Issue 14 – Aug 17, 2023

Manitoba Potato Report

Weekly Provincial Summary

- The week (Aug 7-13) was 4-7 °C cooler than the last week; with high temperatures up to 28.6°C in potato growing areas.
- There was widespread rainfall during this week in Manitoba, and met the crop water demand for the week.
- Crops are still being regularly irrigated where needed; tuber bulking is progressing well. There is very low foliar disease on potatoes, but Verticillium wilt is showing up more.

Overview

- Daytime high temperatures ranged from 26.2 to 28.6 °C at various Manitoba weather stations.
- Compared to very little rainfall last week, this week (Aug 7-13) there was widespread rainfall in the province, ranging from 18.3 to 61.1 mm (0.72 – 2.4 inches).
- The late blight risk this week was moderate to high at various locations. No late blight has been reported in Manitoba.
- No late blight spores were trapped at any of the 17 sites from the spore trap network.
- Aphid monitoring suction trap catches are still showing high Green peach aphid numbers in southern Manitoba. Potato aphid numbers have dropped significantly. High numbers of these two aphid types could be a concern for PVY in seed potatoes.
- Almost no European corn borers (ECB) were trapped this week, but ECB stem injury is still being reported.
- Regular weekly reports and other features will also be available at: *http://www.mbpotatoes.ca/index.cfm*.

Ag Weather Data

Precipitation and Soil Moisture

- There were widespread rains in the province from Aug 7 to 13, ranging mostly from 18.5 to 61.1 mm (0.73 – 2.4 inches) at various weather stations in Manitoba. Altona had 18.3 mm while Austin got 61.1 mm. (Table 1).
- These widespread rains were a welcome respite for potato crops, and will help in productivity. The soil moisture situation improved from very dry to optimum-dry. The rainfall is still much below % of normal; and ranges from 35 to 75%; with the exception of Rivers (97%) being close to normal (Table 1, Fig. 1). *http://www.gov.mb.ca/agriculture/weather/pubs/percent-normal-precipitation.pdf*
- In spite of the widespread rains, the soil moisture status in the province is still generally in the “dry to optimum” category at 0-30 cm soil depth (Fig. 2). *https://www.gov.mb.ca/agriculture/weather/pubs/soil-moisture-30cm.pdf*

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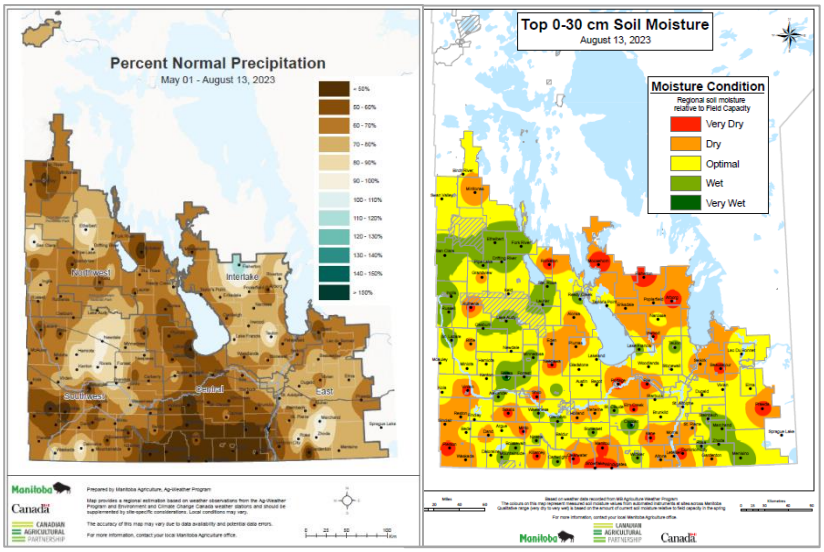

Fig. 1. (far left) Rainfall (mm) in May to August 13 continues to be significantly below normal in much of the potato growing areas, except a few sites in western potato areas of Manitoba.

Fig. 2. Soil moisture (0-30 cm depth) by August 13 has shifted to less dry, due to the rains over the past few days. Crop water demand for potatoes continues to be high.

