Background

Limited knowledge exists to help Ontario pea growers and agronomists design optimum crop nutrition strategies in processing peas. Furthermore, numerous companies are marketing various crop nutrition products to be applied foliarly at various crop stages. While many claims of increased crop health, stress tolerance, and crop yield exist, these claims are rarely backed up with solid agronomic research data.

Objective

Evaluate commercially available foliar nutrition and/or biostimulant products in the Ontario marketplace on their respective yield impacts on processing peas.

Materials & Methods

All pre-plant crop nutrition and weed control was managed as per industry standard.

Individual plots of a standard full season pea cultivar (SV6844QG) were planted with enough replicated plots to test eight (8) unique treatments, including an untreated check. A randomized complete block design with four (4) replications was used.

Prior to treatments being applied, a plant tissue sample was collected by making a representative composite sample using the plots that would be receiving each treatment (i.e. for each treatment a composite sample was created by sub-sampling all four (4) replications). There were a total of seven (7) tissue samples collected and submitted for analysis at the site near Tupperville and eight (8) from the site near Glanworth.

The following treatments were applied at early bloom stage, just as open flowers became visible:

1. Untreated
2. Priaxor Fungicide @ 120 mL/ac
3. Alpine K20-S + BioMag @ 3 L/ac
4. Timac Agro - Fertileader Vital @ 1.2 L/Ac
5. NutriAg - Manziphos DX+ Magical Max @ 0.7 L/ac + 0.3 L/ac
6. X-Cyte @ 500 mL/ac
7. Megafol @ 1L/ac
8. BioLiNE Gold @ 0.5 L/ac (St.Thomas only)

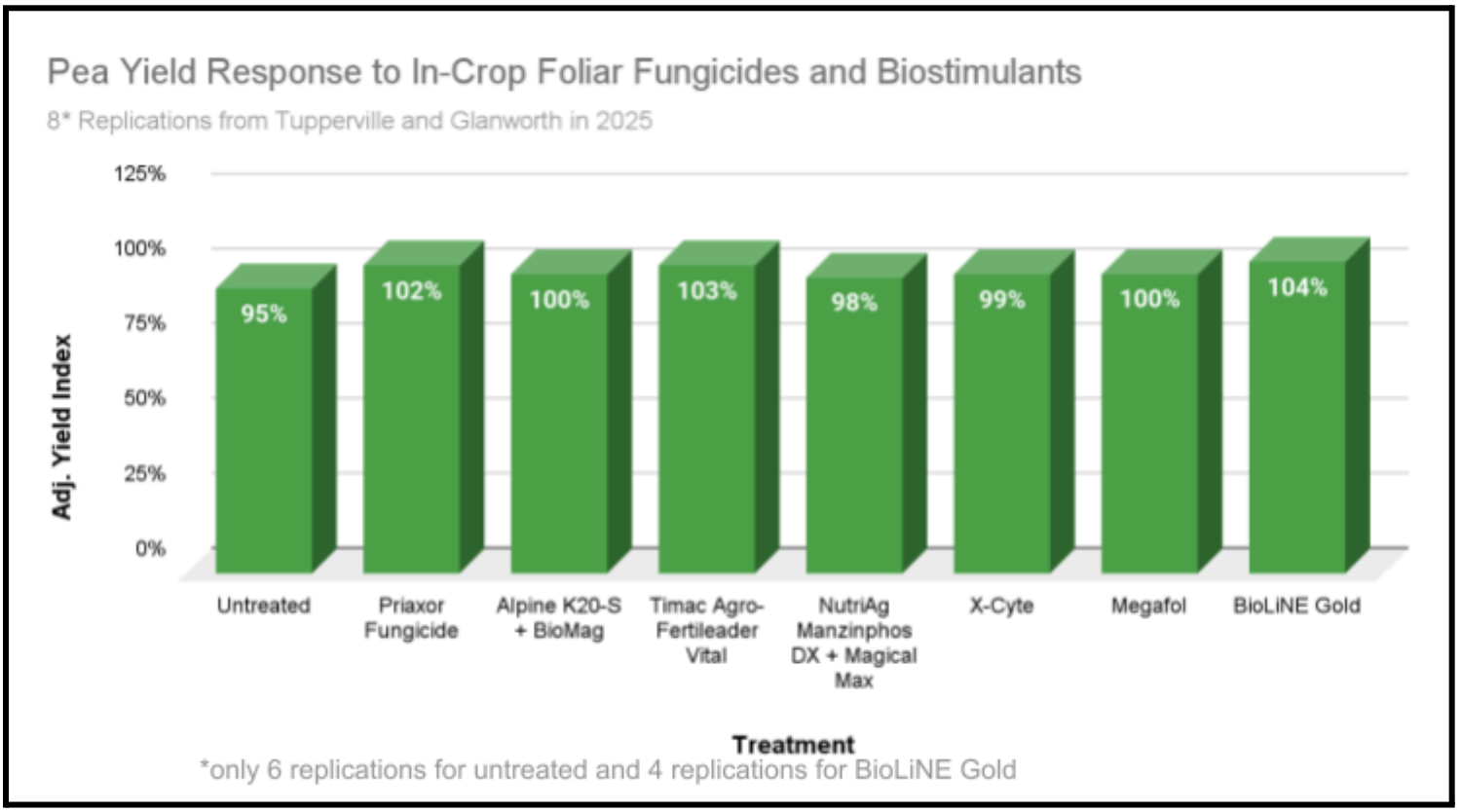
This process was duplicated across two sites, separated by 26 days between planting dates in order to separate harvest dates and accommodate manual harvest requirements. Site #1 was located near Tupperville, ON and hosted the “early planting” which was planted April 24th. Site #2 was located near Glanworth, ON and hosted the “late planting” which was planted May 20th. All treatments were applied with a hand sprayer. The Tupperville site was sprayed on June 12, 2025. The Glanworth site was sprayed on June 26, 2025.

