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Irrigated Crop Protection & Water Management Demonstrations



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SIPA / ICDC Annual Conference
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2012 Projects

- Dry Bean Fungicide Timing Survey
- Dry Bean Fungicide Products Demo
- Flax Fungicide Demo
- Fungicide Application Timing in Wheat
- Irrigation Water Management Practices
- Irrigation Workshop



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Dry Bean Fungicide Timing

- 2 fields in Riverhurst Irrigation District
- 2 fields in SSRID
- Each field was surveyed weekly from the start of July to the end of August
- 100 plants inspected in each field for white mold infection



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Dry Bean Fungicide Timing

$$\sum ((\text{severity class} \times \text{number of plants in class}) \times 100) / \text{number of plants}$$

0 = No disease

1 = Small lesions less than 5cm in the longest dimension

2 = Expanding lesions on branches or stem

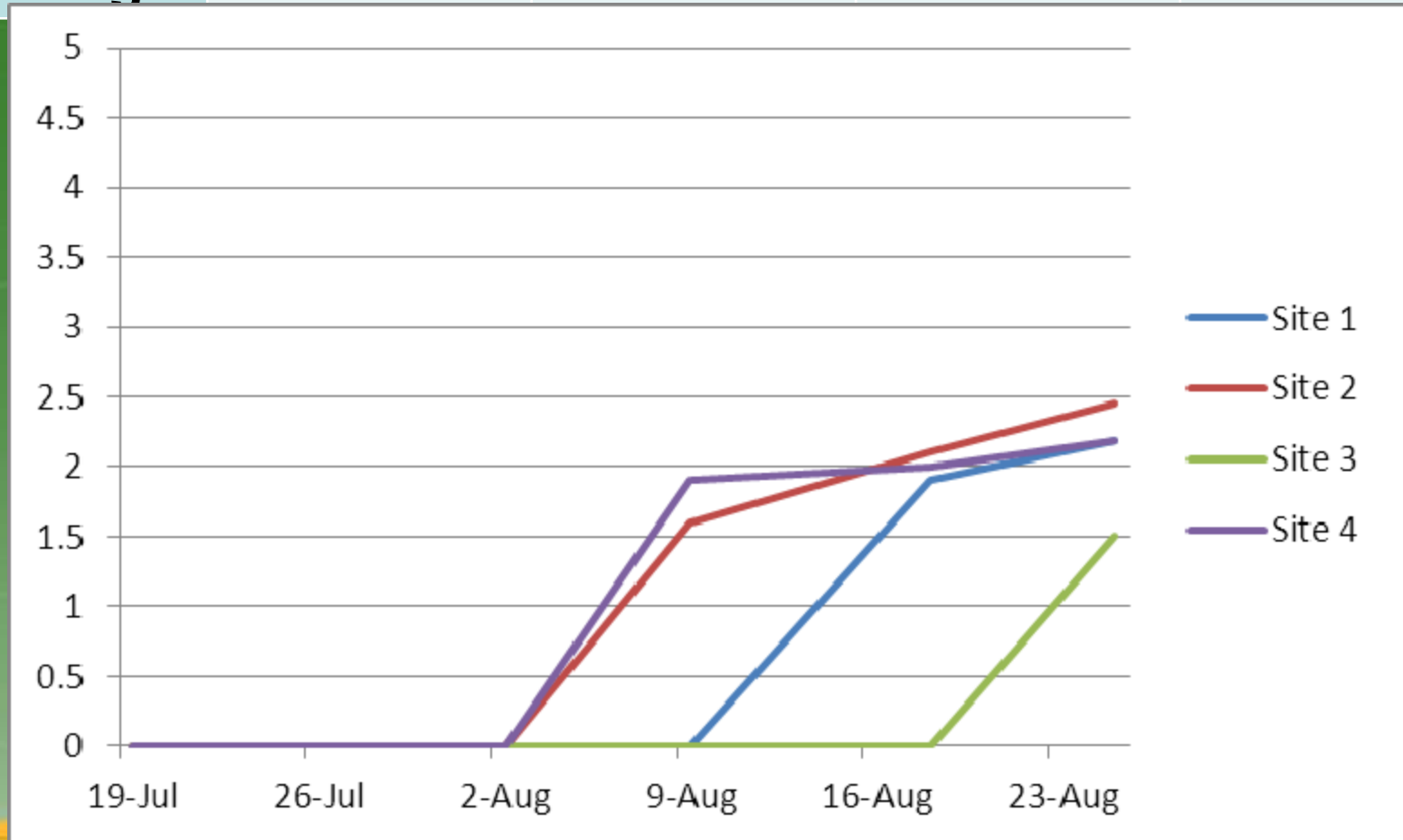
3 = Up to half of branches or stem colonized

