PRAIRIE WIND TRAJECTORY AND CEREAL RUST RISK REPORT for May 6-12, 2025

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Agriculture and Agri-Food Canada (AAFC) and Environment and Climate Change Canada (ECCC) have been working together to study the potential of trajectories for monitoring insect movements since the late 1990s. Trajectory models are used to deliver an early-warning system for the origin and destination of migratory invasive species, such as diamondback moth. In addition, plant pathologists have shown that trajectories can assist with the prediction of plant disease infestations and are also beginning to utilize these same data. We receive two types of model output from ECCC: reverse trajectories and forward trajectories.

'Reverse trajectories' (RT) refer to air currents that are tracked back in time from specified Canadian locations over a five-day period prior to their arrival date. Of particular interest are those trajectories that, prior to their arrival in Canada, originated over northwestern and southern USA and Mexico, anywhere diamondback moth populations overwinter and adults are actively migrating. If diamondback adults are present in the air currents that originate from these southern locations, the moths may be deposited on the Prairies at sites along the trajectory, depending on the local weather conditions at the time that the trajectories pass over our area (e.g. rain showers, etc.). Reverse trajectories are the best available estimate of the ''true'' 3D wind fields at a specific point. They are based on observations, satellite and radiosonde data.

Disclaimer

Information related to trajectory events based on forecast and diagnostic wind fields and cereal rust risk is experimental, and is **OFFERED TO THE PUBLIC FOR INFORMATIONAL PURPOSES ONLY**. Agriculture and Agri-Food Canada, Environment Canada, and their employees assume no liability from the use of this information.

1. RUST DEVELOPMENT IN SOURCE LOCATIONS

a. Pacific Northwest (PNW)

i. In his March 5, 2025 risk update, Dr. Xianming Chen, USDA-ARS, and WSU, Pullman, WA, indicated that the 2025 stripe rust forecast was downgraded from severe in January 2025 to low in early March 2025 Stripe Rust Forecast, March 5, 2025 | Stripe Rust | Washington State University). This change from early January to early February was based primarily on cold February temperatures that are less conducive to overwintering of the stripe rust pathogen. In early March the forecast was for low risk with 18% yield losses for susceptible wheat varieties, down from 41% based on the early January forecast. In early March 2025, Dr. Chen and colleagues did not observe stripe rust in winter wheat fields (commercial and research), compared to several observations of this disease in late February 2024. As of March 5, 2025, Dr. Chen's recommendation for the eastern regions of the Pacific Northwest was that fungicides were not recommended, except where symptoms are observed later in spring/summer 2025.

ii. As of April 18, 2025, Dr. Chen updated the stripe rust situation in the Pacific Northwest to indicate stripe rust symptoms were observed in several research fields, but not around the Pullman area (Stripe Rust Update, April 18, 2025 | Stripe Rust | Washington State University). Observations made in early April indicated where stripe rust was present in research fields it was at lower levels versus the same time in 2024. Of note were higher levels in western Washington at the Mount Vernon trial location, which typically has increased levels of stripe rust each year. In addition, compared to 2024 higher stripe rust levels were found at their winter wheat trial site in Garfield County at Central Ferry, WA. Overall, Dr. Chen indicates the occurrence of symptoms in 2025 has been later versus

2024. Given these recent observations, Dr. Chen is now recommending fungicide application on susceptible to moderately susceptible varieties at the time of spring herbicide applications, especially where stripe rust severity or incidence is 5% or more. Dr. Chen also reported that in addition to stripe rust observations in Washington State and Oregon, rust symptoms have also been reported in Georgia (Dr. A. Martinez, UGA, stripe rust of wheat and crown rust of oat), Louisiana (Dr. S.A. Harrison, LSU, crown rust of oat, leaf and stripe rust of wheat), and Texas (Dr. B. Gerrish, TAMU, leaf and stripe rust), although generally at low levels.

iii. The most recent update and report from Dr. Chen as of May 7, 2025, indicated continued observations of stripe rust in research plots albeit at low levels, while Dr. Chen noted this is about one month later versus 2024 (https://striperust.wsu.edu/2025/05/09/stripe-rust-update-may-7-2025/). Dr. Chen's fungicide recommendations remain the same as those from the April 18, 2025 update. However, he does indicate that current and forecast weather conditions are favourable for further stripe rust development, which could then pose a threat to Prairie wheat crops. Dr. Chen also notes in his May 7 report that stripe rust has appeared in the PNW, as well as Texas, Oklahoma and Kansas.

iv. The USDA-ARS Cereal Disease Laboratory post maps showing observations of stripe in the USA and the map as of April 25, 2025 is shown in Figure 1.

v. **As of May 14, 2025, WSU/USDA rust risk forecasts for the PNW and relatively limited observations of stripe rust symptoms suggest this region currently doesn't represent a significant source of stripe rust inoculum for Prairie wheat growers in 2025. However, Dr. Chen indicates prevailing and forecast weather for the PNW may favour further rust development in commercial PNW winter wheat fields. Stripe rust development in the PNW over the next several weeks could increase the risk for Prairie wheat producers**

vi. Currently there are no reports of stripe rust symptoms in Prairie winter or spring wheat crops.

b. **Texas/Oklahoma**

i. In the first USDA-ARS Cereal Disease Laboratory (CDL) report for 2025, Dr. Oluseyi Fajolu (CDL, St. Paul, Minnesota) reported that CDL survey activities in Texas indicated the development of stem rust in various research trials and monitoring plots in Uvalde and Medina counties, and based on the varieties, levels ranged from trace to significant (Dr. O. Fajolu, Cereal Rust Bulletin #1, April 25, 2025, https://www.ars.usda.gov/ARSUserFiles/50620500/CRBs/2025%20CRB%20April%2025.pdf). It was noted that winter wheat growth stage ranged from past anthesis to soft dough.

ii. In the same report Dr. Fajolu also indicated the appearance of leaf and stripe rust in Texas from late February to April depending on location. Leaf rust has been noted in Brazos, McLennan, Hidlago, and Duval,TX with trace to elevated levels, especially in April 2025. Stripe rust was noted in McLennan County in late February 2025, but at low levels.

iii. Dr. Fajolu also covers observations related to oat stem and crown rust. Both diseases were observed in Texas in early and late April in monitoring and disease screening plots, wind breaks (oat used in watermelon fields) as well as wild oats in ditches. Levels ranged from trace to significant depending on the variety/breeding line.

iv. Note these observations reported in the Cereal Rust Bulletin #1 are mainly based on surveillance activities by Drs. Y. Jin and M. Moscou (USDA-ARS Cereal Disease Laboratory (CDL) ([CEREAL-RUST-SURVEY] CDL Southern Texas and Louisiana survey trip, April 14, 2025, http://fmp.crl.umn.edu/fmi/webd/CRS-mail).

v. Previous observations of stripe rust and leaf rust in Texas in late February were reported by S. Liu, Texas A&M AgriLife Research (TAMU) based on observations at research sites by Dr. B. Gerrish (TAMU) and T. Mays (IPM-Hill County) at or near College Station, Waco, Castroville, McGregor, and Uvalde, TX ([CEREAL-RUST-SURVEY] FW: TAMU Variety Testing Rust Update, March 13, 2025, http://fmp.crl.umn.edu/fmi/webd/CRS-mail).

vi. An April 1, 2025 report by Dr. M. Aoun (OSU Wheat Pathology) indicated that no rust had been observed in Oklahoma as of early April 2025 (OSU Wheat Pathology); however, very low levels of stripe rust were reported in SW Oklahoma on April 21, 2025 (OSU Wheat Pathology). In early May,

Dr. M. Aoun, indicated that both leaf and stripe rust were at low levels based on observations from multiple areas of the state in late April 2025 (OSU Wheat Pathology).

vii. The USDA-ARS Cereal Disease Laboratory post maps showing observations of stripe and leaf rust in wheat and crown rust in oat in the USA and the maps as of April 25, 2025 are shown in Figures 2-4, respectively.

viii. **As of May 14, 2025, there is generally a low risk associated with the Texas/Oklahoma region being a significant source of stripe, leaf, stem and crown rust inoculum for dispersal into the Prairie region of Canada.** However, further rust development may increase this risk although winter wheat crops are mostly headed and into the grain filling stages (https://quickstats.nass.usda.gov/results/4522C4A4-0332-3E6C-8059-63DD4F9915F2). Note that as crops mature over the next 2-4 weeks they will no longer represent an important source of uredospores which only develop on green living non-senesced plant tissues.

c. **Kansas/Nebraska**

i. Drs. Eric De Wolf and K. Andersen Onofro, KSU stated in their wheat rust update report that in addition to previous reports from Texas and Oklahoma, stripe rust was found in SW Kansas (Ford County) on one leaf from the mid-canopy in a field planted to a moderately susceptible winter wheat variety ([CEREAL-RUST-SURVEY] Wheat Rust Update -- Kansas (http://fmp.crl.umn.edu/fmi/webd/CRS-mail). Current surveillance efforts in Kansas indicate that stripe rust is absent from commercial fields as of April 28, 2025 and based on this and the late appearance of low levels observed in Texas and Oklahoma, the risk of stripe rust in Kansas is low. There were no observations of stem rust in Kansas as of late April, while trace levels of leaf rust were noted in the state.

ii. In an disease update on May 1, 2025, Dr. K. Andersen Onofre (KSU) reported stripe rust at lower levels in Labette and Ford Counties and the risk was generally low for the state, even though conducive weather has occurred (https://eupdate.agronomy.ksu.edu/article/wheat-disease-update-fusarium-head-blight-and-leaf-spot-risk-elevated-in-kansas-639-12). However, the latest update as of May 8, 2025 indicates that three more stripe observations were made, and Dr. K. Andersen Onofre recommended to Kansas farmers that scouting for further signs of this disease will be important (https://eupdate.agronomy.ksu.edu/article/wheat-disease-update-stripe-rust-and-head-blight-risks-640-9).

iii. As of April 30, 2025, there have been no reports of stripe rust in Colorado (Dr. R. Roberts, Colorado State University (CSU), https://coloradowheat.org/colorado-wheat-disease-newsletter-april-30-2025/).

iv. County-based observations of stripe rust in Kansas and Oklahoma winter wheat fields as of May 14, 2025 are shown in Figure 5 (https://wheat.agpestmonitor.org/stripe-rust/). Note only some states appear to be using this reporting tool.

v. There was a recent report of stripe rust in Ontario and this may be related to overwintering of the pathogen on winter wheat (Figure 1, https://www.realagriculture.com/2025/05/growers-must-be-vigilant-as-stripe-rust-confirmed-in-ontario/?utm_source=twitter&utm_campaign=May%2014%2C%202025&utm_medium=soci). This early development could act as a source of stripe rust for further regional development and as a consequence scouting, especially in fields planted to susceptible varieties may be needed along with potential fungicide application.

vi. **As of May 14, 2025, there is generally a low risk associated with the Kansas/Nebraska region being a significant source of stripe and leaf rust inoculum for dispersal into the Prairie region of Canada.** However, if cooler, wetter weather occurs over the next 7-21 days the risk of stripe rust inoculum coming from these USA regions could increase.

