Issue 12– July 26, 2024

Manitoba Potato Report

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Provincial Summary

- Rainfall was variable in potato growing areas across Manitoba.
- Most potato fields are doing very well and most fields are at, or near row-closed. There is good tuber formation and they are sizing up well with over 4-inch tubers in early planted crops.
- Rainfall for the week ranged from 6 to 32 mm in various potato areas, and the cumulative precipitation since May 1 ranged from 130 to 190 % of the 30-year normal in potato growing areas.
- Aphid counts in the traps are still low. Young larvae of Colorado potato beetles are being effectively controlled in many areas of Manitoba. European corn borer moth counts are low, but some stem borer injury is being recorded.
- Regular weekly reports with updates on disease and insect pests, including late blight risk forecasts on potatoes will also be 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

- Precipitation (mm) from May 1 to July 21 was above normal across agro-Manitoba, ranging from 130 % (Glenboro) to 190% (Winkler) in the selected sites (*Table 1*, Fig. 1). *Province of Manitoba | agriculture - Weather Conditions and Reports (gov.mb.ca)*
- There was scattered and low rainfall in the province from July 15 to July 21 (Fig 2). *https://www.gov.mb.ca/agriculture/weather/pubs/percent-normal-precipitation.pdf*

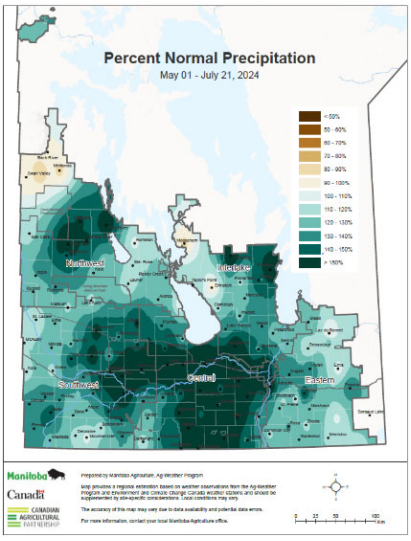

Fig. 1. The precipitation as % of normal, is significantly above the 30-year average.

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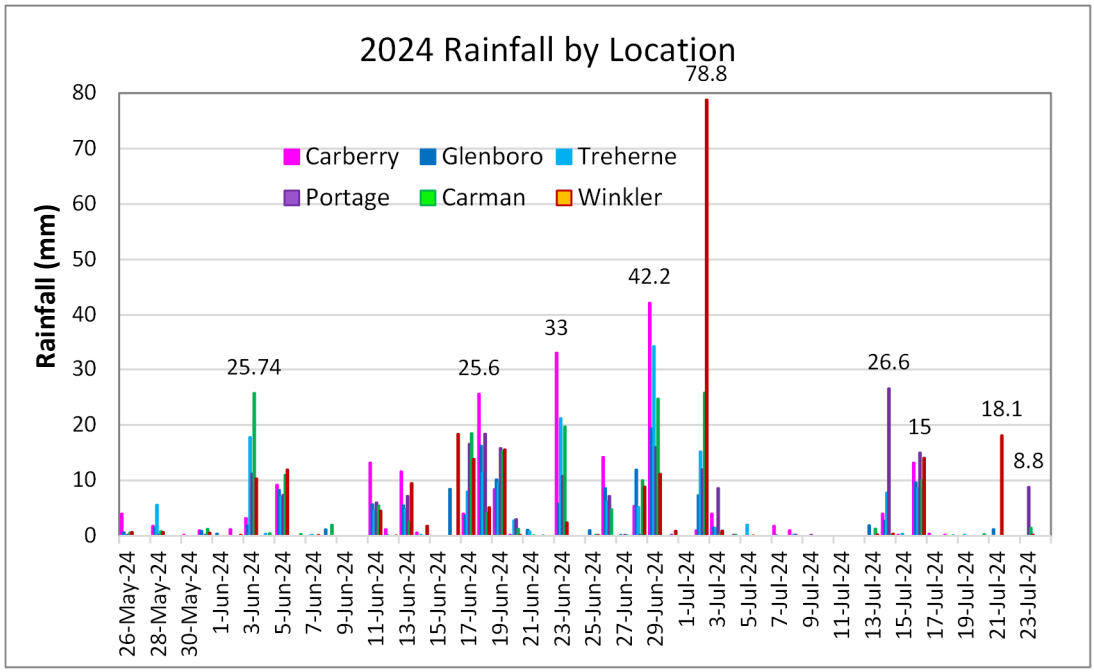