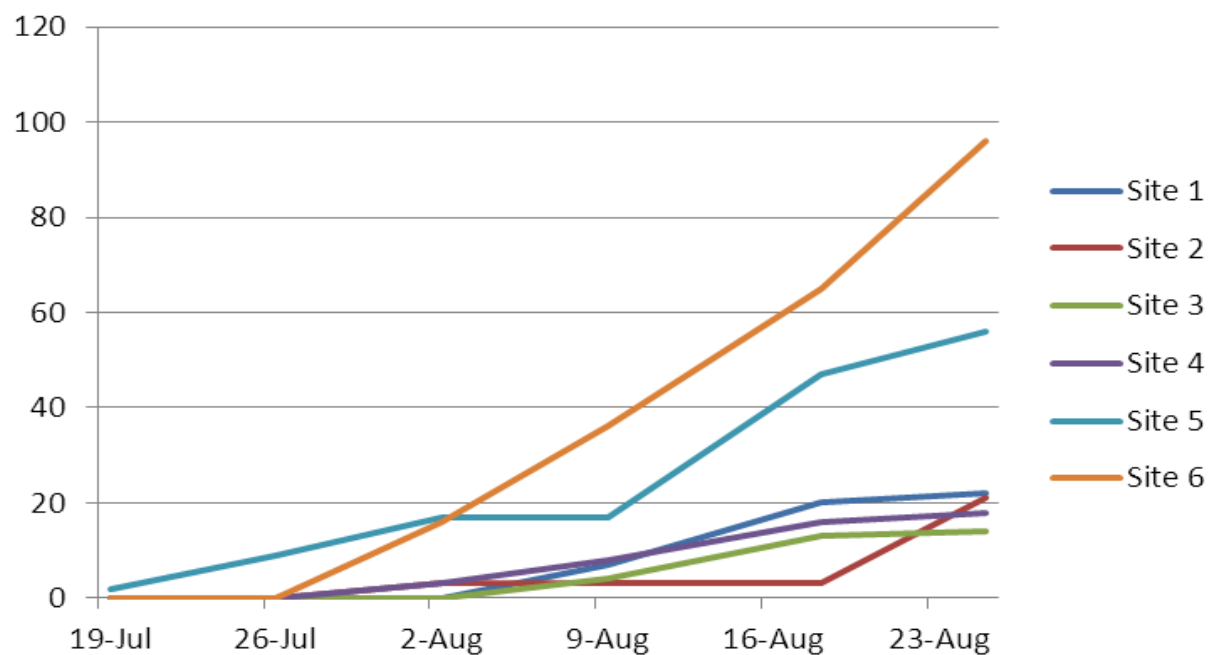
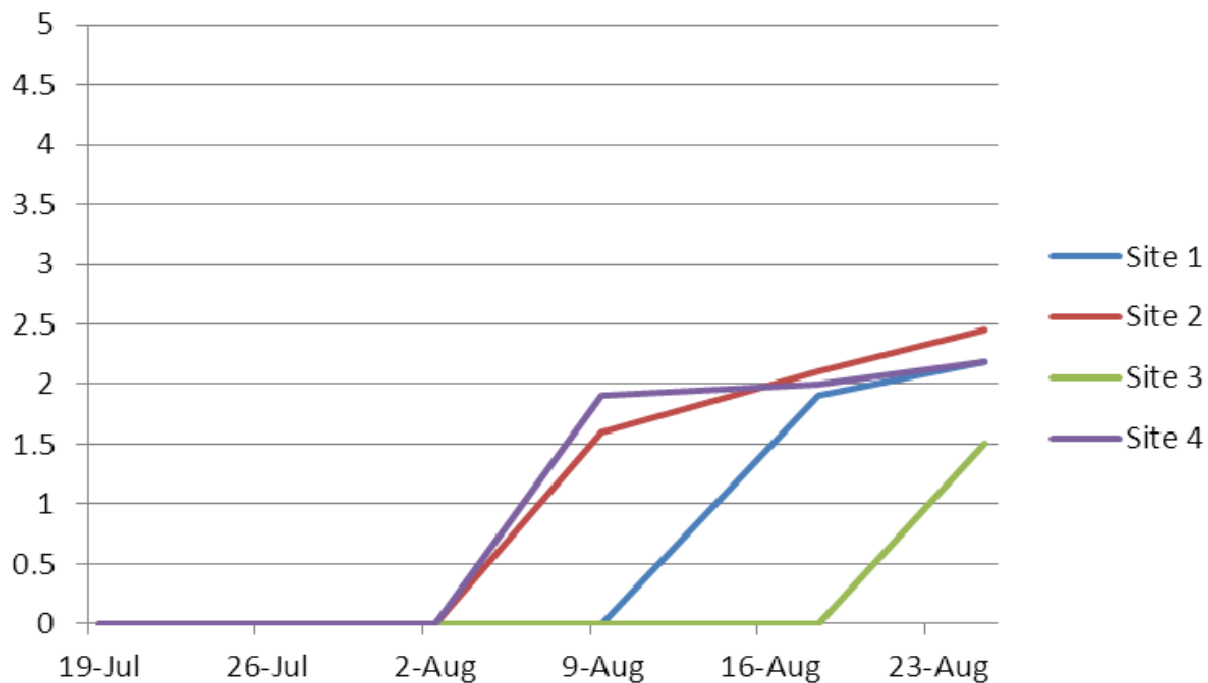
4 = More than half of the branches colonized

5 = Main stem colonized or plant dead

- 1 = Minor disease presence and severity
- 5 = Extreme disease presence and severity

Date	Site 1	Site 2	Site 3	Site 4
9-Aug	0	1.6	0	1.9
18-Aug	1.9	2.1	0	2
25-Aug	2.18	2.45	1.5	2.18



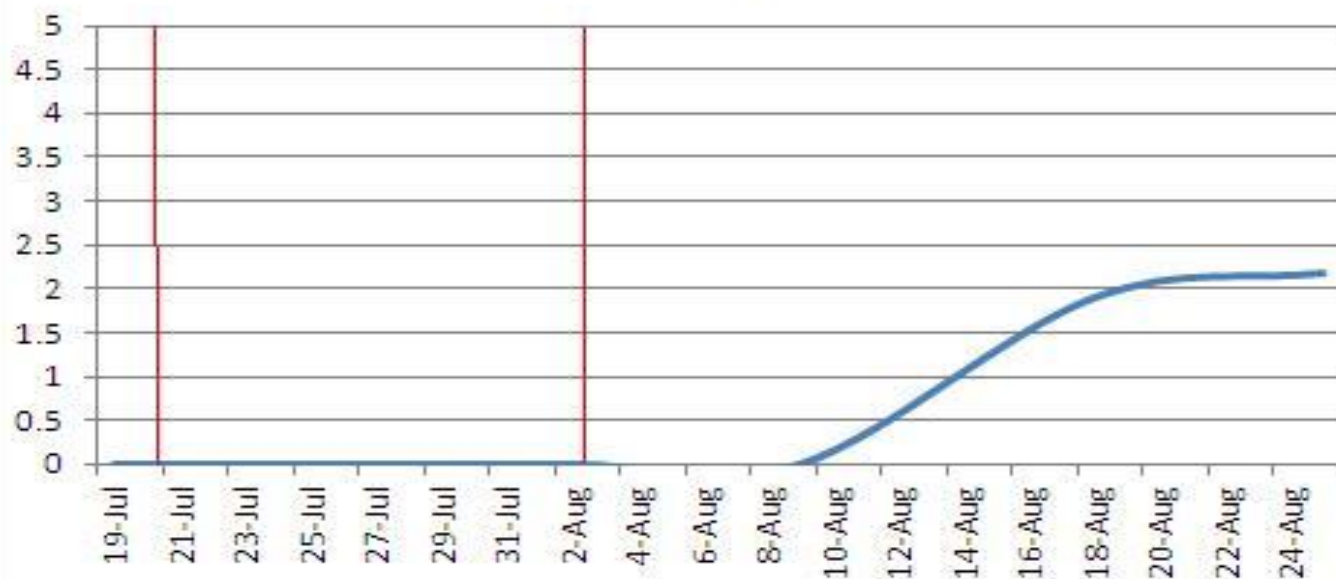




Dry Bean Fungicide Timing

- First sign of infection August 9
- Present at all sites August 25
- 2011 – July 19 & August 2
- Infection was greater in 2011 than 2012
 - Why?

