Applied Research & Demonstration Trial Overview, 2025

Amber Wall, Wheatland Conservation Area

Sustainable Canadian Agricultural Partnership

Saskatchewan Pulse Growers

Saskatchewan

Canada

AgriARM Locations

Applied Research Management

- **CLC - Prince Albert**
  Conservation Learning Centre
- **NARF - Melfort**
  Northeast Agriculture Research Foundation
- **WARC - Scott**
  Western Applied Research Corporation
- **Irrigation Saskatchewan - Outlook**
  Irrigation Saskatchewan
- **IHARF - Indian Head**
  Indian Head Agricultural Research Foundation
- **SERF - Redvers**
  South East Research Farm
- **ECRF - Yorkton**
  East Central Research Foundation
- **WCA - Swift Current**
  Wheatland Conservation Area

Lentil Integrated Pest Management: Managing Aphanomyces with Soil Strategies

Amber Wall, Wheatland Conservation Area

SASKATCHEWAN pulse Growers

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Integrated Pest Management (IPM) for Lentils in Aphanomyces Soil (2024-2026)

TRT #	Nitrogen Rate (lbs/ac)	Seed Treatment	Seeding Date
1	0	Yes	Early
2	0	Yes	Late
3	0	No	Early
4	0	No	Late
5	50	Yes	Early
6	50	Yes	Late
7	50	No	Early
8	50	No	Late
9	100	Yes	Early
10	100	Yes	Late
11	100	No	Early
12	100	No	Late

Soil N is not taken into account

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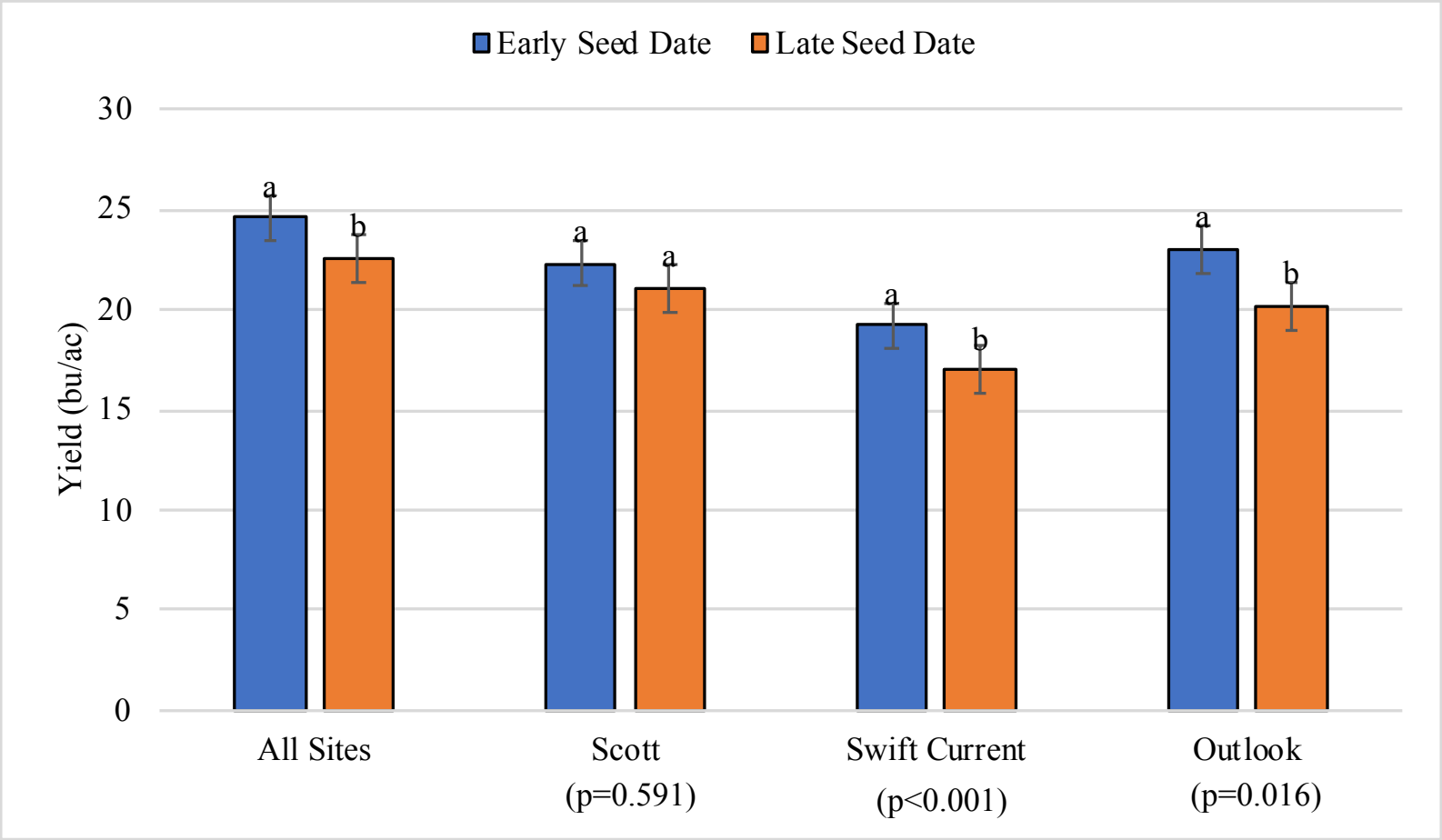
Seed date x yield (2024)



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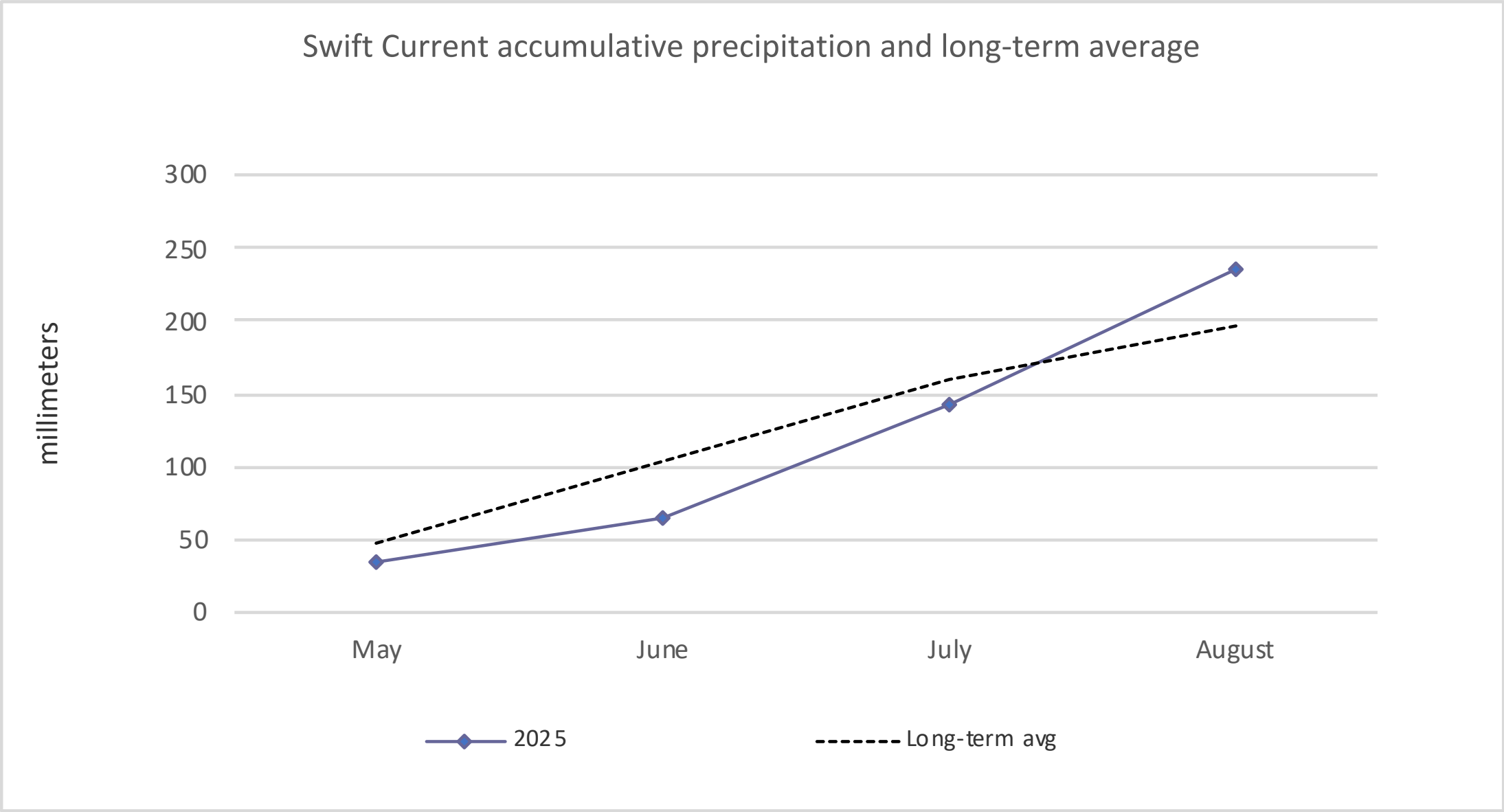
Year 2 Precipitation, (2025)



Seed date x yield (Swift Current, 2025)

N Rate (lbs/ac)	bu/ac
0	29
50	29
100	29
p-value	0.9984 (ns)
Seed Treatment	**bu/ac**
yes	31 A
no	28 B
p-value	0.0519
Seed Date	**bu/ac**
Early	26 B
Late	32 A
p-value	0.0002
CV (%)	17.3

No combined effects were significant in 2025

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SPG Response of Chickpea to Granular and Foliar Applied Potassium (2025-2026)