2. Reverse trajectories (RT)

a. Since May 1, 2025 the majority of reverse trajectories that have crossed the prairies have originated from the Pacific Northwest (Idaho, Oregon and Washington) (Figures 6-11).

b. **Pacific Northwest (Washington, Oregon, Idaho)** – Since April 1, 2025, the greatest number of reverse trajectories, crossing the Prairies, have originated from the Pacific Northwest (n=402, Figure 6). Most of these trajectories passed over Alberta and Saskatchewan (Figure 7). For the week of May 6-12, 2025 there have been 117 reverse trajectories that passed through the prairie region over 32 locations (Table 1). BEISEKER, CALGARY, LETHBRIDGE, MEDICINE HAT, PROVOST, and VULCAN, AB; and GRENFELL and KINDERSLEY, SK each had a total of five trajectories during this period (Table 1). During the same period ANDREW, EDMONTON, LACOMBE, OLDS, SEDGEWICK, and VEGREVILLE, AB; MOOSE JAW, NORTH BATTLEFORD, REGINA, SASKATOON, SWIFT CURRENT, UNITY, and WEYBURN, SK; and RUSSELL, MB, each having at total of four trajectories (Table 1). GAINSBOROUGH AND YORKTON, SK, AND BRANDON, MB, each had three trajectories from May 6-12, 2025 (Table 1), while the remaining seven locations in Table 1 had 1-2 trajectories.

   i. **As of May 12, 2025, there is moderate risk associated with the PNW region being a significant source of wind trajectories for dispersal of the stripe rust pathogen into the Prairie region of Canada.**

c. **Oklahoma and Texas** – Since April 1, 2025 37 reverse trajectories, originating over Oklahoma and Texas were reported to cross the prairies (primarily crossed Manitoba and eastern Saskatchewan) (Figure 8). Most of these trajectories passed over Manitoba and central to eastern Saskatchewan (Figure 9). This past week (May 6-12) a total of 24 trajectories were predicted to pass over 20 locations (Table 2). Only BRANDON, MB had three or more trajectories during this period, while the remaining 19 locations had 1-2 trajectories (Table 2).

   i. **As of May 12, 2025, there is a low risk associated with the TX/OK region being a significant source of wind trajectories for dispersal of rust pathogens into the Prairie region of Canada.**

d. **Nebraska and Kansas** – A total of 138 reverse trajectories, originating from Kansas and Nebraska have crossed the prairies, primarily Manitoba and Saskatchewan (April 1 – May 12, 2025) (Figure 10). Most of these trajectories passed over Manitoba and central to eastern Saskatchewan (Figure 11). Last week (May 6-12) a total of 37 reverse trajectories passed through the Prairies (Table 3). GAINSBOROUGH, SK and BRANDON, MB each had four trajectories during this period, while CARMAN, DAUPHIN, PORTAGE, and SELKIRK, MB each had three trajectories, while the remaining 13 locations had 1-2 trajectories (Table 3).

   i. **As of May 12, 2025, there is a low risk associated with the KS/NE region being a significant source of wind trajectories for dispersal of the stripe rust pathogen into the Prairie region of Canada.**

3. Prairie Crop Development, Weather Conditions, and Overwintering of Rust

a. Winter wheat – Winter wheat has been resuming growth across the prairie region in April and early to mid May with most being in early stages of development, e.g. tillering (https://www.gov.mb.ca/agriculture/crops/seasonal-reports/crop-report/pubs/crop-report-2025-05-13.pdf).

b. Spring wheat – Across the prairie region spring wheat has either been planted or will be over the next few weeks with percentages of crops seeded ranging from around 9% up to 90% depending on the province and region (https://open.alberta.ca/dataset/2e0c96ee-50bf-4891-8f16-224233f372ce/resource/1bff24ac-8532-445f-9433-d90539015651/download/agi-tedab-alberta-crop-report-2025-05-06.pdf; https://publications.saskatchewan.ca/api/v1/products/126049/formats/147744/download; https://www.gov.mb.ca/agriculture/crops/seasonal-reports/crop-report/pubs/crop-report-2025-05-13.pdf).

c. This past week (May 4-11, 2025) the average temperature across the Prairies ranged from around 5 to 17 °C (Figure 12) and was generally warmer than normal for most of the Prairie region (Figure 13).

d. Growing season temperatures (April 1-May 11, 2025) have been slightly above average for large areas of the Prairies although the Grande Prairie region of Alberta, and areas in eastern Saskatchewan and western Manitoba have been closer to normal temperatures (Figure 14).

e. Accumulated rainfall over the past week (May 4-11, 2025) was variable with large areas of the Prairies receiving limited rainfall, although areas north and west of Edmonton, the south Peace River region, southcentral Saskatchewan and around Brandon, MB receiving a bit more (Figure 15). Overall most of the Prairie region received 5 to <40% of normal rainfall (Figure 16).
f. Growing season rainfall from April 1 to May 11, 2025 has been below normal across much of the Prairie region, with some isolated areas having more rainfall (Figure 17).
g. Currently, there are no reports of early season stripe rust development in winter wheat, which would suggest potential overwintering, especially of stripe rust (personal communication: S. Rehman, R. Aboukhaddour, AAFC Lethbridge; and H.R. Kutcher, U. of S.).

4. Overall Rust Risk Assessment and Need For In-Crop Scouting

a. **Pacific Northwest** – There were moderate numbers of reverse wind trajectories that passed over the PNW region and into the prairies, while stripe rust development started later and is generally limited versus 2024, although further development may occur over the next several weeks. Prairie winter wheat crops have resumed growth, while much of the spring wheat crop has just been seeded or will be seeded over the next two weeks. **Overall as of May 12, 2025 the risk of stripe rust appearance from the PNW is limited and scouting for this disease in the Prairie region is generally not urgent** (Figure 18).
b. **Texas-Oklahoma corridor** – There were relatively low numbers of reverse wind trajectories that passed over the TX/OK region and into the prairies, while development of stripe and leaf rust of wheat and crown rust of oat are continuing, although levels are generally low. Prairie winter wheat crops have resumed growth, while much of the spring wheat crop has just been seeded or will be seeded over the next two weeks. **Overall as of May 12, 2025 the risk of stem, leaf, stripe, and crown rust appearance from the Texas-Oklahoma corridor is limited and scouting for these diseases in the Prairie region is not urgent** (Figure 19).
c. **Kansas-Nebraska corridor** – There were relatively low numbers of reverse wind trajectories that passed over the KS/NE region and into the prairies, with limited reports of cereal rust currently. Prairie winter wheat crops have resumed growth, while much of the spring wheat crop has just been seeded or will be seeded over the next two weeks. **Overall as of May 12, 2025 the risk of stem, leaf, stripe, and crown rust appearance from the Kansas-Nebraska corridor is limited and scouting for these diseases in the Prairies is not urgent** (Figure 20).
d. Where farmers or consultants noticed stripe rust development on winter wheat in the fall of 2024, it is recommended to scout winter wheat fields that have resumed growth in spring 2025. Scouting is especially critical where the variety being grown is susceptible/moderately susceptible to stripe rust. Currently, there are no early spring reports of stripe rust on winter wheat.

5. Contacts for rust research and extension expertise

a. **Research**

i. Reem Aboukhaddour, AAFC Lethbridge, AB, reem.aboukhaddour@agr.gc.ca. Stripe rust;
ii. H.R. Kutcher, University of Saskatchewan, Saskatoon, SK, randy.kutcher@usask.ca. Stripe rust;
iii. B. McCallum, AAFC Morden, MB, brent.mccallum@agr.gc.ca. Leaf, stem, and stripe rust;
iv. Xiben Wang, AAFC Brandon/Morden, MB, xiben.wang@agr.gc.ca. Stem and crown rust of oat.
v. S. Rehman, Western Crop Innovations (formerly Olds College/Alberta Agriculture), Field Crop Development Centre, Lacombe, AB, srehman@westerncropinnovations.com. Stripe and leaf rust;
vi. G. Brar, University of Alberta, gurcharn.brar@ualberta.ca. Stripe rust.

b. **Extension**

i. Alberta Ministry of Agriculture and Irrigation, Mike Harding, michael.harding@gov.ab.ca;
ii. Saskatchewan Ministry of Agriculture, Alireza Akhavan, alireza.akhavan@gov.sk.ca;
iii. Manitoba Ministry of Agriculture, TBA.

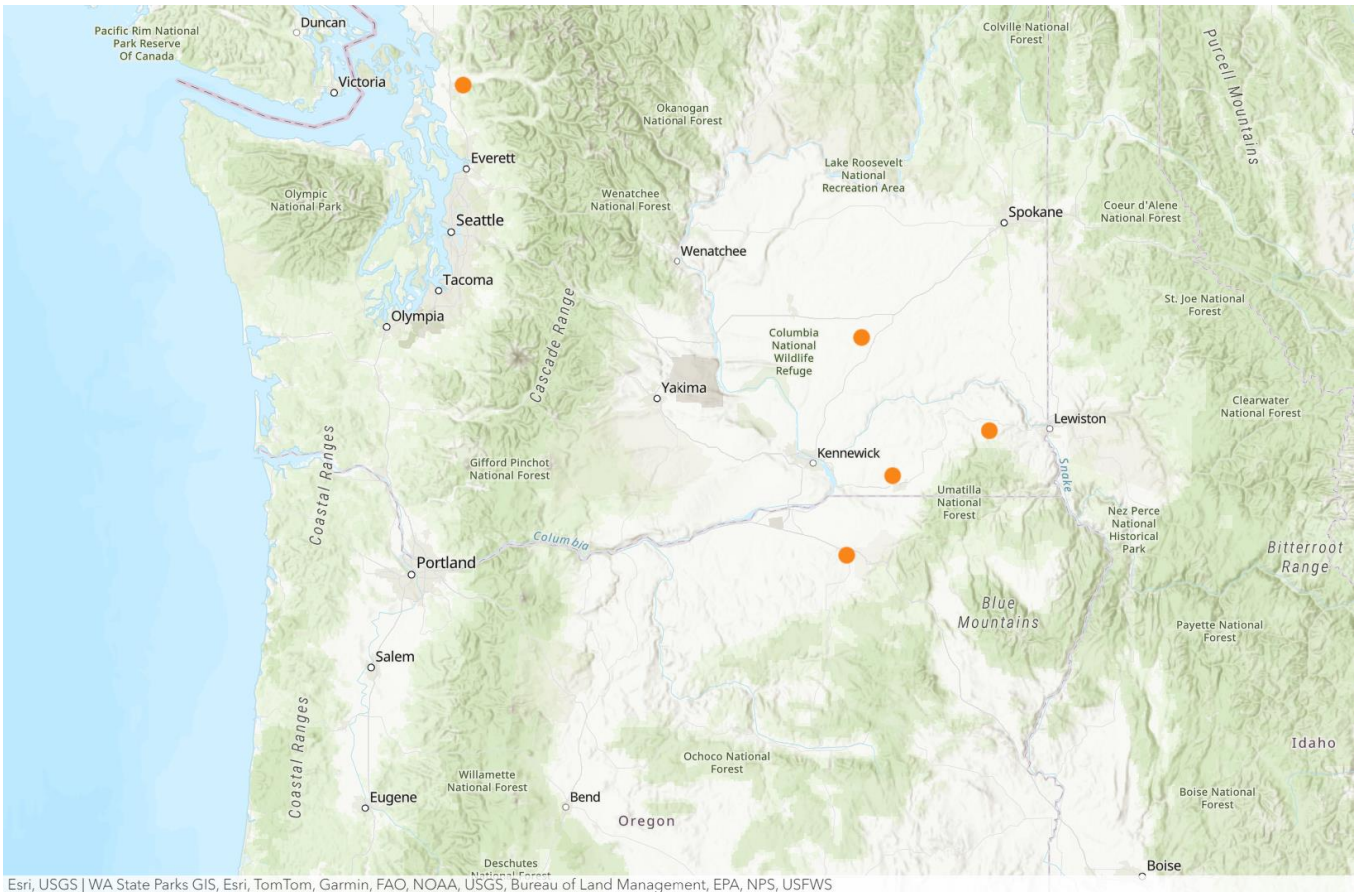

Figure 1. Pacific Northwest stripe rust observations in wheat, USDA-ARS, Cereal Disease Laboratory, Cereal Rust Bulletin #1, April 15, 2025, https://usdaars.maps.arcgis.com/apps/mapviewer/index.html?webmap=7eabb3bc66c045568a406569b731ac6d (note the map is updated as new reports are received)**.**

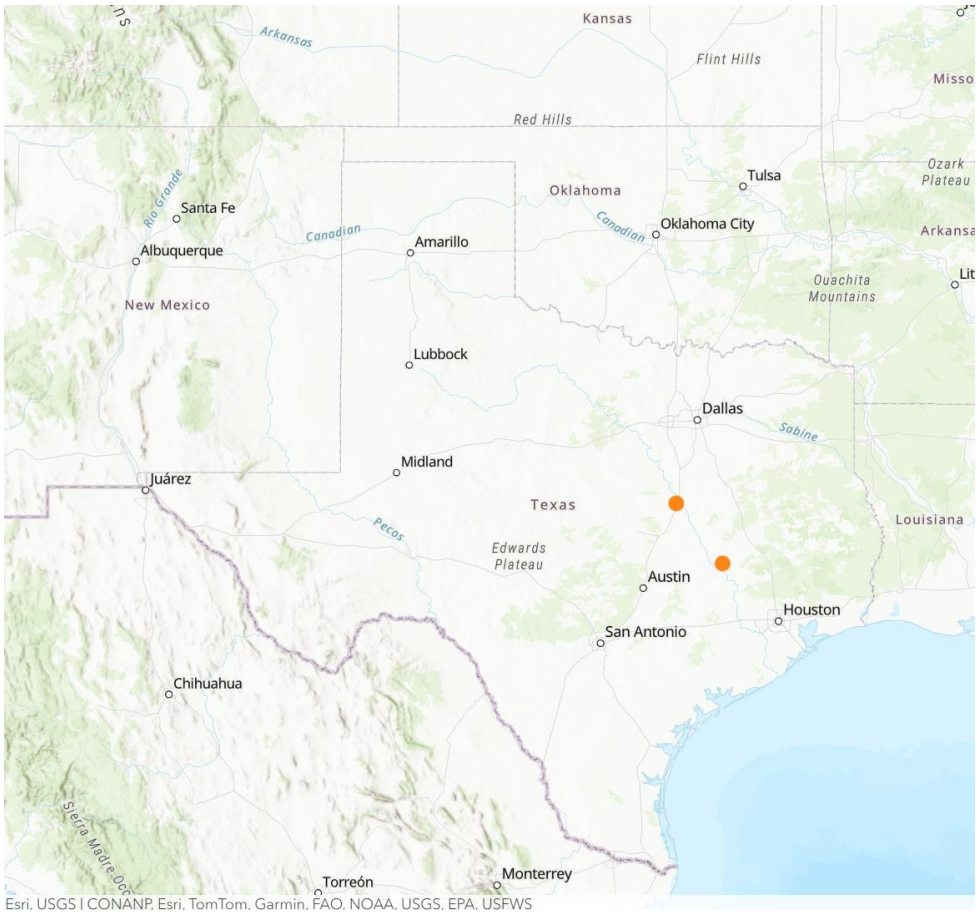

Figure 2. Texas stripe rust observations in wheat, USDA-ARS, Cereal Disease Laboratory, Cereal Rust Bulletin #1, April 15, 2025, https://usdaars.maps.arcgis.com/apps/mapviewer/index.html?webmap=7eabb3bc66c045568a406569b731ac6d (note the map is updated as new reports are received)**.**