Site 1

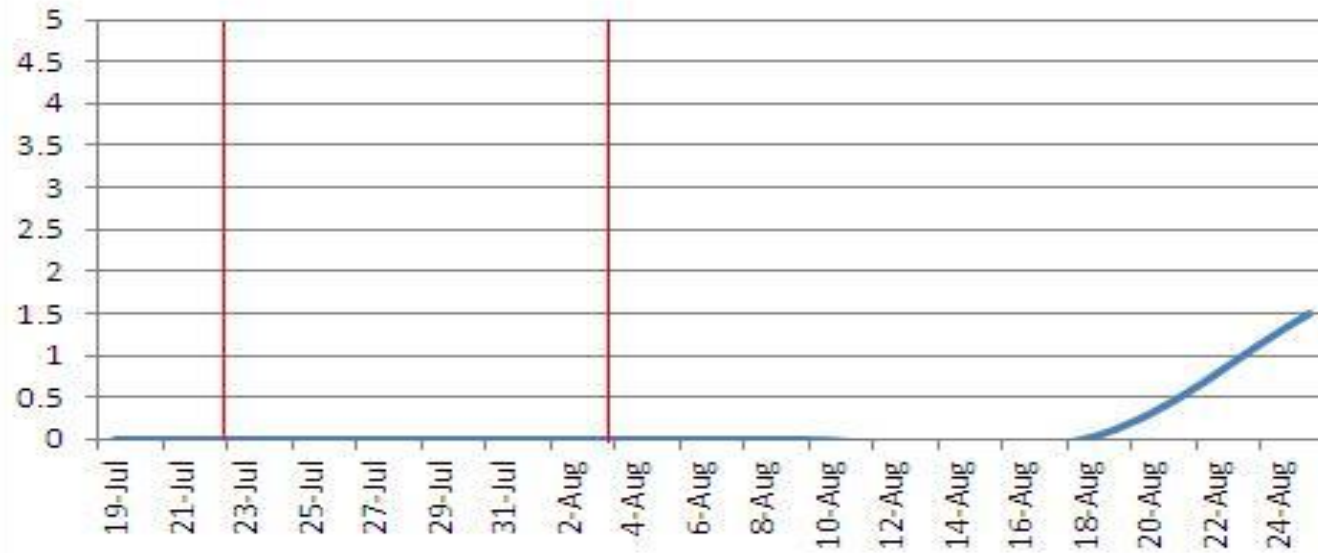


Site 2





Site 3



Site 4





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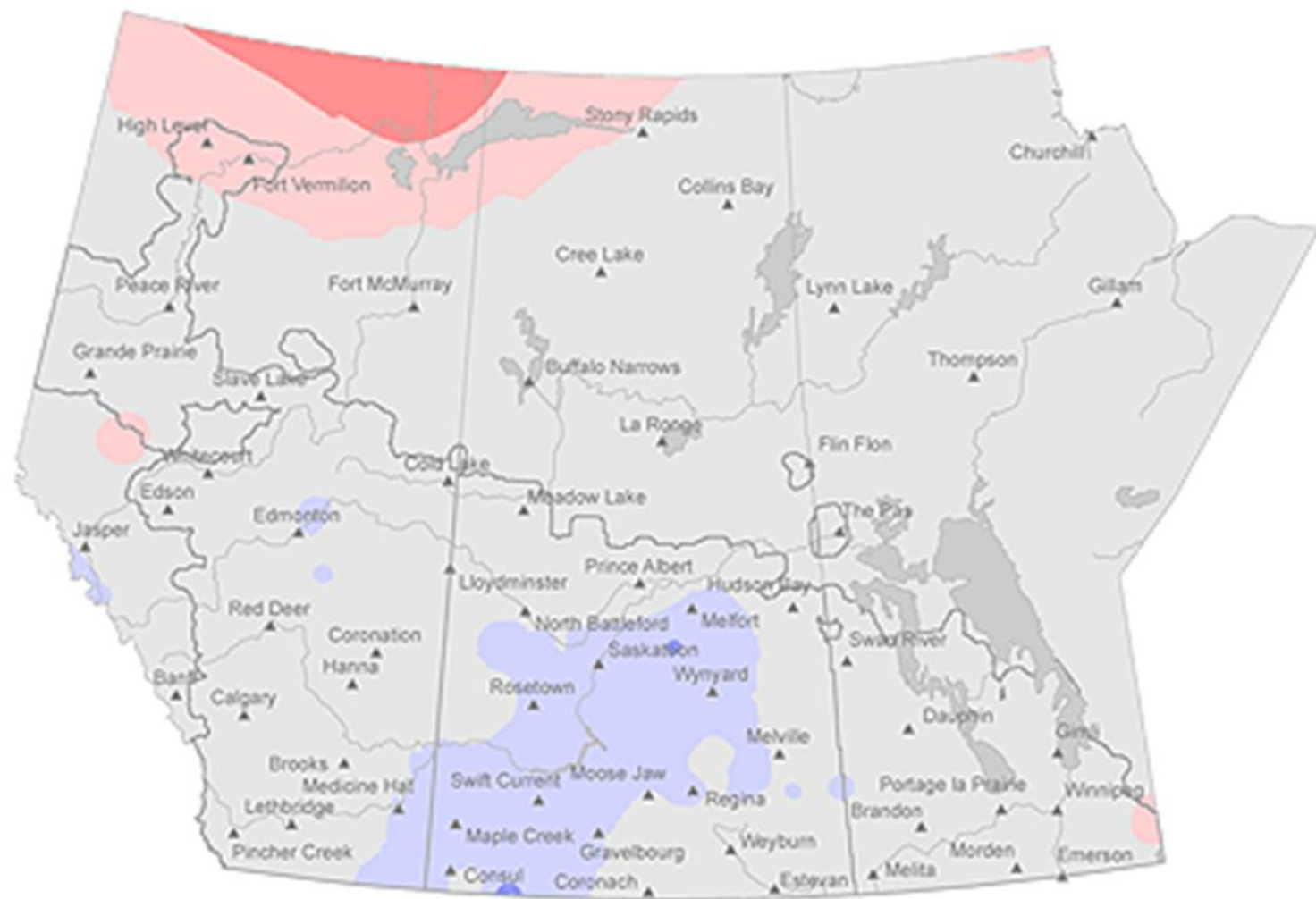
Dry Bean Fungicide Timing

