Issue 15– August 16, 2024

Manitoba Potato Report

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Provincial Summary

- There was very little rainfall in the past three weeks in the potato growing areas of the province. The cumulative precipitation since May 1 to August 12 is still above the 30-year normal, ranging from 114 to 164 % of normal. There was widespread rain on August 14, and will be in next week's weather summary.
- Potatoes are in rapid tuber bulking stage with good set and size profile, and many reaching over 5 inches.
- Foliar diseases are at low levels. There is no late blight reported in Manitoba.
- Total aphid counts in the traps had a sharp decline over last week. No green peach aphid, but potato aphids were trapped this week, along with other aphids.
- Harvesting for "direct from field to process" has started. Early yields are encouraging.
- Regular weekly reports with updates on disease and insect pests, including late blight risk forecasts on potatoes is also available at *http://www.mbpotatoes.ca/index.cfm*. The site has SPRAYcast® that provides a 3-day spray advisory weather forecast for selected sites.

Ag Weather Data

Precipitation and Soil Moisture

- There was very little rainfall in the potato growing areas of the province from August 6 to 11 (Table1, Fig 2), ranging from 0 or near zero in many potato areas; Carman 7.2 and Portage at 10.9 mm were higher. *Province of Manitoba | agriculture - Weather Conditions and Reports (gov.mb.ca).*
- The cumulative rains from May 1 to Aug 11 are still above the 30-year normal, ranging from 114% (Glenboro) to 164% (Winkler).at the selected sites (*Table 1*). *https://www.gov.mb.ca/agriculture/weather/pubs/percent-normal-precipitation.pdf*
- Low rainfall has resulted in a larger dry area in the 0-30 cm soil zone with respect to the field capacity (Fig 1). However, at the 0-120 cm depths soil moisture stayed generally optimum to wet in most potato areas.

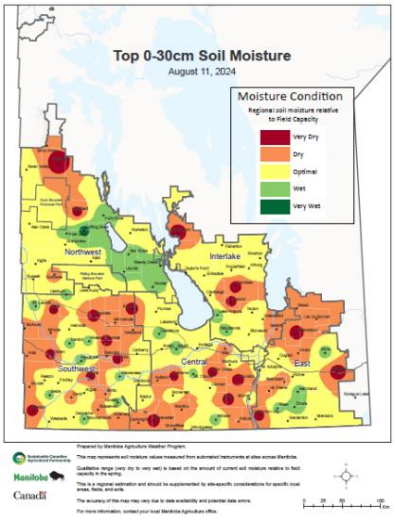

Fig. 1. Due to low rainfall in the past three weeks, the soil moisture (relative to field capacity) in 0-30 cm zone has become drier in many of the potato growing areas.. Soil moisture at 0-120 depths stayed at optimum to wet levels.

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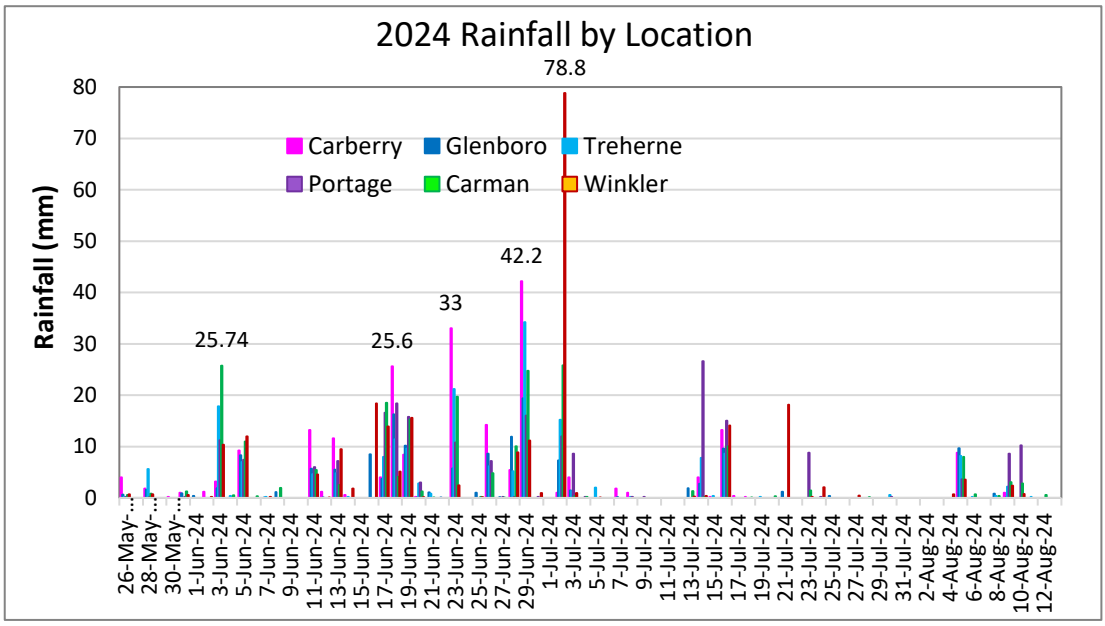

