

## **2020 results with Barley/Oats/Canola done at St. Brieux, SK by SM AG Research**

### **Trial Comments**

#### **Trial Site: Crop Aid Trial**

The trial was located on the north east end of the 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 as follows latitude 52.585 and longitude 104.789. Each plot was 6m by 10m and replicated 4 times in a randomized complete block design with three different crops (barley, LL canola and oats). Crop rotation for the field 2016 feed barley, 2017 RR canola, 2018 malt barley, 2019 RR canola, 2020 feed barley.

#### **Weather Comments:**

Weather for the end of May was cooler than the normal average for the time of year with it being an average of 7.6 degrees and the normal at 10.2 degrees. As well there was little rain fall during the month of May during seeding, with the average rain fall for May 39mm and we received 26.7mm of rain in May. There was ground moisture at 0.75 inch to 1 inch. There was 114 frost free days from May 17<sup>th</sup> to September 7<sup>th</sup> which the average is 108 frost free days generally from May 24<sup>th</sup> to September 15<sup>th</sup>. It was a windy summer with the wind in May generally coming from the South East with a maximum hourly speed of 55km/hr, wind in June generally coming from the East with a maximum hourly speed of 93km/hr, wind in July generally coming from the South West with a maximum hourly speed of 58km/hr, wind in August generally coming from the South West with a maximum hourly speed of 42km/hr, and wind in September generally coming from the North East with a maximum hourly speed of 53km/hr Closest weather station is the Melfort SK Station ID 4055085 elevation at 480.1m and the latitude 52.49N and longitude 104.36W

#### **Application Comments:**

Seeded the trial was seeded in the morning of May 30th 2020 at the 0.75-inch mark in the soil to ensure that the seed, Canola Liberty L252 Barley Austenson and Oats Morgan, would germinate well and the trial emerged on. Seed treating took part the day before seeding. We prepped the ground by harrowing the canola stubble before we seeded to get a uniform seeding bed for the crops. Soil temperature was approx. 10 degrees at the time of seeded. Each plot seeded area was 16.45m squared and then trimmed down to a harvested area size of 13.71m squared. We seeded with a Fabro plot seeder with 6 rows at 9 inches spacing. Foliar applications mixed with herbicide products were performed on May 29th, June 16th, June 23rd and July 2nd. The product mixed well with the chosen herbicides and was an easy clean up with no residue left on the bottles or the screens of the nozzels.

#### **Rating Description:**

Barley Feed Analysis was done on August 28th, the whole plant was sampled then dried and then shipped to A&L labs.

Phytotoxicity rating scale was based on a percentage 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 laying flat on the ground. Trial was straight cut combined with a Zurn 150 combine using the classic harvest master system on Sept 11<sup>th</sup> when the wheat was at hard dough stage. Data that was collect was overall plot weight in kg, test weight in kg/hl and moisture percent using a canola moisture curve. All rows were combined and the yield for each treatment for the had a total of 5 yield points per treatment. The harvested area was 13.71m squared and the harvest pattern was serpentine. There was no disease in the trial and the trial was not sprayed for any other pests beside the herbicide application listed above.

Soil samples were taken October 13<sup>th</sup> to 15<sup>th</sup>, average number of cores that were taken for each plot were between 8-10 of 0-6 inch and 6-12 inch. The soil was combined per plot in the depths mixed then allowed to dry before packaging and shipping to A&L labs. Harvested seed samples were shipping to Seed Solutions Lab for protein testing.

### **Results:**

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.

The crops emerged a day earlier than the average timing for the crops for the area as well as the crop emergence was even and crop stand was right on par for our target plant counts. Canola stand average count was 7.5 plants per square foot, oat stand average count 25 plants per square foot and barley stand average count 24 plants per square foot.

Lodging was relatively normal for the crop and stage of harvest.

