NDSU EXTENSION | UNIVERSITY OF MINNESOTA EXTENSION

SPUDSCOOP

17 July 2020

Welcome to this week's Spud Scoop. The Potato crop is progressing well with some challenges from the weather. Hot temperatures are initiating heat sprouts to form, producing rapid development of Colorado Potato Beetles and encouraging thunderstorms. Excessive rainfall in the Red River Valley is likely causing iron deficiency chlorosis (IDC) of some potato varieties. This is similar to the IDC often observed in soybean. With soils drying down I have observed plants growing out the IDC with new green leaves forming. As I write this a large thunderstorm is blanketing eastern ND and we may see yellow leaves again.

Figure 1. Suspected IDC of potato plant.

Figure 2. Heat sprouts forming from tubers.

Blightline

By Andy Robinson and Gary Secor

Welcome to the NDSU Potato Blightline for July 17, 2020. Late blight has not been reported in ND, MN or MB. Weather stations along the Highway 10 corridor in MN are now able to provide late blight and early blight model information for the season. This is also available on the NDAWN Blight app. Late blight severity values continue to accumulate due to the recent rain, and many areas are near or over the threshold value of 15 that indicates that conditions are favorable for late blight and infection can occur if inoculum is present. Severity values in extreme NW MN are well above the late blight threshold value and should be scouted more frequently, especially in areas that remain wet for longer periods, such as along shelterbelts and in low areas. We recommend growers to scout fields for late blight, apply a protectant fungicide just prior to row closure and send suspect late blight samples or photos to us for positive identification.

Early blight has been observed in Benton county, MN. Conditions for early blight have exceeded the threshold value in all potato growing areas. Fungicides for early blight management should continue to be applied. The disease first develops on mature and senescing foliage, and early maturing cultivars are the most susceptible. Potato is the primary host, but the disease also can be severe on tomatoes, and occur on other solanaceous plants such as hairy nightshade. Early blight has developed widespread resistance in our area to QoI, SDHI and AP fungicide modes of action. We recommend that fungicides be tank mixed with alternated chemistries of different modes of action. Find more information at https://www.ag.ndsu.edu/publications/crops/early-blight-in-potato/pp1892.pdf.

Figure 3. Early blight on potato.

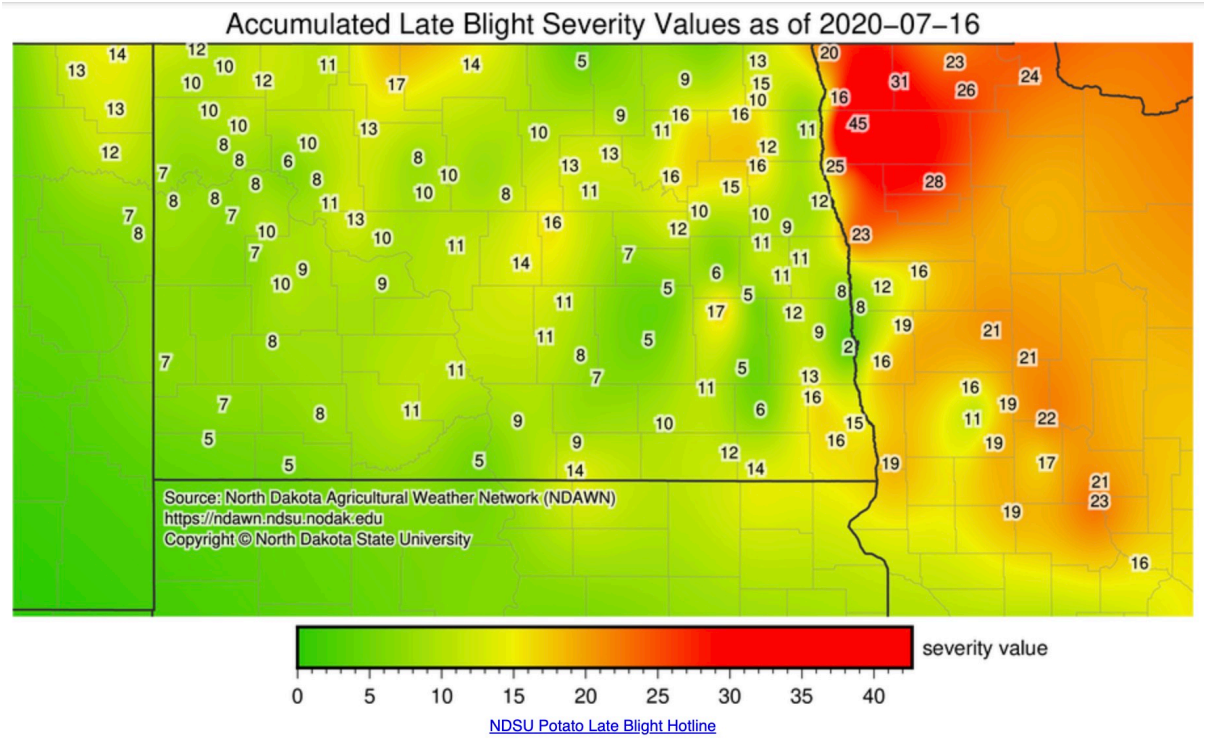


Figure 4. Late blight severity values with emergence date of May 26 and row closure date of June 26.