- Infection was greater in 2011 than 2012
 - Why?
- Little to no canopy closure
 - Cool wet spring
 - High winds
 - High temps in July & August



Monthly Mean Temperature Difference from Normal (Prairie Region)

May 2012



Temperature (°C)

< -5.0

-5.0 to -4.0

-4.0 to -3.0

-3.0 to -2.0

-2.0 to -1.0

-1.0 to 1.0

1.0 to 2.0

2.0 to 3.0

3.0 to 4.0

4.0 to 5.0

> 5.0

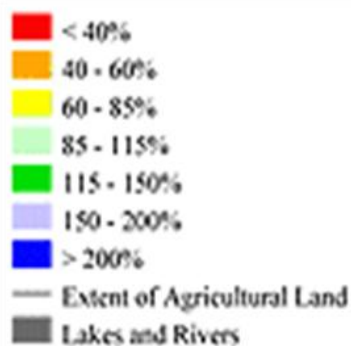
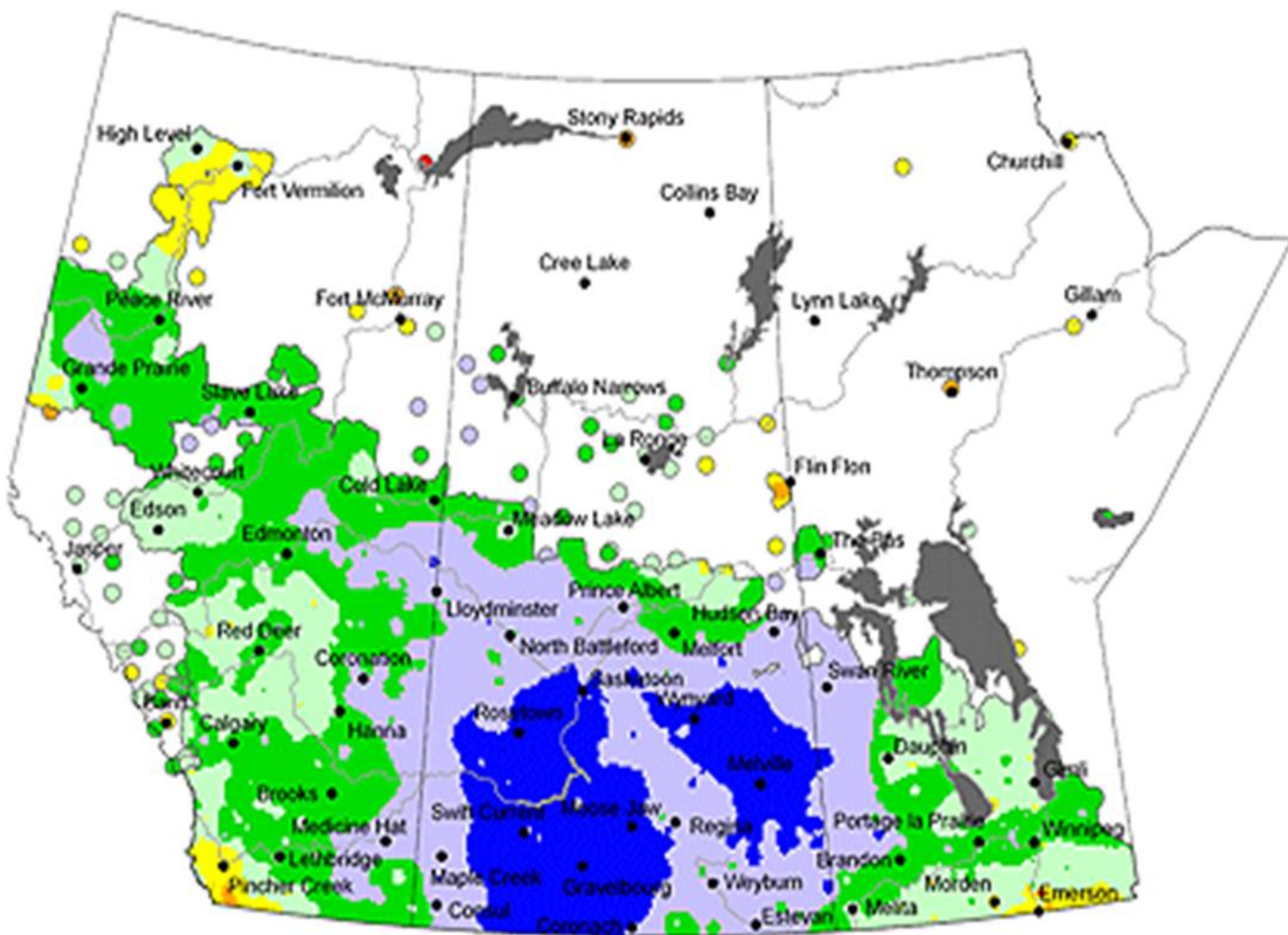
Extent of Agriculture

The map may not be accurate due to data availability and data quality.



Percent of Average Precipitation (Prairie Region)