Trt #	Varietal class	Variety	Treatment and rate
1	Kabuli	CDC Lancer	Untreated control (no granular or foliar K)
2	Kabuli	CDC Lancer	Granular potash applied at seeding at 20 kg KCl/ha
3	Kabuli	CDC Lancer	Granular potash applied at seeding at 40 kg KCl/ha
4	Kabuli	CDC Lancer	Granular potash applied at seeding at 60 kg KCl/ ha
5	Kabuli	CDC Lancer	Foliar K applied just before flowering at 1.25 kg K/ha
6	Kabuli	CDC Lancer	Foliar K applied just before flowering at 2.5 kg K/ha
7	Kabuli	CDC Lancer	Foliar K applied just before flowering at 3.75 kg K/ha
8	Desi	CDC Kala	Untreated control (no granular or foliar K)
9	Desi	CDC Kala	Granular potash applied at seeding at 20 kg KCl/ha
10	Desi	CDC Kala	Granular potash applied at seeding at 40 kg KCl/ha
11	Desi	CDC Kala	Granular potash applied at seeding at 60 kg KCl/ ha
12	Desi	CDC Kala	Foliar K applied just before flowering at 1.25 kg K/ha
13	Desi	CDC Kala	Foliar K applied just before flowering at 2.5 kg K/ha
14	Desi	CDC Kala	Foliar K applied just before flowering at 3.75 kg K/ha

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SPG Response of Chickpea to Granular and Foliar Applied Potassium (2025-2026)

- Plant emergence
- Chickpea Health Rating (0-5)
- Ascochyta Blight Rating (0-9)
- Days to Maturity
- Tissue samples
- TKW
- Yield

Swift Current, 2025		
Variety	**bu/ac**	
CDC Lancer (Kabuli)	44	A
CDC Kala (Desi)	40	B
p-value	0.0008	
Type of Application	**bu/ac**	
No K applied	41	A
Granular	42	A
Foliar	43	A
p-value	0.0008	
CV (%)	10	

Product rate (ns).
CDC Kala showed mixed effects to interactions

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Exploring the Potential Benefits of Plant Growth Regulators (PGR) on Saskatchewan Pulse Crops, (2025-2026)

#	Product	Application Rates
1	Untreated Control (UTC)	n/a
2	Moddus (121.4 g Trinexapac-ethyl/l)	125 g ai/ha (417 ml Moddus/ac)
3	Manipulator (620 g chlormequat chloride/l)	1426 g ai/ha (931 ml Manipulator/ac)
4	Moddus + Manipulator	(208 ml Moddus + 465 ml Manipulator/ac)

- Lancer Chickpea (WCA)
- Nimble Lentil (WCA)
- Profit Pea (WCA)
- FabaBean (other locations)

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Exploring the Potential Benefits of Plant Growth Regulators (PGR) on Saskatchewan Pulse Crops, 2025-2026

Swift Current 2025

#	Product	PEAS	LENTIL	CHICK	PEAS	LENTIL	CHICK
		Height (cm)			Yield (bu/ac)		
1	Untreated Control (UTC)	45	30	35	36	41	47
2	Moddus (121.4 g Trinexapac-ethyl/l)	44	27	31	37	40	47
3	Manipulator (620 g chlormequat chloride/l)	44	27	34	33	39	50
4	Moddus + Manipulator	46	26	33	37	40	47
	CV (%)	6.5	8.6	6.8	16	19.8	13.3
	p-value	0.8704 (ns)	0.3125 (ns)	0.1677 (ns)	0.765 (ns)	0.9892 (ns)	0.9001 (ns)

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Chickpea Demonstration Trial: Investigating optimal seeding practices and cultivar selection (2025-2026)

Trt	Seeding Date[1]	Variety	Seed Rate[2]
1	05-May	CDC Lancer	Low
2			Standard
3			High
4		CDC Pasqua	Low
5			Standard
6			High
7		CDC Orkney	Low
8			Standard
9			High
10	16-May	CDC Lancer	Low
11			Standard
12			High
13		CDC Pasqua	Low
14			Standard
15			High
16		CDC Orkney	Low
17			Standard
18			High

[1]Early-1st week May; Late-3rd week May (No later than 21st)

[2]Low, Standard and High seeding rate calculations are based on targeted plant stands of 18, 37, and 56 plants/m^2.

$$\text{Seeding Rate (lbs/ac)} = \frac{Target\ Population/m^2 \times 1000\ seed\ weight\ (g)}{\%\ Expected\ Emergence\ (eg."85")} \times 0.89$$

SASKATCHEWAN pulse Growers

Chickpea Demonstration Trial: Investigating optimal seeding practices and cultivar selection (2025-2026)

Swift Current, 2025		
Variety	**lbs/ac**	
CDC Lancer	43	B
CDC Pasqua	37	C
CDC Orkney	46	A
p-value	<.0001	
Seed Date		
Early	42	A
Late	42	A
p-value	0.734 (ns)	
Seed Rate		
Low	39	B
Standard	44	A
High	43	A
p-value	0.001	
CV (%)	9.6	
Seed Date*Seed Rate (marginally significant)		
Seed Rate*Seed Date*Variety (marginally significant)		

Need a 2nd year data

- Plant emergence
- Chickpea Health Rating (0-5)
- Ascochyta Blight Rating (0-9)
- Maturity and height
- Chickpea Seed Size
- Yield

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Saskatchewan Pulse Growers

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Demonstrating weed management options in chickpeas, 2025-2026

