Issue 8 – June 28, 2024

Manitoba Potato Report

Seasonal Reports Weekly Weather Maps Potato Production

Provincial Summary

- In spite of frequent rains, most potato fields are doing very well, with over 90% of the fields estimated to have emergence. Fields are at varying growth stages, from just emerging to over 18 inches in height.
- Early planted fields are showing good tuber formation and sizing up well, with up to 3 inch tubers.
- Cumulative rain so far, is 160 to 226% of normal in potato growing areas.
- Early season aphid trapping is low; and only non-potato colonizers were trapped.
- Overwintering adult Colorado potato beetles are now very active in many parts of the province.
- 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 also carries SPRAYcast®, providing 3-day spray-advisory weather forecasts for selected sites.

Ag Weather Data

Precipitation and Soil Moisture

- The top 30 cm was generally wet by June 23, with most potato growing areas becoming wet to very wet relative to field capacity (*Fig.1*). The 0-120 cm depths also were wet to very wet relative to field capacity. https://www.gov.mb.ca/agriculture/weather/pubs/soil-moisture-30cm.pdf and https://www.gov.mb.ca/agriculture/weather/pubs/soil-moisture-120cm.pdf.
- After heavy rains in late May, there have been frequent rain days which kept the soil moisture high in many fields, with poor drainage. Precipitation (mm) in May and up to June 23 was above normal across agro-Manitoba, ranging from 160% (Altona) to 226% (Austin) in the selected sites (*Table 1*). https://www.gov.mb.ca/agriculture/weather/pubs/percent-normal-precipitation.pdf.
- After May 25, scattered rains on June 3, 11, 13, 16, 18,19, 23 and 26 which were quite widespread across Manitoba (Fig. 2), led to wet spots in many potato fields.

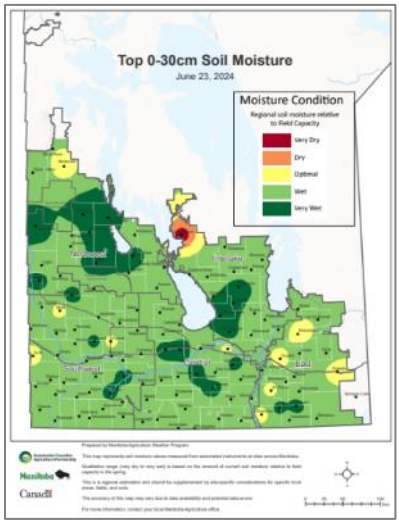

Fig. 1: 0-30 cm depth soil profile was wet to very wet relative to field capacity. Similarly 0-120 cm depths:were wet in most of agro-Manitoba potato areas. Ground operations were slowed down in some fields due to wet conditions.

Province of Manitoba | agriculture - Weather Conditions and Reports (gov.mb.ca)

Report compiled by Dr. Vikram Bisht
Potato and Horticulture Crop Pathologist, Manitoba Agriculture
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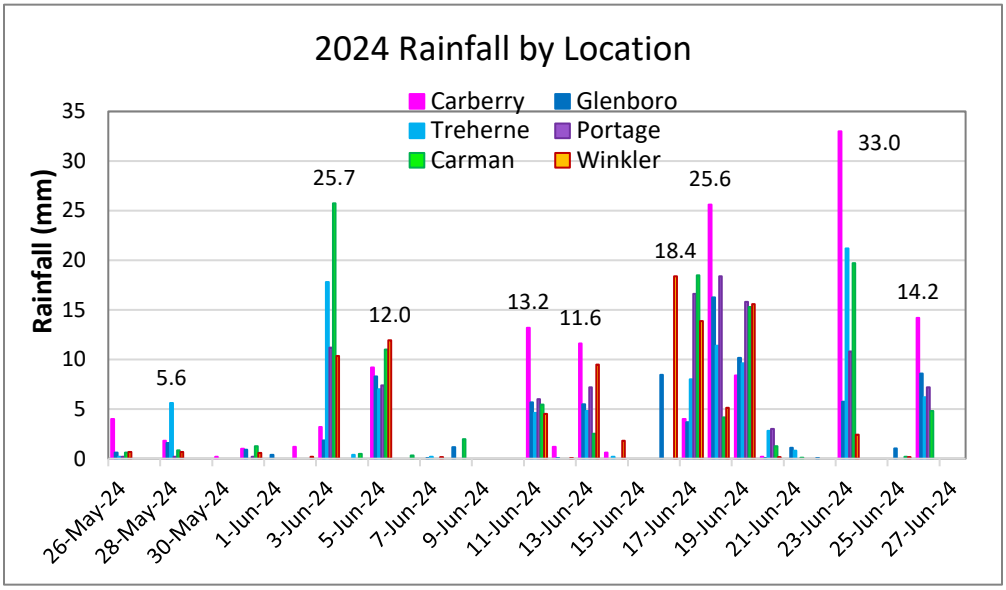

