2023 Crop Aid Trial: SM Ag Research at St. Brieux, SK

Crop Aid Trial Site:

The trial was located on the northeast end of field SE 3 42 20 W2, in the RM of 399 Lake Lenore, located near the town of St. Brieux Saskatchewan. GPS location of the trial is: latitude 52.585 and longitude 104.789. The crop rotation for the field is as follows, 2016 feed barley, 2017 RR canola, 2018 malt barley, 2019 RR canola. The test was set up with each plot being 6m by 10m, replicated 4 times in a randomized complete block design with three different crops (barley, LL canola and oats) in 2020-2022. For the 2023-2025 system the crops are going to be Canary peas, Alida wheat and Liberty Link canola.

Weather Summary:

The third week of April left us with a fresh 12" of snow on the ground. Temperatures warmed up allowing a slow thaw. May was an unseasonably warm month. There were temperatures reaching the mid 20's in the first week and highs of 30'C mid-month. The ground warmed very quickly and allowed seeding to commence a few days earlier than normal. The was good ground moisture and the weather stayed warm. We received 22 mm of rain over the last few days in May, which was ideal for seed in the ground. June was another very warm month with a few rain showers throughout the month. Total rainfall was 42 mm, coming at ideal times. July was dry without any significant rain until the last day. We received 22 mm. August was a bit cooler with a few cloudy days. Drought-like conditions defined most of the growing season. Despite 90 mm of precipitation, rain came too late for good pod and head filling. September was a great harvesting month, with lots of nice warm days and only 20 mm of moisture throughout the month. October allowed harvest to progress. There was no hard frost until the third week of this month. We had a light snowfall and 9 mm of rain. Overall, we were drier than average. Total precipitation to the end of August was 218 mm.

Application Comments:

This trial was seeded the morning of May 18th, 2023 at the 0.5-inch mark to ensure that the seed, Liberty L345PC canola, Alida wheat and Canary peas, would germinate well. Seed treating with Crop Aid Seed Plus, at a rate of 100 ml/bu, took place the day before seeding. Soil temperature was approximately 12 degrees at the time of seeding. We direct seeded into last year's stubble. Each plot's seeded area was 16.45 m squared and then trimmed down to a harvested area size of 13.71 m squared. We seeded with a Fabro plot seeder with 6 rows on 9 inches spacing.

Foliar applications mixed with herbicide products were performed on May 20th which was the pre-burn application, June 16th (canola stage 1-2 leaf, wheat 2-3 leaf, peas 3-6 nodes) and July 7th (canola bolting, wheat in the boot, and peas had flower buds), the in-crop herbicide timings. The products mixed well with the chosen herbicides and was an easy clean up with no residue left on the bottles or the screens of the nozzles. Crop Aid Plus (250 ml/ac) was added to the pre-burn herbicide, while Crop Aid Plus and Crop Aid React 4-3-6-10 (1 L/ac) were both part of the later herbicide application packages.

Rating Descriptions:

Phytotoxicity rating scale was based on a percentage, with 0 indicating a happy and healthy plant and 100 indicating a dead plant, based on a few days to a week after application to make sure that plant is still healthy and happy with no phytotoxicity from the products (Crop Aid Soil, Crop Aid React, Crop Aid

Plus) or the combination of products (Crop Aid Soil, Crop Aid React, Crop Aid Plus) and herbicides combined.

Lodging was done on a 1-9 scale of 1 being standing straight up and 9 lying flat on the ground. The height for wheat and peas was measured when flowering was completed and the canola had started podding. Their stretched height was recorded in centimeters. Mature dates were recorded when the plants reached swathing maturity.

The trial was straight cut combined with a Zurn 150 combine using the classic harvest master system. September 5th we combined the peas and wheat, then Sept 19th we combined the canola. Data collected was overall plot weight in kg, test weight in kg/hl and moisture percentage using a canola moisture curve. All rows were combined and the yield for each treatment had a total of 2 yield points per treatment. The harvested area was 16.47m squared and the harvest pattern was serpentine. There was no disease in the trial and the trial was not sprayed for any other pests other than the herbicide application listed above.