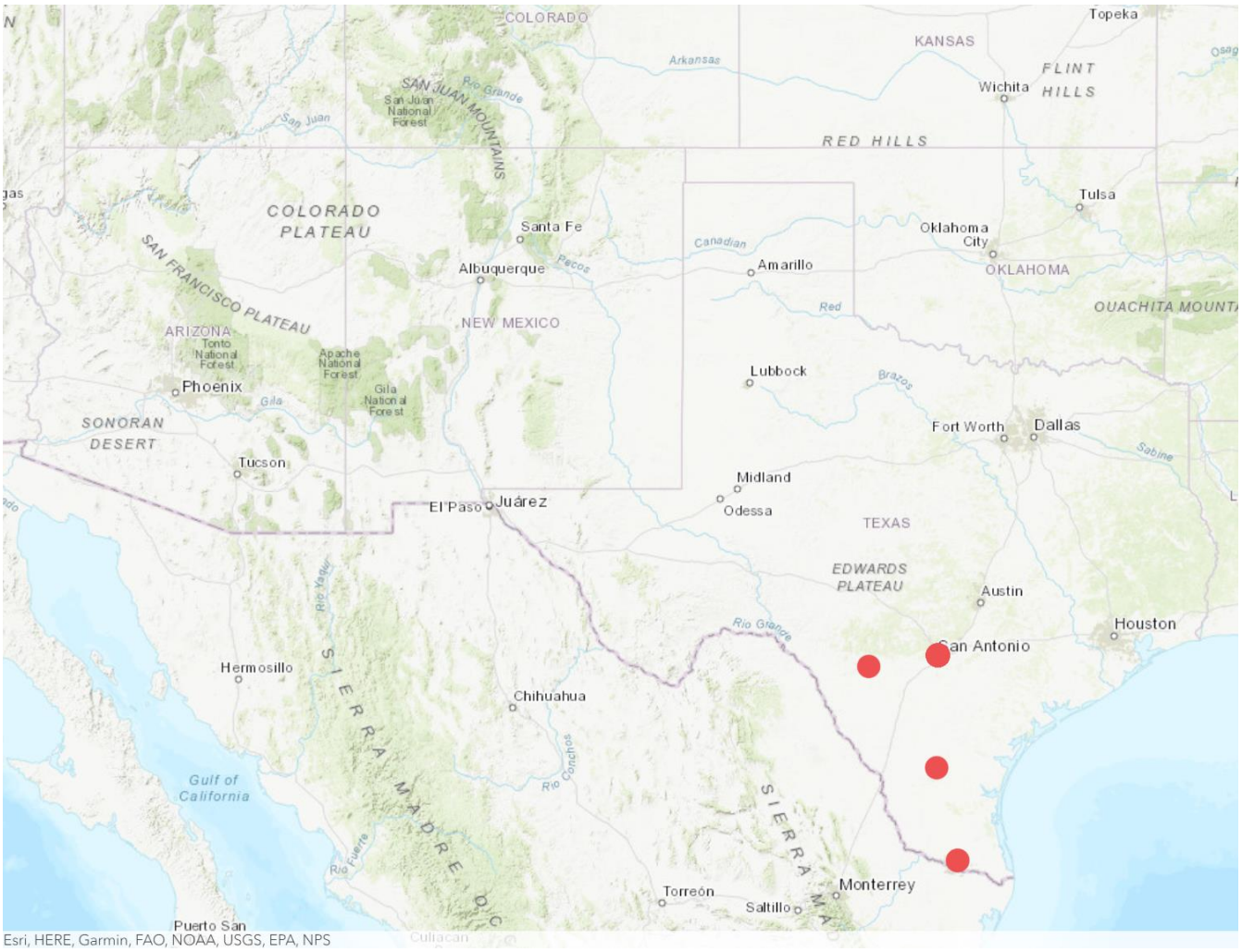

Figure 3. Texas leaf rust observations in wheat, USDA-ARS, Cereal Disease Laboratory, Cereal Rust Bulletin #1, April 15, 2025, https://usdaars.maps.arcgis.com/apps/mapviewer/index.html?webmap=5dedcdc1a86443a09189c2b6e5598c54 (note the map is updated as new reports are received)**.**

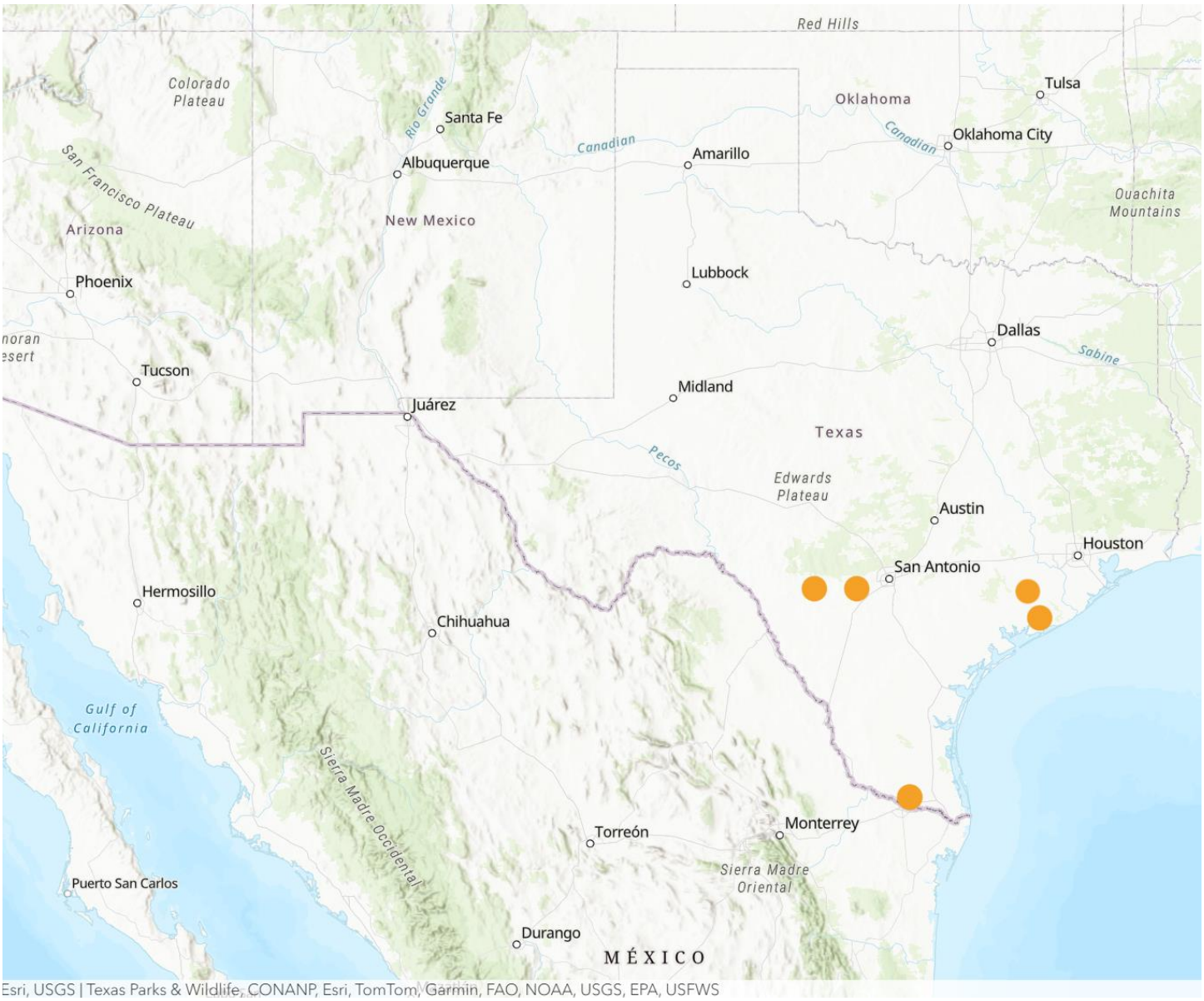

Figure 4. Texas oat crown rust observations, USDA-ARS, Cereal Disease Laboratory, Cereal Rust Bulletin #1, April 15, 2025, https://usdaars.maps.arcgis.com/apps/mapviewer/index.html?webmap=a5bae196706b48fa83a8d5e1b344f802 (note the map is updated as new reports are received)**.**

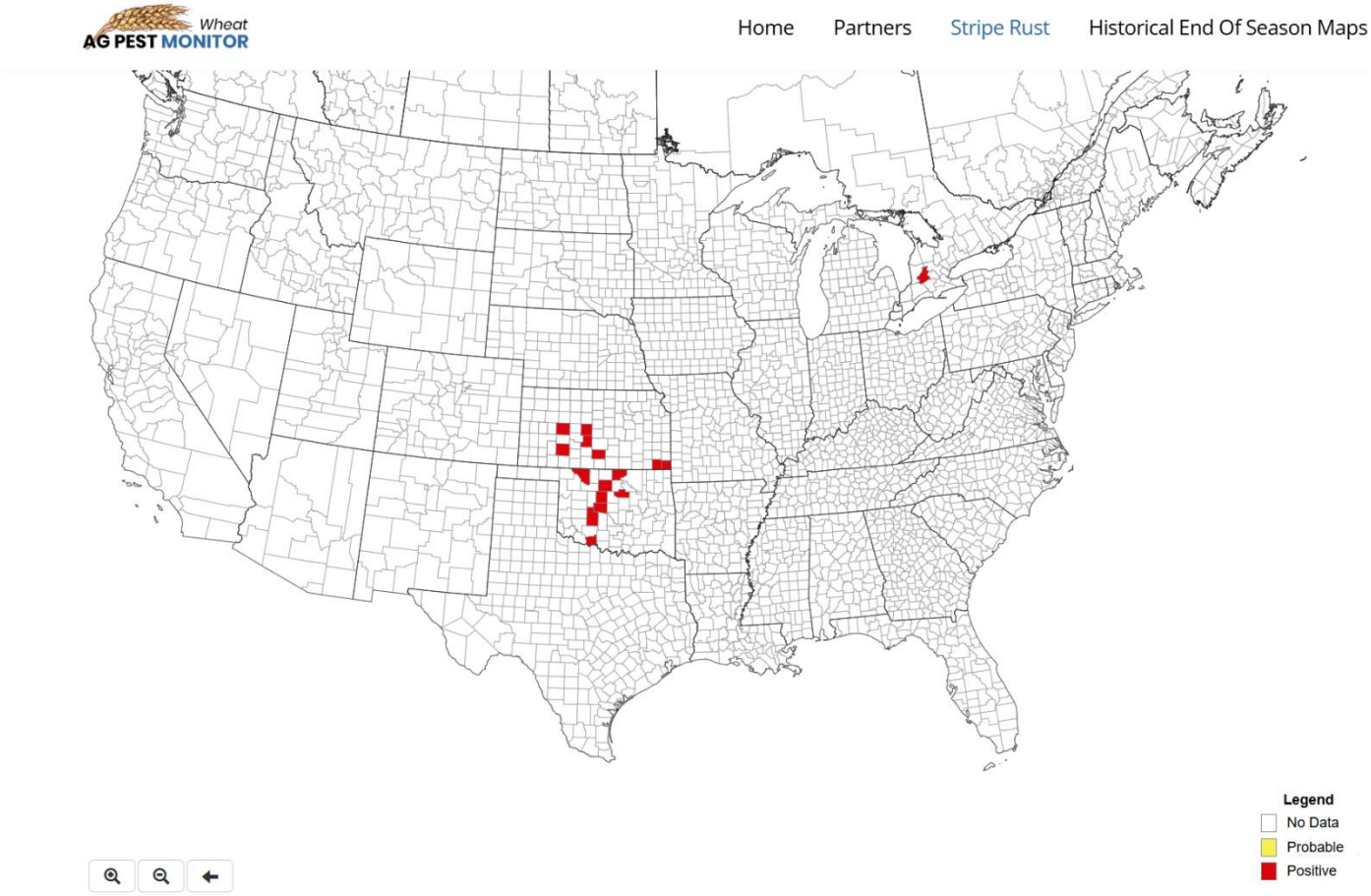

Figure 5. USA stripe rust observations, May 14, 2025, courtesy of AG PEST MONITOR: Wheat, https://wheat.agpestmonitor.org/stripe-rust/.