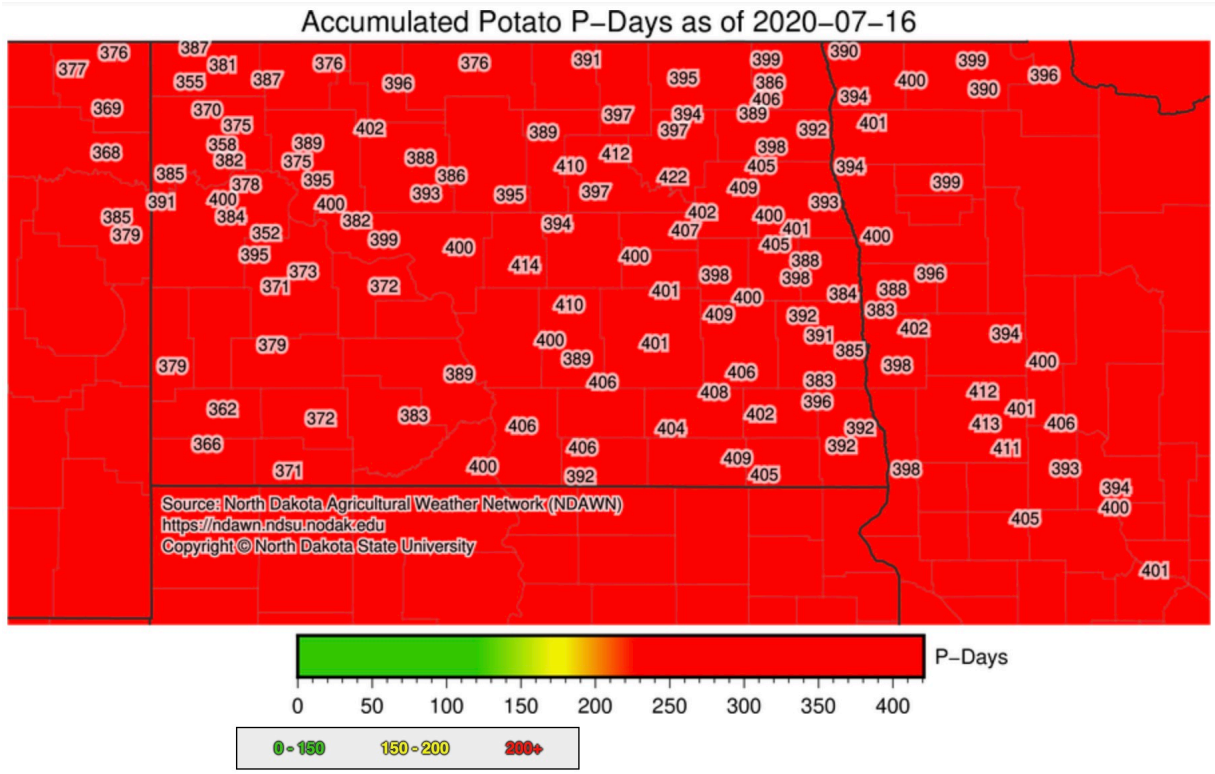


Figure 5. Early blight P-day values with emergence date of May 26 and row closure date of June 26.

Potato Late Blight Spore Trapping Network

Trap catches from July 6 - July 12, 2020

By Andy Robinson and Julie Pasche

This is the second reporting period for 2020. This report contains 21 sites reporting. The PCR assays to detect late blight spores were conducted in the lab of Dr. Julie Pasche at the NDSU Plant Pathology department. No late blight spore DNA was recovered this week. Late blight has not been confirmed in any potato fields. This purpose of this network is to provide an early detection system for potato growers to assist in late blight management. As the legend in the map indicates, green dots indicate no late blight spores recovered and the gray dots indicate sites not reporting.