Barley protein analysis in the treated vaired range was 2.7% in protein levels and the oats protein analysis in the treated varied range was 0.3%. The oil content of the canola analysis in the treated varied 4%. Barley protein analysis in the untreated vaired range was 1.6% in protein levels and the oats protein analysis in the untreated varied range was 1.9%. The oil content of the canola analysis in the untreated varied 7.3%. The Barley protein average in the treated vs the untreated difference is 0.1% and the oat protein average in the treated vs the untreated difference is 0.4%. The canola oil content average in the treated vs the untreated difference is 1.5%.

Canola yield was below average for the area and not as high as expected but the yield is constant with the amount of fertilizer that was applied. The yield in bu/acre for the canola treated plots averaged 34.1 bu/acre which is 1.4 bu/acre higher than the untreated check plots

which averaged 32.7 bu/acre . The yield in bu/acre for the barley treated plots averaged 58.6 bu/acre which is 5.7 bu/acre higher than the untreated check plots which averaged 52.9 bu/acre. The yield in bu/acre for the oat treated plots averaged 129.4 bu/acre which is 15 bu/acre higher than the untreated check plots which average 114.4 bu/acre.

Soil samples of TRT and UTC will have to be taken in the spring due to lab errors.

**Conclusions:**

Overall conclusions we believe this was a very well run and successful trial in its first year out of a three year study with interesting data points that will allow Crop Aid Nutrition to make well informed decisions on their products.

**Applications**

Spray Sheet for Trial: Crop Aid					
Applied By:	Stephanie and Karen				
Application Timing	Seed Treating	PreBurn	Herbicide	Herbicide	Herbicide
Date and Time		May 29th 9am	June 16th 2pm	June 23rd 1030am	July 2nd 930am
Air Temperature	na	11	21	22	18
Wind Speed	na	3km/hr gust to 5km/hr	7km/hr gust to 17km/hr	7km/hr gust to 11km/hr	16km/hr gust to 24km/hr
Wind Direction	na	N	S	S	S
% Humidity	na	61	43	43	72
% Cloud Cover	na	slight 10	21	3	64
Due Present	na	no	no	no	slight
Soil Moisture	na	good	good	good	good
Soil Temperature	na	17	good	good	good
Surface Condition	na	good vol cereal weeds	good	good	good
Crop Stage	na	NA	2-3lf canola	3-4lf cereals	5-6lf canola

<b>Sprayer Information</b>					
Sprayer Type	na	Hand boom	Hand boom	Hand boom	Hand boom
Sprayer Width Size	na	3m	3m	3m	3m
Sprayer Pressure	na	40psi	40psi	40psi	40psi
Nozzel Type	na	John Deere	John Deere	John Deere	John Deere
Spray Volume	na	2L	2L	2L	2L
Propellent	na	C02	C02	C02	C02
Product Used and Ra	Crop Aid Soil 100m	Crop Aid Plus 250ml/ac	Crop Aid React 1L/ac	Crop Aid React 1L/ac	Crop Aid React 1L/ac
Product Used and Rate		Glyphosate 540 1.89l/ac	Liberty 1.35l/ac	Crop Aid Plus 250ml/ac	Crop Aid Plus 250ml/ac
				Prestige A 0.13L/ac	Liberty 1.35l/ac
				Prestige B 0.6L/ac	

Notes: products mixed well together for application as well as clean out was easy to do no filmly residue on bottles or on the screens  
Treated and untreated plots were applied same day and time

## Lodging

### Lodging Ratings

Trial: Crop Aid

#### TREATED

Date	Aug 31st	Sept 12th	Sept 25th
101	1	3	3
102	3	5	7
103	1	2	3
201	2	4	7
202	1	2	2
203	1	3	3
301	1	2	3
302	1	2	3
303	4	6	7
401	2	2	3
402	3	5	6
403	1	3	3

#### UNTREATED

Date	Aug 31st	Sept 12th	Sept 25th
101	2	3	3
102	3	5	8
103	2	2	3
201	3	5	7
202	1	2	2
203	2	3	3
301	2	2	3
302	2	3	3
303	5	7	8
401	2	2	3
402	4	6	7
403	1	2	3