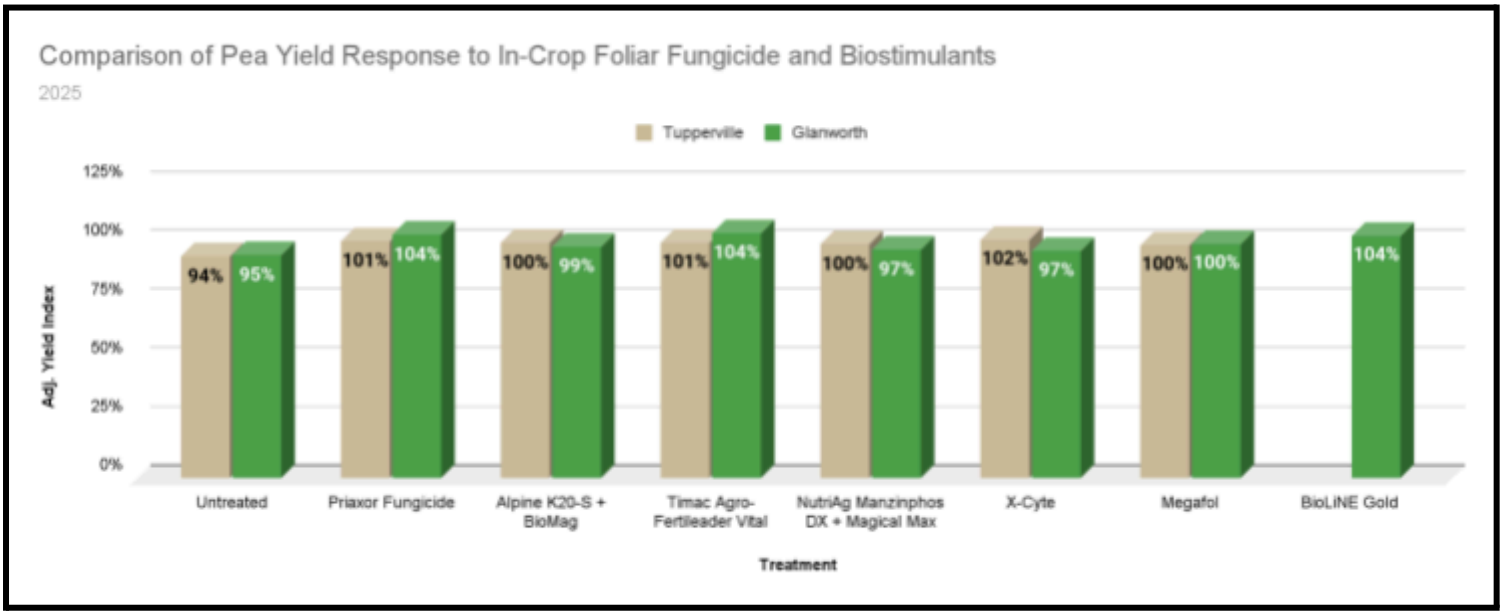
Disclaimer: This document is intended for informational and general guidelines only and does not supersede pesticide label directions. All users of this document are expected to read and follow all individual product labels before using any of the listed products.