Fig. 2. After frequent rains in May and June, there were widespread rains on July 2, but relatively less from July 3 to 22; fields have begun to dry and some need supplemental irrigation

Temperatures – Air and Soil

- The (July 15 to 21) week was 1 to 2 ^{O}C cooler in the daytime than the previous week, The daytime highs ranged from 28.6 (Rivers) to 32.2 ^{O}C (Winkler). Overnight lows were cooler than last week, and ranged from 6.6 (Carberry) to 10.0 ^{O}C (St. Claude) (*Table 1*).
- P-Days (Potato Physiological days), cumulative heat units for potato growth was near normal (100 to 110 % of normal) during June 1 to July 14 (*Fig.3*). https://www.gov.mb.ca/agriculture/weather/pubs/percent-normal-p-day.pdf. By July 21 the cumulative P-Days ranged from 407-409 in Rivers,Shilo & Carberry to 440 in the Gladstone, Portage and St. Claude areas (P-Days (mbpotatoes.ca) . This range indicates the potato crop which emerged by June 1 should be in rapid bulking stage.
- Soil temperatures on July 22 at 5 cm ranged from 19 to 25 ^{O}C at various station sites and at 20 cm depths were around 18-24 ^{O}C in the selected sites across Manitoba. Such warm and wet soils favour blackleg, soft rot bacteria and other moisture loving pathogen.

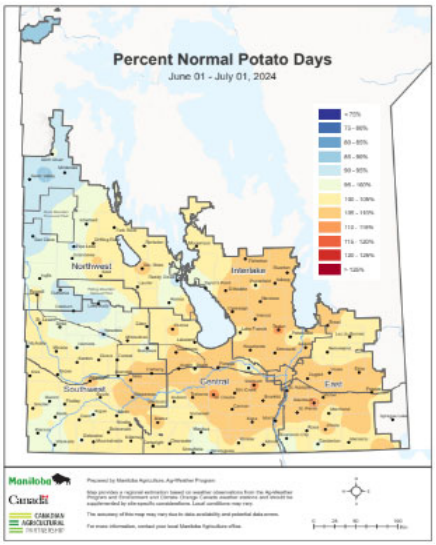

Fig. 3. The cumulative potato heat units, P-days are 100 to 110 % above normal from June 1 to July 21 -- this indicates that heat for potatoes is just perfect.

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Weather Data Summary for Selected Potato Site Stations

- The daytime highs in the week were 1 to 2 ^{O}C cooler than the previous week and the overnight lows were 2-4 ^{O}C cooler (Table 1).
- The rainfall from July 15 to 21 ranged from 6 mm in Shilo to 32.1 mm in Winkler.
- Cumulative rains from May 1 to July 21 are still above the 30-year normal, ranging from 130 % (Glenboro) to 190 % (Winkler). These numbers are dramatically higher than drought conditions of 2023.
- The "potato crop water demand" (CWD) for the week was generally higher than the rainfall received in almost all potato sites; only Bagot and Winkler had more rain than CWD (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 rain are forecast for Friday night (July 26) and until July 29 across different potato sites, with temperature highs in upper 20s to over 30 ^{O}C and overnight lows in high-teens. Manitoba - Weather Conditions and Forecast by Locations - Environment Canada