Swift Current, 2025

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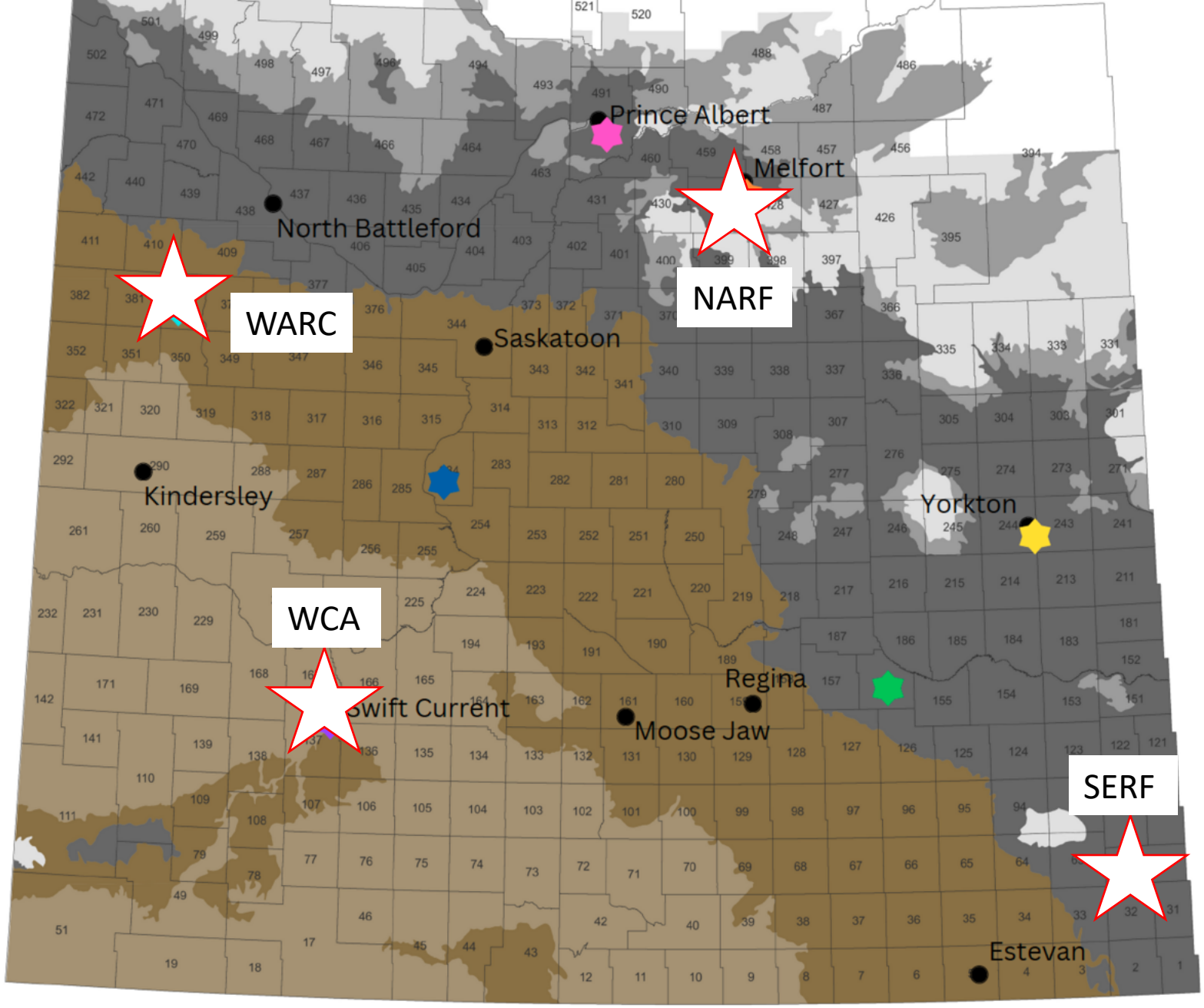
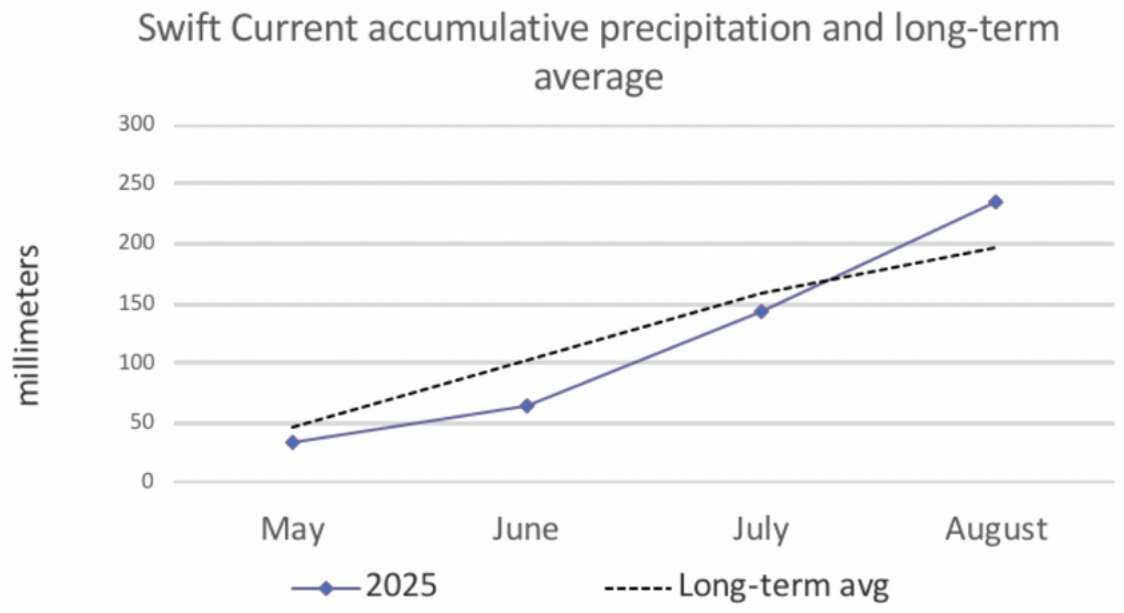
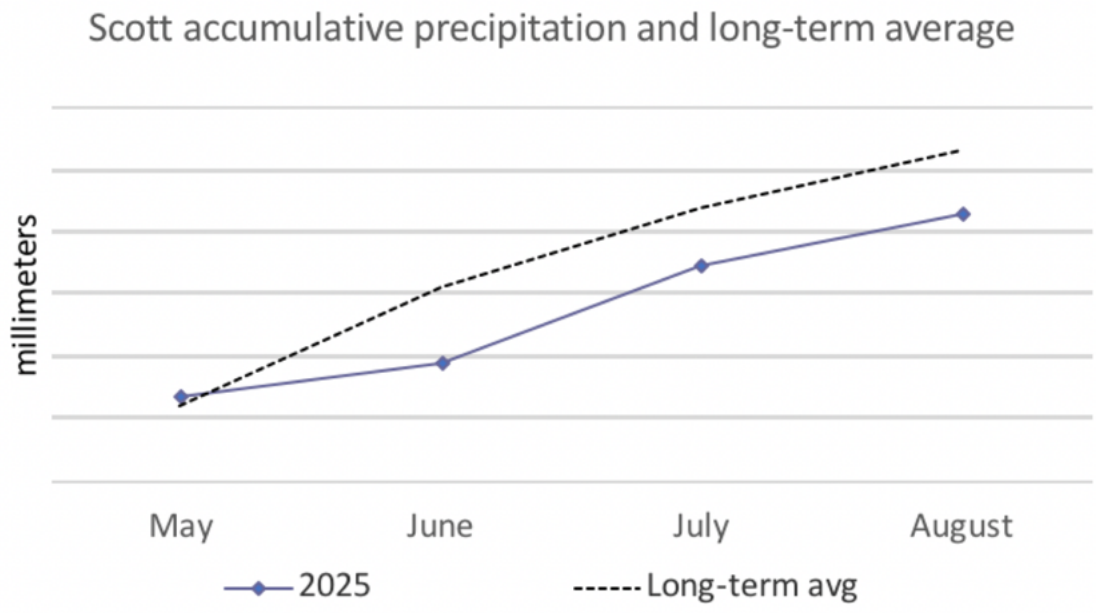
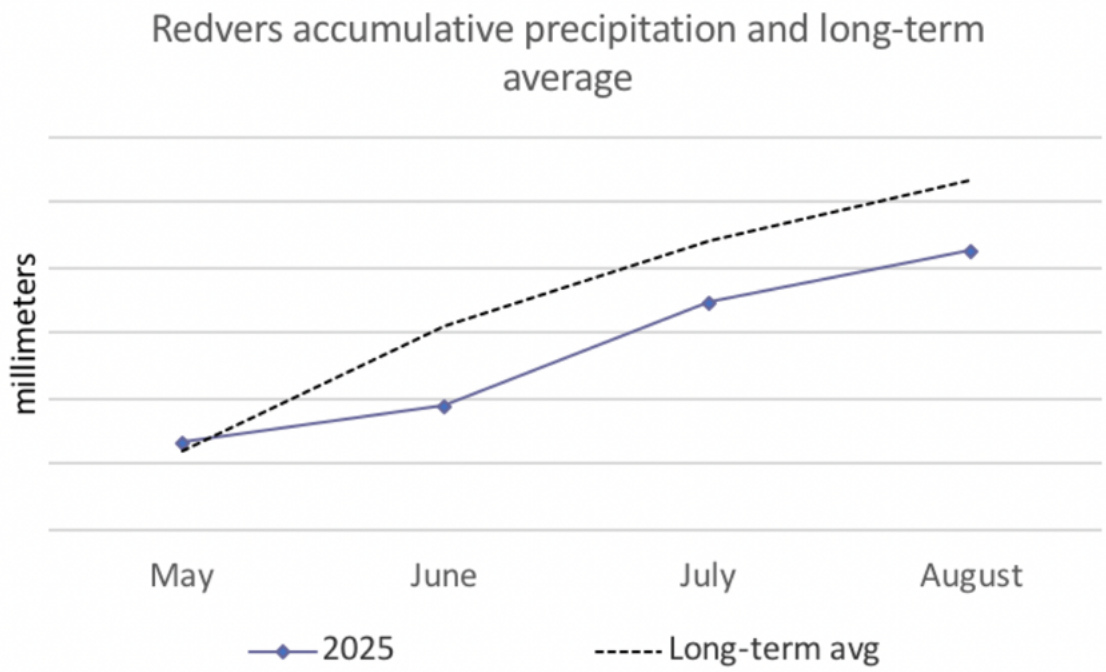


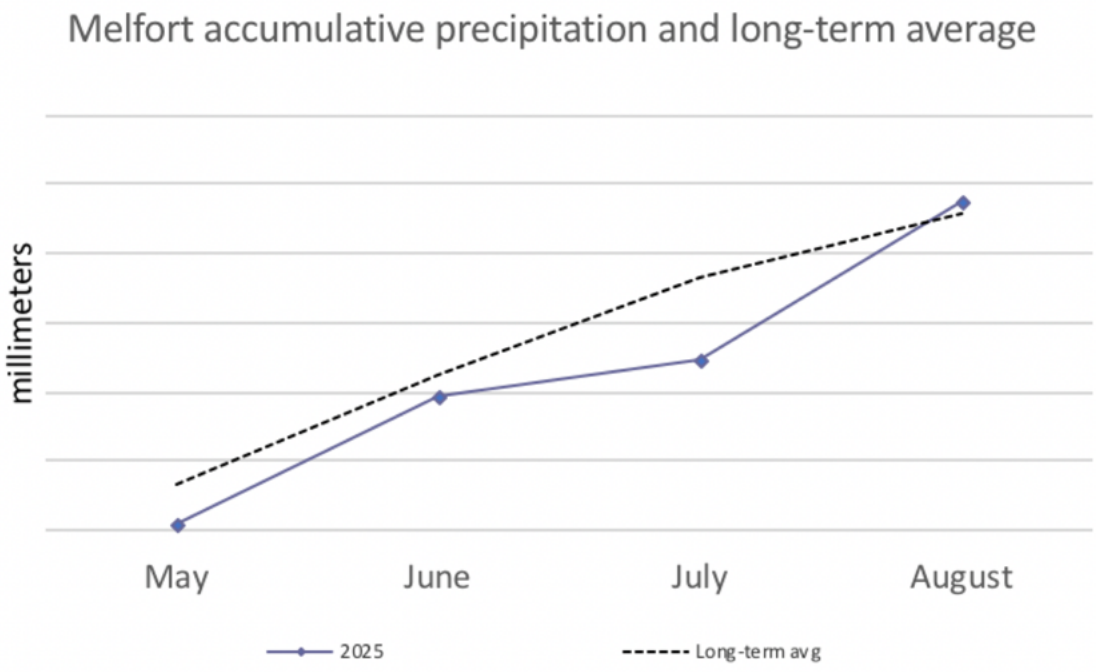
- **2025, Swift Current**
- **2025, Scott**
- **2025, Redvers**
- **2025, Melfort**

Location	Year	May	June	July	August	September	Avg. / Total	% of LT
----------*Mean Temperature (°C)* ----------								
Redvers	2025	13.2	16.2	17.5	17.9	14.9	15.9	104%
	Long-term	**11.1**	**16.2**	**18.7**	**18.0**	**12.5**	**15.3**	
Swift Current	2025	13.1	15.9	18.0	19.0	16.7	16.5	103%
	Long-term	**11.9**	**16.4**	**19.1**	**18.7**	**14.0**	**16.0**	
Scott	2025	12.9	14.6	15.8	17.4	17.5	15.6	111%
	Long-term	**10.8**	**14.8**	**17.3**	**16.3**	**11.2**	**14.1**	
Melfort	2025	13.8	15	17	18	15	15.8	110%
	Long-term	**10.1**	**15.2**	**17.8**	**16.7**	**11.7**	**14.3**	
---------- *Precipitation (mm)* ----------								
Redvers	2025	67	27	80	40	48	262	87%
	Long-term	**60**	**95**	**66**	**47**	**33**	**300**	
Swift Current	2025	34	31	78	93	1	237	103%
	Long-term	**47**	**56**	**56**	**38**	**32**	**230**	
Scott	2025	12	104	29	65	65	273	108%
	Long-term	**39**	**70**	**69**	**49**	**27**	**253**	
Melfort	2025	5	93	26	114	20	258	97%
	Long-term	**33**	**80**	**70**	**46**	**36**	**264**	


Swift Current accumulative precipitation and long-term average
millimeters
300
250
200
150
100
50
0
May
June
July
August
2025
Long-term avg


Scott accumulative precipitation and long-term average
millimeters
May
June
July
August
2025
Long-term avg