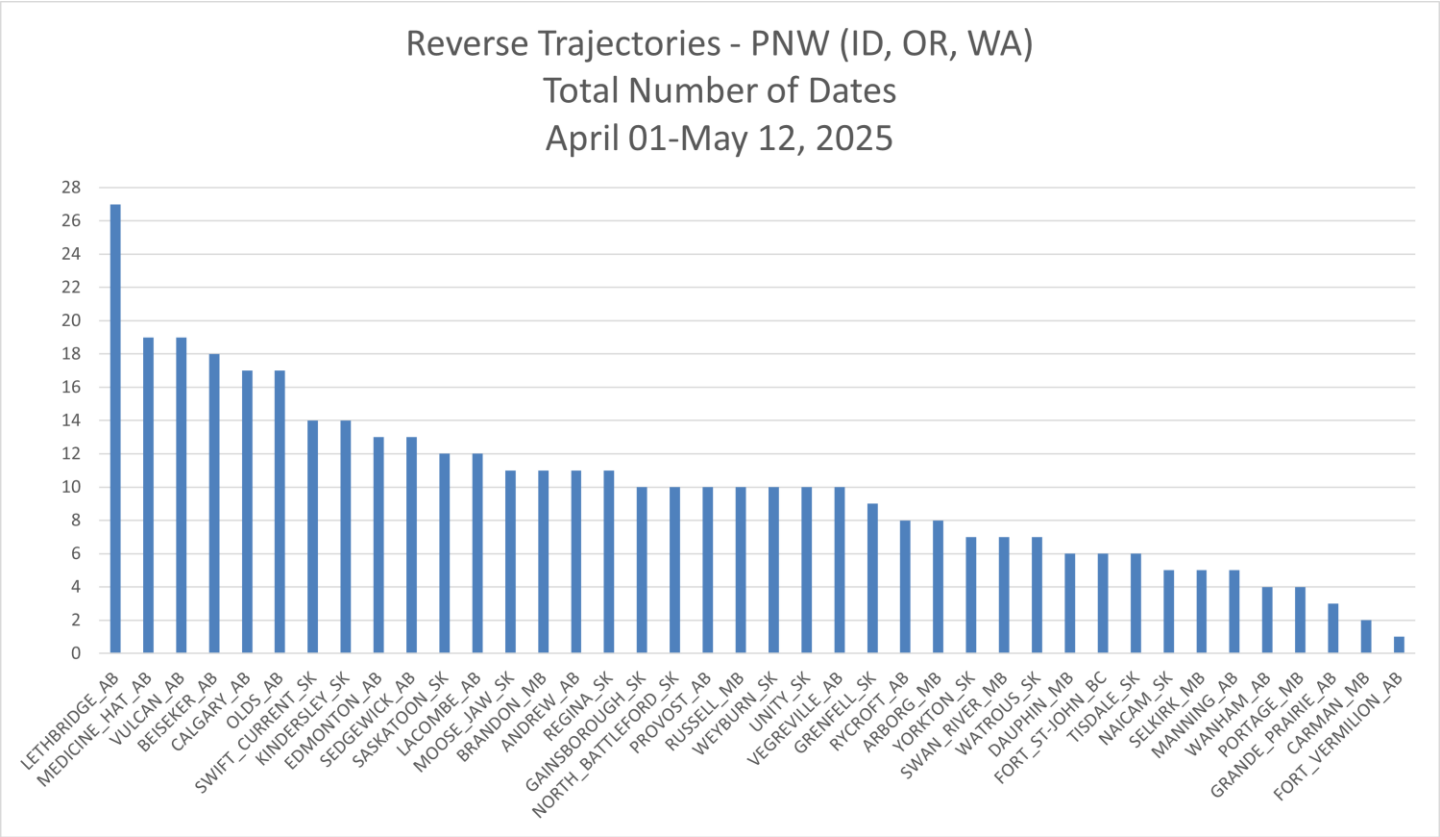

Figure 6. Reverse trajectory locations and number of events, for reverse trajectory events originating from the Pacific Northwest region of the USA, April 1 – May 12, 2025.

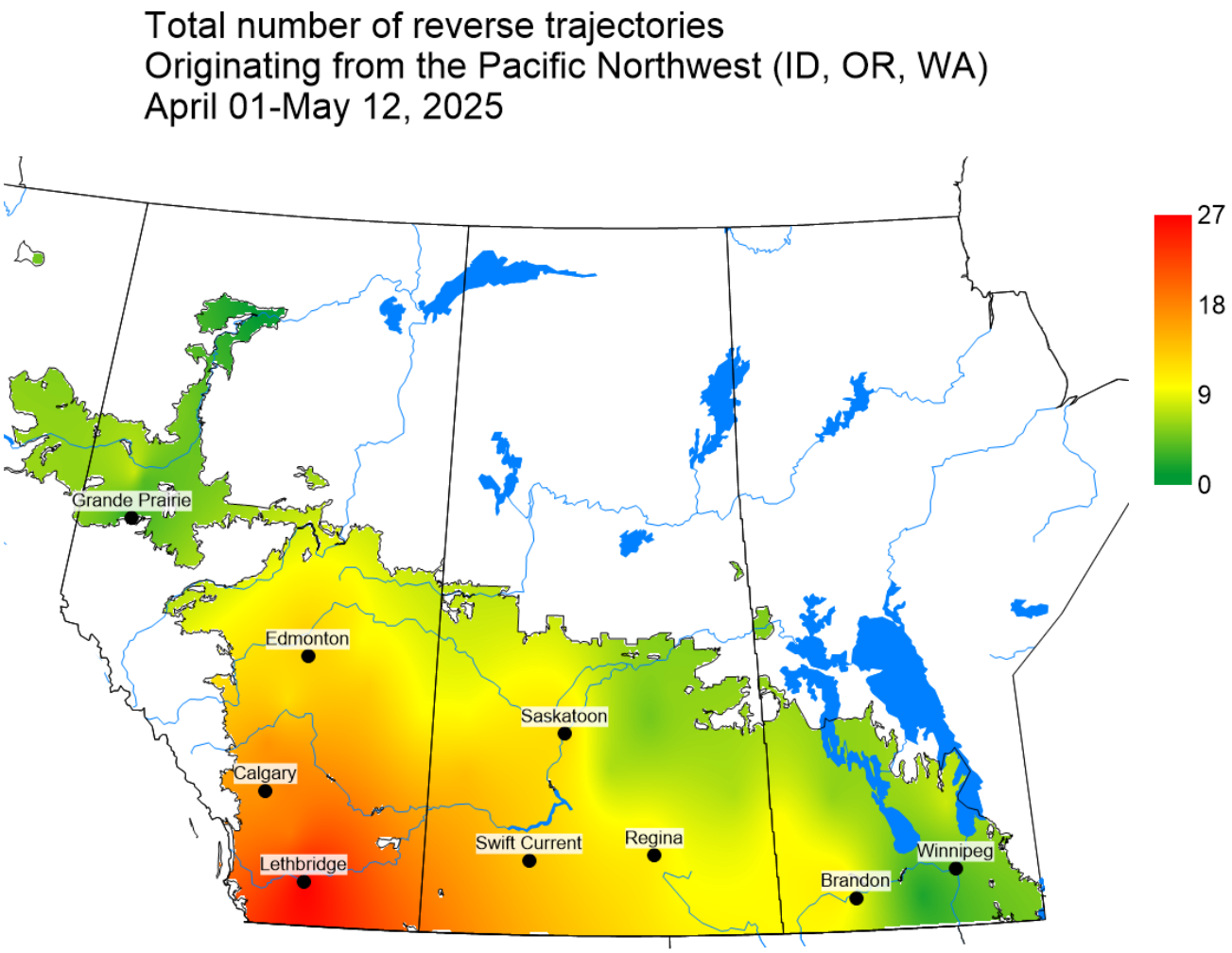

Figure 7. Total number of dates with reverse trajectories originating from the Pacific Northwest region of the USA that have crossed the prairies between April 1 – May 12, 2025.

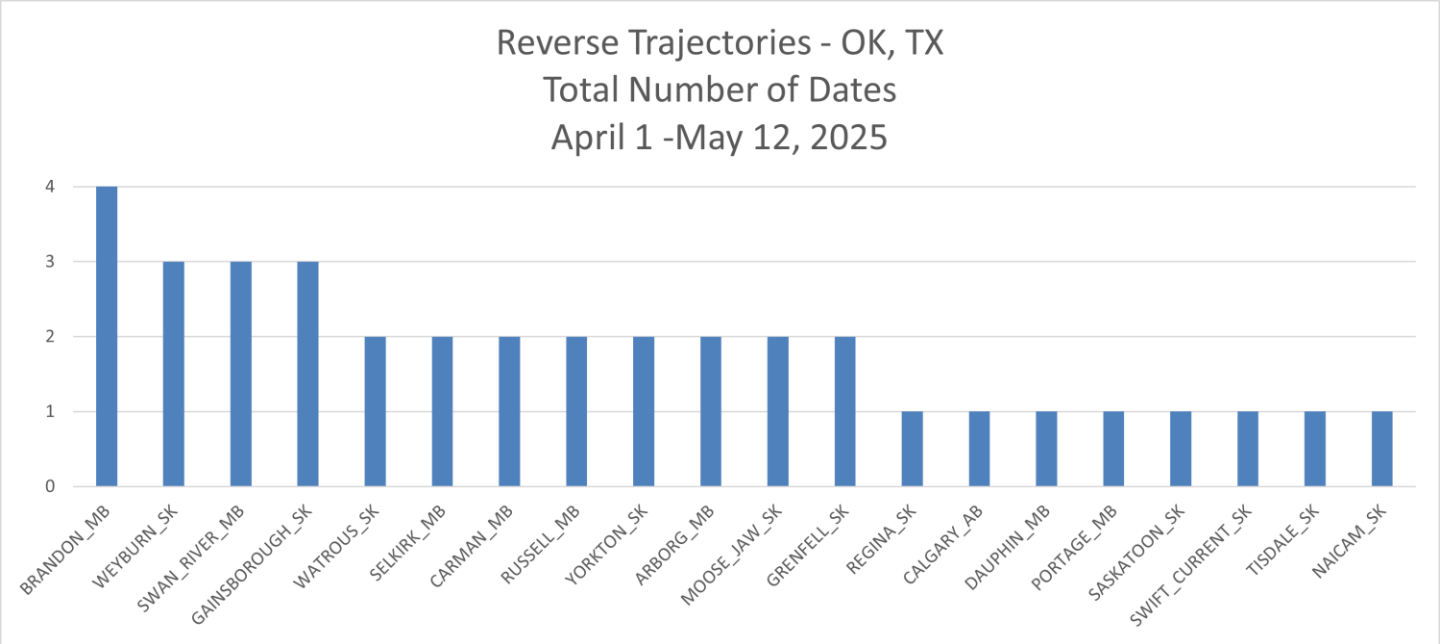

Figure 8. Reverse trajectory locations and number of events, for reverse trajectory events originating from Oklahoma and Texas, USA, April 1 – May 12, 2025.

