

**Testing AnneMaxx™ Products in Wheat and Canola
in Westlock, Alberta in 2025
Research Project 4 – Final report**

Abstract

Field trials conducted in 2025 in Westlock, AB evaluated the agronomic performance and economic viability of AnneMaxx™ (Annelida) products under reduced-fertilizer regimes for wheat and canola.

The experiments employed a randomized complete block design with four replications, testing granular and liquid formulations at 75% of recommended fertilizer rates vs. 100% fertilizers (control).

Both granular treatments at reduced-fertility levels in both crops delivered yields equal to the control with 100% fertilizers. ROI based on absolute yield data was positive for liquid treatments but negative for granular treatments. Overall, AnneMaxx™ products produced a measurable influence on wheat and canola. When statistical significance is considered, all trials with reduced fertility for both crops produced yields comparable to the control with full fertility and higher than the negative control with reduced fertility.

The results showed that applying AnneMaxx™ products with reduced-fertilizer rates can markedly improve both agronomic performance and profitability of wheat and canola in Central Alberta.

Introduction

Field trials of Annelida products are required to obtain objective efficacy data that can support sales, marketing, and regulatory submissions. This program comprised small-plot trials on locally important crops, conducted by independent third-party growers in Canada.

Goal

To evaluate the impact of AnneMaxx™ products on the yield of wheat and canola in Central Alberta in 2025.

Materials and methods

The trials were performed by Gateway Research Organisation (GRO) in accordance with its standard agronomic protocols.

The study was planted in Westlock, Alberta in 2025, GPS coordinates 54°06'47.8"N 113°50'56.6"W.

The treatments for both crops included:

1. Control – 100% of recommended fertilizers:
 - a. Wheat: 133-47-28-14 (N-P-K-S respectively, lb/ac),
 - b. Canola: 165-50-40-25 (N-P-K-S respectively, lb/ac).
2. 75% of recommended fertilizers.
3. 75% of recommended fertilizers + AnneMaxx™ Biome applied in furrow at 10 kg/ac.
4. 75% of recommended fertilizers + AnneMaxx™ Advantage at 3 l/ac + AnneMaxx™ Enhance Plus at 1l/ac to the total mix of 4l/ac applied to the furrow at planting.

For brevity, the granular treatments are referred to as:

1. 100% fertilizers
2. 75% fertilizers
3. 75% + granular
4. 75% + liquid

The grower followed the typical growing practices for the area. The experimental design was a Randomized Complete Block Design (RCBD) with four replications. Each plot measured 1.4 m x 6.8 m and had 6 rows (Fig. 1-2).



Figure 1. General view of wheat trials



Figure 2. General view of canola trials

Assessments

1. Early-season visual stand – visual rating expressed as a percentage (0–100 %).
2. Stand count at full emergence – plants counted along a 1 m segment of the two inner rows in the centre of each plot and reported as plants/m².
3. Plant height – measured at 75% flowering.
4. Days to flowering – recorded as notes or observations when phenological differences became apparent.
5. Yield at maturity – six rows were harvested from each subplot, providing two yield measurements per plot (the two repetitions). These values were averaged and expressed in lb/ac and bu/ac, corrected to standard moisture.
6. Other notes, measurements, and observations were collected by Annelida.

Data analysis

The data were analyzed using an ANOVA (Analysis of Variances) method for RCBD. Treatments were used as fixed factors. The responses were yield and other measurements. The effects of replications were attributed to the error term for the variance. The least-significant-difference (LSD) was computed at $P < 0.05$ and is displayed as error bars on the graphs.

Return-on-investment (ROI) calculations were based on the following cost and revenue assumptions:

- Fertilizer costs – Canola \$160/ac, Wheat \$140/ac.
- AnneMaxx™ product prices – Advantage (3 L/ac) + Enhance Plus (1 L/ac) at a manufacturer's suggested retail price (MSRP) of \$21/ac; Biome at \$27/ac.
- Commodity market prices – Canola \$0.62/kg, Wheat \$0.26/kg.

These parameters were used to estimate net returns for each treatment by comparing the additional revenue generated from yield gains against the incremental input costs of reduced fertilizer rates and AnneMaxx™ applications.

Results and Discussion

In all crops, plant emergence and stand establishment were statistically indistinguishable among all treatments. No treatment altered the percentage of seedlings that survived to the full-season stand.

Wheat

Visually, the wheat plots receiving the granular and liquid treatments appeared comparable to the control (100 % fertilizer) with no discernible differences in canopy development or plant density throughout the season (Fig. 3-4).



100% fertilizers



75% fertilizers



75% + granular



75% + liquid

Figure 3. Visual appearance of wheat by treatments early in the season



100% fertilizers



75% fertilizers



75% + granular



75% + liquid

Figure 4. Visual appearance of wheat by treatments mid-season

Interestingly, there were no noticeable differences between the 100 % and 75 % fertilizer treatments (the positive and negative controls), suggesting that the field already had a relatively high level of fertility.