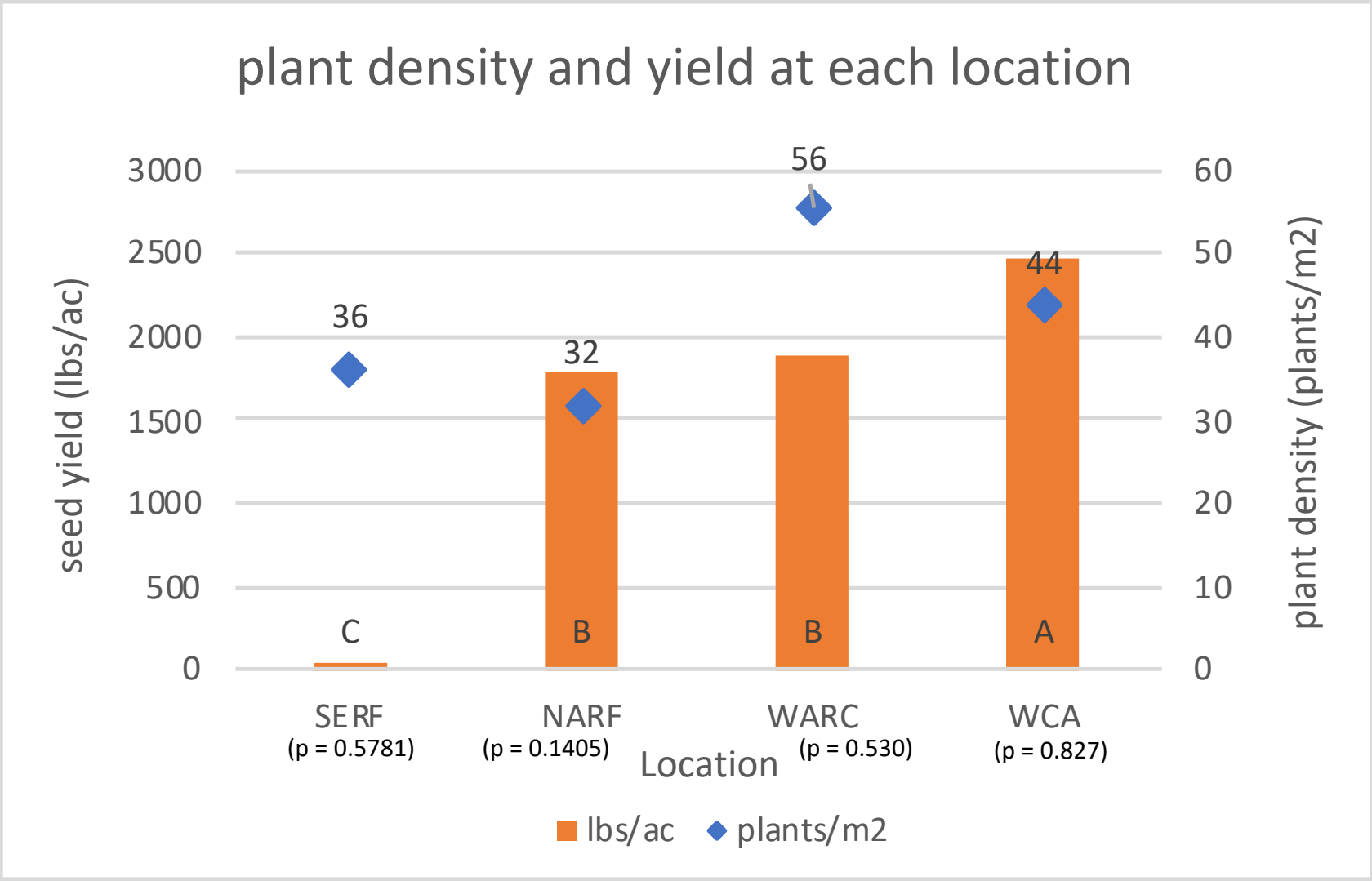

Redvers accumulative precipitation and long-term average
millimeters
May
June
July
August
2025
Long-term avg

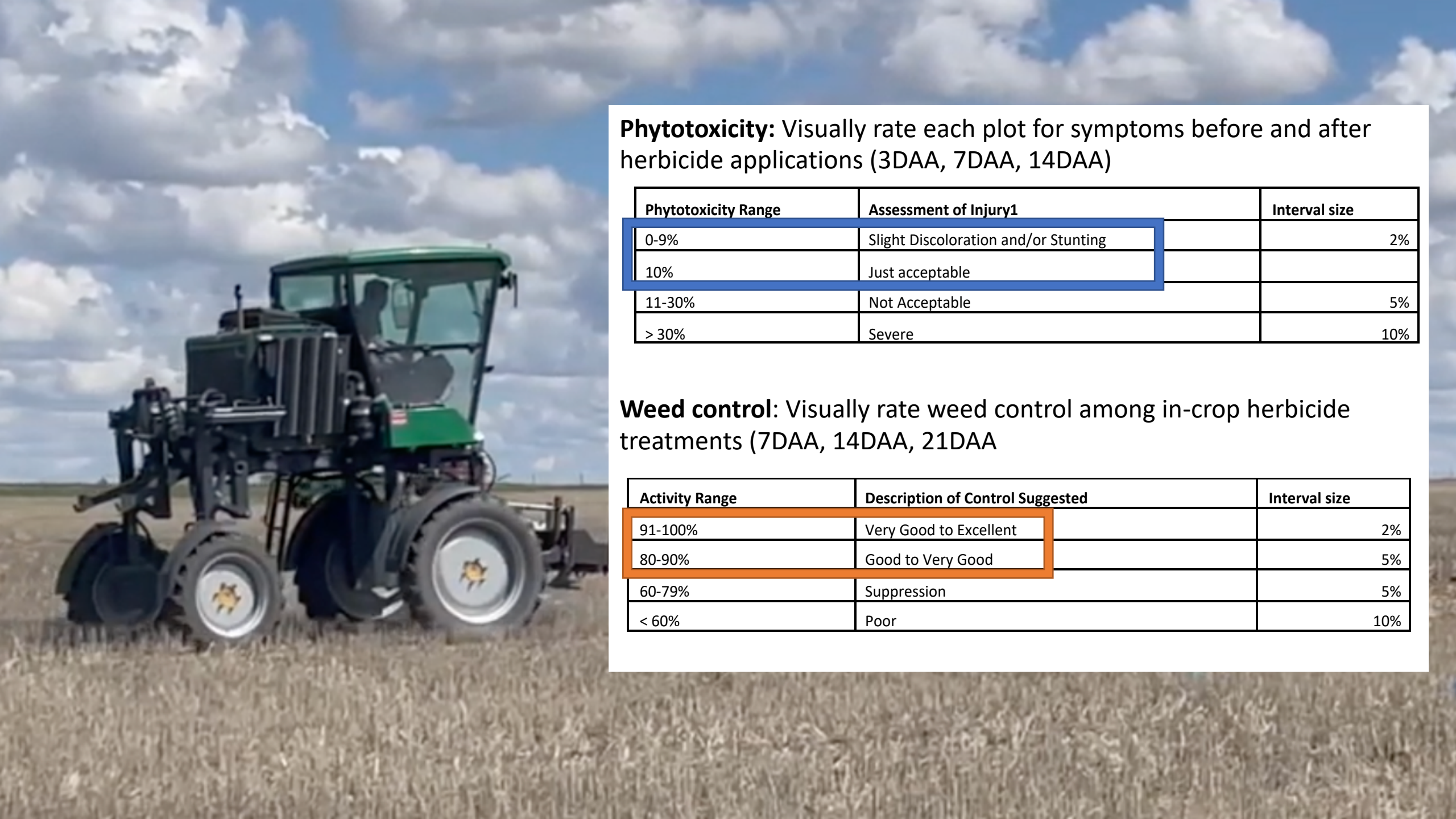

Melfort accumulative precipitation and long-term average
millimeters
May
June
July
August
2025
Long-term avg

#	Pre-seed, or pre-emergent application	Group	Post-emergent application	Group	Note:
1	utc		utc		Weedy check
2	flumioxazin (**Valtera WDG** @113g/ac)	14	no incrop	na	Evaluate residual soil activity
3	flumioxazin (**Valtera WDG** @113g/ac)	14	pyridate (**Tough EC** @607ml/ac)	6	Evaluate residual soil activity and ***new*** contact herbicide (leaves yellow/brown 4-7 DAA)
4	flumioxazin (**Valtera WDG** @113g/ac)	14	metribuzin (**Squadron 75% WDG** @ 111g/ac)	5	Evaluate residual soil activity and a contact herbicide at full rate
5	flumioxazin (**Valtera WDG** @113g/ac)	14	metribuzin (**Squadron 75% WDG** @ 83g/ac)	5	Evaluate residual soil activity on a contact herbicide at 3/4 rate
6	flumioxazin (**Valtera WDG** @113g/ac)	14	metribuzin (**Squadron 75% WDG** @ 83g/ac) + pyridate (**Tough EC** @404 ml/ac)	5 & 6	Evaluate residual soil activity and 2 modes of action of a contact herbicide using a new registered tank mix
7	flumioxazin (**Valtera WDG** @113g/ac)	14	imazamox (**Solo ADV II**)	2	Evaluate residual soil activity and a contact herbicide with slight soil activity
8	sulfentrazone/pyroxasulfone (**Authority Supreme)**	14 & 15	no incrop	na	Evaluate residual soil activity
9	sulfentrazone/pyroxasulfone (**Authority Supreme)**	14 & 15	pyridate (**Tough EC** @607ml/ac)	6	Evaluate residual soil activity and ***new*** contact herbicide (leaves yellow/brown 4-7 DAA)
10	sulfentrazone/pyroxasulfone (**Authority Supreme)**	14 & 15	metribuzin (**Squadron 75% WDG** @ 111g/ac)	5	Evaluate residual soil activity and a contact herbicide at full rate
11	sulfentrazone/pyroxasulfone (**Authority Supreme)**	14 & 15	metribuzin (**Squadron 75% WDG** @ 83g/ac)	5	Evaluate residual soil activity on a contact herbicide at 3/4 rate
12	sulfentrazone/pyroxasulfone (**Authority Supreme)**	14 & 15	metribuzin (**Squadron 75% WDG** @ 83g/ac) + pyridate (**Tough EC** @404 ml/ac)	5 & 6	Evaluate residual soil activity and 2 modes of action of a contact herbicide using a new registered tank mix
13	sulfentrazone/pyroxasulfone (**Authority Supreme)**	14 & 15	imazamox (**Solo ADV II**)	2	Evaluate residual soil activity and a contact herbicide with slight soil activity