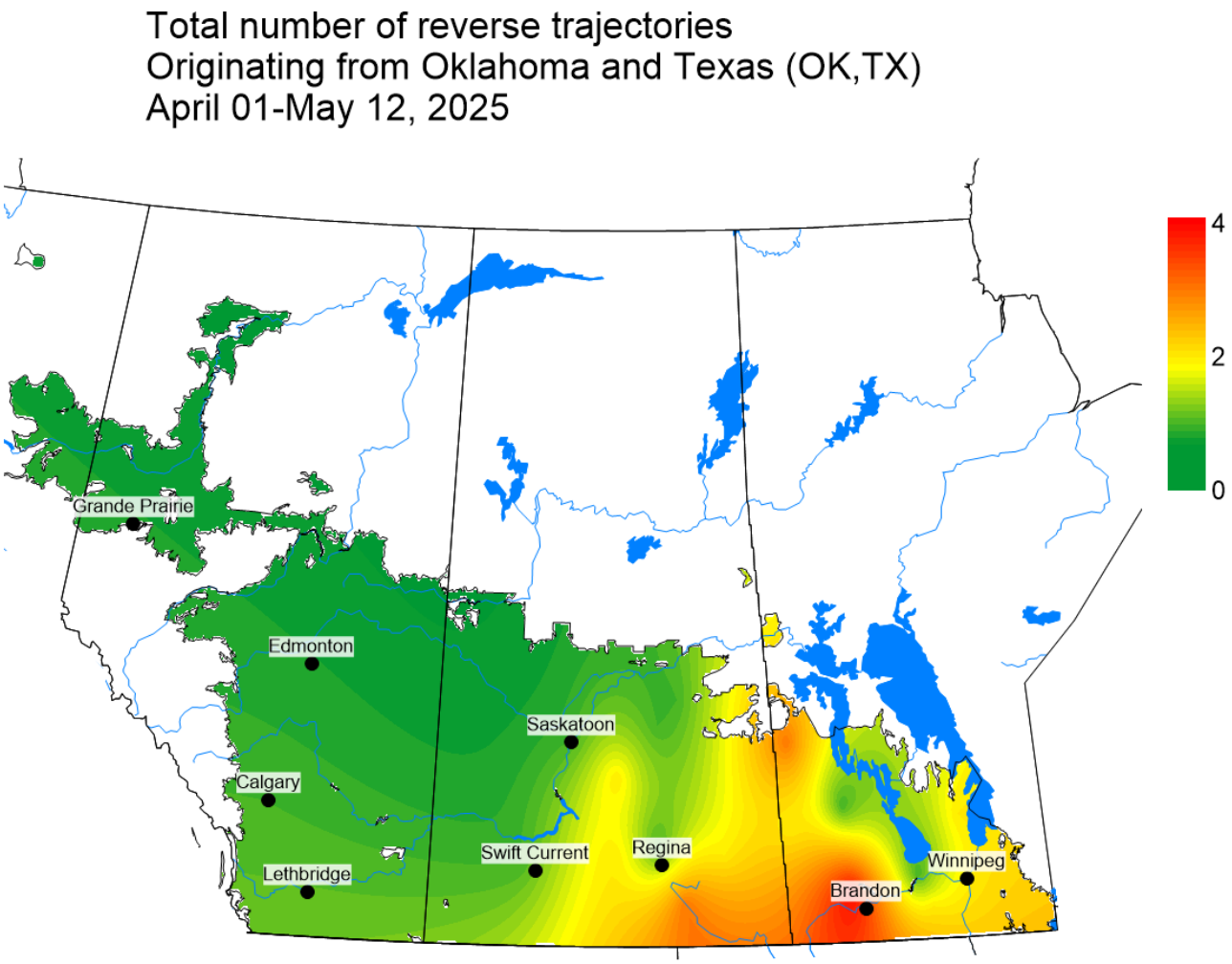

Figure 9. Total number of dates with reverse trajectories originating from Texas and Oklahoma, USA that have crossed the prairies between April 1 – May 12, 2025.

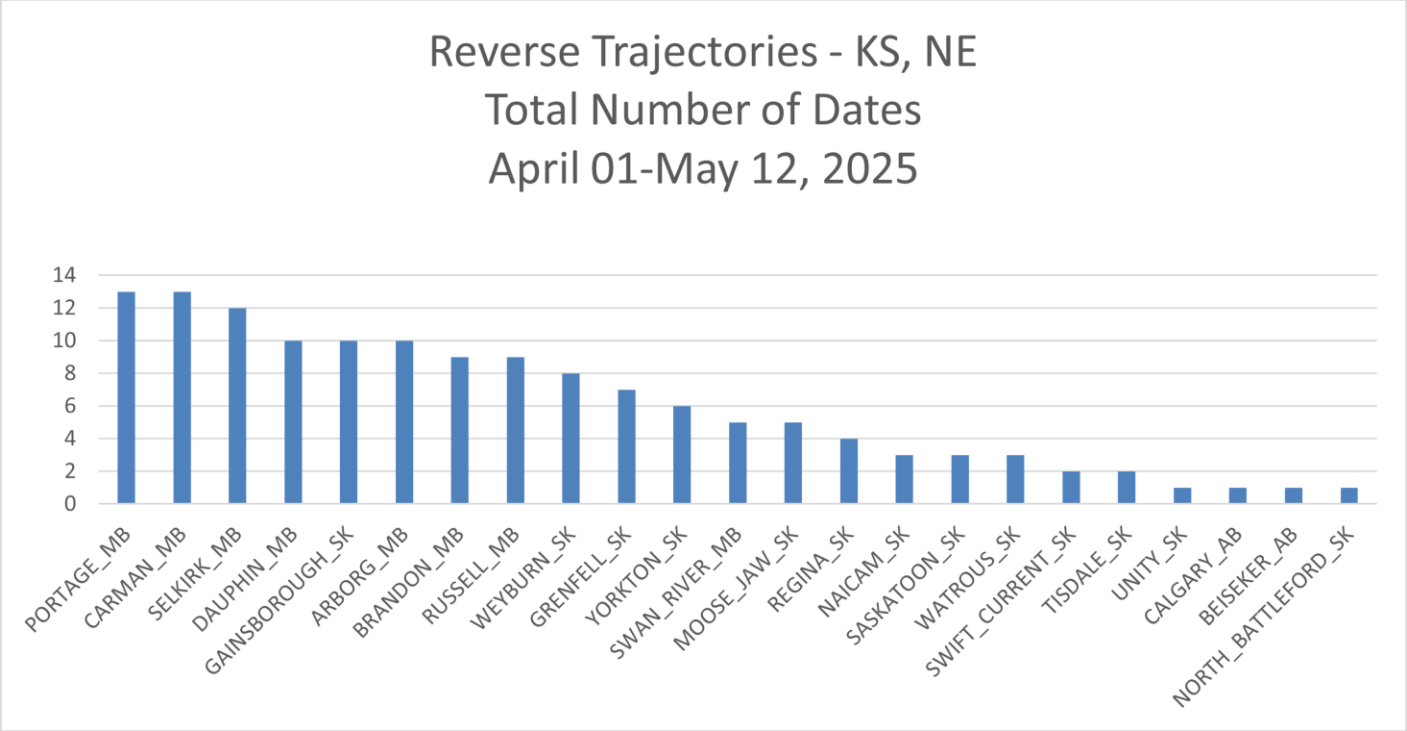

Figure 10. Reverse trajectory locations and number of events, for reverse trajectory events originating from Kansas and Nebraska, USA, April 1 – May 12, 2025.

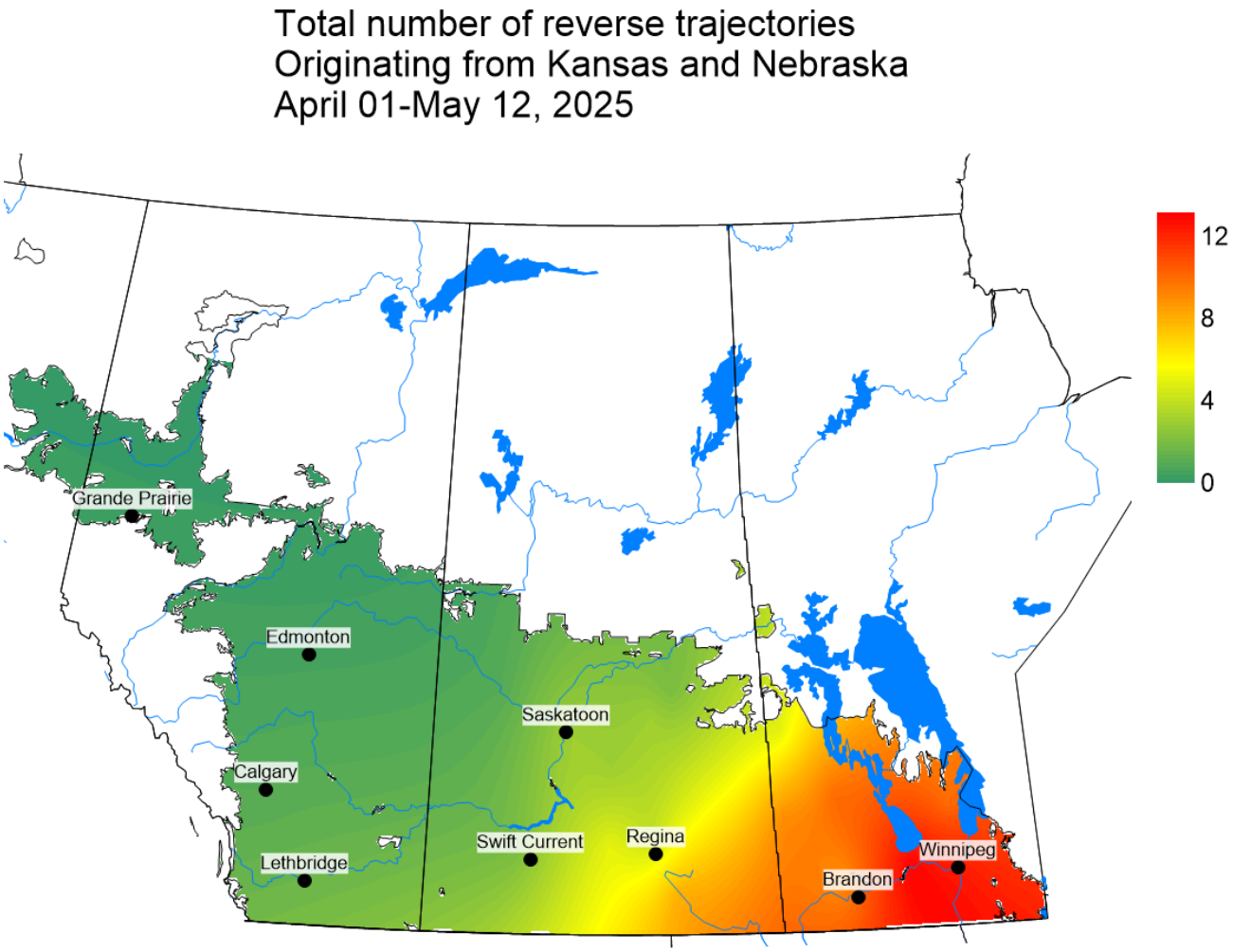

Figure 11. Total number of dates with reverse trajectories originating from Kansas and Nebraska, USA that have crossed the prairies between April 1 – May 12, 2025.