Temperatures – Air & Soil

- The daytime temperatures during the week were 4-7 ºC lower in different stations across Manitoba, ranging from 26.2 to 28.6 ºC; with Cypress River & Winkler reaching 28.5 ºC. The overnight minimums were 2-3 ºC cooler than last week's, ranging from 4.7 to 7.8 ºC (Table 1).
- The P-Days (Potato Days with base 7ºC and 30ºC max) has reached 560 to 580 in many potato areas (www.mbpotatoes.ca) by August 13. The P-Days range from 95% to 110% above normal in the potato areas - indicating Manitoba has enough heat units for the potato crop.

Weather Data Summary for Selected Potato Site Stations

For more Manitoba weather information, visit: *www.gov.mb.ca/agriculture/weather*

Table 1. Manitoba Ag Weather Data – **Aug7- Aug13** for selected potato growing areas.
' Crop Water Demand: cwd (mbpotatoes.ca)*

Region	Max Temp (ºC)	Min Temp (ºC)	Rain (mm) for the week	Crop Water Demand this Week	Rain (Since May 1) (mm)	Crop Water Demand Jun 1-Aug 13	2023 Rainfall (% of normal) from May 1 to Aug13
Altona	28.1	6.2	18.3	-	86	-	35
Austin	27.8	5.5	61.1	18.5	169	234.9	75
Bagot	27.6	4.8	27.0	19.1	124	235.1	55
Carberry EC	27.6	5.1	36.2	15.6	144	193.8	64
Carman	28.0	6.6	50.2	17.6	149	213.8	65
Cypress River	28.6	4.7	36.6	-	139	-	54
Glenboro	27.3	5.4	26.6	17.7	**158**	208.8	69
Holland	27.8	4.9	28.8	20.1	152	253.9	59
Morden	28.6	7.7	21.6	-	74	-	31
Portage EC	27.5	7.8	29.2	20.9	114	269.3	51
Rivers	26.5	7.8	43.2	19.9	**192**	221.3	97
Shilo	No	data		No Data			
St. Claude	26.2	5.5	42.9	19.1	138	239.0	59
Treherne	27.1	4.5	32.1	18.5	92	249.1	40
Wawanesa	28.2	4.7	38.1	20.1	**180**	213.7	79
Winkler	28.5	6.2	21.1	18.2	120	227.1	51

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Agronomics

- Crop water demand (CWD) for the week was nearly half of the last week's CWD. The rainfall in all stations easily met the week's CWD for all potato growing areas in Manitoba (Table 1). The cumulative rainfall was not enough from May 1 to Aug 13 to meet the cumulative CWD in all stations, except Shilo. CWD this week was 15.6 to 20.1 mm and much lower than last week.
- Supplemental irrigation was applied in a few fields. Fertigation has been stopped to allow for crop maturity.
- Preventative fungicide applications continue against early blight and late blight.
- P-Days are currently around 580 to 600 in most potato growing areas *(P-Days (mbpotatoes.ca)*, which is suggesting rapid bulking phase. The day and night temperature differential is also good for bulking.

Crop Progress

- The plant stand and crop growth looks good across the province. In many fields, plants are settling down on the ground.
- Tuber bulking is progressing well with warm days and cool nights. Delivery of raw material for processing "direct-from-field" is in full swing.
- Even late planted fields are now showing good tuber set numbers and good size profile.
- More seed fields have been desiccated and other fields are a week or so away from top-killing. This could help avoid the high Green peach aphid and Potato aphid numbers.

Disease & Insect Pests Monitoring

- Early blight continues to be reported from more fields on Rangers and early maturing varieties. With scattered rains across Manitoba, the warm and moist conditions were favourable for early blight development in the lower canopy of the susceptible and unprotected crops (Fig. 3). Protective fungicide applications are continuing where needed. *Alternaria solani* spores continue to be recorded in passive spore traps.
- As many crops are settling down on the ground, the microclimate is now conducive to white mold and bacterial stem rotting (Fig. 4a).
- Verticillium wilt, which is an endemic problem in many fields, is appearing to be more widespread as early dying (Fig. 4b) in some fields.
- There were a few photos submitted for identification of foliar issues: disease or nutritional? (Fig. 5). The leaves are cupped, and margins are crispy and dry with some spots. These symptoms were not randomly distributed but were seen more in sandy parts of the fields and with moisture stress. If you can diagnose please contact me.