Fig. 2. Heavy and widespread rain on May 25 was followed by frequent rains in June, leading to many wet fields across Manitoba.

Temperatures – Air and Soil

- Due to a cooler week, P-Days (Potato Physiological days), cumulative heat units for potato growth was slightly above normal (100 to 120 % of normal) during June 1 to 23 (*Fig.3a*). https://www.gov.mb.ca/agriculture/weather/pubs/percent-normal-p-day.pdf
- The heat accumulation in terms of GDD from May 1 to June 23 appears to be just below normal (Fig. 3b). *https://www.gov.mb.ca/agriculture/weather/pubs/percent-normal-gdd.pdf*
- The daytime high temperatures (June 17 to 23) ranged from 23.2 (Rivers) to 26.7 ^{O}C (Winkler) and overnight lows ranged from 3.8 (Rivers) to 9.2 ^{O}C (Altona) (*Table 1*). Daytime highs were generally 3-4 ^{O}C cooler than last week.
- Soil temperatures have warmed up at 5 cm depths (up to 20 ^{O}C) and 20 cm (up to 18 ^{O}C), by mid-June.

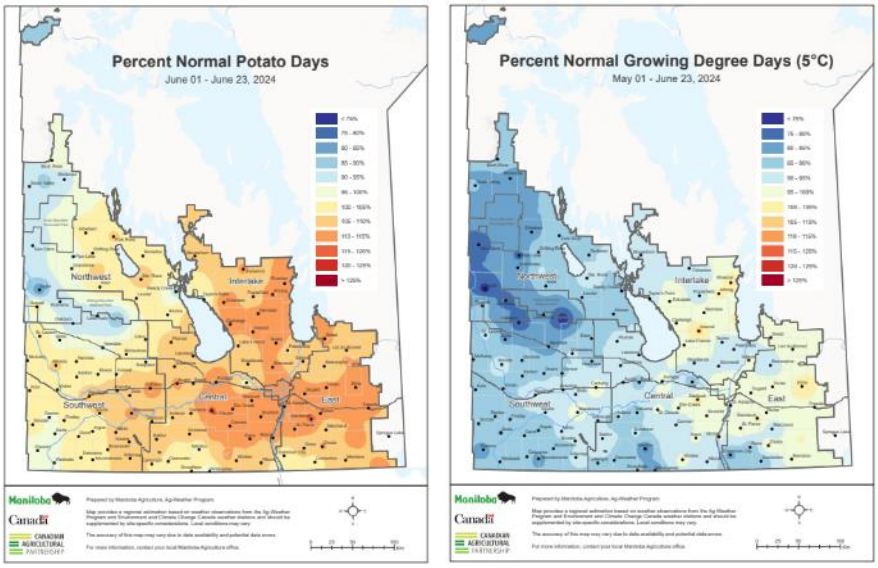

Fig. 3). a: The cumulative potato heat units, P-days (base 7-30C) are 100 to 120 % above normal from June 1 to 23; b. GDD (base 5C) is cooler than normal – this indicates that heat for potatoes is just perfect, while it is cool for other field crops.