Notes: Lodging was done on a 1-9 scale of 1 being standing straight up and 9 laying flat on the ground

## Yield

	Yield			
	Average	Average	Average	Average
TRT	Weight kg/plot	Bu/ac	Moisture %	Test Weight kg/hl
Barley trt	4.22125	58.5487375	13.93333333	49.05
Oats trt	6.8200625	129.4447863	11.378125	42.84375
Canola trt	2.5941875	34.08762375	14.421875	62.71875
Barley utc	3.8110625	52.85943688	9.84375	51.66875
Oats utc	6.028	114.41144	10.836875	41.9875
Canola utc	2.4905	32.72517	15.2025	60.91875
	harvested area per plot 13.72msq			
	row length by # of rows by spacing			
	10m length	6 rows	0.2286 spacing	
	conversion	0.73		
	factor			

### Harvest Yield data for Product Treated Crops

Date/Time	Range	Row	Plot	TRT	Weight kg/plo	bu/ac	Moisture	Test Weight kg/hl	Harvest Sequence
9/25/2020 10:11:47 AM	2	1	201	Barley	3.795	52.63665	13.6	52.4	2
9/25/2020 10:19:54 AM	2	2	201	Barley	4.125	57.21375	13.6		7
9/25/2020 10:25:01 AM	2	3	201	Barley	4.042	56.06254	14.6	45.7	10
9/25/2020 10:34:22 AM	2	4	201	Barley	3.69	51.1803			15
9/25/2020 10:36:54 AM	1	5	102	Barley	3.915	54.30105			17
9/25/2020 10:40:37 AM	4	5	402	Barley	5.46	75.7302			20
9/25/2020 10:44:56 AM	1	6	102	Barley	3.74	51.8738			24
9/25/2020 10:40:53 AM	4	6	402	Barley	4.815	66.78405			21
9/25/2020 10:45:06 AM	1	7	102	Barley	4.265	59.15555			25
9/25/2020 10:48:35 AM	4	7	402	Barley	4.275	59.29425			28
9/25/2020 10:51:22 AM	1	8	102	Barley	4.09	56.7283			32
9/25/2020 10:48:45 AM	4	8	402	Barley	4.815	66.78405			29
9/25/2020 10:55:25 AM	3	9	303	Barley	4.555	63.17785			35
9/25/2020 10:58:42 AM	3	10	303	Barley	4.333	60.09871			38
9/25/2020 11:03:07 AM	3	11	303	Barley	3.84	53.2608			43
9/25/2020 11:06:23 AM	3	12	303	Barley	3.785	52.49795			46
9/25/2020 10:10:39 AM	1	1	101	Canola	2.213	29.07882	11.5	62.8	1
9/25/2020 10:16:59 AM	4	1	401	Canola	2.792	36.68688	11.4	63.7	4
9/25/2020 10:21:13 AM	1	2	101	Canola	2.38	31.2732	13.95	60.6	8
