Issue 19 – September 13, 2024

Manitoba Potato Report

Seasonal Reports Weekly Weather Maps Potato Production

Provincial Summary

- Lack of rainfall across potato areas of Manitoba led to drier soil moisture in the top 30 cm zone. The cumulative precipitation from May 1 to September 8 is still above the 30-year normal, ranging from 106 to 158% of normal. Top 0-30 cm soil is generally drier across the province. Supplemental irrigation is required.
- P-Days range from 770-825 in agro-Manitoba, the potato crops are in maturation phase.
- The week has seen limited harvest due to the nearly 30 ^{O}C daytime high temperatures. Warm potatoes do not store well.
- There is no report of late blight in Manitoba. Spore trapping for late blight has ended for the season.
- "Potato early dying", caused by Verticillium wilt and black dot, is being reported from more fields.
- Most seed potato fields have been desiccated.
- Regular weekly reports are 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

- For the week of Sept. 2 to 8, there was almost no rainfall in most potato growing areas of the province (*Table1*), and ranged from 0 (Carman, Shilo, Wawanesa) to over 3.4 mm (Portage). *Province of Manitoba | agriculture - Weather Conditions and Reports (gov.mb.ca).*
- The cumulative rains from May 1 to Sept.8 are still above the 30-year normal, ranging from 106% (Glenboro) to 158% (Winkler) at the selected sites (*Table 1*). *https://www.gov.mb.ca/agriculture/weather/pubs/percent-normal-precipitation.pdf*
- Lack of significant amounts of rain in many areas has led to drier top 30 cm zone compared to last week (Fig.1, soil-moisture-30cm.pdf (gov.mb.ca)). The 0 to 120 cm zone ranges from optimal to wet in potato growing areas as displayed on the soil-moisture-120cm.pdf (gov.mb.ca) map.

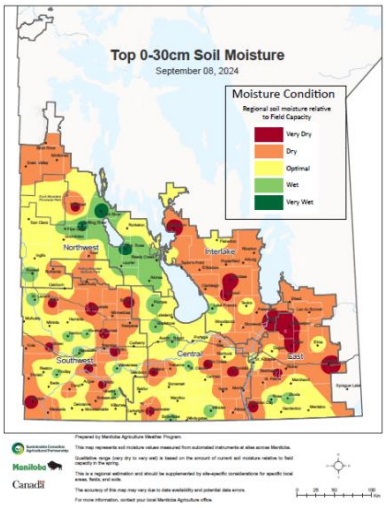

Fig. 1. Due to lack of substantial rains since Aug 14 and 15, the soil moisture (relative to field capacity) in 0-30 cm zone has become drier compared to last week. The potato areas are mostly optimal to dry at the 0-30 cm zone.

Report compiled by Dr. Vikram Bisht
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Temperatures – Air and Soil

- Daytime high temperatures from Sept. 2 to 8 were 2 - 6 ^{O}C warmer than the previous week, ranging from 27.5 ^{O}C (Portage) to 33.9 ^{O}C (Winkler).
    - Sites with ≥ 30 ^{O}C: Austin, Carberry, Glenboro, Holland, Rivers, Shilo, Wawanesa and Winkler.
- Overnight lows were generally around 2 to 3 ^{O}C cooler than last week, and ranged from 2.3 ^{O}C (Wawanesa) to 8.1 ^{O}C (St. Claude) (*Table 1*).
- Total accumulated heat units for potato growth, P-Days (Potato Physiological days) from June 1 (50% potato emergence) to Sept. 8 was 100 to 110% of the 30-year normal in the potato growing areas. https://www.gov.mb.ca/agriculture/weather/pubs/percent-normal-p-day.pdf.
    - By Sept.8, the cumulative P-Days ranged from around 770+ in Rivers, Shilo, Wawanesa, Glenboro and Carberry to around 810+ in the Gladstone, Austin, Portage, St. Claude and Carman areas (P-Days (mbpotatoes.ca). This heat range indicates that potato crops which emerged by June 1 are in maturation stage.
- Soils have started cooling down slowly. At the 5 cm depth on Sep 9, soils were at 16.7 to 19.6 ^{O}C from a peak of 20-26 ^{O}C on Aug. 2 (Fig. 2). At 20 cm soil depths the temperatures peaked around July 15, and Aug 1 (18-25 ^{O}C) and have cooled to 15-19.5 ^{O}C on Sep. 9 (Fig. 2).
    - Under warm and moist soil conditions, there is moderate risk of Pythium leak, Phytophthora pink rot and pectolytic bacterial soft rots.