Harvested seed samples were shipped to Seed Solutions Lab for protein testing.

Results and Conclusions:

The crops emerged a day earlier than the average timing for the crops in the area. Crop emergence was even and crop stand was right on par for our targeted plant counts. Canola stand average count was 7 plants per square foot, wheat stand average count 22 plants per square foot and pea stand average count 9 plants per square foot.

There was no phytotoxicity on the crops from the products (Crop Aid Soil, Crop Aid React, Crop Aid Plus) or the combination of products (Crop Aid Soil, Crop Aid React, Crop Aid Plus) and herbicides combined on the crops.

Lodging was minimal for the wheat and peas and normal for the canola stand. There were no significant differences for maturity, all crops maturing a few days earlier than normal due to the drought. Height measurements were taken in early August. The canola, wheat and pea plots that received the Crop Aid nutrition, were on average, taller than the untreated check plots. Canola averaged 8 cm taller, wheat 4 cm and peas 6 cm.

The Pea protein analysis was the same in the treated and untreated plots at 20.23. The Wheat protein average in the treated vs the untreated difference is 0.19%. The canola oil content average in the treated vs the untreated difference is 1.9%.

The yield in bu/ac for the canola treated plots averaged 71 bu/ac which is 4.7 bu/ac higher than the untreated check plots average of 66 bu/ac. The yield in bu/ac for the wheat treated plots averaged 63 bu/ac which is 5.8 bu/ac higher than the untreated check plots average of 57 bu/ac. The yield in bu/ac for the pea treated plots averaged 53 bu/ac which is 3.3 bu/ac higher than the untreated check plots average of 50 bu/ac.

Yields were surprising this year despite the dry conditions and poor to average yields overall in Western Canada. The treated plots out yielded the untreated check plots for all three crops