Fig.3. With scattered rains across Manitoba, the warm and moist conditions were favourable for early blight development in the lower canopy of the susceptible and unprotected crops. Note the wet leaf edges. Photo courtesy: Greg Dyck (Crop Care)

Fig.4. Many crops have settled on the ground and the microclimate, which is wet, supports rots and white mold (a), bacterial stem rot and Botrytis stem rotting. b: Verticillium early dying is showing in some fields. Photos courtesy: Janelle Lavich (Choice Agri).

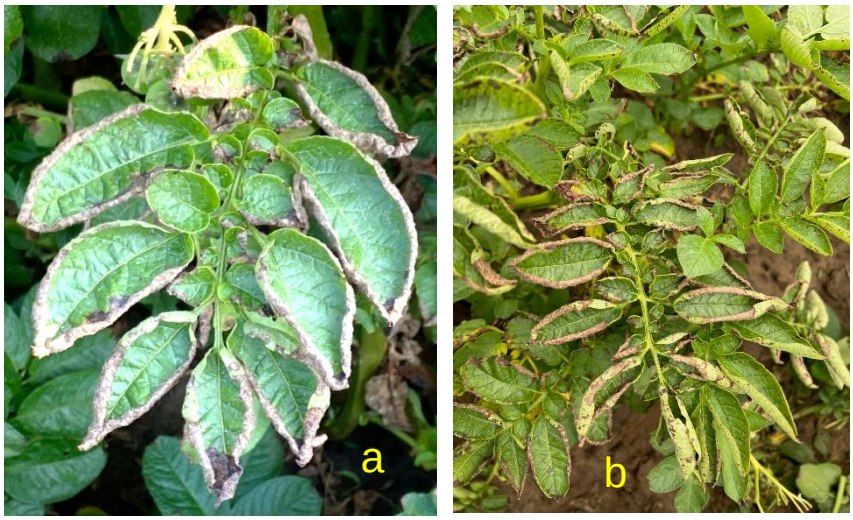

Fig.5. Cause undiagnosed. Leaves cupped upwards and margins necrotic, crispy and dry. (a) from Douglas, Photo: Janelle Lavich (Choice Agri), (b) from Melbourne, Photo: Daylene Moir (Delta Ag). Seen in dry sandy areas.

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- Potato leafhoppers and Aster leafhoppers continue to be reported (Fig. 6).
- Aphid monitoring suction trap catches are still showing high Green peach aphid (GPA) numbers at 3 sites. Potato aphids (PA) were significantly lower compared to the last few weeks (Table 2). The combined total of GPAs and PAs are much higher than in 2022 at the same time.
    - Both GPA and PA are efficient vectors of PVY. **Use of Aphid Oil and insecticide for aphids will be very important at this time.**
    - Virus-infected plants often yield very poorly (Fig. 7a, b), often depending on strain of PVY

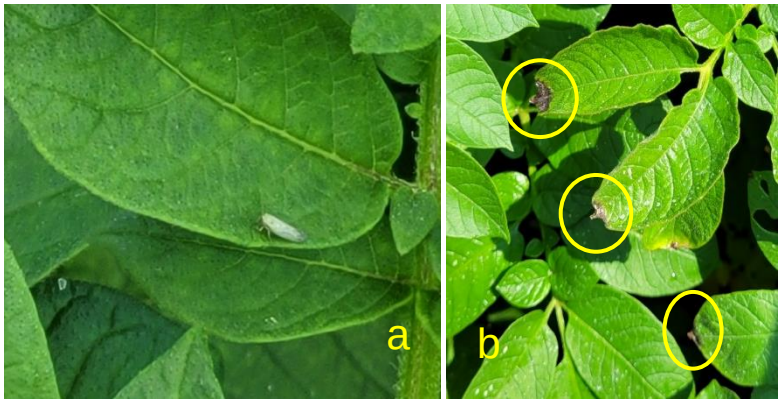

Fig.6. (a): potato leafhoppers population seems to have reduced. (b) leaf tip hopper burn can be noticed in some fields. Photos courtesy: Greg Dyck (Crop Care)