Plant Density and Yield by location

Across four site-years, location was highly significant ($p < 0.0001$)
Plant density did not differ statistically among treatments at any location





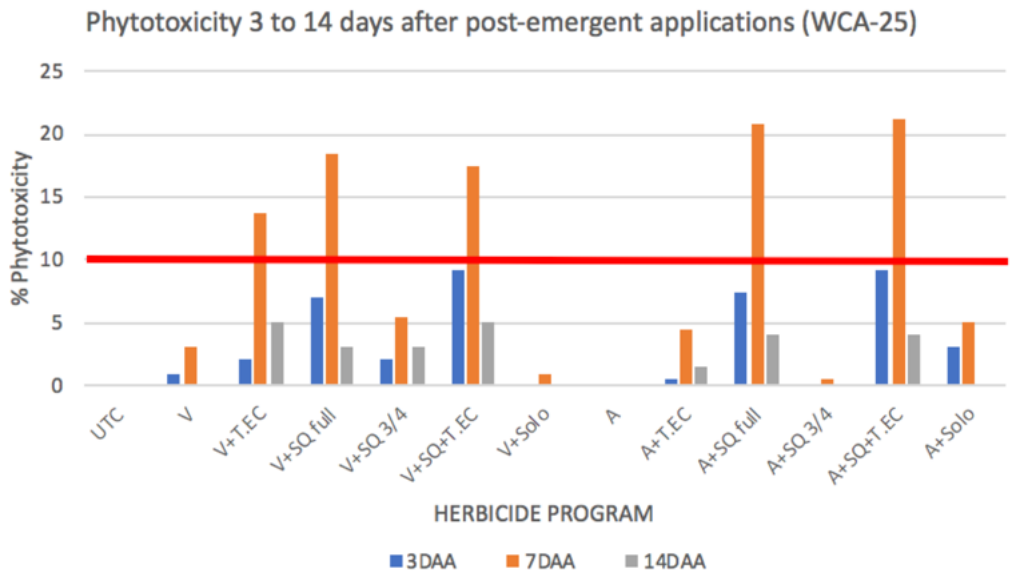
Phytotoxicity: Visually rate each plot for symptoms before and after herbicide applications (3DAA, 7DAA, 14DAA)

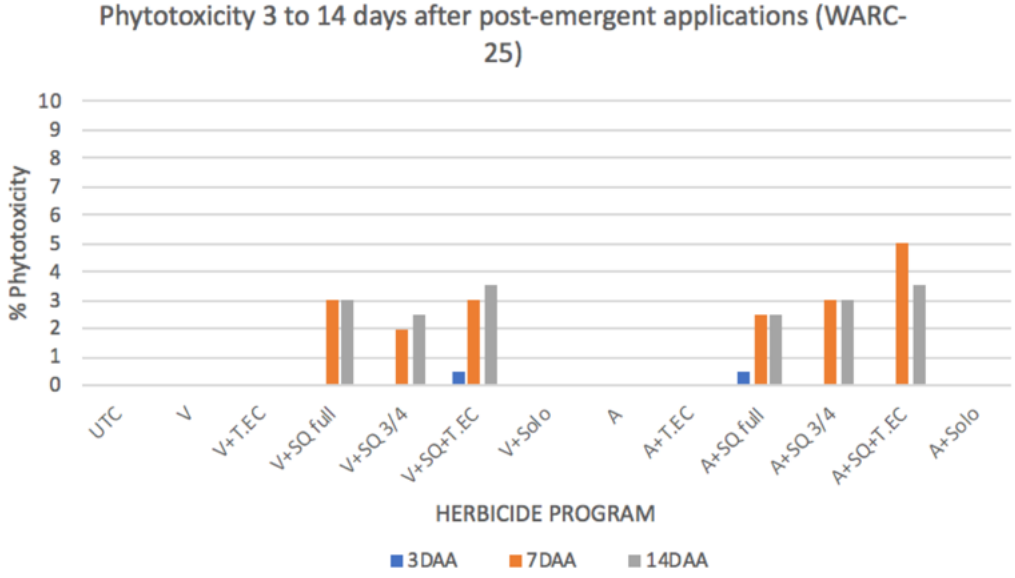
Phytotoxicity Range	Assessment of Injury1	Interval size
0-9%	Slight Discoloration and/or Stunting	2%
10%	Just acceptable	
11-30%	Not Acceptable	5%
> 30%	Severe	10%

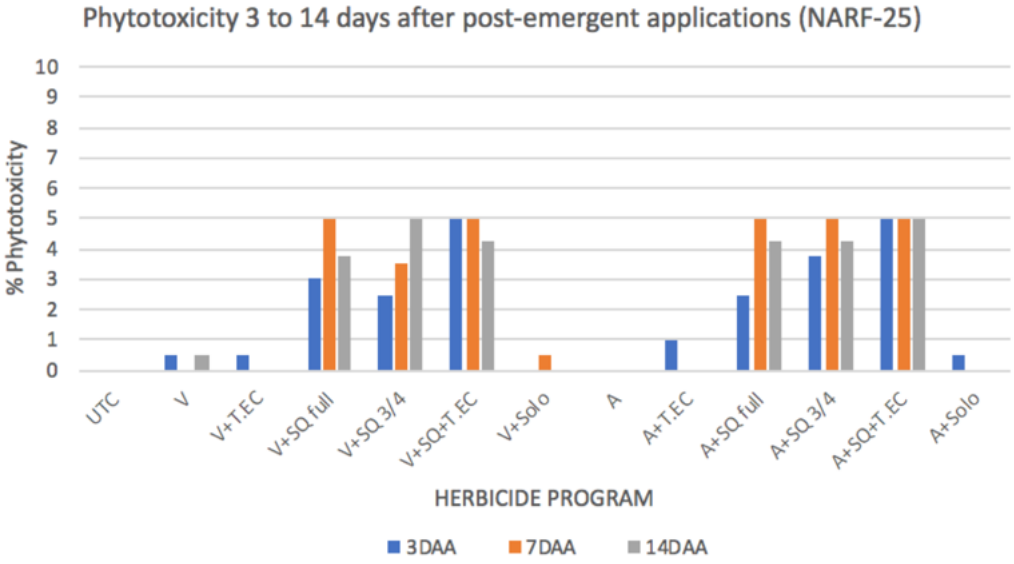
Weed control: Visually rate weed control among in-crop herbicide treatments (7DAA, 14DAA, 21DAA

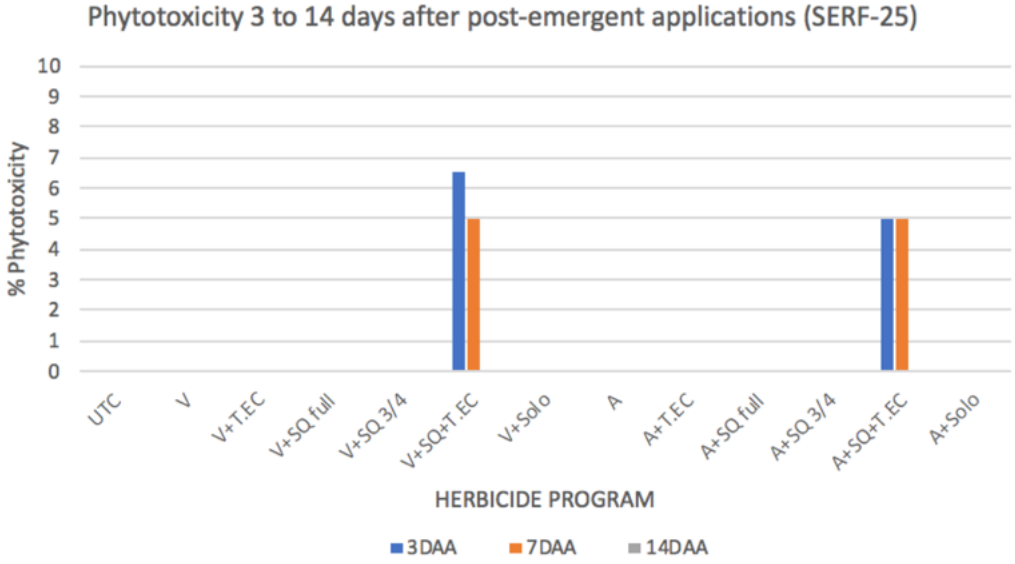
Activity Range	Description of Control Suggested	Interval size
91-100%	Very Good to Excellent	2%
80-90%	Good to Very Good	5%
60-79%	Suppression	5%
< 60%	Poor	10%

