

Ag-Quest

Crop Aid Nutrition Peas 2019

Trial ID:	CA19SSK01PEPHA2019	Location:	Saskatoon	Trial Year:	2019
Protocol ID:		Investigator:	Paul Happ		
Project ID:		Study Director:	Kelvin Sanders		
		Sponsor Contact:			

General Trial Information

Study Director:	Kelvin Sander		
Investigator:	Paul Happ	Title:	Research Associate

Discipline:	D	fertilizer	
Trial Status:	K	multi-year/final	
ARM Trial Created On:	Oct-31-2019		
Initiation Date:	May-20-2019	Planned Completion Date:	Sep-30-2019
Completion Date:	Oct-31-2019		

Trial Location

City:	Saskatoon	Country:	CAN	Canada
State/Prov.:	Saskatchewan			
Postal Code:	S7K 3J5	Climate Zone:	Cwb	Temperate, Dry Winter, Warm Summer

Latitude of LL Corner °:	52.123252	N
Longitude of LL Corner °:	106.825101	W

Conducted Under GLP:	No
Conducted Under GEP:	No

Objectives:

MATERIALS AND METHODS

This 3 year trial was initiated to evaluate a long term 3 crop rotational fertility regime. For this study, Field Pea was seeded into Barley stubble from 2018. Soil tests were taken in spring of 2019 prior to seeding and the recommended fertilizer rates were applied prior to or with the barley at seeding. The Crop Aid Seed treatment was applied to the seed 4.3 mls/kg seed (100 mls/bu of seed) prior to seeding in treatment 2. Seeding rate for Field Pea was 150 kg/ha. On May 20th, a preseed soil application of Crop Aid Soil at .25 l/ac was performed on trt. 2. The crop was then seeded following this application. The herbicide application was performed on June 24th. For trt. 2 Crop Aid Soil (.25 l/ac) as well as Crop Aid Foliar (1 l./ac) were tank mixed with Solo herbicide and applied at the 6-7 node stage of development.

Visual vigour assessments were performed on 3 occasions throughout the season using a 0-5 scale where 0 represented a dead plant and 5 represented excellent vigour.

At maturity, the plots were harvested, cleaned, weighed and moisture tested to compare yields. The data was analyzed using Duncan's New MRT at a 10% significance level.

RESULTS AND DISCUSSION

The visual vigour ratings showed consistent vigour ratings between the two treatments with virtually no visual differences between the treatments at any of the three rating intervals. Although the yields at maturity did not show a statistically significant difference between the fertilizer regime (trt. 2) and the UTC, a 1.6 bushel/ac or 4.3% yield boost was obtained in this trial.

NOTE: The 2019 growing season was initially very dry with only 21.5% of normal precipitation from April 1 to June 15th. Rains in later June and into July helped improve crop development.

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Contacts

Study Director:	Kelvin Sander
Organization:	Crop Aid Nutrition
City+State/Prov:	Saskatoon, Sask.

Investigator:	Paul Happ	Title:	Research Associate
Organization:	Ag-Quest (Sask.) Inc		
Address:	Site 204, box 8 RR.2	Phone No.:	306 384-1117
City+State/Prov:	Saskatoon, Sask.	Mobile No.:	306 230-8792
Postal Code:	S7K 3J5	E-mail:	paul.happ@agquest.com
Country:	CAN	Canada	

Crop Description

Crop 1:	C	PEAS																			
Entry Date:	Nov-1-2019																				
Variety:	Ardill																				
Attributes:	Yellow Pea																				
Planting Date:	May-20-2019										Planting Rate:	150 kg/ha									
Depth:	4 cm																				
Row Spacing:	20		cm																		
Harvest Date:	Aug-29-2019										Harvest Equipment:	Hege PLOT Combine									
Moisture Meter:	AgTronix																				
% Standard Moisture:	16										Harvested Width:	3 m									
Weighing Equipment:	Uline Scale																				

Pest Description

Entry Date:	Nov-1-2019
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Site and Design

Treated Plot Width:	2.4	m								Site Type:	FIELD	field
Treated Plot Length:	6	m										
Treated Plot Area:	14.4	m ²	Treatments:	2						Tillage Type:	NOTILL	no-till
Replications:	6									Study Design:	RACOB	Randomized Complete Block (RCB)

Previous		
No.	Crop	Year
1.	BARLEY	2018
2.	CANOLA	2017

Field Prep./Maintenance:

Site was harrowed prior to seeding.