9/25/2020 10:17:56 AM	4	2	401	Canola	3.284	43.15176	18.3	63	5
9/25/2020 10:21:51 AM	1	3	101	Canola	2.869	37.69866	13.6	68.2	9
9/25/2020 10:28:18 AM	4	3	401	Canola	2.634	34.61076	12.9	64.8	12
9/25/2020 10:34:54 AM	1	4	101	Canola	2.269	29.81466	15.9	64.4	16
9/25/2020 10:31:42 AM	4	4	401	Canola	2.935	38.5659	10.9	61.7	13
9/25/2020 10:38:22 AM	3	5	302	Canola	2.889	37.96146	13.1	67.8	19
9/25/2020 10:41:38 AM	3	6	302	Canola	2.769	36.38466	17.5	62.5	22
9/25/2020 10:46:35 AM	3	7	302	Canola	1.937	25.45218	17.7	56.9	27
9/25/2020 10:49:20 AM	3	8	302	Canola	2.206	28.98684	12.7	60.4	30
9/25/2020 10:54:12 AM	2	9	203	Canola	2.42	31.7988	12.4	62.5	34
9/25/2020 10:59:18 AM	2	10	203	Canola	2.641	34.70274	16.4	61.7	39
9/25/2020 11:02:04 AM	2	11	203	Canola	2.558	33.61212	16.3	62.1	42
9/25/2020 11:06:59 AM	2	12	203	Canola	2.711	35.62254	16.2	60.4	47
9/25/2020 10:12:37 AM	3	1	301	Oats	7.924	150.3975	11.2	42.8	3
9/25/2020 10:18:59 AM	3	2	301	Oats	7.638	144.9692	12.5	42.9	6
9/25/2020 10:27:09 AM	3	3	301	Oats	7.863	149.2397	11.3	42	11
9/25/2020 10:32:46 AM	3	4	301	Oats	7.342	139.3512	12.3	43.8	14
9/25/2020 10:37:29 AM	2	5	202	Oats	6.264	118.8907	11.5	39.3	18
9/25/2020 10:42:28 AM	2	6	202	Oats	6.38	121.0924	11.6	40.7	23
9/25/2020 10:45:57 AM	2	7	202	Oats	6.899	130.943	11.8	42.3	26
9/25/2020 10:50:18 AM	2	8	202	Oats	6.346	120.4471	11.8	45.3	31
9/25/2020 10:52:22 AM	1	9	103	Oats	6.646	126.1411	5.95	42.2	33
9/25/2020 10:56:08 AM	4	9	403	Oats	6.098	115.74	11.7	42.9	36
9/25/2020 11:00:11 AM	1	10	103	Oats	6.087	115.5313	11.8	43.9	40
9/25/2020 10:57:17 AM	4	10	403	Oats	7.819	148.4046	11.8	42.9	37
9/25/2020 11:01:25 AM	1	11	103	Oats	6.237	118.3783	11.8	44	41
9/25/2020 11:03:40 AM	4	11	403	Oats	6.832	129.6714	11.4	42.7	44
9/25/2020 11:07:55 AM	1	12	103	Oats	6.033	114.5063	11.8	44.6	48
9/25/2020 11:05:16 AM	4	12	403	Oats	6.713	127.4127	11.8	43.2	45