Minor symptoms of phytotoxicity; did not affect plant development

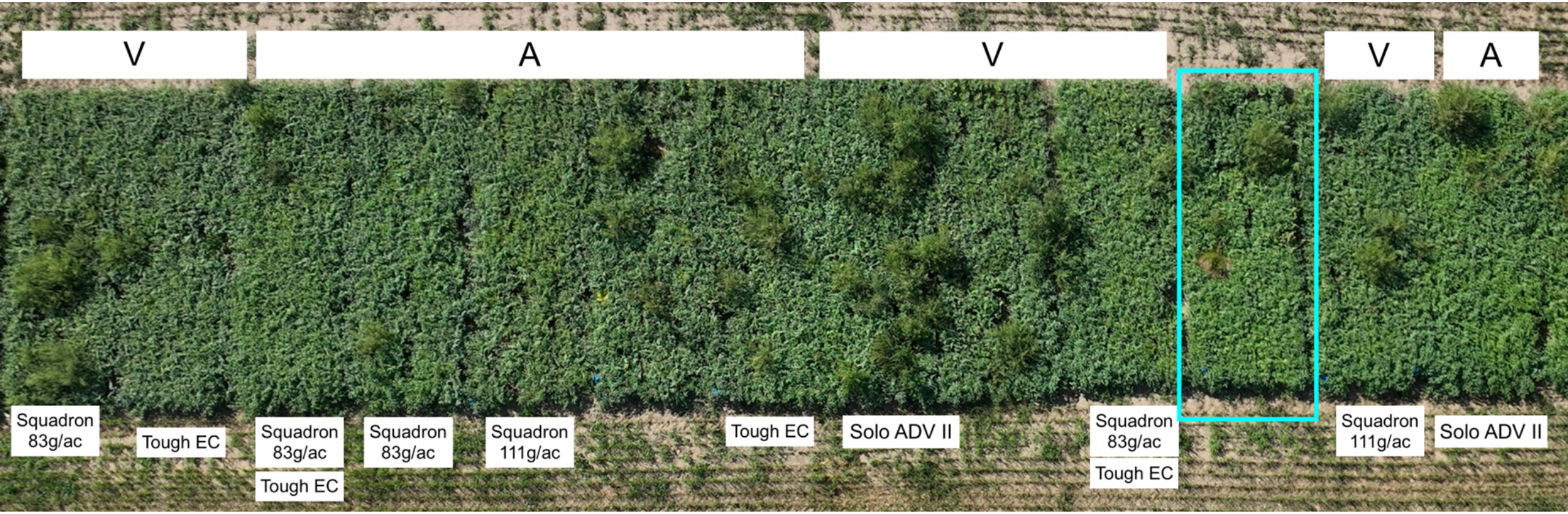




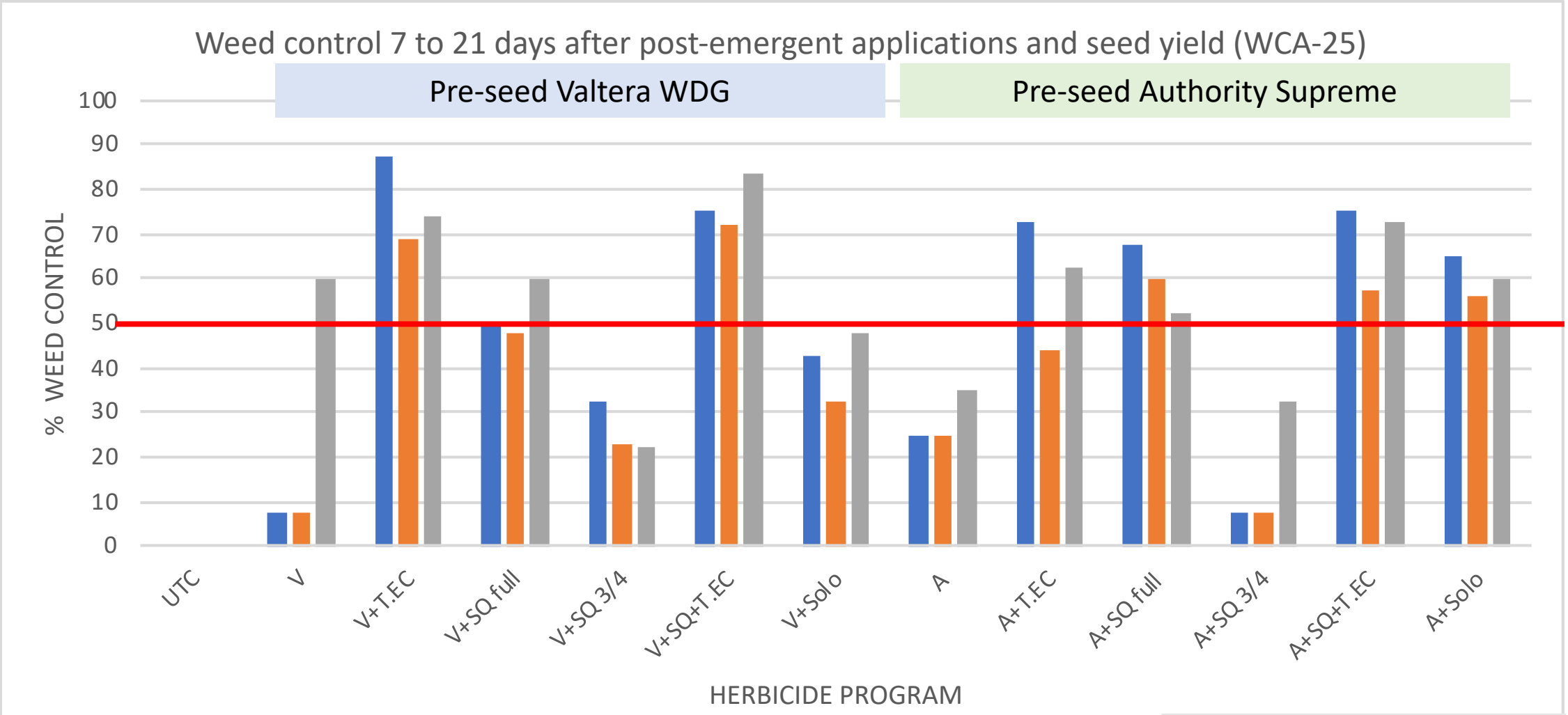




Naturally sporadic weed pressure

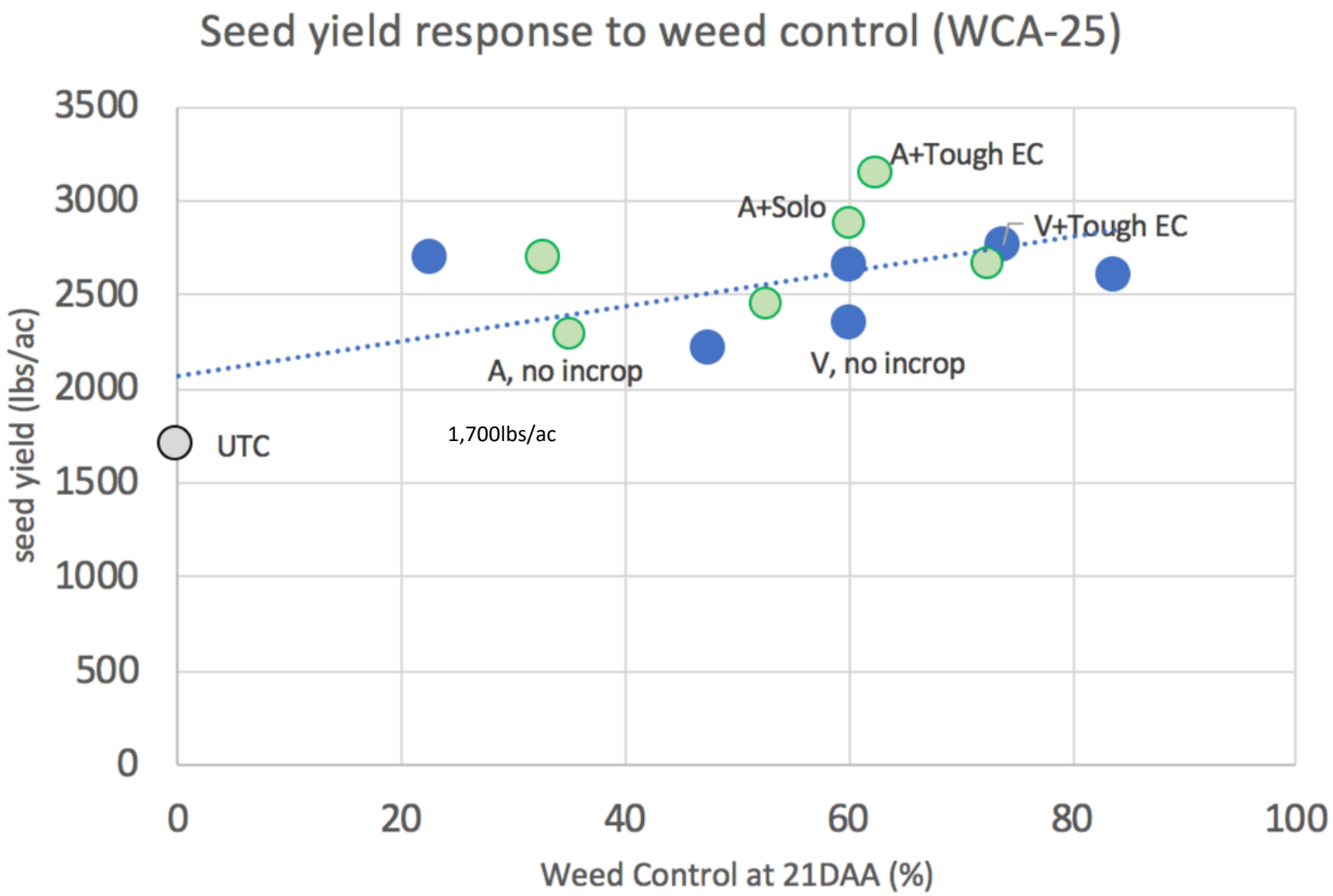


Most post-emergent treatments provided a minimum of 50-60% weed control