Fig.7. (a): Comparison (from left to right) - Normal leaf, PVY infected and purple top (starting). b: comparison between normal (left) and PVY-infected plant on the right. Photos courtesy: Greg Dyck (Crop Care)

*Table 2. Weekly Aphid Report – Week 9 (**Aug7-Aug 14**)*

Field #	Town	RM	Green Peach Aphid	Potato Aphid	Other Aphids	Total *	ALH	PLH	Comments
Southern Region									
Field 1, H-20-2	**Winker**	Stanley	**65**	**1**	59	125	1	0	Some thrips
Field 2, K-16-6	**Carman**	Dufferin	Crop terminated						
Field 3, S-29-2	**Winkler**	Rhineland	**3**	0	7	10	0	0	Pan trap – almost no glycol
Central Region									
Field 4 J-9-6	**Swan Lake**	Victoria	0	0	9	7	0	0	
Field 5 J-25-3	**Glenora**	Argyle	0	0	2	1	0	0	Jar's sample was partly lost. Crop terminated
Field 6 M-32-13	**Westbourne**	Portage La Prairie	1	0	7	8	0	0	Suction fan not working
Western Region									
Field 7, A-12-14	**Wellwood**	North Cypress-Langford	-	-	-	-	-	-	No sample recd.
Field 8, SP	**Carberry**	North Cypress-Langford	Crop terminated						Crop terminated Aug 8

* *The aphid counts are a summation from a suction trap and two pan traps in a field.*

****** *Suction fan may not be working.*

ALH = Aster leafhopper, PLH = Potato leafhopper.

European Corn Borer (ECB) monitoring using Delta traps has been stopped for the season. ECB damage to potato stems continues to be reported from western Manitoba, but the incidences are minor. The ECB injury on stems acts as ports of entry for stem rot bacteria, especially in crops laying flat on grounds. It was interesting to note that many site cards trapped cutworm moths – suggesting these fields should be watched for cutworm damage in 2024.

Fig. 8. Cutworm moth trapped on ECB delta traps in potato crops, (Vikram Bisht, Manitoba Agriculture)

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Table 3: ECB counts in Delta traps in various potato fields of Manitoba

	Delta Trap Location	June 26 - July 10	July 10 - July 17	July 17 - July 23	July 24 - July 30	July 31 - Aug 7	Aug 7 - Aug 14
1	Carberry 24 D – SP	23	18	6	17	4, **0**	No sample
2	Carberry 113 SE – SP	10	1	16	-	1	No sample
3	Carberry 113 NE – SP	4	8	1	-	0	No sample
4	Carberry 31 C – SP	0	0	0	0	0	No sample
5	Carberry W22 – SP	3	2	2	1	0, **0**	No sample
6	Carberry N – MCDC offsite	11	No sample	13	-	0	0 (Cutworm moths)
7	Carberry – S (MW)	7	9	-	20	1	0 (Cutworm moths)
8	Douglas (MW)	9 (+0 NY)	3 (& 5 NY)	-	2	1	0 (Cutworm moths)
9	Sydney (Heritage)	N/A	2	0	1	No sample	0 (Cutworm moths)
10	Cypress River	5	16	5	2	0	0 (Cutworm moths)
11	**Melbourne**	**23**	**31**	**21**	**28**	**0**	0 (Cutworm moths)
12	Wawanesa	0	1	2	4	0	0 (Cutworm moths)
13	Portage	0		3	-	0	0 (Cutworm moths)
14	Carman (JG)	3	2	10	7	No sample	No sample

Late Blight Monitoring

- Late blight risk forecasting is provided on a regional basis on www.mbpotatoes.ca. Due to widespread rains in Manitoba, the 7-Day Disease Risk values are pointing to moderate to high risk of disease, if the inoculum is present (Fig. 9). The cumulative DSVs from June 1 to Aug 15 show that a few potato station sites are near or above the critical value of 18 – Rivers, Glenboro, High Bluff and Carman.
- From late blight spore trapping network of 17 passive Spornado traps:
    - **No late blight spores were detected in the samples processed in the 9th week of collection** (Aug 4-13). (Table 4)
    - With high risk conditions, scouting for the disease in low lying and wind protected areas is critical.
    - Early blight disease has been reported from many locations. PCR testing for early blight (*Alternaria solani*) spores was positive for some sites this week – there is inconsistency in numbers recorded from week to week.