Soil Description

Description Name:	Brown Soil Zone					
% Sand:	25	% OM:	3.3	Texture:	CL	clay loam
% Silt:	34	pH:	5.9	Soil Name:	Bradwell Association	
% Clay:	41	CEC:	17.8			

Analyzed By:

A&L Canada Laboratories

Moisture and Weather Conditions

Overall Moisture Conditions:	BELNOR	below normal	
Closest Weather Station:	on-site	Distance:	200 m

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Comment:

April	Actual precip. 2.9 mm	Normal precip. 22.9	% of Normal 12.7
May	Actual precip: 10.5mm	Normal precip 39.4	% of Normal 27
June	Actual precip: 80mm	Normal precip 66.6	% of Normal 120
July	Actual precip: 53.4mm	Normal precip 59	% of Normal 90
August	Actual precip: 25.1mm	Normal precip 46.5	% of Normal 54

Application Description

	A	B	C
Application Date	May-20-2019	May-20-2019	Jun-24-2019
Appl. Start Time	10:50 AM	9:30 AM	7:45 AM
Appl. Stop Time	11:10 AM	9:45 AM	8:00 AM
Application Method	SEETRL	SPRAY	SPRAY
Application Timing	SETRLI	PREPLA	POSPOS
Application Placement	SEED	SOIL	FOLIAR
Applied By	Paul H	Ausitn T	Austin T
Appl. Entry Date	Nov-1-2019	Nov-1-2019	Nov-1-2019
Air Temperature Start, Stop	10 C	8 C	14 C
% Relative Humidity Start, Stop	28	28	81
Wind Velocity+Dir. Start		8 kph W	18 kph W
Soil Moisture	VERDRY	VERDRY	NORMAL
% Cloud Cover	0	0	50

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale	PEAS	PEAS	PEAS
Stage Scale Used			BBCH
Stage Majority, Percent			16 60
Stage Minimum, Percent			14 10
Stage Maximum, Percent			17 10
Height Average			14 cm

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Application Equipment

	A	B	C
Appl. Equipment	Seed Treat	Bike Sprayer	Bike Sprayer
Equipment Type	ZIPLOC	BICSPR	BICSPR
Operation Pressure		275 kpa	275 kpa
Nozzle Type		ARINDH	ARINDH
Nozzle Size		110015	110015
Nozzle Spacing		50 cm	50 cm
Nozzles/Row		4	4
Boom Length		1.5 m	1.5 m
Boom Height		40 cm	40 cm
Ground Speed		6.4 kph	6.4 kph
Carrier		WATER	WATER
Application Amount		100 L/ha	100 L/ha
Mix Size	1 L	1 L	1 L
Propellant	CO2	CO2	CO2

Date	By	Context	Notes
Nov-1-2019	Paul Happ	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Planting Date entered.
Nov-1-2019	Paul Happ	STATUS	Automatically added by ARM: Trial Status updated to 'E' when Rating Date entered.

SE Definitions

	1.	
Crop Type, Code	C	

Instructions:

Please Note: Vigor Rating uses 1-9 scale where 1 is the most vigorous and 9 is the least.

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Crop Type, Code		C PEA		C PEA		C PEA		C PEA		C PEA		C PEA		C PEA	
Crop Name														CRUDE	
Rating Date		Jun-17-2019		Jul-4-2019		Jul-29-2019		Aug-29-2019		Aug-29-2019		Aug-29-2019			
Part Rated		VIGOUR -		VIGOUR -		VIGOUR -								PROTEI -	
Rating Type		VISUAL		VISUAL		VISUAL		RAW YIELD		MOIST		YIELD			
Rating Unit		0-5		0-5		0-5		g/plot				BU/AC			
Data Entry Date		Nov-1-2019		Nov-1-2019		Nov-1-2019		Oct-31-2019		Oct-31-2019		Oct-31-2019			
Trt-Eval Interval		22 DA-A		34 DA-A		44 DA-A		76 DA-C		76 DA-C		76 DA-C			
ARM Action Codes												TY1			
Number of Decimals												1			
Trt	Treatment	Rate	Unit	App	Code	1	2	3	4	5	6	7			
1	Untreated Check					3.0 a	4.0 a	4.0 a	4589.8 a	17.22 a	37.4 a				
2	Crop Aid Seed	3.6	ml/kg	A		3.0 a	4.0 a	4.0 a	4798.8 a	17.35 a	39.0 a				
	Round Up Weather max	0.51	l/acre	B											
	Crop Aid Soil	0.25	l/acre	B											
	SOLO ADV	0.325	l/acre	C											
	Crop Aid Foliar	1	l/acre	C											
	Crop Aid Soil	0.25	l/acre	C											
LSD P=.10									322.82	0.761	2.51				
Standard Deviation						0.00	0.00	0.00	277.48	0.654	2.16				
CV						0.0	0.0	0.0	5.91	3.78	5.66				
Bartlett's X2						0.00	0.00	0.00	1.434	0.164	1.493				
P(Bartlett's X2)									0.231	0.685	0.222				
Replicate F						0.000	0.000	0.000	3.421	3.186	3.030				
Replicate Prob(F)						1.0000	1.0000	1.0000	0.1016	0.1146	0.1245				
Treatment F						0.000	0.000	0.000	1.702	0.125	1.683				
Treatment Prob(F)						1.0000	1.0000	1.0000	0.2489	0.7383	0.2511				