	7DAA	14DAA	21DAA
p-value	0.4666	0.0747	0.2865
CV (%)	36.7	38.6	42.5

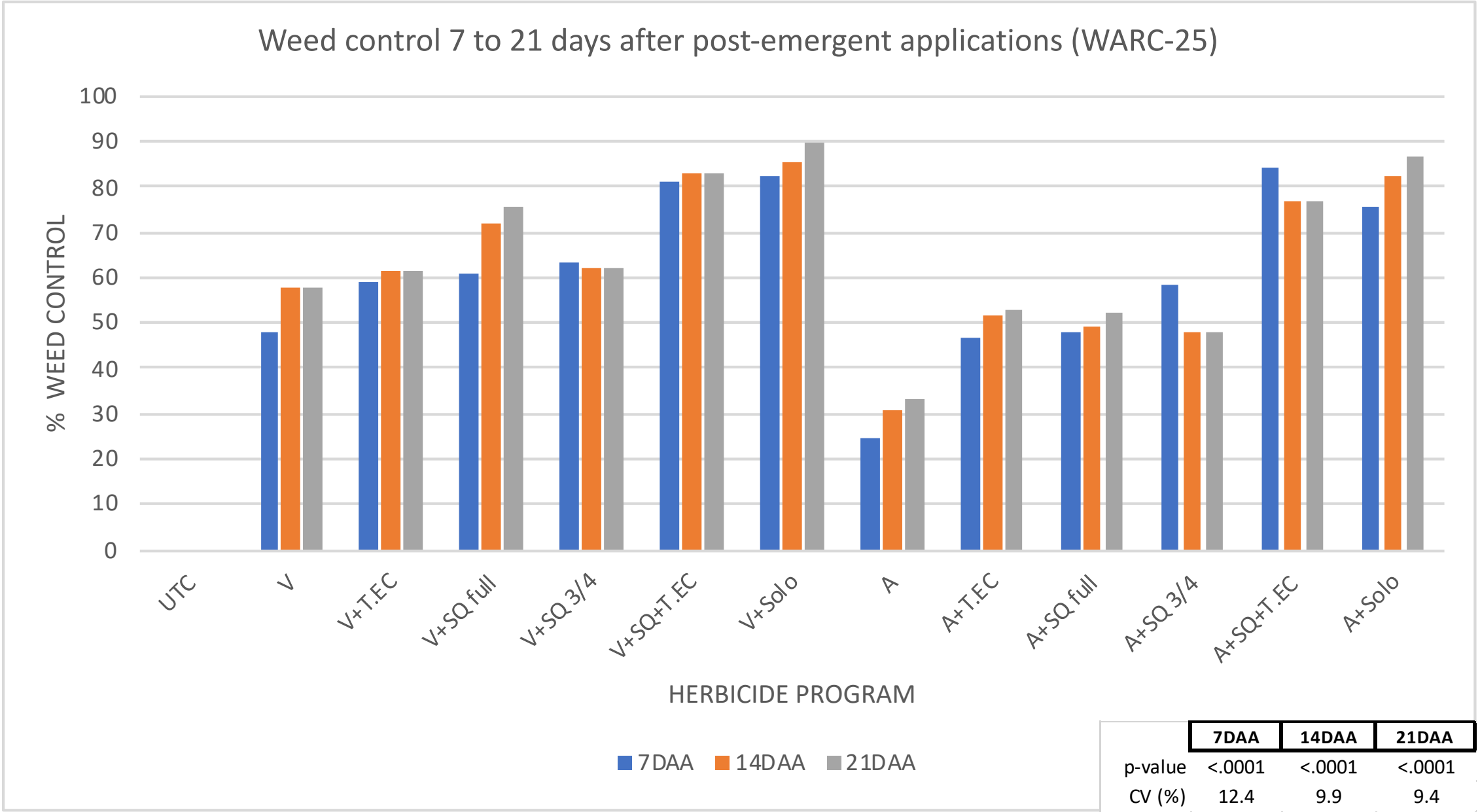
Swift Current, 2025



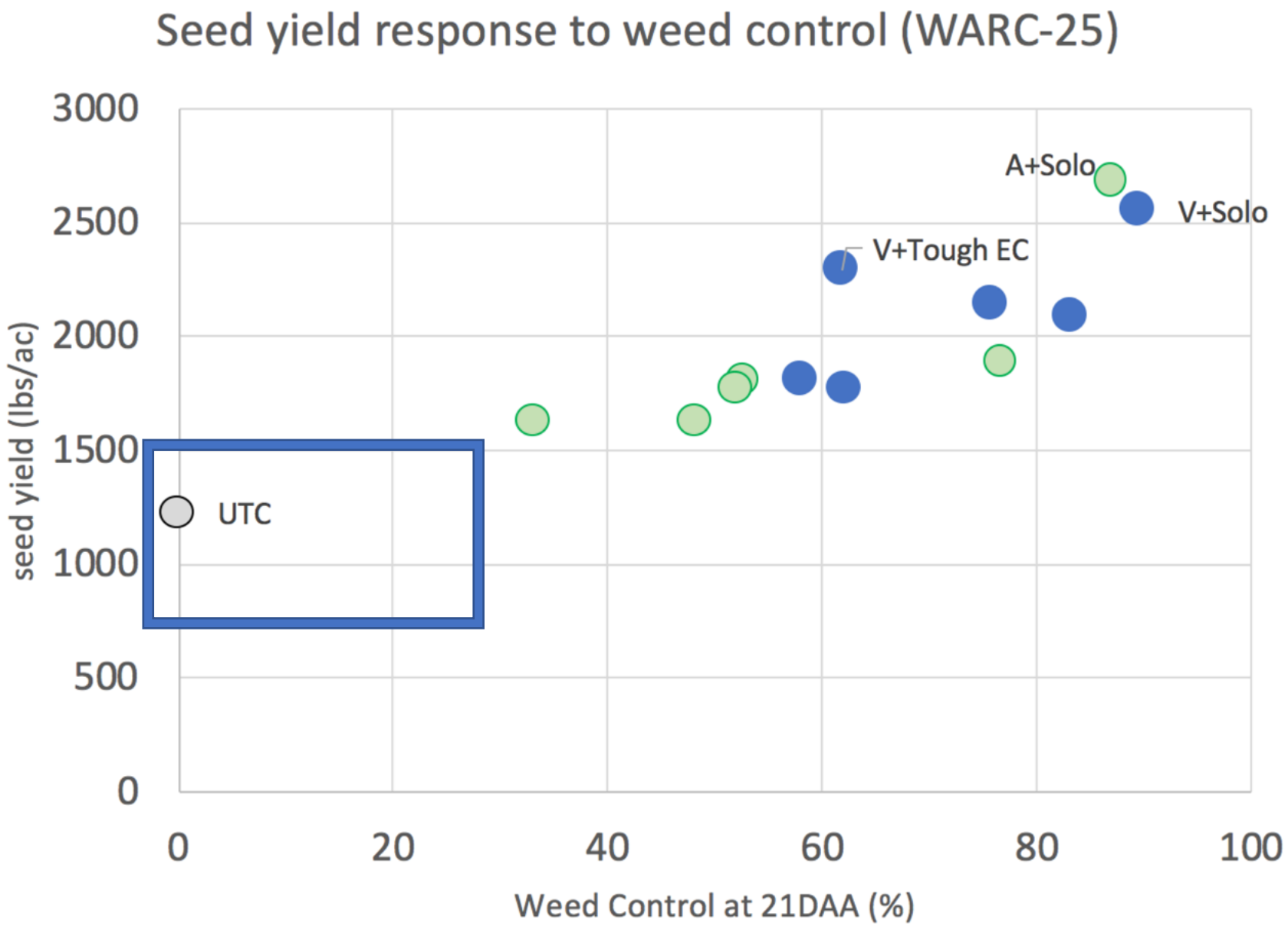
Programs that provided greater than 60% control generally resulted in greater seed yield compared with programs that failed to exceed 50% control.