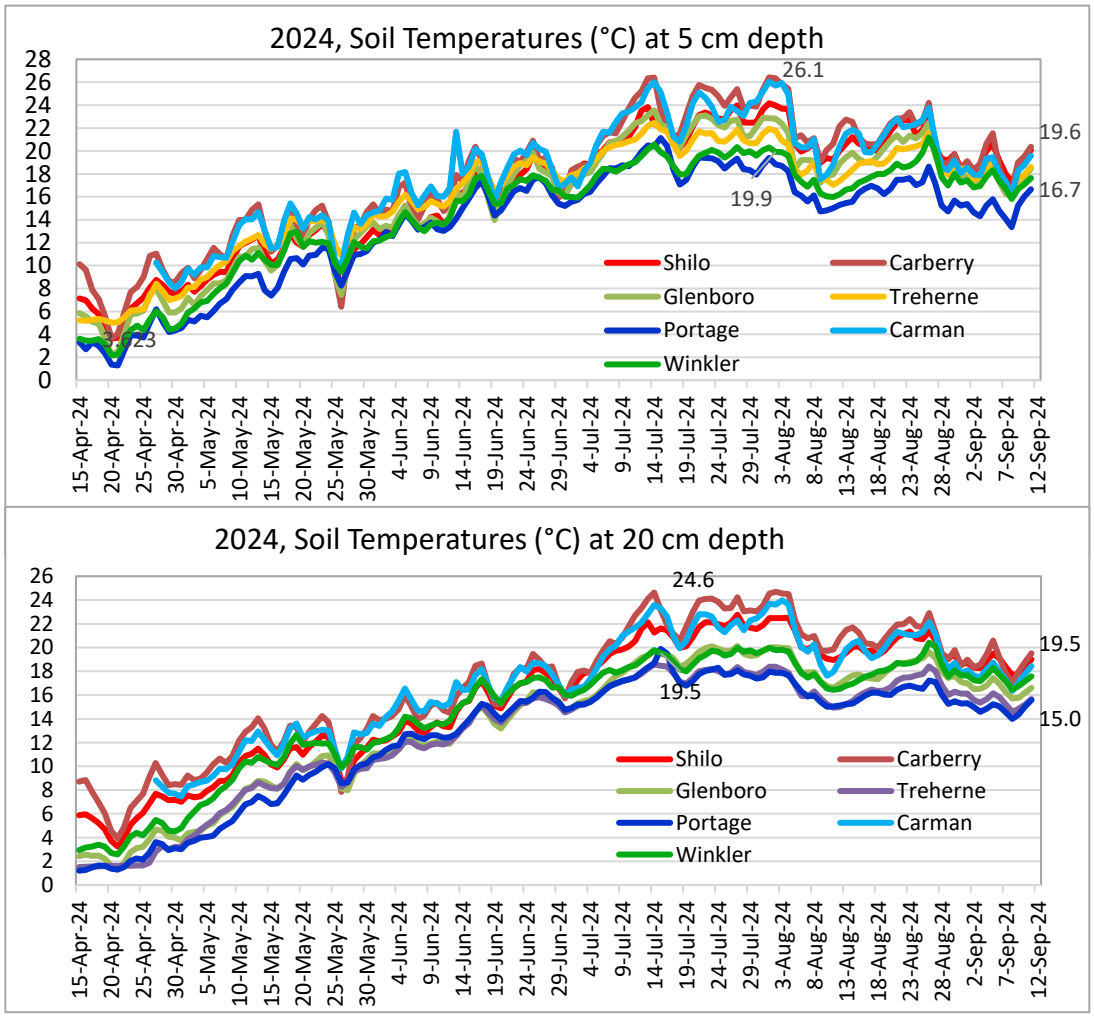

Fig. 2. The daily mean soil temperatures have started cooling down from peak levels, but are still quite warm at both 5 cm and 20 cm depths.

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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 with weather stations (Table 1). CWD for the week ranged from 20.8 to 32.4 mm in the selected potato sites. All areas needed supplemental irrigation.
- According to the Environment and Climate Change Canada (ECCC) current weather forecast, some precipitation was forecast for Sept. 13, then Sep 16 – 18 at a few potato sites, Forecast for air temperature highs are projected to be around mid to high 20s ^{O}C up to Sept. 18; and overnight lows from 8 to 17 ^{O}C. Manitoba - Weather Conditions and Forecast by Locations - Environment Canada.