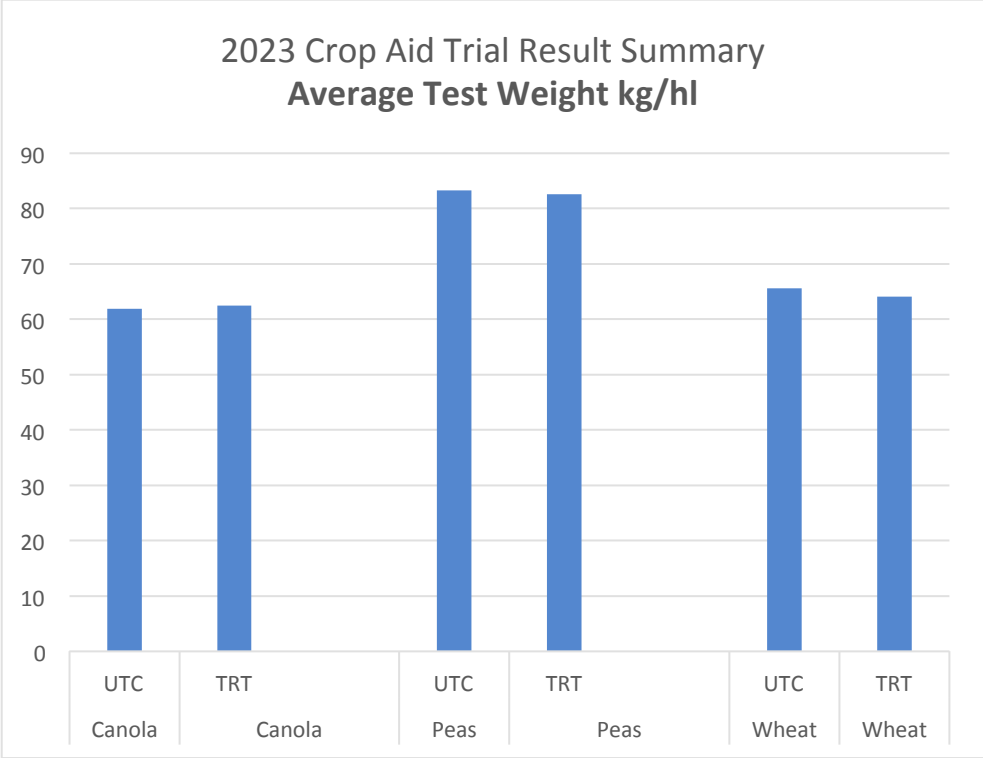
2023 Crop Aid Trial Result Summary

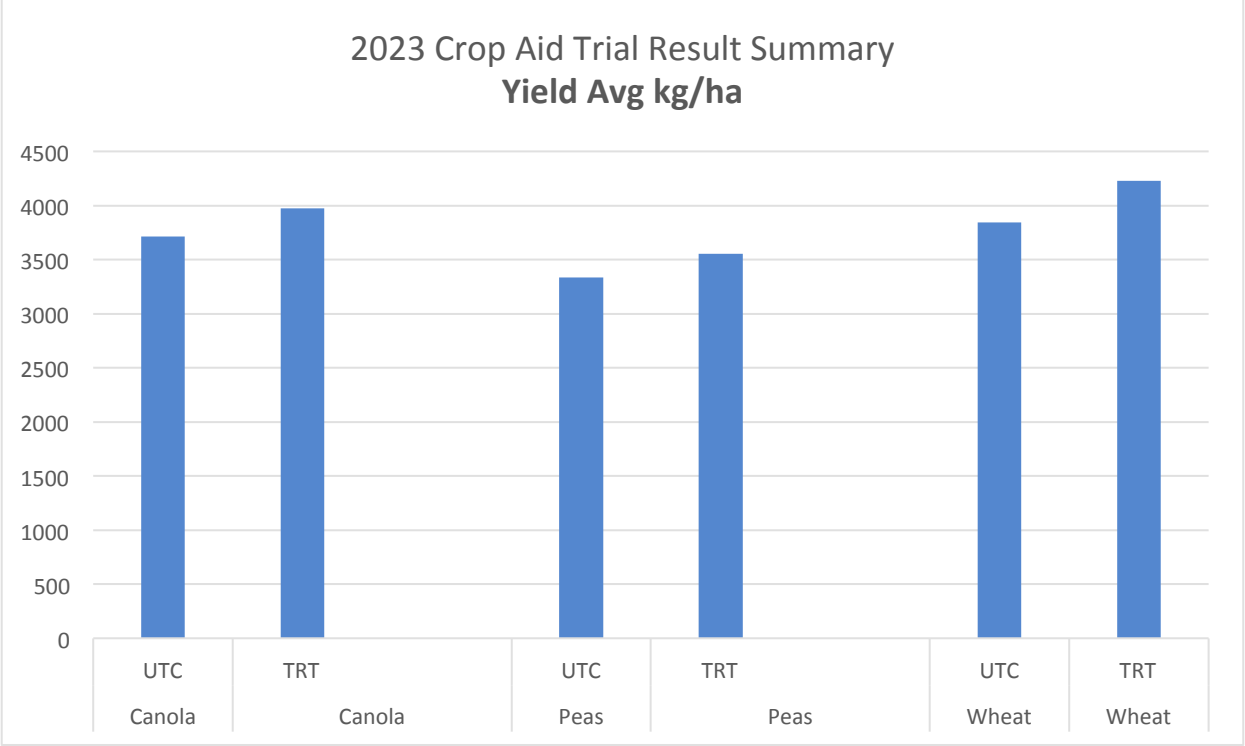
Average Height for Untreated Control vs Treated:

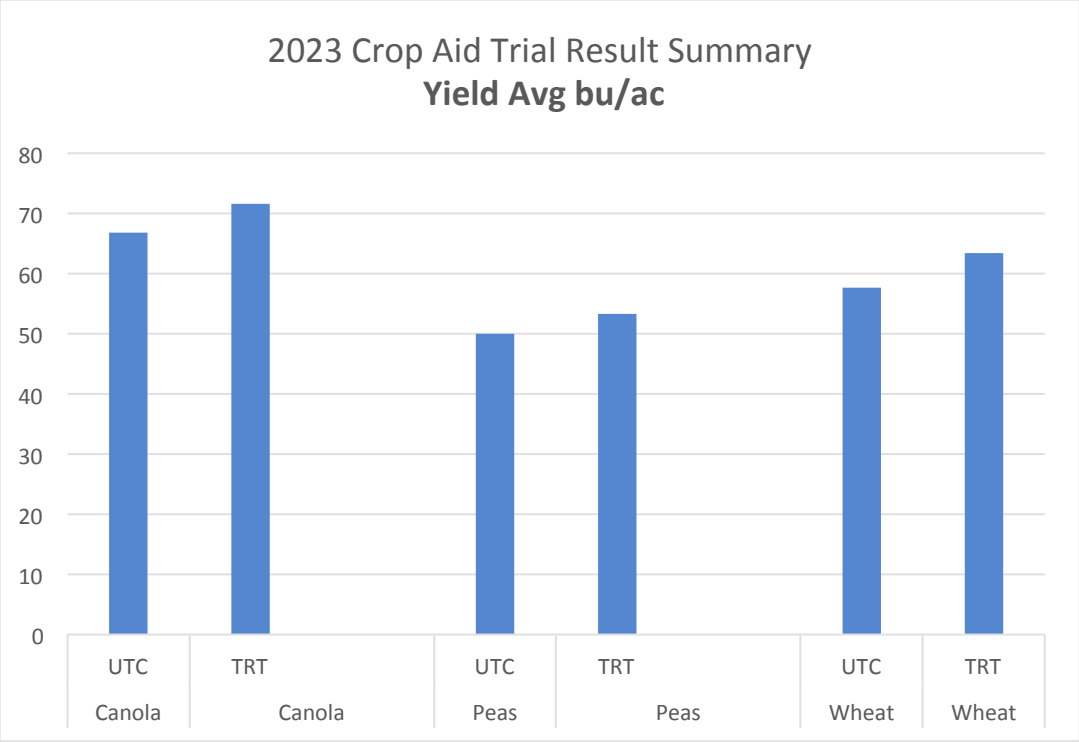
Crop	Average Height (cm)
canola: UTC	117
canola: Trt	125
wheat: UTC	80
wheat: Trt	84
pea: UTC	77
pea: Trt	83

Crop Aid Harvest Averages:

Crop	TRT	Average Test Weight kg/hl	Yield Avg kg/ha	Yield Avg bu/ac	Bu/ac difference
Canola	UTC	61.89	3713	66.83	
Canola	TRT	62.51	3975	71.56	4.73
Peas	UTC	83.35	3336	50.04	
Peas	TRT	82.55	3556	53.33	3.3
Wheat	UTC	65.64	3844	57.66	
Wheat	TRT	64.14	4227	63.41	5.75


2023 Crop Aid Trial Result Summary
Average Test Weight kg/hl
90
80
70
60
50
40
30
20
10
0
UTC
TRT
UTC
TRT
UTC
TRT
Canola
Canola
Peas
Peas
Wheat
Wheat


2023 Crop Aid Trial Result Summary
Yield Avg kg/ha
4500
4000
3500
3000
2500
2000
1500
1000
500
0
UTC
TRT
UTC
TRT
UTC
TRT
Canola
Canola
Peas
Peas
Wheat
Wheat



Canola, pea and wheat all showed an increase in yield with the addition of Crop Aid nutrition products. Canola yield averaged 4.73 more bushels per acre, peas an additional 3.3 bu/ac and wheat averaged 5.75 bu/ac more with the addition of Crop Aid nutritional products.

Crop Aid Protein Analysis:

Crop Aid wheat	Protein
UTC	13.98
TRT	14.17

Crop Aid Pea	Protein
UTC	20.39
TRT	20.39

Crop Aid Canola	Oil Content
UTC	44.9
TRT	43.0