*Table 1. Manitoba Ag Weather Data – **July 15 to 22***

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	2023 Rainfall (% of normal) May1-Jul 22	2022 Rainfall (% of normal) May 1 – July 24
Altona	30.0	9.4	12.8		281	**141**	**13**	118
Austin	30.2	8.5	10.6	22.6	335	**186**	**22**	154
Bagot	30.6	9.5	23.4	**23.3**	331	**183**	**27**	161
Carberry EC	29.3	6.6	13.5	16.3	310	**167**	**37**	135
Carman	29.8	9.3	10.4	15.6	313	**172**	**18**	102
Cypress River							**21**	113
Glenboro	29.6	6.8	10.8	19.7	246	**130**	**25**	133
Holland	29.0	8.2	11.5	20.8	289	**136**	**27**	127
Morden							**20**	107
Portage EC	30.0	9.6	13.1	22.9	287	**159**	**24**	128
Rivers	28.6	7.2	7.0	20.9	258	**157**	**96**	158
Shilo	29.5	6.7	6.0	22.6	333	**180**	**92**	135
St. Claude	29.5	10.0	9.1	22.2	293	**152**	**22**	111
Treherne	28.7	7.7	8.0	18.1	285	**148**	**21**	119
Wawanesa	29.2	7.1	11.4	18.5	297	**160**	**60**	133
Winkler	32.2	8.3	32.1	**20.8**	372	**190**	**19**	

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

Crop Progress

- Most potato fields are doing well, with full canopy between rows. Two to three fungicide applications before row closure have been applied, and more in hail affected fields.
- Warm days and cool nights are favorable for tuberization, especially with good soil moisture. Tuber bulking ranges from tuber initials to over 5-inch size in many fields. Tuber set has been fairly good, ranging from 8-18 per hill. Tubers are in rapid bulking phase (Fig. 4).
- Above average rains have leached away some nitrogen in some fields and growers are fertigating to meet the crop needs. Based on petiole testing, two to three fertigation applications have been made in some fields.
- There are more reports of heat-runners, especially in fields with canopies not row-closed.
- Minor incidences of rimsulfuron herbicide injury are still continue to be reported. (Fig. 5).

Fig.4. Tuberization appears good, with good set and profile. Photo: a: Tavis Mangin (Simplot), b: Doug Pryor (Delta Ag, c: Mark Robertson (Robertson Farms); d & e: Orla Sheridan (Shilo Farms).

Fig.5. Symptoms typical of rimsulfuron injury seen after Prism herbicide spray. Harrison Loewen (KR CropCheck).

Disease Monitoring

- Thunderstorms and hail have caused stem and foliage injury, which are prone to fungal and bacterial infection. More Botrytis foliar leaf spots and white mold infections are being reported. Low incidence of blackleg infected plants continue to be reported.
- Early blight (EB) spores in Spornado traps continue to be high between July 15 to 22 (Table 2). Early blight is prevalent in most of Manitoba. Ranger Russets and early maturing varieties are showing high levels for this early in the season, reaching mid to top of canopy (Fig. 6a) in some fields. Russet Burbank variety still appears much cleaner.
- Within the crop canopy white mold and botrytis stem rot have been observed (Fig. 6b). Fungicide sprays would be helpful for these minor diseases.
- In some fields, root-galls of powdery scab have been reported (Fig. 7). Lab testing will be conducted to confirm if the root-galls have PMTV (Potato Mop-Top Virus) infection.

Fig.6.a: Foliar symptoms of early blight on the mid to top leaves have been noticed in more fields across Manitoba. b: Botrytis stem rot in the under canopy. Photos Orla Sheridan (Shilo Farms).