	7DAA	14DAA	21DAA
p-value	0.4666	0.0747	0.2865
CV (%)	36.7	38.6	42.5

Scott, 2025

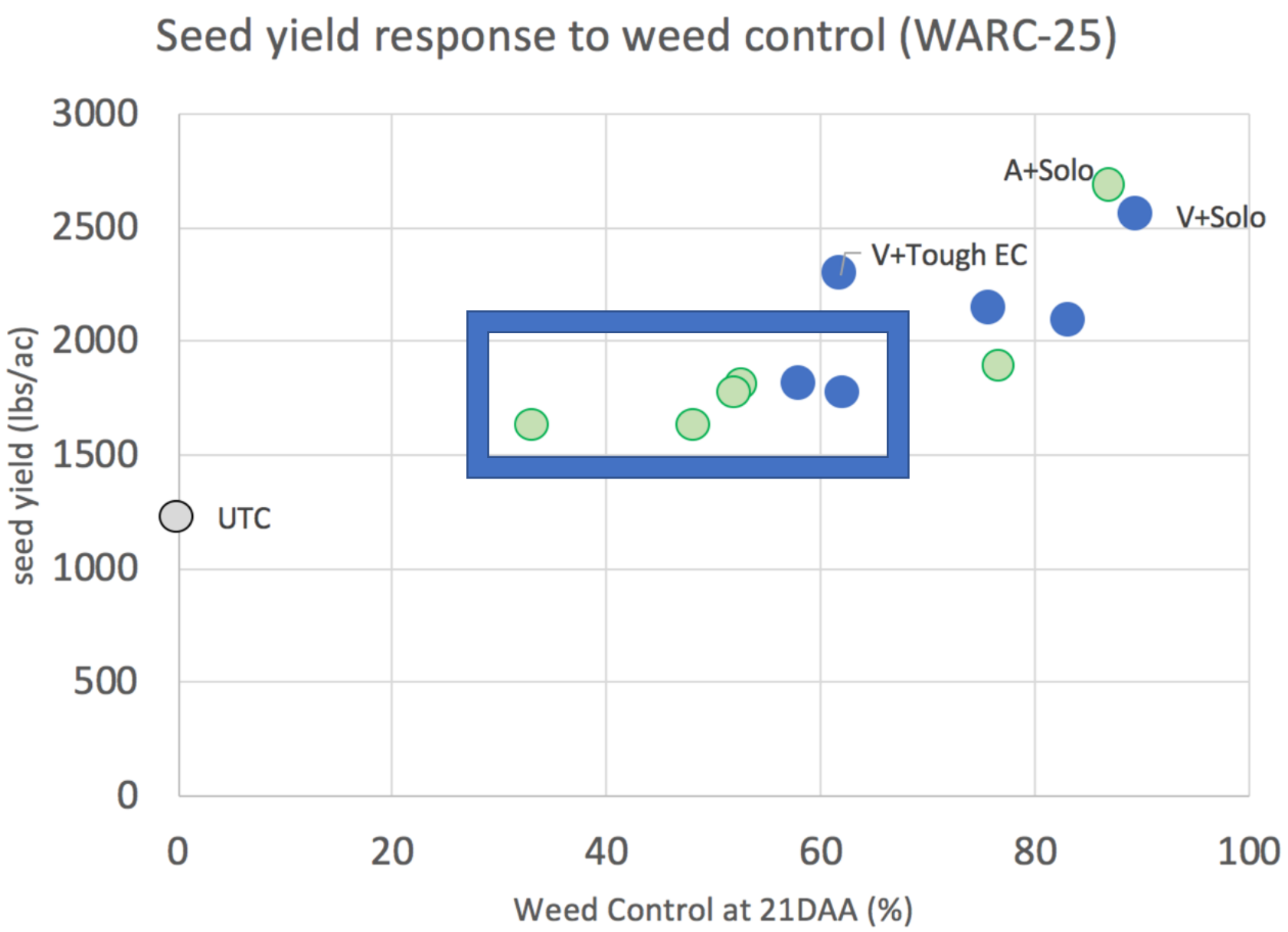


	7DAA	14DAA	21DAA
p-value	<.0001	<.0001	<.0001
CV (%)	12.4	9.9	9.4



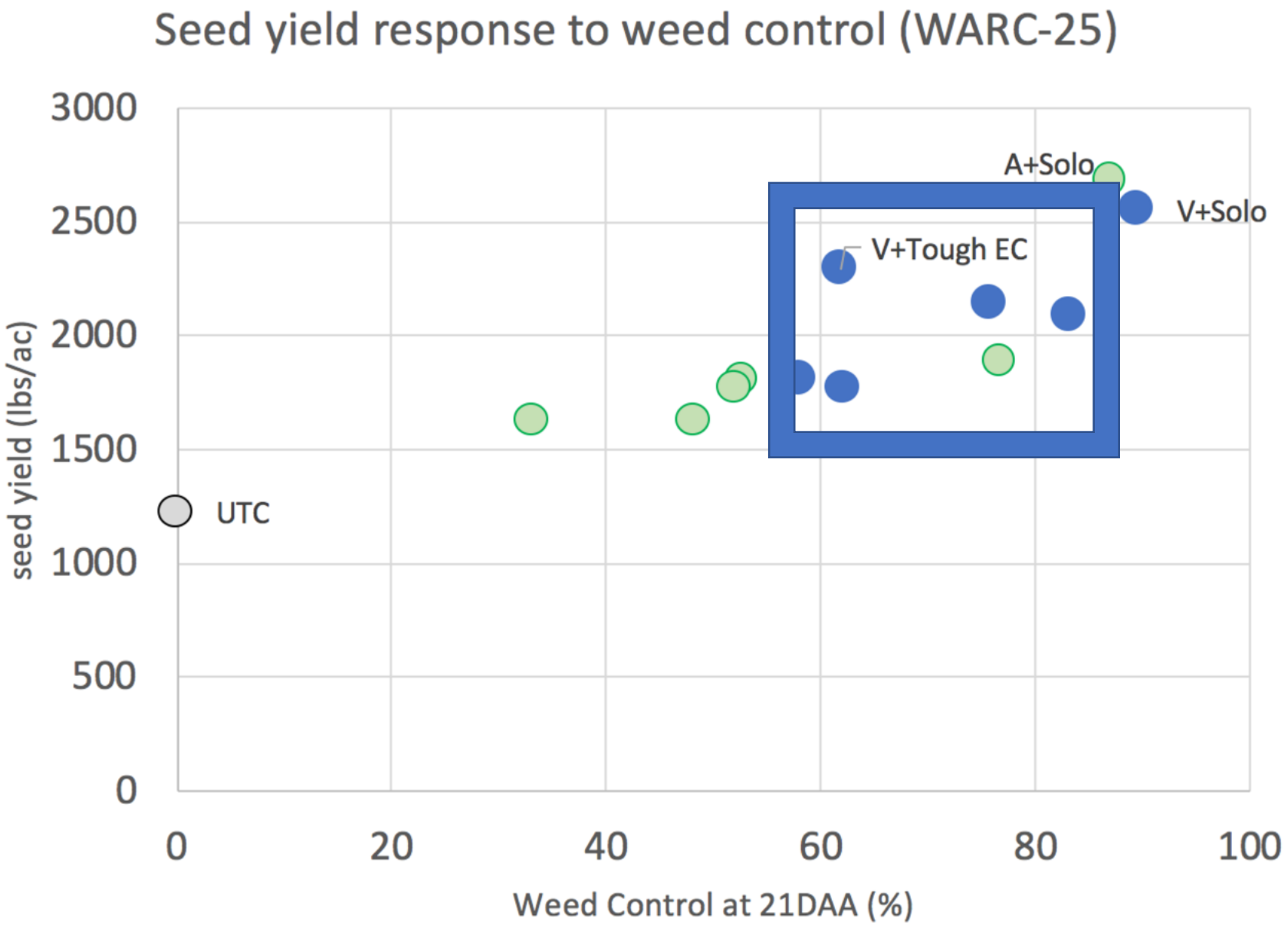
The UTC yielded approximately **1,200 lbs ac^{-1}**, representing the lowest yield observed.

	7DAA	14DAA	21DAA
p-value	<.0001	<.0001	<.0001
CV (%)	12.4	9.9	9.4



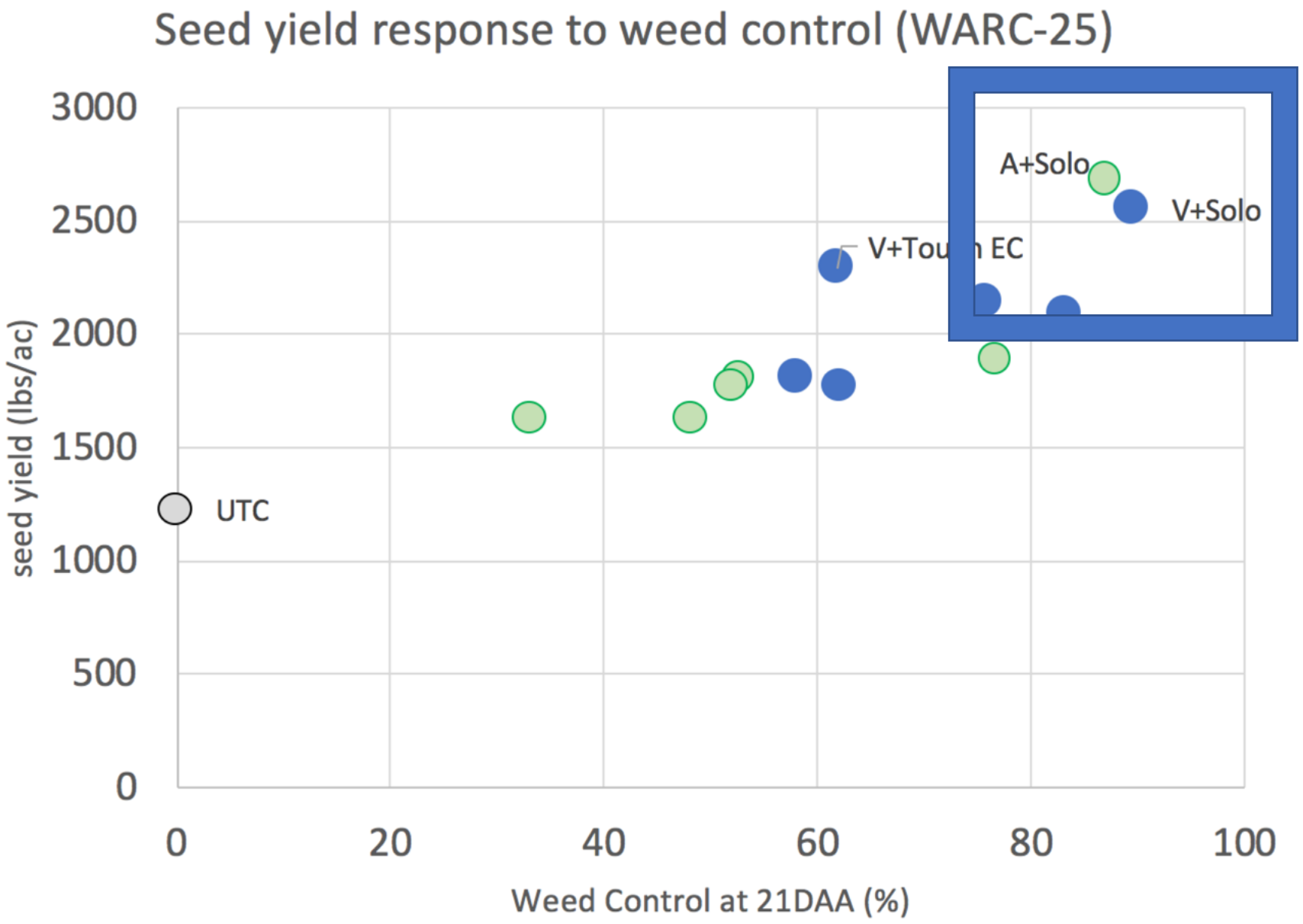
Intermediate weed control levels (**30–60%**) resulted in yields of **~1,600–1,800 lbs ac^{-1}**

	7DAA	14DAA	21DAA
p-value	<.0001	<.0001	<.0001
CV (%)	12.4	9.9	9.4



Treatments achieving **60–75% control** produced **~1,800–2,300 lbs ac^{-1}**

	7DAA	14DAA	21DAA
p-value	<.0001	<.0001	<.0001
CV (%)	12.4	9.9	9.4



The highest yields over **2,600 lbs ac^{-1}**) were recorded where weed control exceeded **80%**

	7DAA	14DAA	21DAA
p-value	<.0001	<.0001	<.0001
CV (%)	12.4	9.9	9.4

Summary, Demonstrating weed management options in chickpeas

- Both strong pre-seed options
- All in-crop herbicide programs resulted in higher yields than the weedy check
- Symptoms of crop phytotoxicity occasionally appeared shortly after application, but diminished by 14 DAA and did not appear to impact crop development
- Cost per acre

Pre-seed, In-Crop and Fungicide (4x)	Cost/ac
No Herbicide Applications	$91
Valtera WDG	$119
Valtera WDG x Tough EC	$159
Valtera WDG x Squadron High	$126
Valtera WDG x Squadron Low	$124
Valtera WDG x Squadron + Tough EC	$150
Valtera WDG x Solo ADV II	$132
Authority Supreme	$115
Authority Supreme x Tough EC	$155
Authority Supreme x Squadron High	$122
Authority Supreme x Squadron Low	$120
Authority Supreme x Squadron + Tough EC	$147
Authority Supreme x Solo ADV II	$129

Cropportunities March 12, 2026
Annual field tour July 16, 2026
Crop Diagnostic School July 29-30, 2026

Sustainable Canadian Agricultural Partnership

Saskatchewan

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