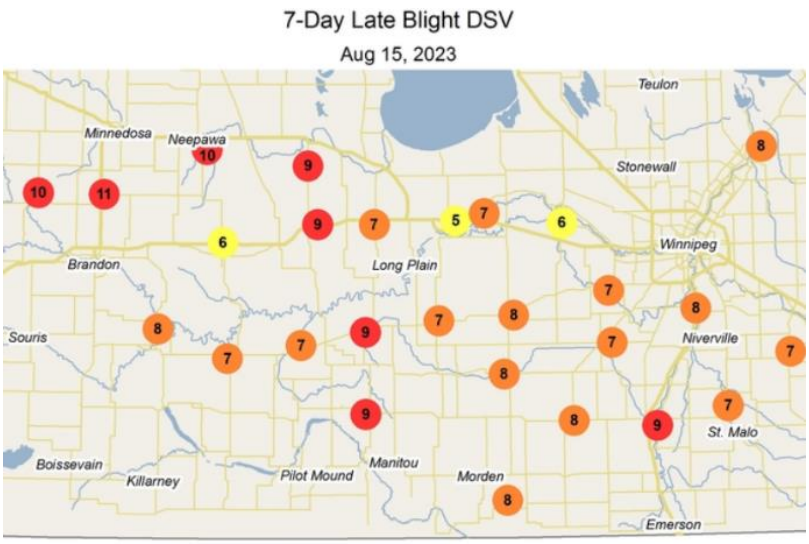

Fig. 9. 7-day cumulative late blight DSVs indicate moderate to high risk conditions for late blight disease, if the inoculum is present.

Table 4: Phytophthora infestans spore trapping and PCR results Week 9 **(Aug 4-Aug14).**

Spore Trap Locations	**Pi spores**	**Early blight (spore #s)**	**Comments**
Shilo – OS	Negative	Negative	Early blight seen
Wawanesa –SG LF12	Negative	Negative	Early blight seen
Douglas – MW F362	Negative	**Positive** (60,500) ***Last week:* Positive (7630)**	Sample not recd
Field W22-Carberry N –SS F369/ 371	Negative	Negative ***Last week:* Positive (759,000)**	
Field 31C – Carberry N – SS F465 /462	Negative	Negative ***Last week: Positive (241,000)***	
Carberry N – AU F319	Negative	Negative	
Carberry South – MW F456	Negative	**Positive** (393,000) ***Last week:* Negative**	Sample not recd
Carberry North – MW F457	Negative	**Positive** (449,000) ***Last week:* Negative**	Sample not recd
Brookdale – KJ F465	Negative	Negative	
Cypress River – SG F194	Negative	Negative ***Last week: Positive (19,000)***	
Melbourne – SG F192	Negative	**Positive** (211000) ***Last week:*** Positive (72,600)	Early blight seen
Treherne – JG F461	Negative	**Positive** (274,000) ***Last week:*** No sample	
Portage – HB F464	Negative	Negative	
McDonald / Portage - SG/KPPA F459	Negative	Negative	
Bagot – DM-Delta F463	Negative	Negative	Early blight in area
Carman – VB/AB	Negative	Negative	
Winkler /TSC	Negative	**Positive** (267,000) ***Last week:* Negative**	Early blight in area

A Tweet by Peter VanderZaag showing that late blight resistant varieties can do very well even when the regular organic potatoes were destroyed by the disease.

- In the coming 2-3 days, there is a forecast for thundershowers (30% probability) in the western parts of Manitoba. Forecast for high temperatures on Aug 18, and then cooling down to 26^0C. Warm and moist soils can favour pinkrot and leak diseases in fields with previous history. Planning for their management in storage should be considered for fields with history of these diseases.

If you suspect late blight in your area, please contact vikram.bisht@gov.mb.ca