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Weather Data Summary for Selected Potato Site Stations

- The week (June 17 - 23) has been 2-4 ^{O}C cooler than the previous week (Table 1).
- The week's rainfall ranged from 17.1 mm (Rivers) to 79.8 mm (Austin). In general, the rainfall was much higher than last week.
- Cumulative rains in 2024 May 1 to June 23 are above the 30-year normal at 160 to 226%, preventing many wet spots in some fields from drying out (Fig. 4).
- The last few days has been marked by a few thunderstorms, with strong winds and scattered hail.
- According to the Environment and Climate Change Canada (ECCC) weather forecast, more scattered rain is expected from Thursday night (June 27) to Tuesday (July 2) across Manitoba, with temperature (^{O}C) highs in mid-teens to low 20s.

Fig.4. Thunderstorms caused many wet spots in some fields, while strong winds on hot days have caused dust storms in the same field. Photo: Vikram Bisht (Manitoba Agriculture)

Table 1. Manitoba Ag Weather Data – June 17 - June 23

Region	Max Temp (°C)	Min Temp (°C)	Rain (mm) for the week	Rain (mm) (Since May 1)	2024 Rainfall (% of normal) since May 1	2023 Rainfall (% of normal) May 1 – Jun 18	2022 Rainfall (% of normal) May 1 – Jun 14
Altona	25.1	9.2	31.1	194	**160**	25	124
Austin	24.8	7.6	79.8	251	**226**	43	262
Bagot	24.9	7.4	57.3	241	**216**	42	252
Carberry EC	24.6	6.2	64.8	229	**218**	81	202
Carman	25.7	8.3	40.3	235	**204**	22	125
Cypress River	24.7	6.7	73.6	248	**197**	32	144
Glenboro	25.0	6.4	33.0	182	**163**	55	148
Holland	24.7	6.6	59.3	217	**172**	34	165
Morden	25.2	8.9	27.4	226	**180**	27	124
Portage EC	25.9	8.6	45.9	216	**194**	23	190
Rivers	23.2	3.8	17.1	178	**179**	110	239
Shilo	24.2	4.3	51.0	212	**203**	127	177
St. Claude	24.6	8.6	51.2	225	**194**	27	133
Treherne	24.6	6.9	44.2	212	**183**	24	136
Wawanesa	25.2	5.8	43.1	212	**202**	106	178
Winkler	26.7	8.8	23.1	239	**191**	26	113

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

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Crop Progress

- There were a few acres left for planting /re-planting; the last planting of around 50 acres was done on June 25.
- Most potato fields are doing well, with 4 to over 18 inch plants. The plant canopy is between 20 and 80% closed-in between rows (Fig. 5a). A fungicide application before row closure is helpful to get good coverage.
- Warm days and cool nights are favorable for tuberization, especially with good soil moisture. Tubers range from tuber initials to over 3 inch size in early planted fields (Fig. 5b)
- Hilling operations and other ground operations including dam/diking and herbicide applications are going on in many areas.
- The frequent rains have prevented wet fields from drying down and delayed ground operations.
- Thunderstorms, often accompanied by hail, have been frequent (almost weekly) but so far have caused minor foliar damage in potatoes. Minor hail injury on stems and foliage was seen. Such injuries act as points of entry for pathogens. Fungicide applications have been done in many fields.

Fig.5 a) Good crop stand can be seen in many areas. Plant canopy is between 20 and 80% closed in. Early seeded fields have 18 inch tall plants. Photo: a) George Moir (Marginet Farms), b) 3-inch tubers, planted April 29. Photo: Tavis Mangin (Simplot Foods).

- Poor seed emergence was seen in one field (Fig.6 a) with seed sprout symptoms which appear typical of glyphosate injury, suggesting possible low dose herbicide exposure on mother plants in 2023. Multiple sprouts from an eye could indicate that the mother plants had late season exposure to glyphosate drift (Fig.6 b, c). However, some tuberization directly on seed was also noted (Fig.6 d, e). This was also seen in other fields (Fig.7a, b) and could indicate highly stressed /aged seed. Hot weather in 2023 may be responsible for such physiologically aged seed. Similar reports are being discussed in other areas and causes are still being speculated.

Fig. 6a) (above) From the same field one side has lower emergence, with higher incidence of sprouts with symptoms appearing to be typical of glyphosate herbicide injury. Photo: a) Greg Dyck (Crop Care), b & c) Multiple sprouts from seed tuber; d: tuberization directly from tubers with very short stolon. Photo: Vikram Bisht (Manitoba Agriculture).