Yield at 75% fertilization was slightly lower than at 100%, and the difference was statistically significant (Fig. 5). As expected, both granular and liquid treatments produced yields that were statistically indistinguishable from the control with 100% fertilization. At the comparable 75% fertilization level, yield increases were 2.2% for the granular treatment and 4.5% for the liquid treatment.

In our opinion, given the relatively high fertility of the field, both the granular and liquid products performed as expected (Fig. 5).

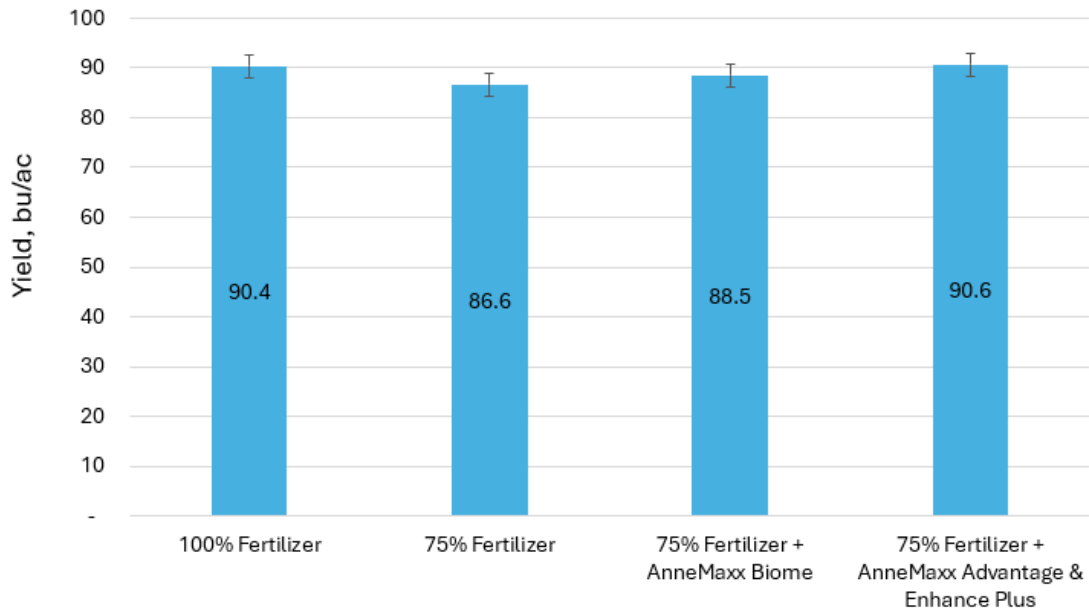


Figure 5. Yield of wheat by treatments

The granular treatment reduced revenue by \$12.79 per acre, leading to a net loss after accounting for fertilizer savings and product cost (Fig. 6). The resulting overall savings were -\$4.79 per acre, and the return on investment is -18% as the yield was somewhat lower than the control, even though the difference was not statistically significant. However, the ROI calculations were based on the numerical value of the yield, which was statistically similar to both the control and liquid treatments.

In contrast, the liquid treatment added \$1.46 per acre in yield value, which, together with the same fertilizer savings and a lower product cost, produces a net gain of \$15.46 per acre. This translates into a robust ROI of 74% (Fig. 6.)

Figure 6. ROI in wheat by treatments

Parameter	75% Fertilizer + AnneMaxx Biome	75% Fertilizer + AnneMaxx Advantage & Enhance Plus
Fertilizer savings, \$/ac	35.00	35.00
AnneMaxx cost, \$/ac	27.00	21.00
Yield gain, \$/ac	-12.79	1.46
Savings, \$/ac	-4.79	15.46
ROI, %	-18%	74%

Canola

Compared to wheat, canola plots showed greater variability across replications (Fig. 7). Generally, liquid treatments produced slightly higher field-seedling vigor; however, by mid-season there were no clear visual differences among the canola treatments (Fig. 8).



100% fertilizers



75% fertilizers



75% + granular



75% + liquid

Figure 7. Visual appearance of canola by treatments early in the season



100% fertilizers



75% fertilizers



75% + granular



75% + liquid

Figure 8. Visual appearance of canola by treatments mid-season

Similarly to wheat, canola yield at 75% fertilization was lower than at 100% (Fig. 9), however, both granular and liquid treatments produced yields that were statistically indistinguishable from the control with 100% fertilization. At the comparable 75% fertilization level, yield increases were 8.6% for the granular treatment and 11.6% for the liquid treatment.

In our opinion, given the relatively high fertility of the field, both the granular and liquid products performed as expected (Fig. 9).