Harvest

At harvest, plots were harvested by hand harvesting 6' of 6 rows from each treatment replication, for a total of 26 individual samples in the "early planting" and 32 individual samples in the "late planting". Harvest samples were processed at Nortera's pregrade facilities, where weights and average tenderometer values were recorded. Sieve distribution was not determined as this was beyond the scope of this project.

Results



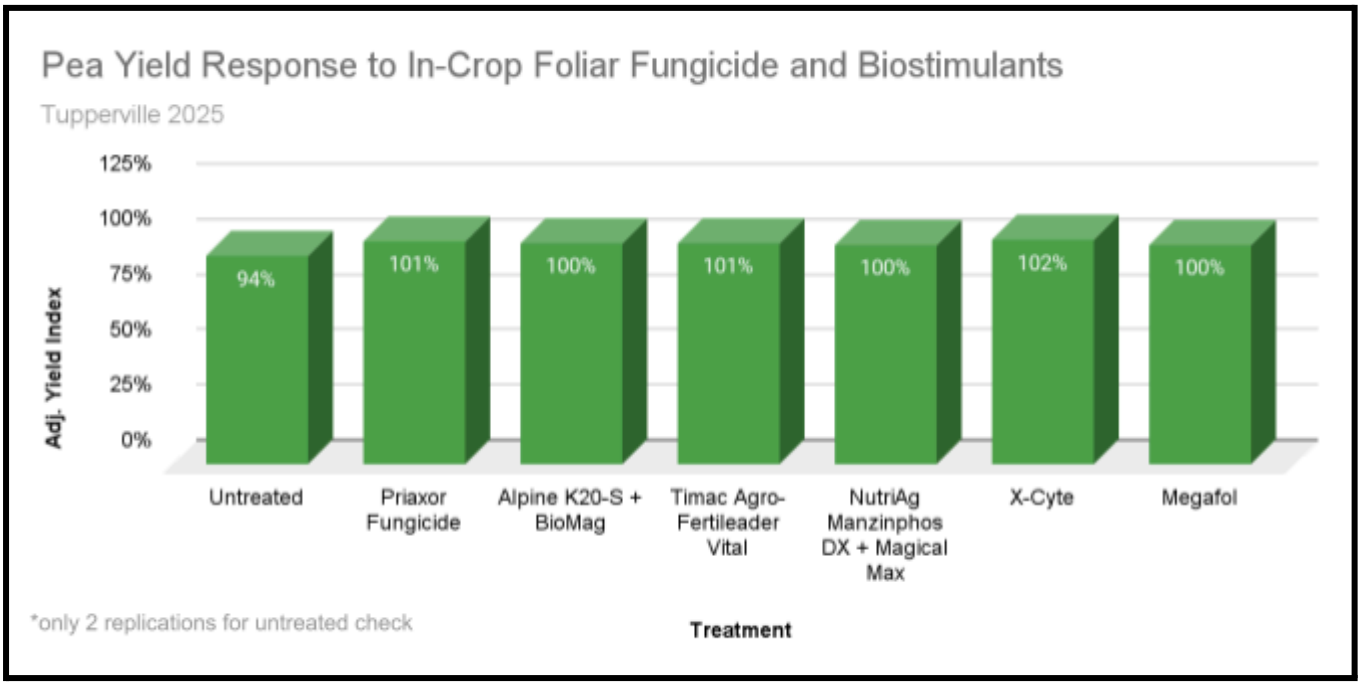


Early Planting- Tupperville, ON:

In Tupperville, all foliar treatments tested had a higher yield compared to the untreated plots. Note, comparatively the composite tissue samples collected prior to treatments Phosphorus and Potassium were relatively lower to all other tests at this site with these nutrients falling on the low(er) end of the sufficiency ranges. Additionally, there were only 2 untreated replications used whereas all other treatments were composed of 4 replications.