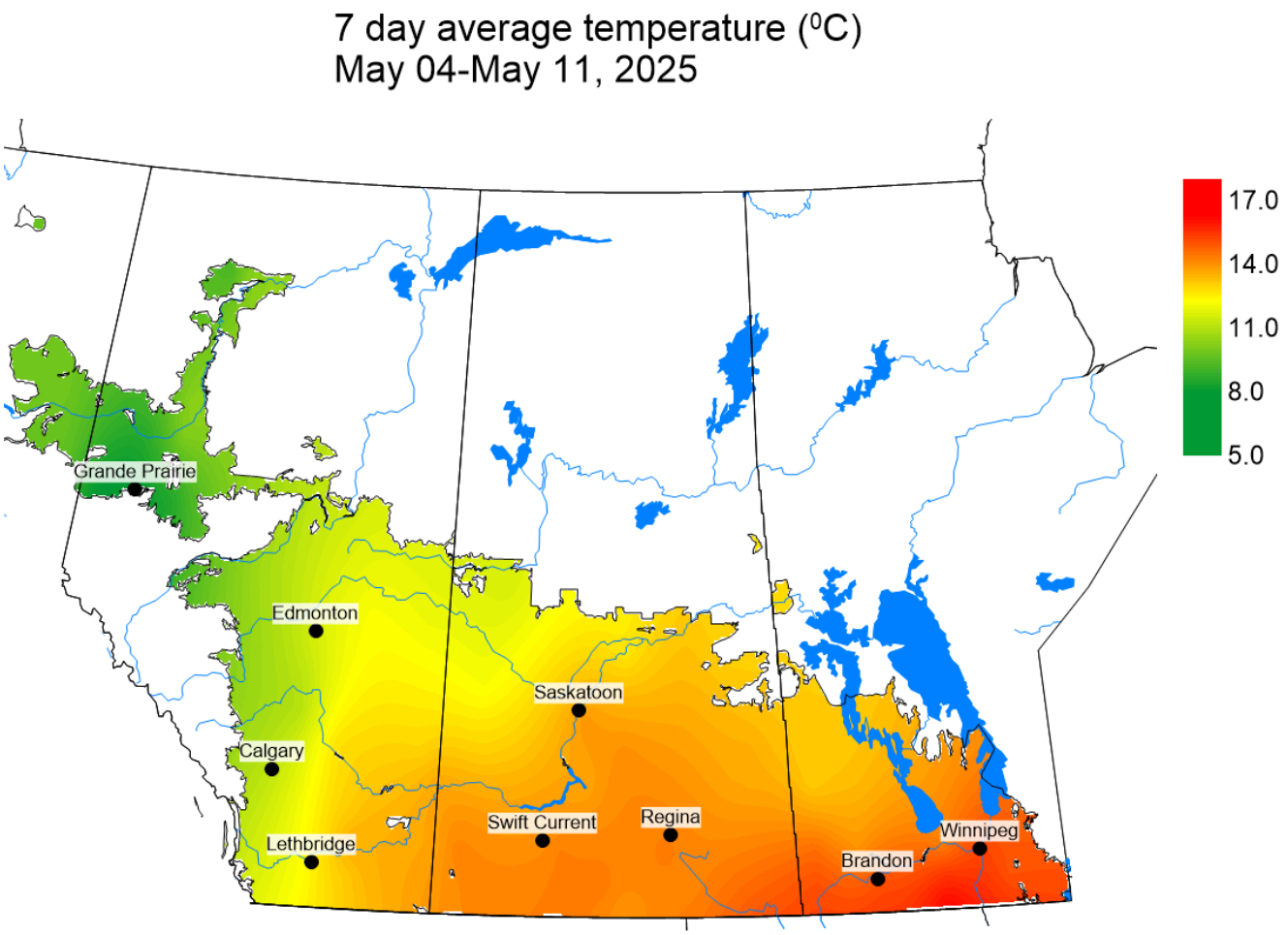

Figure 12. Seven day average temperature (°C), Prairie region May 4-11, 2025.

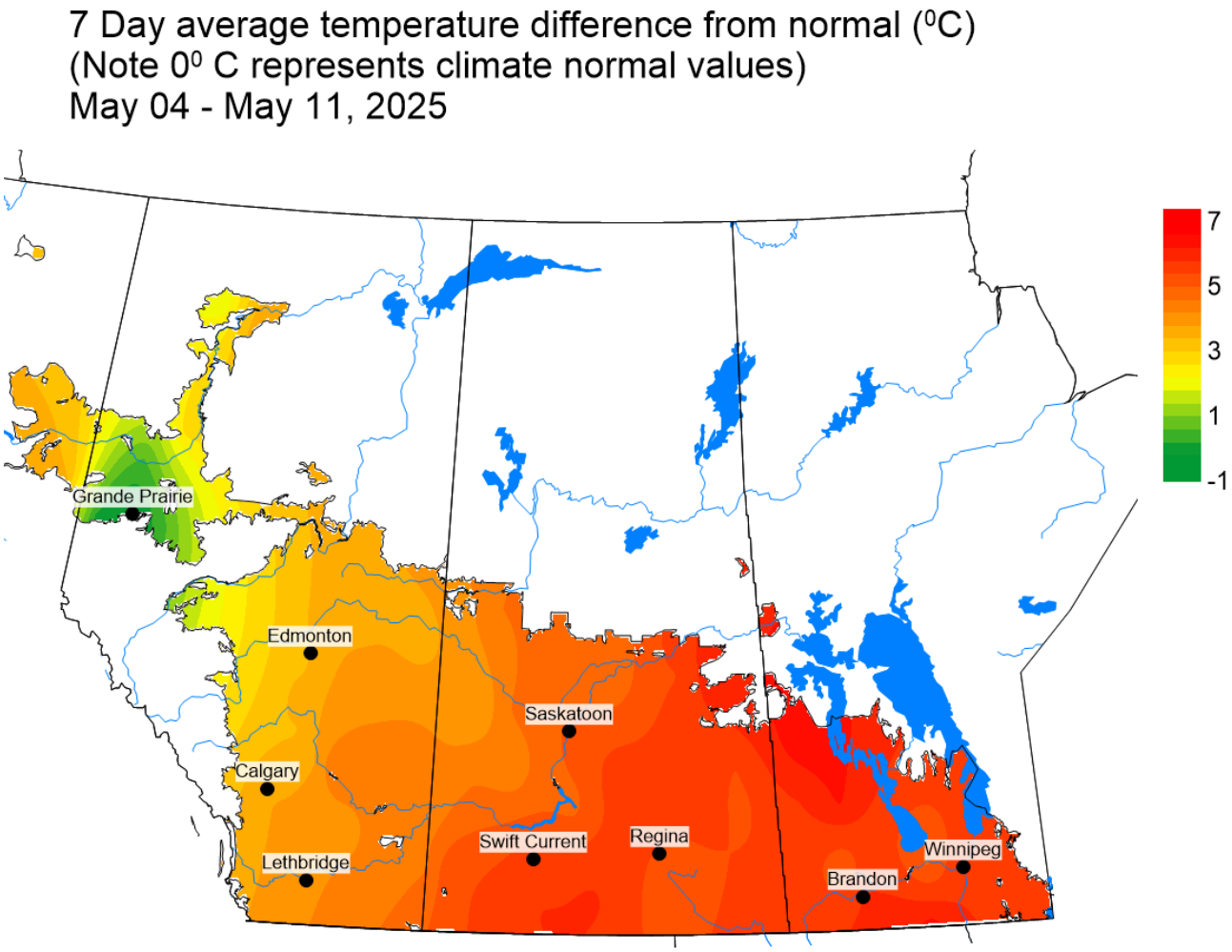

Figure 13. Seven day average temperature (°C) difference from normal, Prairie region May 4-11, 2025.

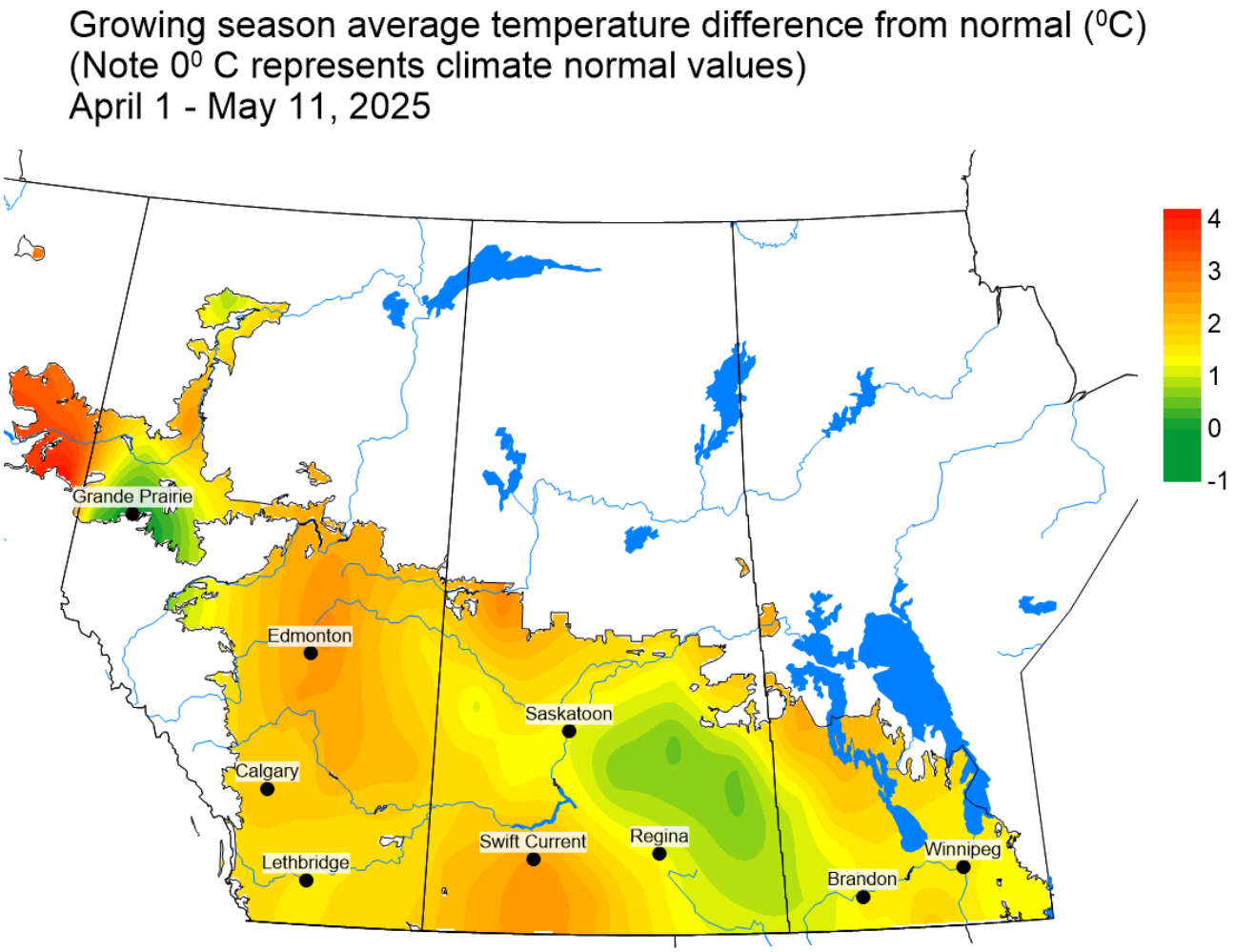

Figure 14. Growing season average temperature (°C) difference from normal, Prairie region April 1 - May 11, 2025.

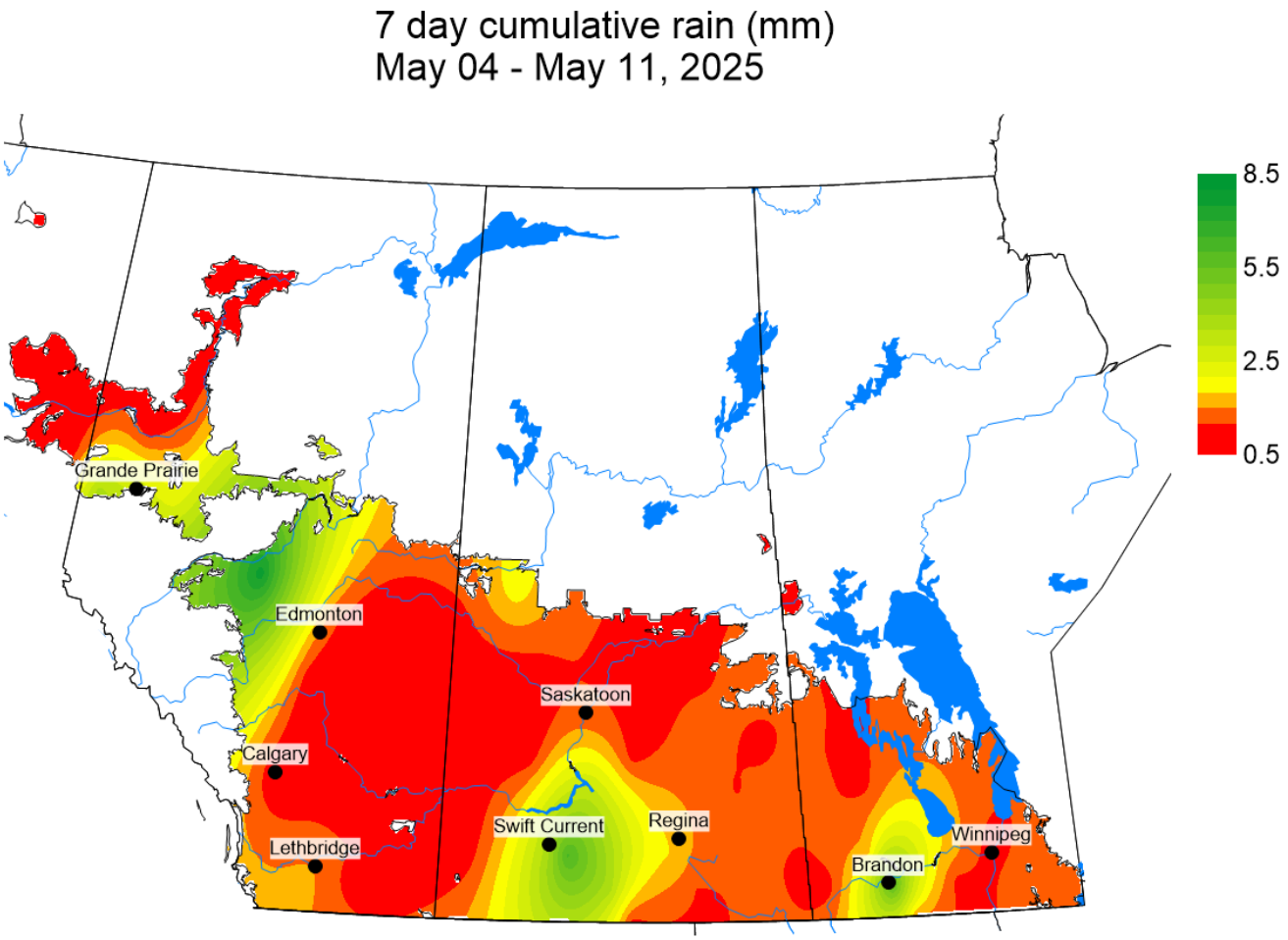

Figure 15. Seven day accumulated rainfall (mm), Prairie region May 4-11, 2025.