Note: The harvest master system was plugging on the barley awns so the barley was hand weighed later on so no moistures or test weights on majority of the barley  
 Range in time difference between treated and utc they were harvested seperately and tried to fix the barley awn plugging issues with the combine entered it into the combine as a separate trial

### Harvest Yield data for Crops Untreated

Date/Time	Range	Row	Plot	TRT	Weight kg/plot	bu/ac	Moisture	Test Weight kg/hl	Harvest Sequence
9/25/2020 3:31:20 PM	2	1	201	Barley	3.107	43.09409	9.83	45.9	2
9/25/2020 3:37:18 PM	2	2	201	Barley	3.34	46.3258	10.1	50.1	7
9/25/2020 3:35:19 PM	2	3	201	Barley	3.564	49.43268	10.6	51.3	10
9/25/2020 3:41:39 PM	2	4	201	Barley	3.672	50.93064	10	55.1	15
9/25/2020 3:44:48 PM	1	5	102	Barley	4.058	56.28446	9.43	49.5	17
9/25/2020 3:42:53 PM	4	5	402	Barley	3.756	52.09572	9.56	51.7	20
9/25/2020 3:46:35 PM	4	6	402	Barley	3.624	50.26488	9.7	54.5	21
9/25/2020 3:48:21 PM	1	6	102	Barley	3.758	52.12346	9.78	52.3	24
9/25/2020 3:48:57 PM	1	7	102	Barley	3.699	51.30513	10.4	54.7	25
9/25/2020 3:51:12 PM	4	7	402	Barley	3.471	48.14277	9.93	50.8	28
9/25/2020 3:50:33 PM	4	8	402	Barley	4.726	65.54962	9.59	56.6	29
9/25/2020 3:54:09 PM	1	8	102	Barley	3.614	50.12618	9.57	51.8	32
9/25/2020 3:56:08 PM	3	9	303	Barley	4.293	59.54391	9.53	51.6	35
9/25/2020 3:58:13 PM	3	10	303	Barley	3.681	51.05547	9.84	49.6	38
9/25/2020 4:01:40 PM	3	11	303	Barley	4.379	60.73673	10.1	53.1	43
9/25/2020 4:08:14 PM	3	12	303	Barley	4.235	58.73945	9.54	48.1	46
9/25/2020 3:29:25 PM	1	1	101	Canola	2.536	33.32304	16.9	60	1
9/25/2020 3:33:36 PM	4	1	401	Canola	2.451	32.20614	13.23	60.7	4
9/25/2020 3:34:13 PM	4	2	401	Canola	2.551	33.52014	12.18	60.9	5
9/25/2020 3:36:38 PM	1	2	101	Canola	2.506	32.92884	12.24	60.1	8
9/25/2020 3:35:58 PM	1	3	101	Canola	2.331	30.62934	16.61	60.2	9
9/25/2020 3:39:49 PM	4	3	401	Canola	2.347	30.83958	15.41	59.5	12
9/25/2020 3:40:26 PM	4	4	401	Canola	2.431	31.94334	13.32	61.9	13
9/25/2020 3:45:22 PM	1	4	101	Canola	2.593	34.07202	14.33	62.3	16
9/25/2020 3:43:32 PM	3	5	302	Canola	2.71	35.6094	14.86	61.5	19
9/25/2020 3:47:10 PM	3	6	302	Canola	2.59	34.0326	14.62	60.4	22
9/25/2020 3:51:47 PM	3	7	302	Canola	2.314	30.40596	15.3	60.9	27
9/25/2020 3:49:53 PM	3	8	302	Canola	2.64	34.6896	12.14	61.4	30
9/25/2020 3:55:20 PM	2	9	203	Canola	2.616	34.37424	18.06	62.1	34
9/25/2020 3:57:40 PM	2	10	203	Canola	2.596	34.11144	17.98	59.7	39
9/25/2020 4:01:04 PM	2	11	203	Canola	2.348	30.85272	17.81	61.5	42
9/25/2020 4:07:33 PM	2	12	203	Canola	2.288	30.06432	18.25	61.6	47
9/25/2020 3:32:57 PM	3	1	301	Oats	6.294	119.4601	12.7	37.9	3
9/25/2020 3:38:00 PM	3	2	301	Oats	6.146	116.6511	11.8	37.2	6
9/25/2020 3:39:12 PM	3	3	301	Oats	6.294	119.4601	11.2	38.5	11
9/25/2020 3:41:02 PM	3	4	301	Oats	5.978	113.4624	13.4	39	14
9/25/2020 3:44:09 PM	2	5	202	Oats	5.885	111.6973	10.2	44	18
9/25/2020 3:47:44 PM	2	6	202	Oats	6.003	113.9369	10.2	41	23
9/25/2020 3:52:29 PM	2	7	202	Oats	5.243	99.51214	9.68	45.5	26
9/25/2020 3:53:36 PM	2	8	202	Oats	5.937	112.6843	9.95	46.5	31
9/25/2020 3:54:44 PM	1	9	103	Oats	5.743	109.0021	11.1	42.1	33
9/25/2020 3:59:24 PM	4	9	403	Oats	5.683	107.8633	10.3	42.3	36
9/25/2020 3:58:48 PM	4	10	403	Oats	6.39	121.2822	10.1	37.1	37
9/25/2020 3:57:04 PM	1	10	103	Oats	6.276	119.1185	10.9	43.3	40
9/25/2020 4:00:30 PM	1	11	103	Oats	5.59	106.0982	10.3	47	41
9/25/2020 4:03:07 PM	4	11	403	Oats	6.141	116.5562	9.96	43.1	44
9/25/2020 4:03:45 PM	4	12	403	Oats	6.483	123.0473	10.2	44.9	45
9/25/2020 4:06:26 PM	1	12	103	Oats	6.362	120.7508	11.4	42.4	48