Fig. 2. After frequent rains in May and June, there were widespread rains on July 2-3, but relatively less from mid-July to end of July; fields have begun to dry and some need supplemental irrigation

- Since mid-July there has been very little rainfall in most potato growing areas.
- On August 14 there was extensive rainfall in the province, though more in the central and eastern regions; the data will be included in next week's summary.

Temperatures – Air and Soil

- Daytime high temperatures from August 5 to 11 were 3 to 5 ^{O}C cooler across the province compared to the previous week ranging from 24.2 (Rivers) to 29.0 ^{O}C (Winkler). Overnight lows were generally around 2 ^{O}C cooler than last week, and ranged from 4.9 (Rivers) to 9.6 ^{O}C (Portage) (*Table 1*).
- Total accumulated heat units for potato growth, P-Days (Potato Physiological days) from June 1 (50% potato emergence) to August 11 was 100 to 110% of 30-year normal in the potato growing areas. *https://www.gov.mb.ca/agriculture/weather/pubs/percent-normal-p-day.pdf.* By August 11, the cumulative P-Days ranged from around 565 in Rivers, Shilo and Carberry to >610 in the Gladstone, Portage and St. Claude areas (*P-Days (mbpotatoes.ca)*. This heat range indicates the potato crops which emerged by June 1 should be in rapid bulking stage.
- Soils have started cooling down slowly. Since a peak of 19-26 ^{O}C on August 2 at 5 cm depths, the soil temperatures have cooled down to 16-22 ^{O}C on August 14. At 20 cm soil depths the temperatures peaked around August 1 (18-25 ^{O}C) and have dipped by Aug 14 to 15-22 ^{O}C.

Weather Data Summary for Selected Potato Site Stations

- The "potato crop water demand" (CWD) for the week was much higher than the rainfall received in all potato sites (Table 1). CWD is a function of crop growth, air temperature and wind speed, all of which affect the water evapotranspiration from a crop.
- According to the Environment and Climate Change Canada (ECCC) current weather forecast, some scattered rains were forecast from August 18 to 20 across different potato sites. Forecast for temperature highs are in high 20s ^{O}C and overnight lows around 11-15 ^{O}C from August 17 to 22. There is widespread smoke forecast for parts of Manitoba. Manitoba - Weather Conditions and Forecast by Locations - Environment Canada

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*Table 1. Manitoba Ag Weather Data –**August 5 - 11***