April 1, 2012 to May 31, 2012

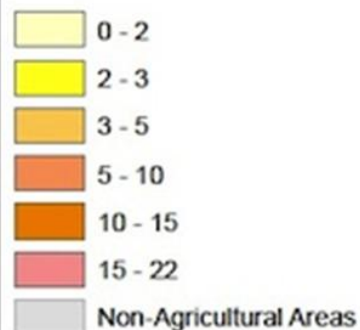
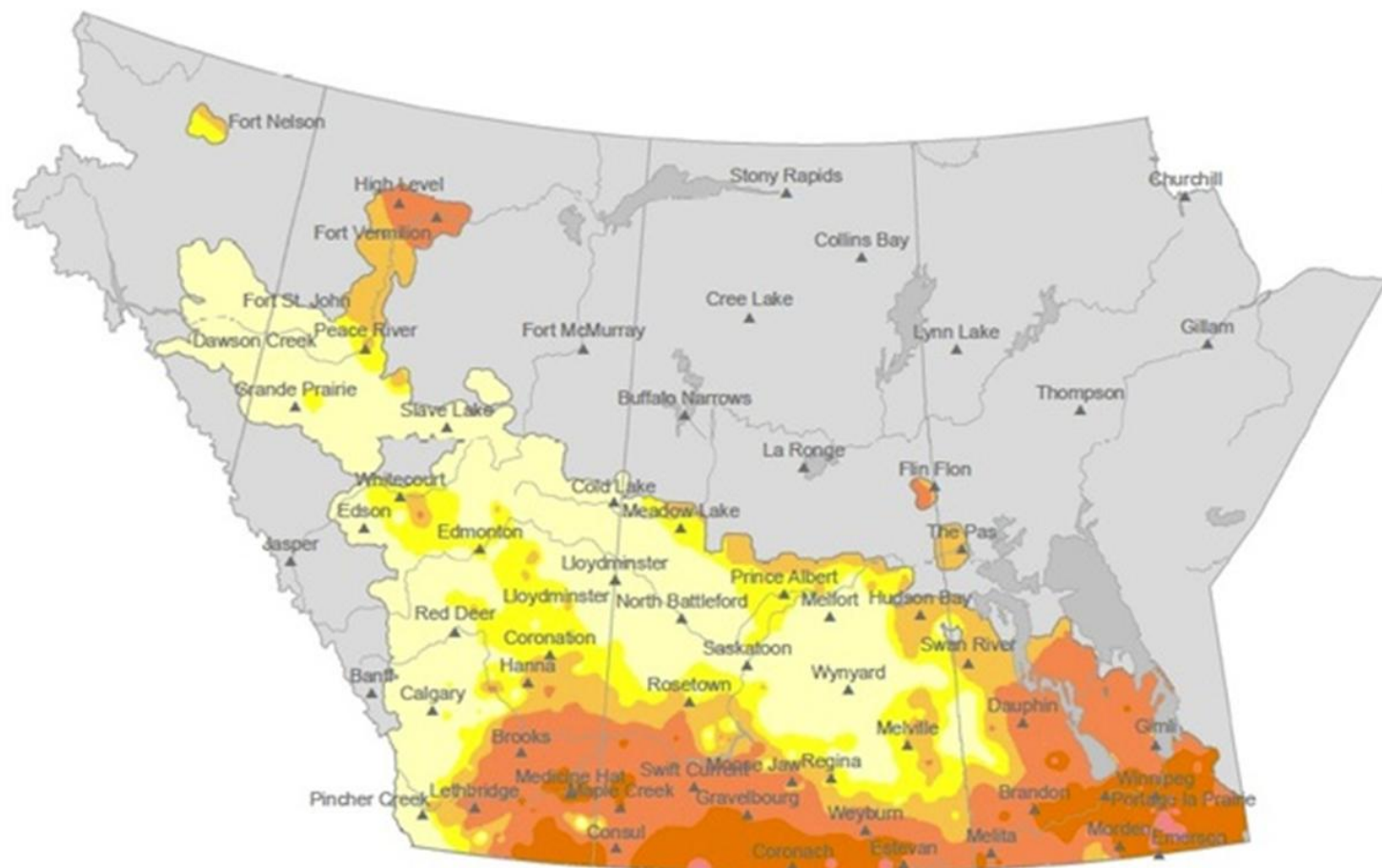


Produced using near real-time data that has undergone initial quality control. The map may not be accurate for all areas due to data



Number of Days with Temperature above 30C (Prairie)

July, 2012



The map may not be accurate for all regions due to data availability and data errors.



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Dry Bean Fungicide Products

- 1 Field in Riverhurst Irrigation District
- 1 Field in SSRID
- Compared Acapela, Allegro, Lance and Propulse
- Two application



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Dry Bean Fungicide Products

Disease Severity Aug 28

Site	Acapela	Propulse	Lance	Allegro
Gravale Riverhurst	2.30	2.18	2.05	1.99
Carlson Outlook	2.49	2.65	2.18	1.69

Yield results

Site	Acapela	Propulse	Lance	Allegro
Gravale Riverhurst	2553 lb./acre	2569 lb./acre	2591 lb./acre	2605 lb./acre



Dry Bean Fungicide Products

- Yield for the Outlook(Carlson) site was not reported
- Small yield difference between treatments
 - 62 lbs. from highest to lowest
- Low disease presence
- Yields were low
- Same environmental problems as the dry bean survey



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Flax Fungicide Demo

- 1 site in Luck Lake Irrigation district
- Demonstrate 1 and 2 application of headline on flax
 - 2 applications was eliminated
- Yield was used to determine efficacy