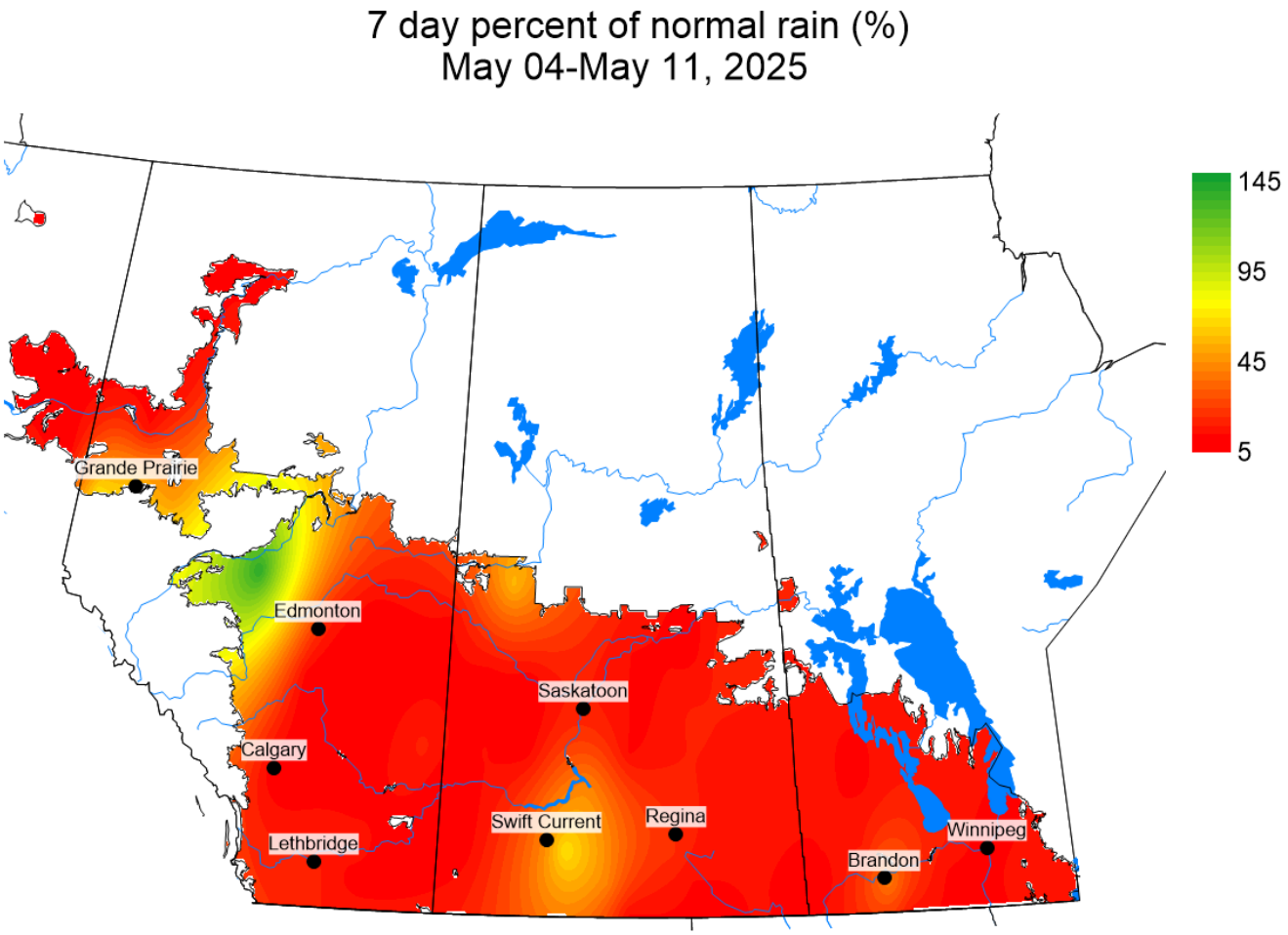

Figure 16. Seven day accumulated rainfall (mm) percent of normal, Prairie region May 4-11, 2025.

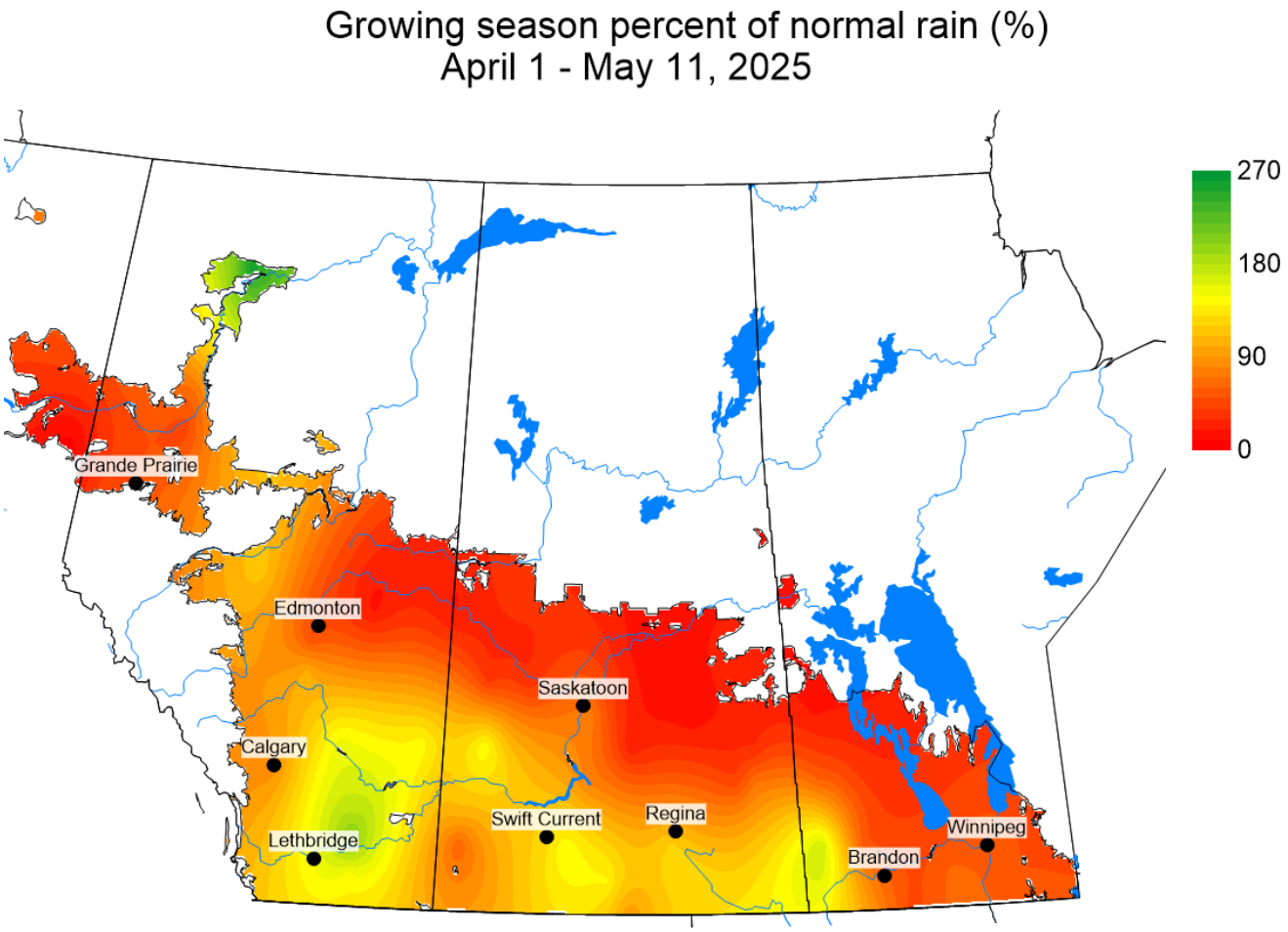

Figure 17. Growing season accumulated rainfall (mm) percent of normal, Prairie region April 1 - May 11, 2025.

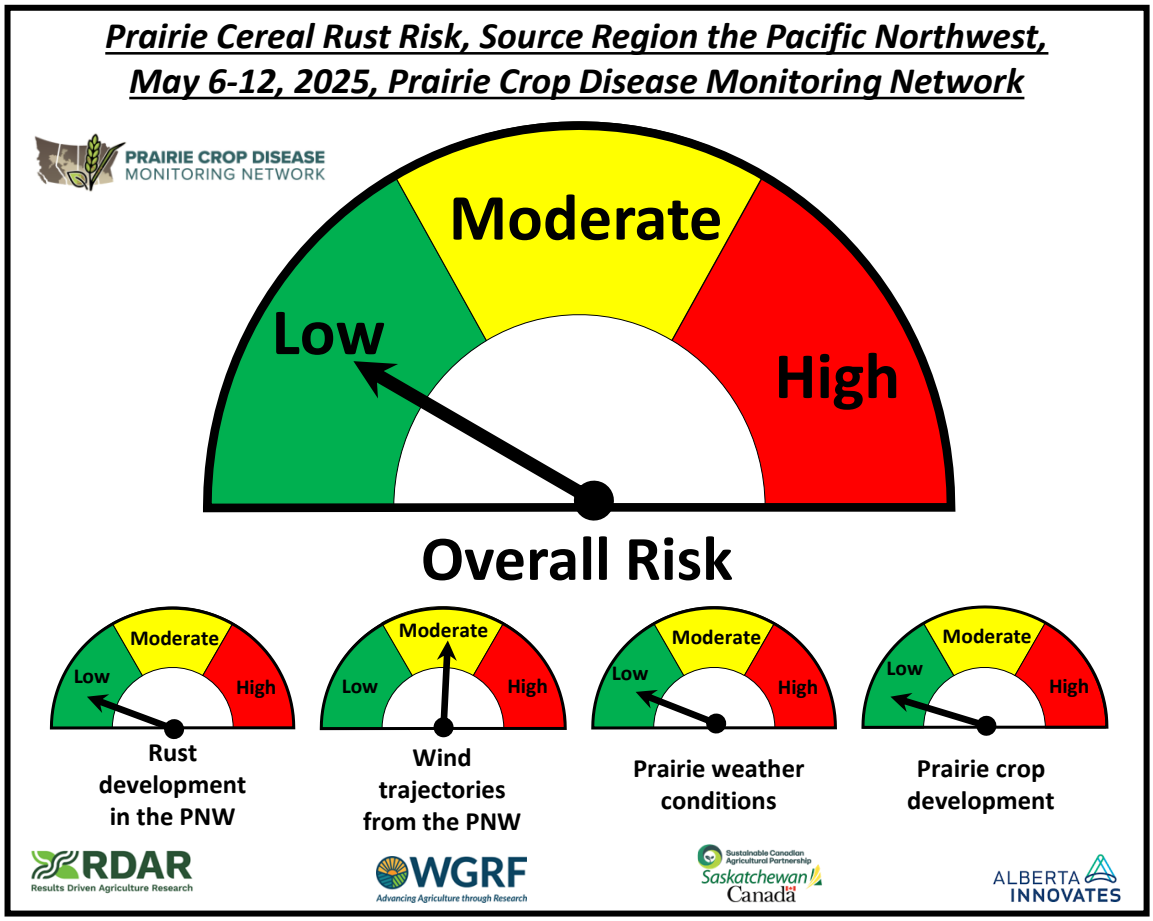

Figure 18. Prairie cereal risk speedometers for stripe rust from the Pacific Northwest, May 6-12, 2025.