Region	Max Temp (ºC)	Min Temp (ºC)	Rain (mm) for the week	Crop Water Demand (mm) for the week	Rain (mm) (Since May 1)	2024 Rainfall (% of normal) since May 1
Altona	27.0	6.8	0.0	NA	307	128
Austin	26.1	7.8	1.6	28.8	341	154
Bagot	26.8	7.4	2.2	26.0	337	152
Carberry EC	25.5	5.9	0.5	22.6	318	143
Carman	26.3	7.3	7.2	21.7	330	145
Cypress River*						
Glenboro	25.3	5.1	0.8	22.1	257	**114**
Holland	25.2	5.2	2.8	26.6	300	119
Morden*						
Portage EC	25.8	9.6	**10.9**	28.3	306	138
Rivers	24.2	4.9	0.1	24.1	269	137
Shilo	25.1	6.8	0.3	27.2	343	154
St. Claude	25.3	8.4	4.9	25.9	308	134
Treherne	25.6	7.5	2.3	23.3	296	128
Wawanesa	26.2	5.5	0.0	22.6	307	138
Winkler	29.0	7.0	3.0	25.4	382	**164**

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

*** Data was unavailable.** **NA – Crop water demand data not available.**

Crop Progress

- Warm days and cool nights are favorable for tuberization, especially with good soil moisture. Crops are in rapid tuber bulking stages and are over 5-inch size in many fields. Tuber set has been fairly good, ranging from 8-18 per hill (Fig. 3).
- Many crops have settled on the ground and created moist to wet micro-climate.
- Five to seven fungicide applications have been applied so far.
- Harvest for “direct from field” to processing plant has just started. Early yields are encouraging.

Fig.3: Tuber set is generally very good, with varying levels of bulking. Photos:a: Orla Sheridan (Shilo Farms),

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Disease Monitoring

- Early blight (EB) spores in Spornado traps continue to be high during August 6-12 (Table 2), but were nearly half of previous week's count. Early blight is now prevalent in most of Manitoba. Ranger Russets and early maturing varieties are showing high levels, reaching mid to top of canopy.
- Sporadic instances of blackleg/stem rot continue to be reported, and are sometime associated with European corn borer injury on stems (Fig 4 a). Stem rotting and white mold can be seen in many plants under the crop canopy which has settled down (Fig 4 b, c).
- Potato early dying is being observed in many areas (Fig 5), the disease became more apparent after 2-3 weeks of high temperatures and low rainfall in many areas of the province.
- Virus infected plants continue to be reported (Fig 6).
    - PVY (Potato Virus - Y) infected plants are often shorter and have crinckly-mosaic discolored lamina, while the neighbouring healthy plants have smooth and uniform green leaf lamina.
    - The severity of symptoms can vary with the strain of PVY. Virus infected plants often yield very poorly compared to healthier neighbouring plants (Fig. 6 b, c).