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Flax Fungicide Demo



Flax treated with Headline



Untreated



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Flax Fungicide Demo



Flax treated with Headline



Untreated



Flax Fungicide Demo

- Co-operator noted that he had to go slower in the area treated with headline

	Yield	Thousand seed weight
Headline	45 bu./acre	6.34
Untreated	35 bu./acre	5.22

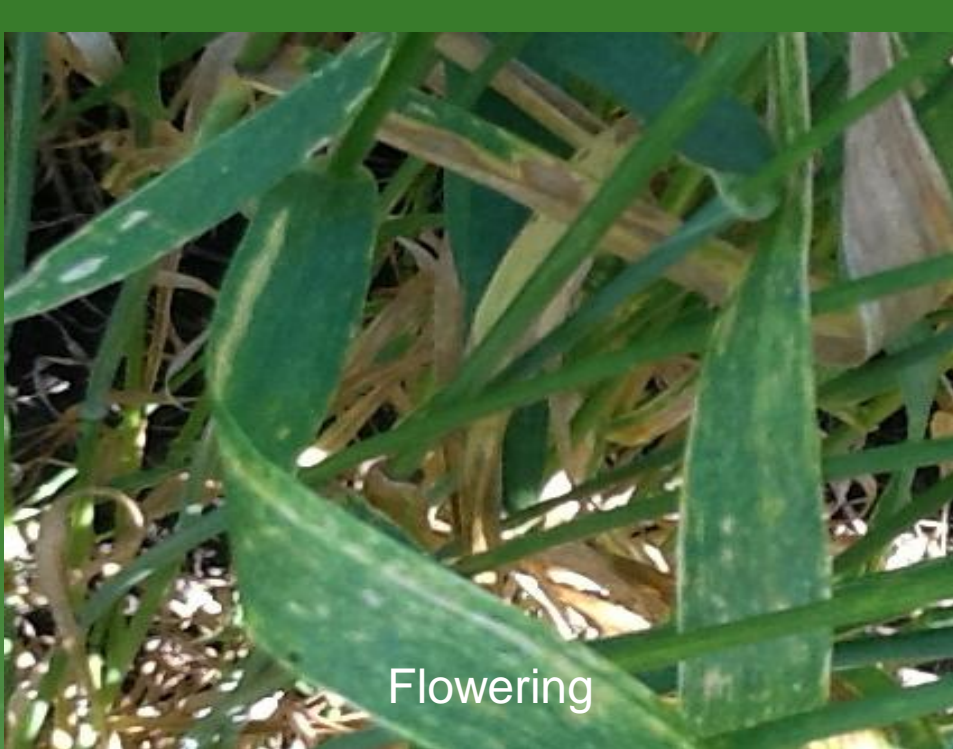
- 2013 - repeat with a disease survey



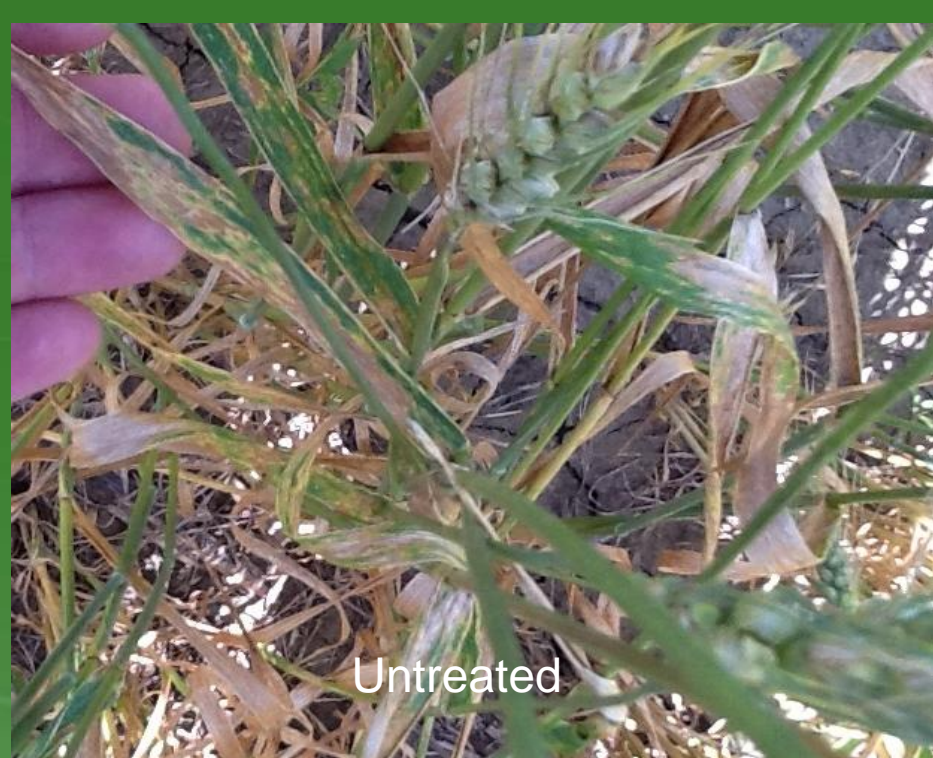
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Fungicide Application Timing in Wheat Demo

- 1 site in SSRID
- Comparing the efficacy of a fungicide application at flag leaf, flowering and the combination
- Efficacy was going to be determined by yield and quality



Flowering




Untreated



Combination



Flag Leaf



Combination

Aug 15/12

Saskatchewan



Flowering

Aug 15/12



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Flag leaf

Aug 15/12



Check

Aug 15/12



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Fungicide Application Timing in Wheat Demo

- Hail event late August
- Did not report yields or grain quality
- Observations from the flag leaf samples and canopy indicate that the combination treatment had potential for the highest yield
- All treatments had a lower disease presence on the flag leaf



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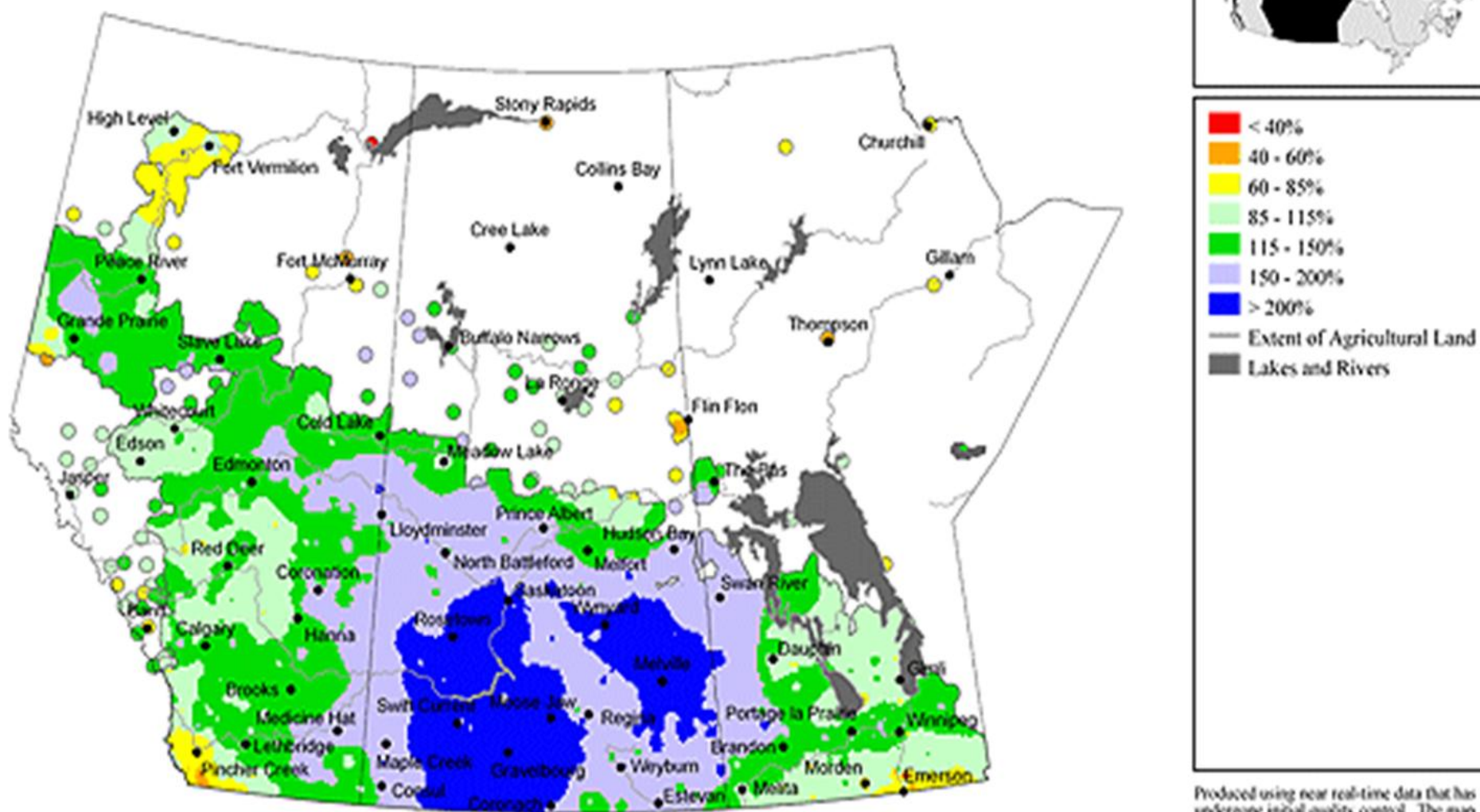
Irrigation Water Management