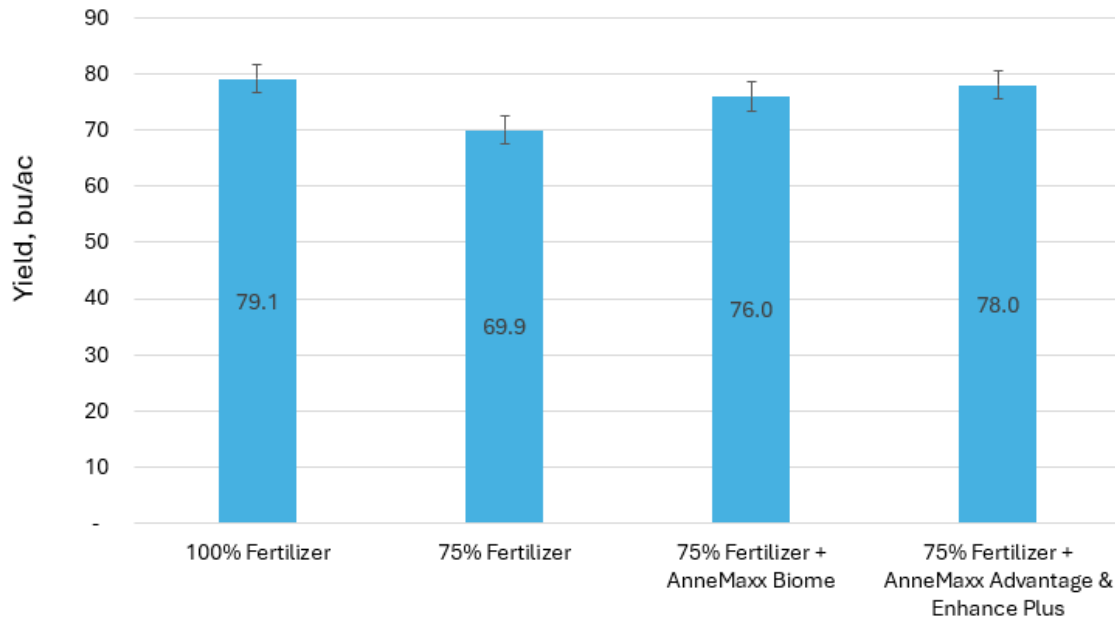


Figure 9. Yield of canola by treatments

Despite the statistically similar yield to the control when using 100% of the recommended fertilizer rate, the granular treatment reduced revenue by \$29.78 per acre, leading to a net loss after accounting for the \$40.00 per acre fertilizer savings and the \$27.00 per acre product cost (Fig. 10). The resulting overall savings were -\$29.78 per acre, and the return on investment is -110% because the yield was substantially lower than the control, even though the difference was not statistically significant. The ROI calculation was based on the numerical value of the yield, which was statistically similar to both the control and the other treatment.

The negative ROI was amplified by the depressed canola price, which has been constrained by Chinese sanctions on Canadian exporters. Between July and October 2025, the average market price fell by more than 14 %, reaching \$618.25 per tonne on 23 October 2025 [1-2].

The liquid treatment added \$4.86 per acre in net savings, which, together with the same fertilizer savings and a lower product cost of \$21.00 per acre, produces a modest positive return. This translates into an ROI of 23% (Fig. 10).

Figure 10. ROI in canola by treatments

Parameter	75% Fertilizer + AnneMaxx Biome	75% Fertilizer + AnneMaxx Advantage & Enhance Plus
Fertilizer savings, \$/ac	40.00	40.00
AnneMaxx cost, \$/ac	27.00	21.00
Yield gain, \$/ac	-42.78	-14.14
Savings, \$/ac	-29.78	4.86
ROI, %	-110%	23%

Summary

Overall, the study confirms that AnneMaxx™ products exerted a measurable influence on wheat and canola. When statistical significance is considered, all trials with reduced fertility for both crops produced yields comparable to the control with full fertility and higher than the negative control with reduced fertility. The liquid treatment delivered a positive ROI in both crops, indicating that AnneMaxx™ treatments are generally financially advantageous when paired with reduced-fertilizer regimes.

Annelida Soil Solutions is committed to promoting responsible fertilizer stewardship. By improving nutrient-use efficiency and supporting soil health, the company’s portfolio seeks to reduce the reliance on excessive fertilizer applications while maintaining or enhancing crop productivity.

Conclusions

1. Both granular treatments at reduced-fertility levels in both crops delivered yields equal to the control with 100% fertilizers.
2. ROI based on absolute yield data was positive for liquid treatments but negative for granular treatments.
3. Overall, AnneMaxx™ products produced a measurable influence on wheat and canola. When statistical significance is considered, all trials with reduced fertility for both crops produced yields comparable to the control with full fertility and higher than the negative control with reduced fertility.

Recommendations

1. Use the AnneMaxx™ products at recommended rates and reduced fertilization levels to boost yield and maximize cost-efficiency.
2. Reduce the target fertilization rate to a realistic level for each growing area in future trials.

References

1. China to set preliminary duty on Canadian canola after anti-dumping probe, CBC News, <https://www.cbc.ca/news/world/beijing-canada-canola-duties-1.7606557>
2. Trading Economics, Canola prices, <https://tradingeconomics.com/commodity/canola>

December 31, 2025

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