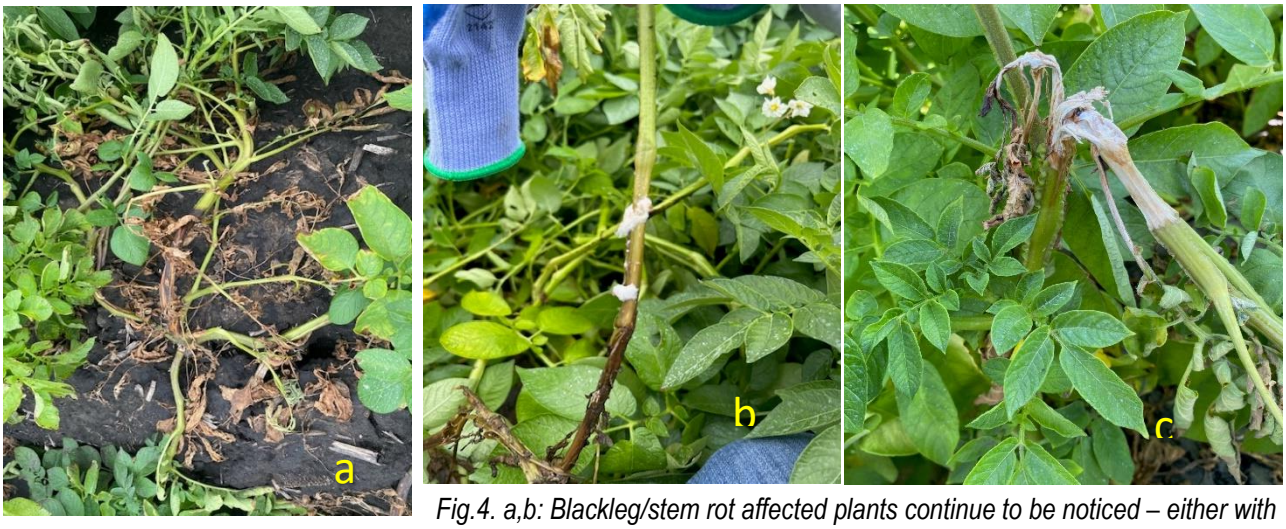

Fig.4. a,b: Blackleg/stem rot affected plants continue to be noticed – either with ECB injury or when under the humid crop canopy. c: Often white mold shows up under the crop canopy but sometimes even on mid-stem area in upright plants. Photos a, c: Vikram Bisht (Manitoba Agriculture); b: Orla Sheridan (Shilo Farms).

Fig.5. a: Field showing high "potato early dying" early in the season. Verticillium infection is the main cause; but black dot disease is also associated. Photos a: Orla Sheridan (Shilo Farms), b: Vikram Bisht (Manitoba Agriculture)

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Fig.6 a. PVY infected plants are often much yellower and have crinckly-mosaic discolored lamina, while the neighbouring healthy plants could have smooth and uniform green leaf lamina. Photo: Vikram Bisht (Manitoba Agriculture).

Fig.6 b, c: Virus infected plants often yield much lower than healthy plants. Here the infected plants appear to have less than 50% productivity of the healthier neighbouring plant. Photo: Vikram Bisht (Manitoba Agriculture).

Late Blight Monitoring

Montitoring and Forecasting

- Late blight Disease Severity Values (DSVs) are cumulative numbers starting from June 1. Please refer to the risk maps on Late Blight (mbpotatoes.ca).
- Currently, the **cumulative 7-Day DSV numbers (June 1-August 14). suggest low risk** of late blight in the presence of inoculum in all potato growing areas (Fig. 7)**.**
- A network of 16 passive Spornado traps for late blight spores has been set up across Manitoba. Spore trapping is another tool-in-the-box of late blight management, but does not replace scouting.
- The eighth week of cassette collections from the spore traps was on Tuesday, **Aug 12**. Results from the PCR testing are included in table 2 below.
    - No late blight (*Phytophthora infestans*) spores were trapped in the week (August 6-12) (Table 2).
    - Depending on the location, the spore numbers of *A. solani* trapped were much lower than last week's count (Table 2); however, the Alternaria leaf-spot diseases are now being reported from all potato growing areas of the province.
- Late blight risk maps, P-Days, and SprayCast maps are available at http://www.mbpotatoes.ca/index.cfm.

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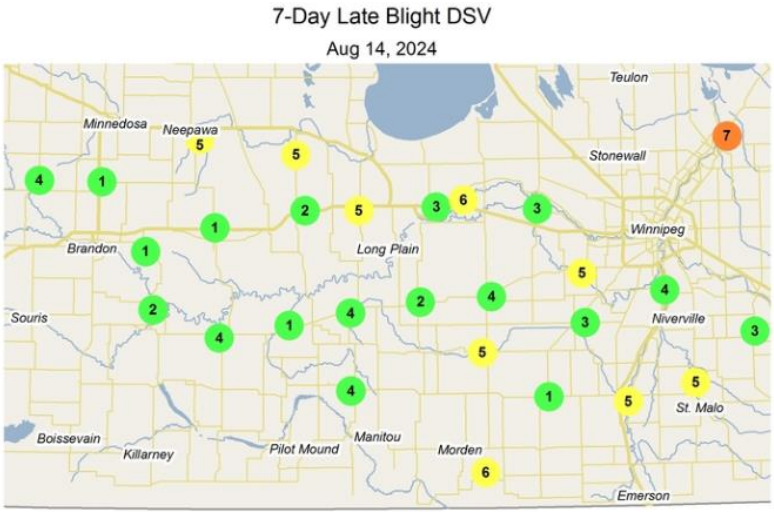

Fig. 7. 7-day cumulative DSVs for the week suggest that conditions have led to low risk of late blight, in the presence of inoculum.

