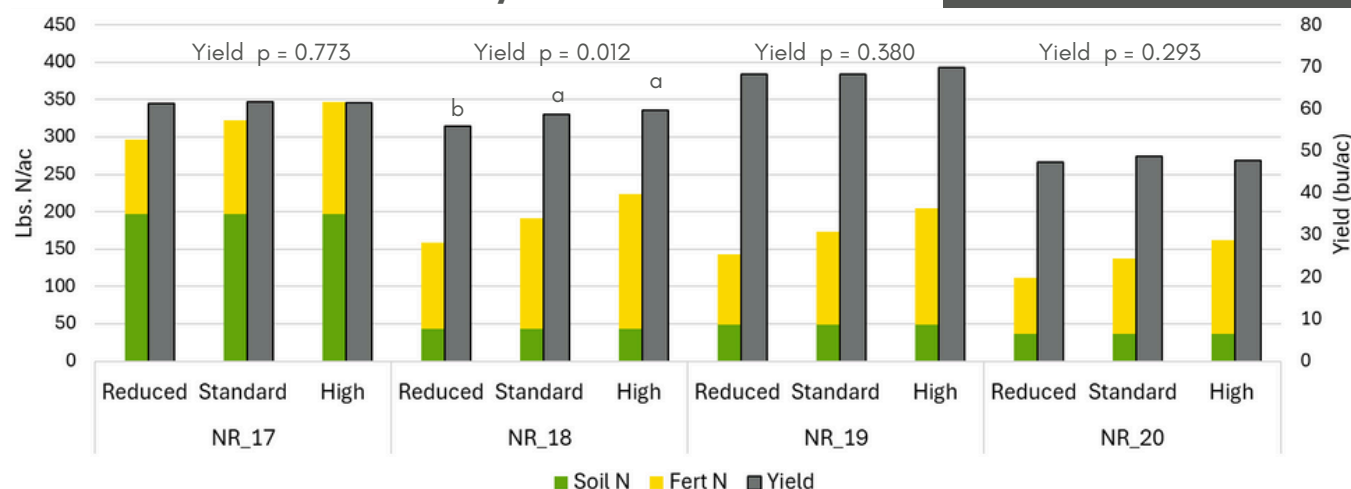
2025 Results Summary

Canola Nitrogen Rate Trials

2025 Nitrogen Rate Trial Sites

Trial ID	RM	Soil Residual N (0-6 in)	N Rates (lbs. N/ac)			N Source
			Reduced	Standard	High	
NR_17	Oakland-Wawanesa	197 lbs/ac	100	125	150	Urea
NR_18	Brokenhead	43 lbs/ac	116	148	181	Urea
NR_19	Dufferin	49 lbs/ac	94	125	156	UAN
NR_20	Minitonas	37 lbs/ac	75	100	125	Anhydrous Ammonia

N Rate – 2025 Results Summary



Within each trial location, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Locations with no lowercase letters listed indicate an insignificant treatment effect.

Grain Yield

Yield ranged from 47 to 70 bu/ac across all N rate trials in 2025. There was no significant effect of N rate at three of four trial locations, indicating that N was not a yield limiting factor in these trials. At NR_18, yield was similar between standard and high N rate treatments, but significantly decreased (2.80 bu/ac) when using the reduced N rate treatment.

Nitrogen Efficiency

The average amount of N supplied per bushel of grain yield was 3.5 lbs N/bu, ranging from 2.1 to 5.6 lbs N/bu across trials in 2025. Yields did not significantly increase with the use of high N rates – fertilizer efficiency of high N rate treatments was significantly poorer than the standard rate across all trials, resulting in reduced economic returns as more N was utilized to produce similar yields.