- 3 sites in Riverhurst Irrigation District
- 3 sites in Luck Lake Irrigation District
- 3 sites in SSRID
- Project is built on 2009 & 2010
- Familiarize producers with AIMM



Percent of Average Precipitation (Prairie Region)

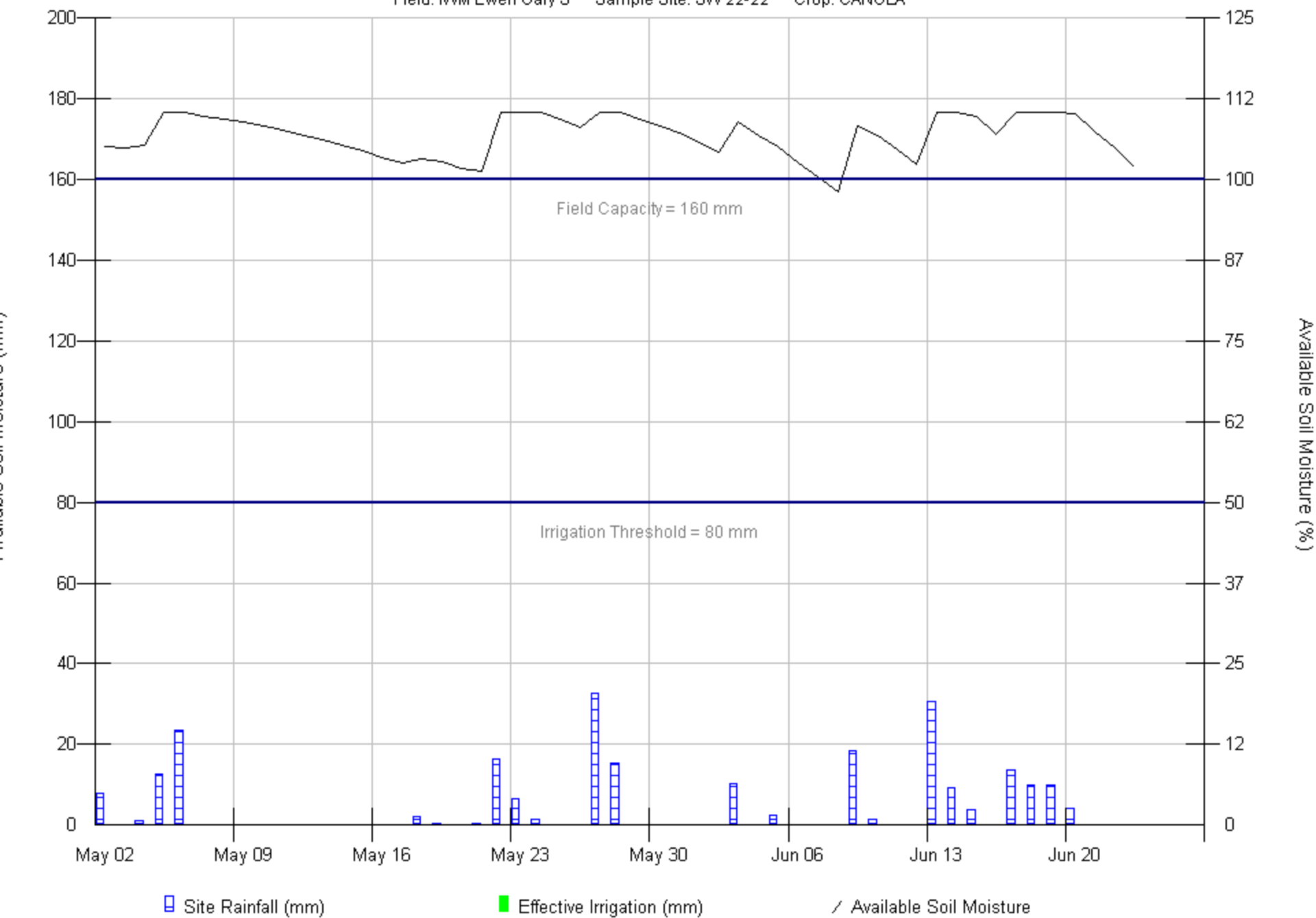
April 1, 2012 to May 31, 2012



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Moisture Balance 0 to 100% Maximum Root Zone