Table 2: Phytophthora infestans sprore trapping and PCR results week 8 (August 6 - 12).

Spore Trap Locations	Pi spores	Early blight (spore #s) max	Spornado Sr. No.
Rivers – SS (WL21)	Negative	153,000	H002
Shilo – MW	Negative	66,000	H362
Douglas – MW	Negative	657	F456
Wellwood – SS – 32-12	Negative	7,310	F462
Carberry N – HW#5 – SS	Negative	148,000	F371
Carberry N - Acad- HC	Negative	205,000	H381
Carberry South (B) – MW	Negative	7,930	F467
Glenboro – MW	Negative	53,900	F362
MacGregor – SG	Negative	133,000	H361
Melbourne – SG	Negative	151,000	F194
Treherne – CC	Negative	62,300	F 461
Cypress River – CC	Negative	86,500	F 464
Bagot – DM-Delta	Negative	29,400	F463
Portage – SG	Negative	78,800	F192
Carman – SG	Negative	62,100	LF-12
Stephenfield – VB	Negative	178,000	F459

"-" *Samples not received / collected by shipping time.*

Insect Pests Monitoring

- Suction and pan traps for **aphid monitoring** have been set up in eight seed potato fields across the province. Weekly monitoring is in the seventh week. Samples were received from seven of eight sites.
- The week's aphid counts were much lower compared to last week's numbers (Table 3). It appears that 2 or 3 suction traps were not working well and this may have been one of the reasons for low counts.
    - In Manitoba, no Green peach aphids (GPA) were trapped at any site, but **potato aphids (PA)** were trapped from four out of seven sites. Sample from one site were not received.
    - Only 6 PAs were trapped compared to 37 last week.

- The potato-colonizing aphids can spread the PVY to cleaner fields from nearby high levels of inoculum. Some commercial non-seed fields appear to have very high % of virus infected plants. Spraying with protective parafinic oils along with insecticide is recommended. Protection is necessary while the foliage remains green.
- MN/ND aphid trap counts continued to surge over the previous week – but with reducing numbers of Green peach aphids (GPA), and increasing soybean aphid counts.

- **Aster leafhoppers** (ALH) appear to have surged in number at some sites. ALH causes aster yellows leading to purple tops and aerial tubers. No economic threshold number for potato crop is available. Pyrethroids can be inexpensive insecticides for managing ALH.
- Delta traps with Iowa strain **European corn borer** pheromone lure traps have been catching low counts of ECB moths as compared to previous years.
  - More fields with minor incidences of borer infestation of stems are being reported. No insecticide is recommended for these low incidences.

Table. 3. Weekly Aphid Report – ***Week 8 (Aug 6 - 12) 2024***

Field #	Town	RM	Green Peach Aphid	Potato Aphid	Other Aphid	Total *	ALH	PLH	Comments
Southern Region									
Field 1-H	**Winker**	Stanley	0	5	23	28	0	1	Suction fan not working,
Field 2-K	**Stephenfield**	Dufferin	0	1	11	12	1	6	Lots of thrips and lacewings
Field 3-S	**Winkler**	Rhineland	0	4	2	6	0	0	Suction fan not working,
Central Region									
Field 4-S	**Swan Lake**	Victoria	0	0	0	0	0	0	
Field 5-S	**Glenora**	Argyle	0	0	0	0	0	0	
Field 6-S	**Westbourne**	Portage La Prairie	0	0	31	31	0	1	Lots of thrips, Sampled: Aug15
Western Region									
Field 7-A	**Wellwood**	North Cypress-Langford							**No sample**
Field 8-S	**Carberry**	North Cypress-Langford	0	1	7	8	5	0	Suction fan not working

* *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.*

Growers and industry stakeholders, please report or submit for diagnosis, any disease or insect observations of importance. If you suspect late blight in your area, please contact vikram.bisht@gov.mb.ca, or 204-745-0260.

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