On average, while all products showed yields above the untreated, the yield range between tested products was very minimal.

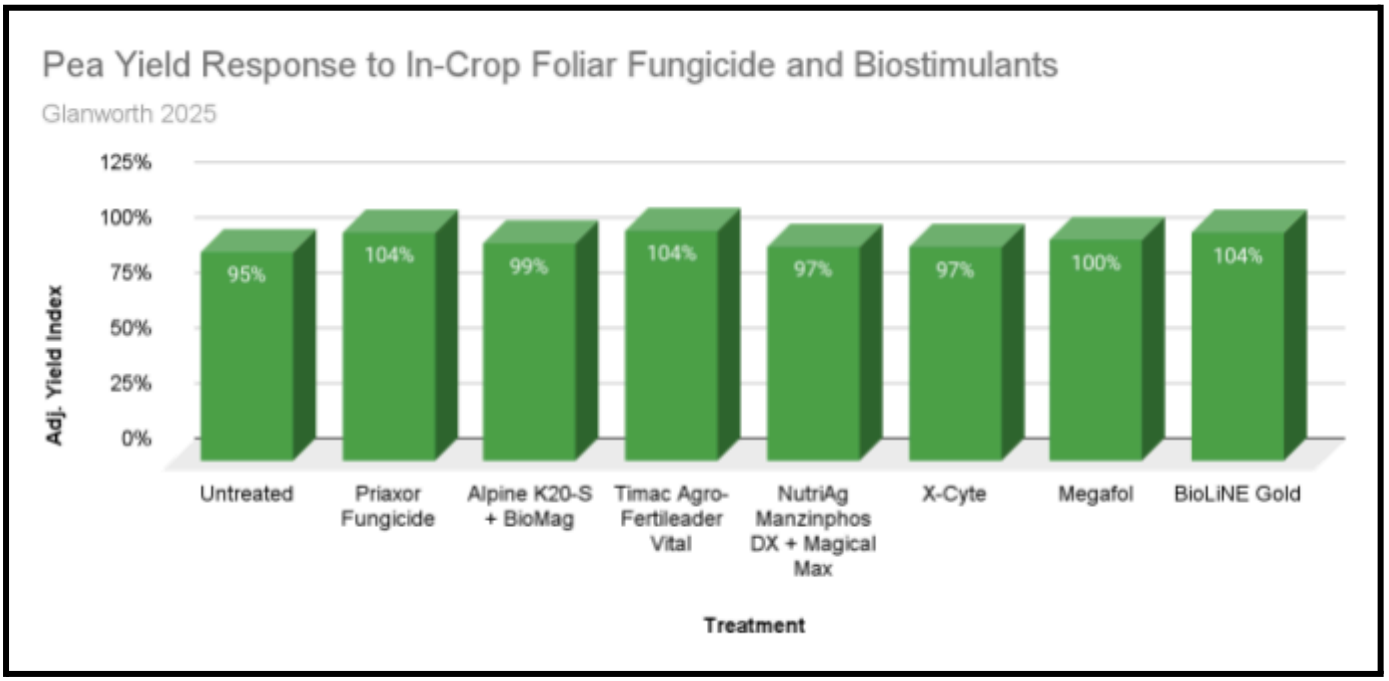
		PRE-APPLICATION TISSUE ANALYSIS											
	Low	2.99	0.28	2.00	0.08	0.30	1.20	25	50	25	7.0	5.0	0
	High	3.99	0.38	3.50	0.16	0.70	2.00	400	300	400	10.0	60.0	300
Treatment	Sample Date	N%	P%	K%	S%	Mg%	Ca%	Zn ppm	Fe ppm	Mn ppm	Cu ppm	B ppm	Al ppm
Untreated	June 4	3.41	0.24	2.45	0.13	0.29	1.23	20	257	22	7.8	12.2	121
Priaxor Fungicide	June 4	3.44	0.31	2.78	0.15	0.29	1.26	22	405	22	9.8	12.5	194
Alpine K20-S + BioMag	June 4	3.25	0.30	2.70	0.15	0.28	1.22	22	477	24	9.9	12.5	224
Timac Agro- Fertileader Vital	June 4	3.41	0.35	2.85	0.15	0.28	1.16	24	441	24	11.8	12.9	218
NutriAg Manzinphos DX + Magical Max	June 4	3.22	0.34	2.78	0.16	0.28	1.29	22	284	20	9.7	12.7	133
X-Cyte	June 4	3.46	0.33	2.82	0.15	0.30	1.26	22	356	22	9.2	13.0	168
Megafol	June 4	3.58	0.35	2.92	0.16	0.31	1.31	25	284	21	10.1	13.6	132