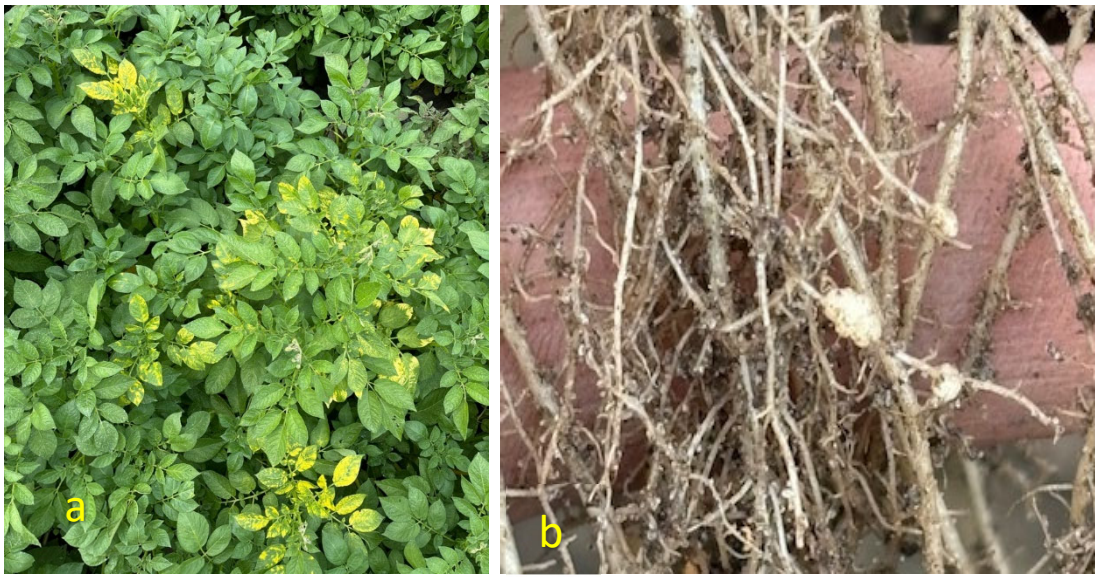

Fig. 7. Powdery scab a: foliar symptoms on a young plant and b: roots showing typical galls of powdery scab. Photos: Janelle Lavich and Steve Saunderson (Choice Agri).

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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 DSV numbers (June 1-July 25) are generally over 30 in most of the province**, much above the critical value of 18, the initial threshold of risk of blight if inoculum is present in the area. **7-Day DSVs suggest high risk of late blight in the presence of inoculum in all potato growing areas** (Fig. 8)**.**
- 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.
- The fifh week of cassette collections from the spore traps was on Monday, July 22. Results from the PCR testing are included in table 2 below.
    - No late blight (*Phytophthora infestans*) spores were trapped in the week (July 15 to 22) (Table 2).
    - The spore numbers of A. solani trapped are slightly lower than last week's count; however, the Alternaria leaf-spot diseases are now being reported from all potato growing areas of the province. Russet Burbank variety is less affected than Ranger Russet or early maturing varieties.
    - Targeted fungicide applications on susceptible varieties like Ranger Russet and early maturing fresh varieties will be helpful.
- Late blight risk maps, P-Days, and SprayCast maps are available at http://www.mbpotatoes.ca/index.cfm.
- **On July 23, late blight disease on potato was confirmed in St. Joseph's County, Michigan**. This is in the southern-most row of counties in MI on the southwestern edge, bordering Indiana. The pathogen strain was identified as US-23. Amanda Gevens (Univ of Wisconsin).

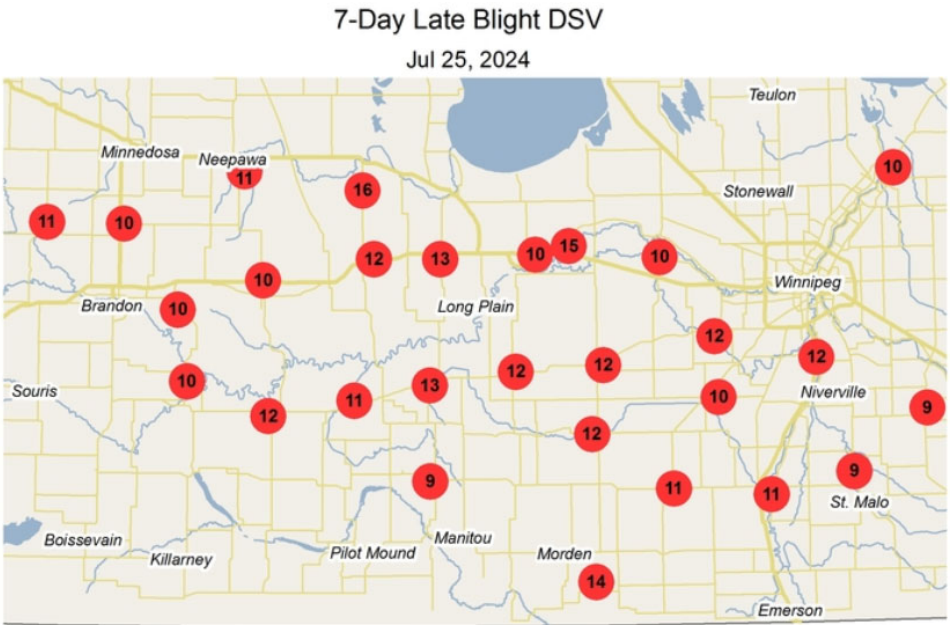

Fig. 8. 7-day Cumulative DSVs suggest that conditions favour high risk of late blight in the presence of spores.