Table 1. Manitoba Ag Weather Data – ***September 2 – 8***

Region	Max Temp (°C)	Min Temp (°C)	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	30.1	4.5	0.6	NA	364	121
Austin	29.2	6.5	2.6	28.2	370	130
Bagot	28.9	4.2	2.3	24.3	378	133
Carberry EC	31.4	4.3	0.6	24.8	342	120
Carman	29.7	3.3	0	20.8	391	136
Cypress River*						
Glenboro	32.3	3.4	0.8	25.7	303	106
Holland	31.0	5.8	0.6	30.6	346	110
Morden*						
Portage EC	27.5	7.6	3.4	29.1	343	121
Rivers	31.5	4.7	0.5	30.3	299	121
Shilo	31.8	3.7	0	32.4	367	129
St. Claude	28.8	8.1	1.0	24.6	358	125
Treherne	28.8	6.4	2.1	27.7	364	127
Wawanesa	32.6	2.3	0	26.2	334	117
Winkler	33.9	4.8	0.5	26.0	472	158

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

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

Crop Progress

- All potato crops are in maturation stage. Though Russet Burbank are still green, many other varieties are turning color.
- Due to frequent rains some of the fields lost nitrogen, and the fertigation may not have been able to meet the crop needs in a timely manner. Some crops that are short of nitrogen and/or moisture are showing higher levels of early dying.
- Supplimentary irrigation is still needed for all potato since crop water demand was not covered by the rains in the week. Unirrigated fields appear to be heat stressed.
- Harvest for storage was slowed down or not started in many farms due to high daytime temperatures. Ideal upper temperatures at harvest would be <60 ^{O}F (15.5 ^{O}C).
    - Tuber pulp temperatures at harvest has been reported to be as high as 70 ^{O}F (21 ^{O}C) in irrigated fields, though 62-65 ^{O}F (16.7-18.4 ^{O}C) in well irrigated fields are being harvested.
    - In unirrigated and desiccated seed fields, pulp temperature was over 78 ^{O}F (25.6 ^{O}C) (Fig 3).
- Due to warm conditions, it is important to monitor tuber pulp temperatures and stop harvest when temperatures become ≥65 ^{O}F (18.4 °C) . Warm tubers in storage could lead to storability issues.
- Harvest for "direct from field" to processing plant is also continuing at a slow pace.
- Close to 50% of the crop has been harvested in some farms.

Fig. 3. The tuber pulp temperature in the afternoon was over 78 ^{O}F (25.6 ^{O}C) in a seed field which had been desiccated. Harvest in the field is not planned for a week to 10 days.

Disease Monitoring

- Early blight is now prevalent in most of Manitoba, and at this stage may be helping in crop senescence.
- Potato early dying (PED) caused by verticillium wilt and black dot diseases is being observed in many areas of Manitoba (Fig. 4). The overall severity appears to be lower than in the last 2 to 3 years .
- Powdery scab on roots continue to be reported from more fields.
- Due to warm conditions at harvest, early breakdown of tubers have been reported, mainly due to Pectobacterium and Clostridium bacterial soft rot. Rot by Clostridium sp. is very smelly and produces sticky mucilage (snot) which forms strands when pulled (Fig 5). Warm and wet conditions favour Clostridium rot.

Fig. 4.a, b) Potato Early Dying (PED) is becoming more severe in high stress areas especially in high spots or sand ridges in fields. Photos: Vikram Bisht (Manitoba Agriculture).

Fig. 5. Potato soft rot caused by Pectobacterium sp. (left) and Clostridium sp (right). Photo: Vikram Bisht (Manitoba Agriculture).

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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 7-Day DSV numbers on Sept. 9, suggest low to moderate risk** of late blight at various potato growing areas of Manitoba, if the inoculum is present**.**
- No late blight reported in the province, and no late blight spores were trapped duing the season.
- The **Alternaria leaf-spot (ALS) diseases** are present in 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.

Insect Pests Monitoring

- Insect pest monitoring has stopped for the season.

Extension Event

A post-harvest Phostrol (phosphorus acid) treatment discussion and demonstration was organized by Simplot (Scott Graham) at the JP Wiebe Farms (Sheldon and Ryan). Reduced water volume could be used and still obtain good coverage with this set up (Fig. 6).

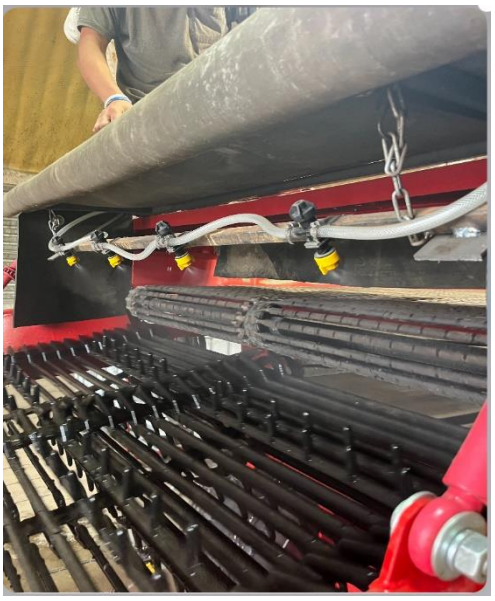

Fig. 6. Set up for post-harvest treatment with Phos-Acid, which has reduced water volume and still maintained good tuber coverage. Photo: Scott Graham (Simplot).

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.