Late Planting- Glanworth, ON:

In Glanworth, again the untreated check had the lowest yield of all treatments under investigation. While yields for the tested products are all above the untreated check, yield indexes between treatments are variable.

		PRE-APPLICATION TISSUE ANALYSIS											
	Low	2.99	0.28	2.00	0.08	0.30	1.20	25	50	25	7.0	5.0	0
	High	3.99	0.38	3.50	0.16	0.70	2.00	400	300	400	10.0	60.0	300
Treatment	Sample Date	N%	P%	K%	S%	Mg%	Ca%	Zn ppm	Fe ppm	Mn ppm	Cu ppm	B ppm	Al ppm
Untreated	June 24	3.62	0.36	2.91	0.21	0.26	1.13	26	228	24	5.8	16.8	168
Priaxor Fungicide	June 24	3.74	0.40	2.85	0.22	0.26	1.14	30	223	25	7.1	16.5	138
Alpine K20-S + BioMag	June 24	3.89	0.40	2.87	0.23	0.26	1.16	30	279	25	7.5	16.8	187
Timac Agro- Fertileader Vital	June 24	3.65	0.38	2.78	0.21	0.27	1.16	26	223	25	6.6	16.4	165
NutriAg Manzinphos DX + Magical Max	June 24	3.84	0.41	2.73	0.22	0.27	1.11	28	245	24	7.9	16.2	165
X-Cyte	June 24	3.73	0.41	2.74	0.22	0.27	1.17	28	227	26	7.7	17.0	139
Megafol	June 24	3.73	0.38	2.81	0.21	0.27	1.14	27	181	24	6.7	16.0	126
BioLiNE Gold	June 24	3.62	0.38	2.87	0.21	0.27	1.20	27	243	24	7.0	16.0	166



Multi-year Trends

2025 was the second year that treatments one through five were tested. All five treatments were observed across both the early and late plantings with the exception of NutriAg Manziphos DX + Magical Max which was not tested in the 2024 late planting.

Priaxor Fungicide was the only treatment that has continuously shown a yield index greater than 100 every time it has been tested in this study.