Fig. 7a) Early tuberization direct from stems or tubers, with a very short stolon from two different fields. Photo: Steve Saunderson (Choice Agr); b) Vikram Bisht (Manitoba Agricuture).

Disease Monitoring

- The 0-30 soil profiles in many areas are still wet (based on field capacity). The thunderstorms and hail have caused stem and foliage injury, these sites are prone to fungal and bacterial infection.
- Strong winds have caused sand blasting of potato sprouts and young plants, causing micro-injuries which are prone to black dot. Fungicides targeting black dot disease would be helpful soon after sand blasting.

- Poor emergence in wet spots could be due to seed rooting due to bacterial soft rot and Pythium leak. A few cases of blackleg have been noted in different fields (Fig. 8 a, b,c).
- A few cases of Rhizoctonia infection have been noted (Fig. 9 a).
- Potato mosaic infected plants, trace to 15% incidence was recorded (Fig. 9 b). This could be due to very high late season aphid population surge towards end of August, before top-kill of seed crop.

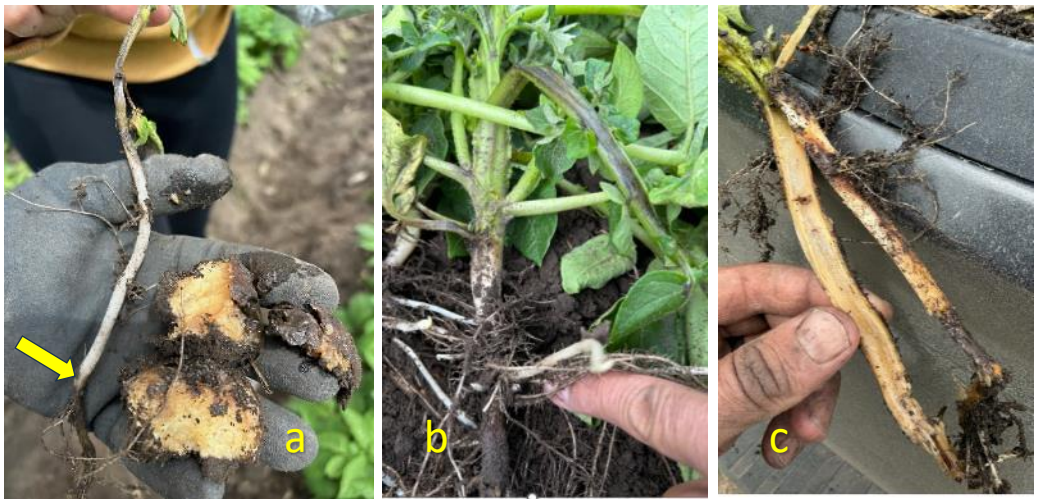

Fig. 8. Early sympltoms of blackleg Photo: a, b) Vikram Bisht (Manitoba Agriculture), photo c) Steve Saunderson (Choice Agr).

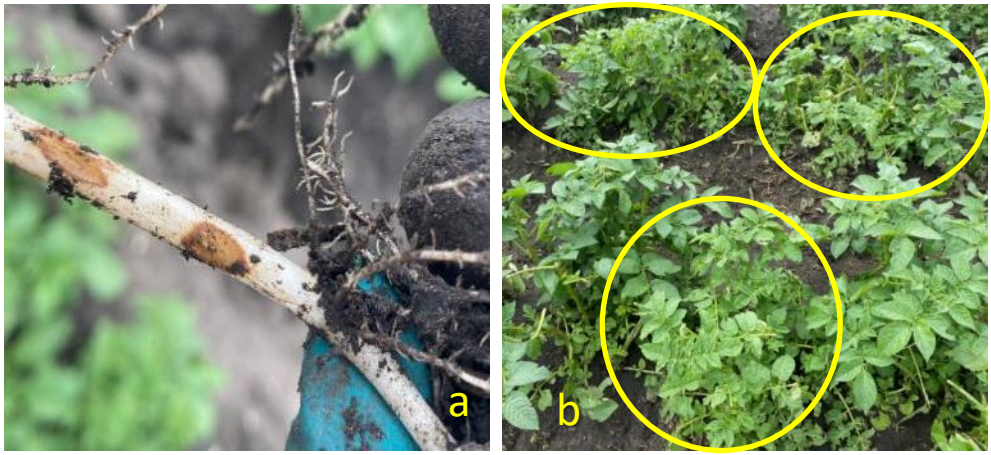

Fig. 9a) Rhizoctonia infection b) Potato mosaic infected plants, with percent infection levels varying from low to high. Photos: Vikram Bisht (Manitoba Agriculture).