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Table 2: Phytophthora infestans sprore trapping and PCR results week 4 (July 15-22).

Spore Trap Locations	Pi spores	Early blight (spore #s) max	Spornado Sr. No.
Rivers – SS (WL21)	Negative	46,800	H002
Shilo – MW	Negative	119,000	H362
Douglas – MW	Negative	363,000	F456
Wellwood – SS - 32-12	Negative	139,000	F462
Carberry N - HW#5 - SS	Negative	211,000	F371
Carberry N - Acad- HC	Negative	41,000	H381
Carberry South (B) – MW	Negative	108,000	F467
Glenboro – MW	Negative	41,800	F362
MacGregor – SG	Negative	Positive	H361
Melbourne – SG	Negative	13,000	F194
Treherne – CC	Negative	4,000	F 461
Cypress River – CC	Negative	7,000	F 464
Bagot – DM-Delta	Negative	106,000	F463
Portage – SG	Negative	310,000	F192
Carman – SG	Negative	281,000	LF-12
Stephenfield – VB	Negative	189,000	F459

Insect Pests Monitoring

- Suction and pan traps for **aphid monitoring** have been set up in eight seed potato fields across the province. Regular weekly monitoring is in the fith week. Samples were received from all eight sites.
- Early season aphid counts continue to show low population levels (Table 3), and the aphid counts are similar to last week's.
    - No green peach aphid at any site but potato aphids were trapped in 5 of 8 sites, compared to only one site last week. There is a wide variability in aphid trap counts.
    - The potato-colonizing aphids can spread the PVY to cleaner fields from nearby high levels of inoculum. Spray with protective parafinic oils is recommended.
    - Minnesota aphid alert has advised, even though the aphid numbers were currently low, the count is increasing, and green peach aphids were also present early in season.
- New generation of **Colorado potato beetles** (CPBs) as young larvae are now active in all potato growing regions of Manitoba.
    - Scouting for infestation and multiplication can help time the foliar insecticides, if needed.
    - More foliar insecticides applications appear to have been used this year. The larval stages are quite sensitive to foliar insecticides (Fig.9a). Beneficial insects are also active (Fig. 9b).
- Delta traps with Iowa strain **European corn borer** pheromone lures have been set up in some fields, mostly in western potato growing areas of Manitoba where high populations have been noted in previous years. Low counts of ECB moths have been trapped with an average of <1 moth per trap.
    - Minor incidences of borer infestation of stems is being reported (Fig 10).

Table. 3. Weekly Aphid Report – Week 5 (July 15 – July 23) 2024

Field #	Town	RM	Green Peach Aphid	Potato Aphid	Other Aphid	Total *	ALH	PLH	Comments
Southern Region									
Field 1-H	**Winker**	Stanley	0	1	10	11	0	1	
Field 2-K	**Stephenfield**	Dufferin	0	2	13	**15**	0	7	Lots of thrips
Field 3-S	**Winkler**	Rhineland	0	1	6	7	0	0	
Central Region									
Field 4-S	**Swan Lake**	Victoria	0	0	0	0	0	0	
Field 5-S	**Glenora**	Argyle	0	2	0	2	0	0	
Field 6-S	**Westbourne**	Portage La Prairie	0	0	10	10	0	0	
Western Region									
Field 7-A	**Wellwood**	North Cypress-Langford	0	3	5	8	0	0	
Field 8-S	**Carberry**	North Cypress-Langford	0	0	0	0	0	0	

* *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.*

Fig. 9.a: CPB larvae dead on foliage after insecticide application; Photo: Vikram Bisht (Manitoba Agriculture) b: natural control through beneficial insects, e.g. lacewing larvae, which. do a good job of beetle larvae control. Photo: Mitch Blyth (Crop Care).

Fig. 10. European corn borer larva in a potato stem.in Shilo area, Photo: Mitch Wright (McCain Foods). The incidence is minor so far.

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.