Means followed by same letter or symbol do not significantly differ (P=.10, Duncan's New MRT).
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
 Column 1: EPPO species (Bayer) codes; PEA, , , ; VIGOUR; VISUAL; 0-5 index/scale
 Column 2: EPPO species (Bayer) codes; PEA, , , ; VIGOUR; VISUAL; 0-5 index/scale
 Column 3: EPPO species (Bayer) codes; PEA, , , ; VIGOUR; VISUAL; 0-5 index/scale
 Column 4: EPPO species (Bayer) codes; PEA, , , ; RAW YIELD; g/plot
 Column 5: EPPO species (Bayer) codes; PEA, , , ; MOIST
 Column 6: EPPO species (Bayer) codes; PEA, , , ; yield; bushels per acre; TY1
 Column 7: EPPO species (Bayer) codes; PEA, , , ; CRUDE; PROTEI

Could not calculate LSD (% mean diff) for columns 1,2,3,7 because error mean square = 0.

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Crop Type, Code					C	PEA	C	PEA	C	PEA	C	PEA	C	PEA	C	PEA
Crop Name																
Rating Date					Jun-17-2019	Jul-4-2019	Jul-29-2019	Aug-29-2019	Aug-29-2019	Aug-29-2019	Aug-29-2019	Aug-29-2019	Aug-29-2019	Aug-29-2019	Aug-29-2019	Aug-29-2019
Part Rated					VIGOUR -	VIGOUR -	VIGOUR -									
Rating Type					VISUAL	VISUAL	VISUAL	RAW YIELD	MOIST	YIELD						
Rating Unit					0-5	0-5	0-5	g/plot		BU/AC						
Data Entry Date					Nov-1-2019	Nov-1-2019	Nov-1-2019	Oct-31-2019	Oct-31-2019	Oct-31-2019	Oct-31-2019	Oct-31-2019	Oct-31-2019	Oct-31-2019	Oct-31-2019	Oct-31-2019
Trt-Eval Interval					22 DA-A	34 DA-A	44 DA-A	76 DA-C	76 DA-C	76 DA-C	76 DA-C	76 DA-C	76 DA-C	76 DA-C	76 DA-C	76 DA-C
ARM Action Codes																TY1
Number of Decimals																1
Trt	Treatment	Rate	Unit	Appl Code	Plot	1	2	3	4	5	6					
1	Untreated Check				101	3.0	4.0	4.0	4205.0	16.50	34.5					
					202	3.0	4.0	4.0	4298.0	16.80	35.2					
					301	3.0	4.0	4.0	4884.0	16.90	39.9					
					402	3.0	4.0	4.0	4546.0	16.50	37.3					
					501	3.0	4.0	4.0	4850.0	18.30	39.0					
					602	3.0	4.0	4.0	4756.0	18.30	38.2					
Mean =						3.0	4.0	4.0	4589.8	17.22	37.4					
2	Crop Aid Seed	3.6	ml/kg	A	102	3.0	4.0	4.0	3989.0	16.30	32.8					
					201	3.0	4.0	4.0	4676.0	17.20	38.1					
					302	3.0	4.0	4.0	4554.0	16.10	37.6					
					401	3.0	4.0	4.0	4989.0	18.20	40.1					
					502	3.0	4.0	4.0	5169.0	18.70	41.3					
					601	3.0	4.0	4.0	5416.0	17.60	43.9					
Mean =						3.0	4.0	4.0	4798.8	17.35	39.0					

Column 1: EPPO species (Bayer) codes; PEA, , , ; VIGOUR; VISUAL; 0-5 index/scale
 Column 2: EPPO species (Bayer) codes; PEA, , , ; VIGOUR; VISUAL; 0-5 index/scale
 Column 3: EPPO species (Bayer) codes; PEA, , , ; VIGOUR; VISUAL; 0-5 index/scale
 Column 4: EPPO species (Bayer) codes; PEA, , , ; RAW YIELD; g/plot
 Column 5: EPPO species (Bayer) codes; PEA, , , ; MOIST
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Crop Type, Code		C PEA	
Crop Name		CRUDE	
Rating Date			
Part Rated		PROTEI -	
Rating Type			
Rating Unit			
Data Entry Date			
Trt-Eval Interval			
ARM Action Codes			
Number of Decimals			
Trt	Treatment	Rate	Appl
No.	Name	Rate	Unit
1	Untreated Check		
			101
			202
			301
			402
			501
			602
		Mean =	
2	Crop Aid Seed	3.6	ml/kg A 102
	Round Up Weather max	0.51	l/acre B 201
	Crop Aid Soil	0.25	l/acre B 302
	SOLO ADV	0.325	l/acre C 401
	Crop Aid Foliar	1	l/acre C 502
	Crop Aid Soil	0.25	l/acre C 601
		Mean =	