Late Blight Monitoring

Montitoring and Forecasting

- Late blight risk forecasting has begun. Late blight disease Risk Values DSVs are cumulative numbers starting from June 1. DSVs are provided on a regional basis. Please refer to the risk maps on Late Blight (mbpotatoes.ca). The late blight Disease Severity Values (DSVs) represent the potential risk of late blight occurring when the inoculum is present. **Currently, the cumulative DSV numbers (June 1-27) indicate low to moderate risk of late blight in Manitoba.** DSVs in Gladstone are high, Glenboro and Carman are moderate while other sites appear to be at low risk.
- Fields nearing row closure will benefit from having at least one late blight protectant fungicide before row closure.

Fig. 10. Spornado passive spore trap and Delta trap set up for European corn borer. Photo: Vikram Bisht (Manitoba Agriculture).

- As in earlier years, a network of 15-16 passive Spornado traps for late blight spores, across Manitoba have been set up (Fig.10). Spore trapping is another tool-in-the-box of late blight management. Spore trapping does not replace in-field scouting, especially in low lying and wind-protected areas in the fields..
- The first round of cassette collections from the spore traps was on Monday, June 24.
- There were no late blight (Phytophthora infestans) spores trapped in the week (June 17-24) (Table 2).
- Late blight risk maps, P-Days, and SprayCast maps will be available at http://www.mbpotatoes.ca/index.cfm.

Table 2: Phytophthora infestans sprore trapping and PCR results **Wk 1 (July 17-24.**

Spore Trap Locations	**Pi spores**	**Early blight (spore #s)**	**Spore Trap Locations**
Shilo - MW	Negative	Positive (28,200)	Shilo - MW
Douglas – MW	Negative	Positive (63,800)	Douglas – MW
Wellwood - SS	N/A	--	Wellwood - SS
Carberry N -SS	N/A	--	Carberry N -SS
Carberry N - HC	N/A	--	Carberry N - HC
Carberry South – MW	Negative	Positive (187,000)	Carberry South – MW
Glenboro – MW	Negative	Positive (40,000)	Glenboro – MW
Brookdale – KJ /SS	N/A	--	Brookdale – KJ /SS
MacGregor – SG	Negative	Positive (50,500)	MacGregor – SG
Melbourne – SG	Negative	Positive (34900)	Melbourne – SG
Treherne – JG/	N/A	--	Treherne – JG/
Portage – HB	N/A	--	Portage – HB
Portage – SG	Negative	Positive (400,000)	Portage – SG
Bagot – DM-Delta	Negative	Positive (68,800)	Bagot – DM-Delta
Carman – SG	Negative	Positive (58,500)	Carman – SG
Stephenfield - VB	Negative	Positive (30,240)	Stephenfield - VB

Insect Pests Monitoring

- Suction and pan traps for aphid monitoring have been set up in eight seed potato fields across Manitoba (Fig.11 a). Regular weekly monitoring will be done in fields with good top growth. In 2023, Green peach aphids (GPA) and Potato aphid (PA) populations were very high towards end of August. High GPA and PA levels carry the risk of higher transmission of PVY mosaics.
- Early season aphid counts showed low non-potato aphid population levels at 3 sites (Table 3),
- Delta traps with NY strain European corn borer pheromone lures is being set up in many fields (Fig.11 b), in western potato growing areas of Manitoba, where high populations have been noted in previous years.
- Overwintering adults of Colorado potato beetles (CPBs) have become active in southern Manitoba, and are now multiplying (Fig.12 a). Egg masses at various stages of development have been seen (Fig.12 b, c). Scouting for infestation and multiplication is helpful in determining the timing for foliar insecticides if needed.