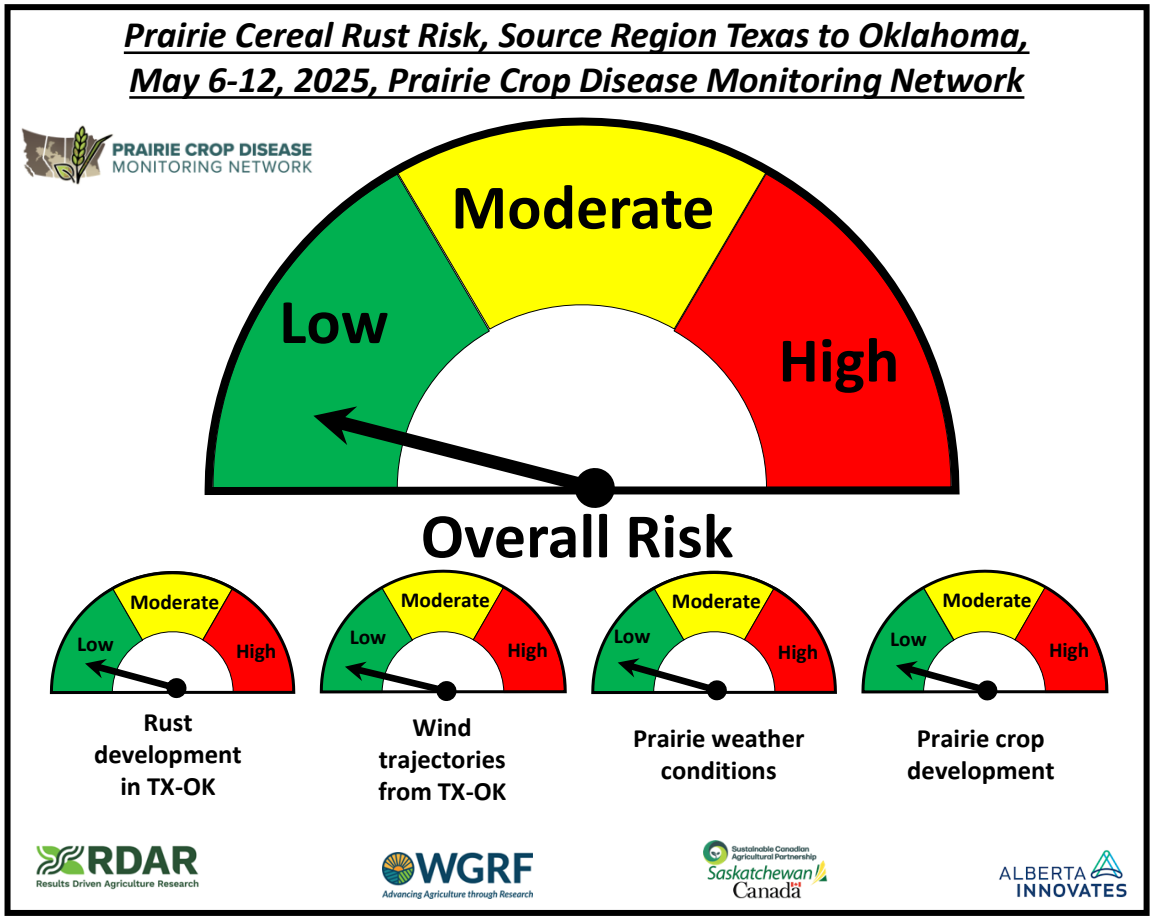

Figure. 19. Prairie cereal risk speedometers for stripe/leaf rust from the Texas to Oklahoma region, May 6-12, 2025.

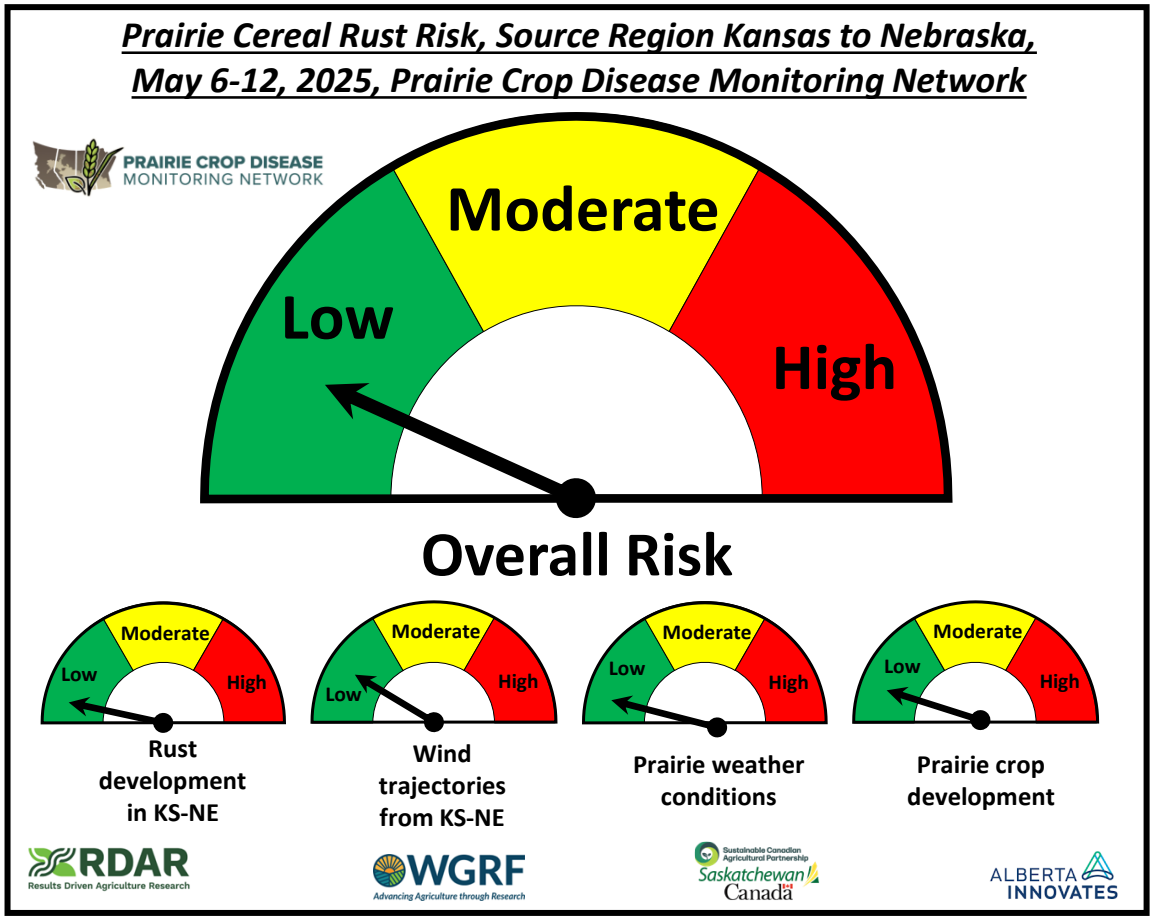

Figure. 20. Prairie cereal risk speedometers for stripe/leaf rust from the Kansas/Nebraska region, May 6-12, 2025.

Table 1. Reverse trajectory locations, arrival dates, and number of events, for reverse trajectory events originating from the Pacific Northwest region of the USA, May 06-May 12, 2025.

Location	Province	6-May-25	7-May-25	8-May-25	9-May-25	10-May-25	11-May-25	12-May-25	Total trajectories/ location
BEISEKER	AB	0	0	1	1	1	1	1	5
CALGARY	AB	0	0	1	1	1	1	1	5
GRENFELL	SK	1	0	1	1	1	1	0	5
KINDERSLEY	SK	0	0	1	1	1	1	1	5
LETHBRIDGE	AB	0	0	1	1	1	1	1	5
MEDICINE HAT	AB	0	0	1	1	1	1	1	5
PROVOST	AB	0	0	1	1	1	1	1	5
VULCAN	AB	0	0	1	1	1	1	1	5
ANDREW	AB	0	0	1	0	1	1	1	4
EDMONTON	AB	0	0	1	0	1	1	1	4
LACOMBE	AB	0	0	1	0	1	1	1	4
MOOSE JAW	SK	0	0	0	1	1	1	1	4
NORTH BATTLEFORD	SK	0	0	0	1	1	1	1	4
OLDS	AB	0	0	1	0	1	1	1	4
REGINA	SK	0	0	0	1	1	1	1	4
RUSSELL	MB	1	0	0	1	1	1	0	4
SASKATOON	SK	0	0	0	1	1	1	1	4
SEDGEWICK	AB	0	0	1	0	1	1	1	4
SWIFT CURRENT	SK	0	0	0	1	1	1	1	4
UNITY	SK	0	0	1	0	1	1	1	4
VEGREVILLE	AB	0	0	1	0	1	1	1	4
WEYBURN	SK	1	0	0	1	1	1	0	4
BRANDON	MB	0	0	0	0	1	1	1	3
GAINSBOROUGH	SK	0	0	0	1	1	1	0	3
YORKTON	SK	0	0	0	1	1	1	0	3
DAUPHIN	MB	0	0	0	1	0	0	1	2
NAICAM	SK	0	0	0	1	0	0	1	2
SWAN RIVER	MB	0	0	0	1	0	0	1	2
TISDALE	SK	0	0	0	1	0	0	1	2
WATROUS	SK	0	0	0	1	0	0	1	2
ARBORG	MB	1	0	0	0	0	0	0	1
SELKIRK	MB	0	0	0	1	0	0	0	1
Total trajectories per date		**4**	**0**	**15**	**23**	**25**	**25**	**25**	**117**

Table 2. Reverse trajectory locations, arrival dates, and number of events, for reverse trajectory events originating from Oklahoma and Texas, USA, May 06-May 12, 2025.

Location	Province	6-May-25	7-May-25	8-May-25	9-May-25	10-May-25	11-May-25	12-May-25	Total trajectories/ location
BRANDON	MB	1	0	1	1	0	0	0	**3**
ARBORG	MB	1	0	0	1	0	0	0	**2**
WEYBURN	SK	0	0	1	1	0	0	0	**2**
CARMAN	MB	1	0	0	0	0	0	0	**1**
DAUPHIN	MB	0	0	1	0	0	0	0	**1**
GAINSBOROUGH	SK	0	0	1	0	0	0	0	**1**
GRENFELL	SK	0	0	1	0	0	0	0	**1**
MOOSE JAW	SK	0	0	0	1	0	0	0	**1**
NAICAM	SK	0	0	1	0	0	0	0	**1**
PORTAGE	MB	1	0	0	0	0	0	0	**1**
REGINA	SK	0	0	1	0	0	0	0	**1**
RUSSELL	MB	0	0	1	0	0	0	0	**1**
SASKATOON	SK	0	0	1	0	0	0	0	**1**
SELKIRK	MB	0	0	0	1	0	0	0	**1**
SWAN RIVER	MB	0	0	1	0	0	0	0	**1**
SWIFT CURRENT	SK	0	0	1	0	0	0	0	**1**
TISDALE	SK	0	0	1	0	0	0	0	**1**
WATROUS	SK	0	0	1	0	0	0	0	**1**
YORKTON	SK	0	0	1	0	0	0	0	**1**
CALGARY	AB	0	0	1	0	0	0	0	**1**
Total trajectories per date		**4**	**0**	**15**	**5**	**0**	**0**	**0**	**24**

Table 3. Reverse trajectory locations, arrival dates, and number of events, for reverse trajectory events originating from Kansas and Nebraska, USA, May 06-May 12, 2025.

Location	Province	6-May-25	7-May-25	8-May-25	9-May-25	10-May-25	11-May-25	12-May-25	Total trajectories/ location
BRANDON	MB	1	0	1	1	0	0	1	**4**
GAINSBOROUGH	SK	1	0	1	1	0	0	1	**4**
CARMAN	MB	1	0	0	1	0	0	1	**3**
DAUPHIN	MB	1	0	1	1	0	0	0	**3**
PORTAGE	MB	1	0	0	1	0	0	1	**3**
SELKIRK	MB	1	0	0	1	0	0	1	**3**
ARBORG	MB	1	0	0	1	0	0	0	**2**
MOOSE JAW	SK	0	0	1	1	0	0	0	**2**
RUSSELL	MB	0	0	1	0	0	0	1	**2**
WEYBURN	SK	0	0	1	1	0	0	0	**2**
CALGARY	AB	0	0	1	0	0	0	0	**1**
GRENFELL	SK	0	0	1	0	0	0	0	**1**
NAICAM	SK	0	0	1	0	0	0	0	**1**
REGINA	SK	0	0	1	0	0	0	0	**1**
SASKATOON	SK	0	0	1	0	0	0	0	**1**
SWAN RIVER	MB	0	0	1	0	0	0	0	**1**
SWIFT CURRENT	SK	0	0	1	0	0	0	0	**1**
WATROUS	SK	0	0	1	0	0	0	0	**1**
YORKTON	SK	0	0	0	0	0	0	1	**1**
Total trajectories per date		**7**	**0**	**14**	**9**	**0**	**0**	**7**	**37**