Field: WWM Ewen Gary S Sample Site: SW 22-22 Crop: CANOLA





Irrigation Water Management

Moisture Balance 0 to 100% Maximum Root Zone

Field: IWM Bergstrom Randy Sample Site: SE 25 21 8 Crop: CANOLA

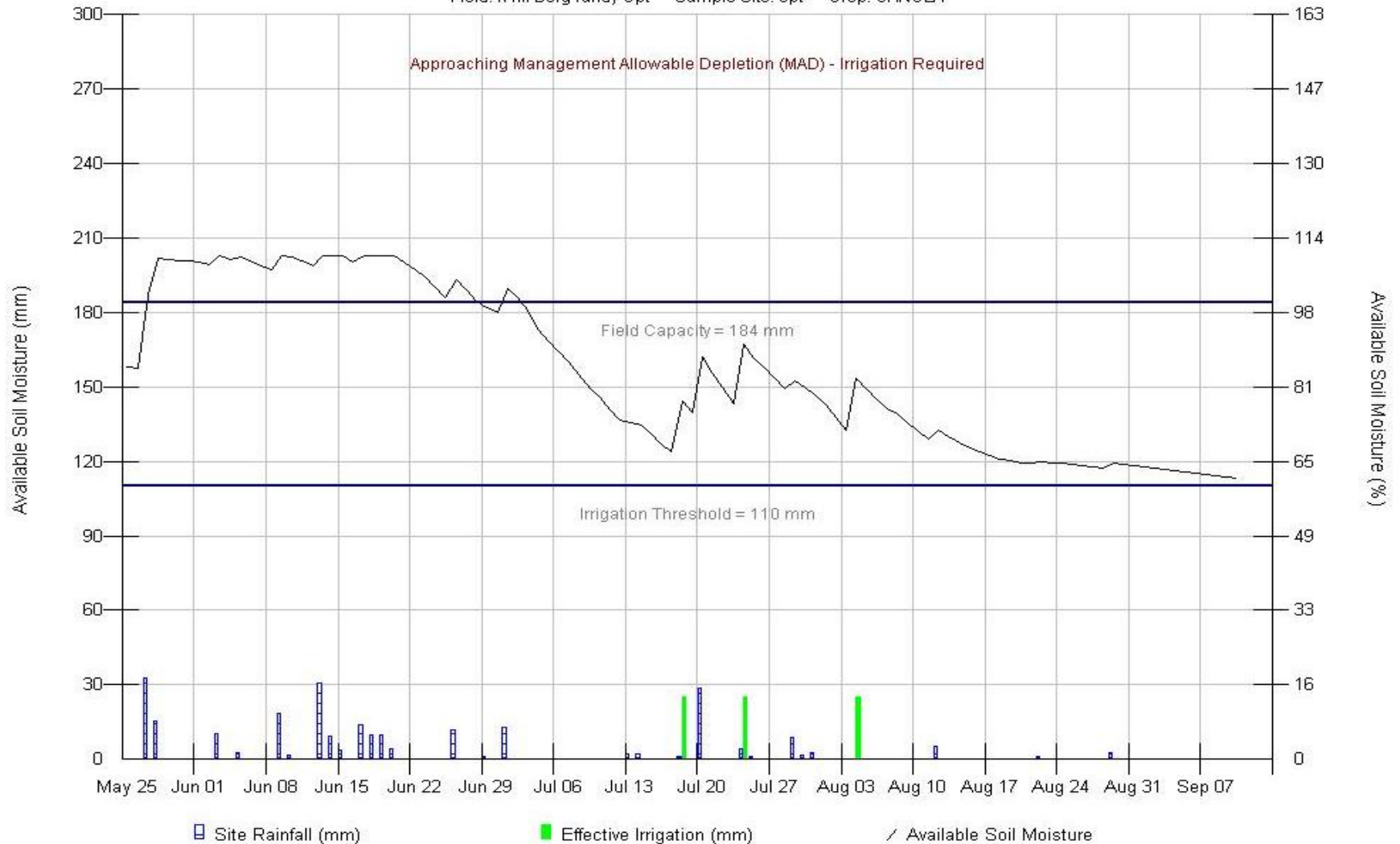




Irrigation Water Management

Moisture Balance 0 to 100% Maximum Root Zone

Field: IVM Berg randy Opt Sample Site: opt Crop: CANOLA





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Irrigation Water Management

- Rainfall 243 mm Average ~ 160mm
- Effective irrigation
 - Actual 63 mm
 - Optimum 75 mm



Irrigation Water Management

District	Crop	Crop Water Use (mm)		Difference (mm)
		Actual	Optimum	
Riverhurst	Canola	298	297	-1
	Canola	327	331	7
	Wheat	335	342	4
Luck Lake	Canola	279	285	6
	Wheat	317	322	5
SSRID	Wheat	278	292	14
	Wheat	278	292	14
	Potato	316	324	8
		All sites average		7



Irrigation Water Management

District	Crop	Effective irrigation (mm)		Difference (mm)
		Actual	Optimum	
Riverhurst	Canola	50	75	25
	Canola	75	125	50
	Wheat	75	100	25
Luck Lake	Canola	63	75	12
	Wheat	50	100	50
SSRID	Wheat	0	75	75
	Wheat	0	75	75
	Potato	63	100	37
		All sites average		44



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Irrigation Water Management

- Average difference of crop water use was 7mm
- Average difference between actual effective irrigation and predicted optimum 44 mm
- Environment
- Actual on farm effective irrigation and the optimum predicted AIMM were close



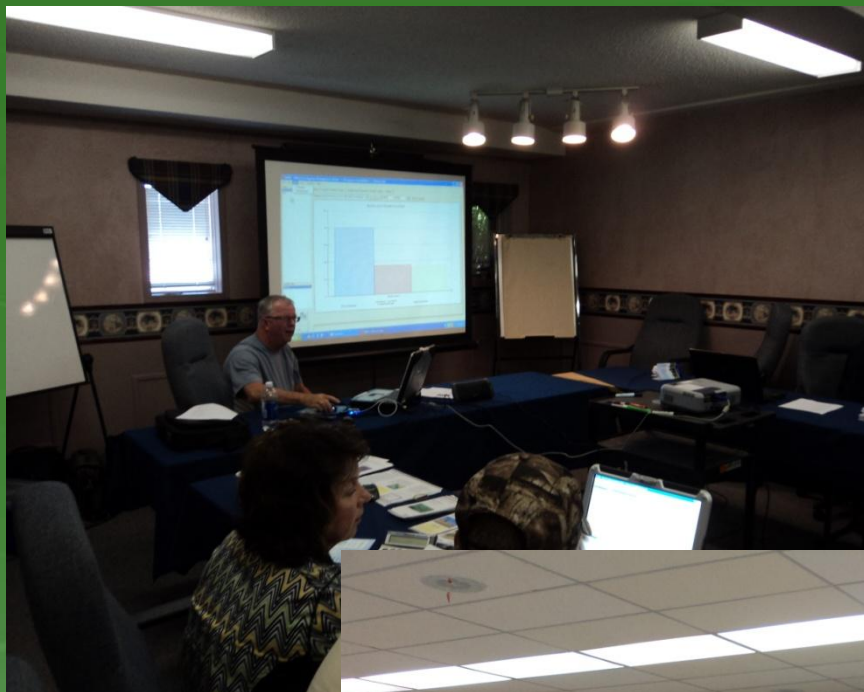
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Irrigation Workshops

- Two workshop
 - July 10 Riverhurst
 - July 11 Outlook
- Dr. Shelly Woods
- Len Hingley
- Dave Hyland











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Acknowledgement

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- Dupont
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- Grant Pederson
- Roger Pederson



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- Questions ?