Fig. 11.a)Suction traps for aphids have been set up in 8 seed fields. Photo: Vikram Bisht (Manitoba Agriculture); b) Delta trap for European corn borer with pheromone lure hanging within. Photo: Cassidy Phillips (Manitoba Agriculture).

Table. 3. Weekly Aphid Report – Week 1 (June 17-June 24) 2024

Field #	Town	RM	Green Peach Aphid	Potato Aphid	Other Aphids	Total *	ALH	PLH	Comments
Southern Region									
Field 1, H-20-2	**Winker**	Stanley	-	-	-	-	-	-	No sample
Field 2, K-16-6	**Stephenfield**	Dufferin	0	0	0	**0**	0	0	Some thrips
Field 3, S-29-2	**Winkler**	Rhineland	-	-	-	-	-	-	No sample
Central Region									
Field 4 J-9-6	**Swan Lake**	Victoria	-	-	-	-	-	-	No sample

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Field 5 J-25-3	**Glenora**	Argyle	-	-	-	-	-	-	No sample
Field 6 M-32-13	**Westbourne**	Portage La Prairie	0	0	3	3	0	0	

Western Region

Field 7, A-12-14	**Wellwood**	North Cypress-Langford	0	0	5	5	0	0	
Field 8, SP	**Carberry**	North Cypress-Langford	-	-	-	-	-	-	No sample

* *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.

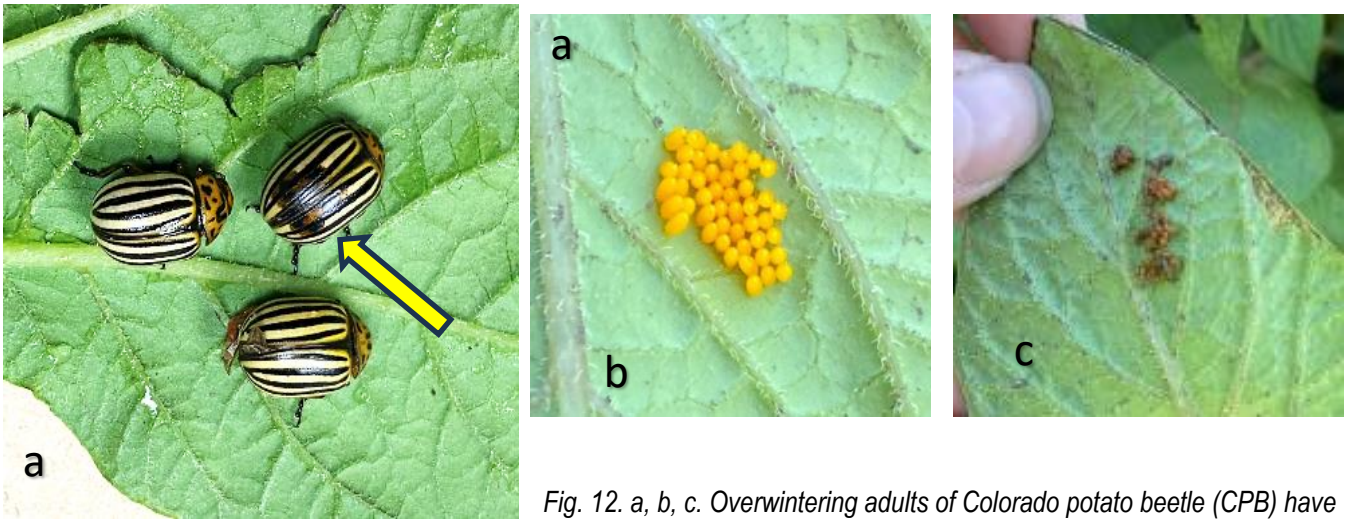

Fig. 12. a, b, c. Overwintering adults of Colorado potato beetle (CPB) have become active in in all potato areas of Manitoba, but higher populations were noted in southern Mantioba. a) CPB adults, one with some dark colour variation on the back; is it early stage of genetic variability occurring in CPBs. Photo: Vikram Bisht (Manitoba Agriculture) b, c) New and ready to hatch egg masses. Photos: Cassidy Phillips (Manitoba Agriculture).

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