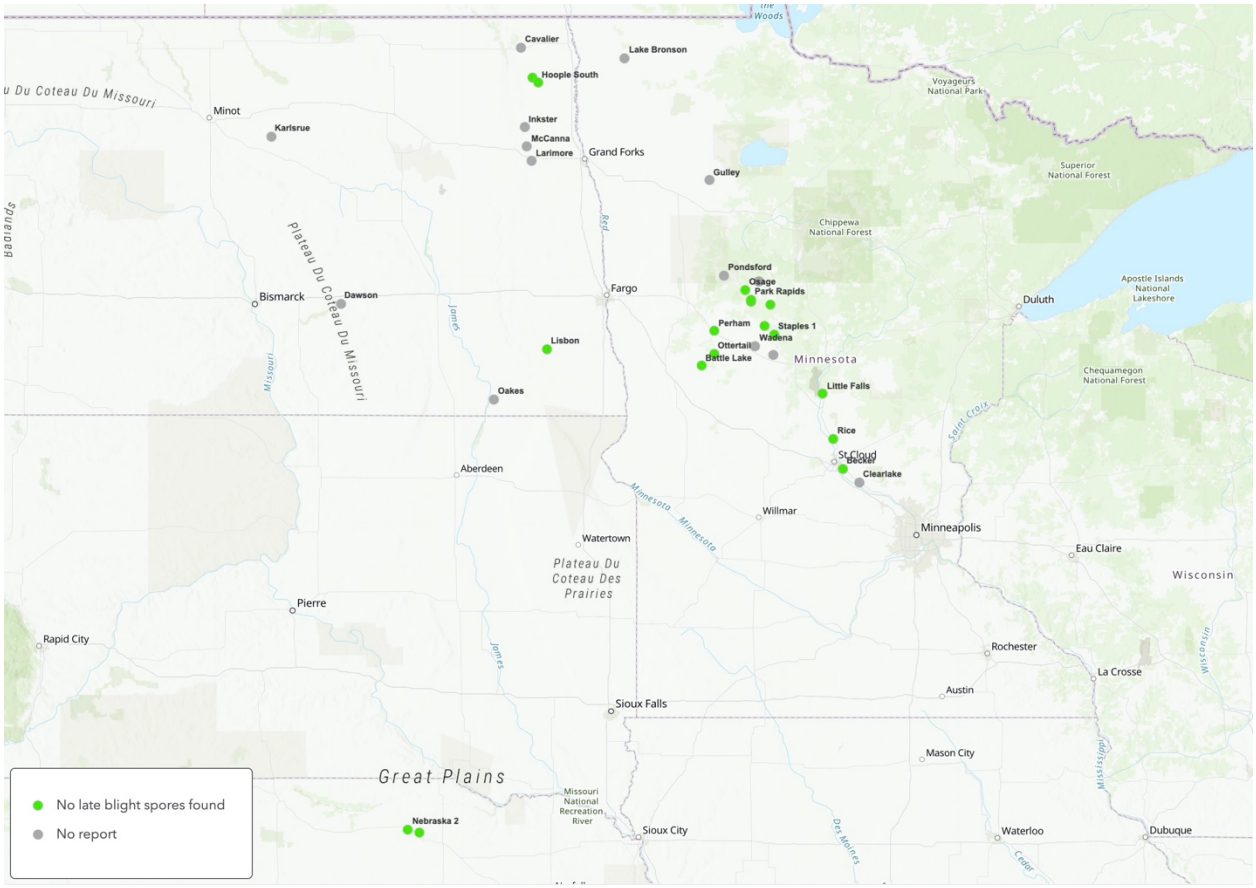


Figure 6. Results of late blight spore traps during the week of June 29 to July 6, 2020.

Thank you to the Northern Plains Potato Growers Association, Minnesota Area II Potato Council, J.R. Simplot Company, R.D. Offutt Farms, Syngenta, Sipcam, Bayer Crop Science, BASF, UPL USA, Corteva, and Nufarm for supporting this effort.

Aphid Alert

by Ian MacRae

Trap Catches Identified to July 17, 2020.

The number of aphid vectors remains low this week with only 12 vectors caught in from 7 sites in the 14 sites reporting this week. We still don't have green peach aphid (cross your fingers that this keeps up!). Potato aphids are still showing up in a number of locations, so I'm keeping the picture of these long-legged aphids up this week. The data's below in the graphs.

The PVY Vector Risk Index is very similar to this time last year, in fact, the numbers. We captured more aphids from more species by this time last year but the species were not as effective at vectoring PVY as the ones being recovered this year, so the Vector Risk Index remains similar.

Even though numbers are low, aphids are flying. Which means we do have movement of aphids from other cropping systems into potatoes. If you're not already, it's time to be scouting seed (and commercial) potatoes for aphids.

Remember though, the aphids you don't see may be as important in transmitting PVY as the ones you do see. Non-colonizing aphid vectors can be as important in spreading PVY as are many of the colonizing species. Colonizing aphids feed on potatoes, they'll start feeding after testing a plant for suitability as a host. Non-colonizing aphids may not spend as much time on individual potato plants as do colonizing aphids; they don't feed on potatoes, so they probe, potentially picking up PVY if it's an infected plant, and quickly move on to another potato plant in the field.

Aphid Fact of the Week - Aphid reproduction in the summer is *parthenogenetic*, unfertilized females giving rise to female offspring. In fact, in the aphid species we monitor, there are no males during the summer. Adult females give birth to live daughters, which, sometimes in as short a period as several days, will be giving birth to their own daughters. This system can result in very rapid development of aphid colonies.

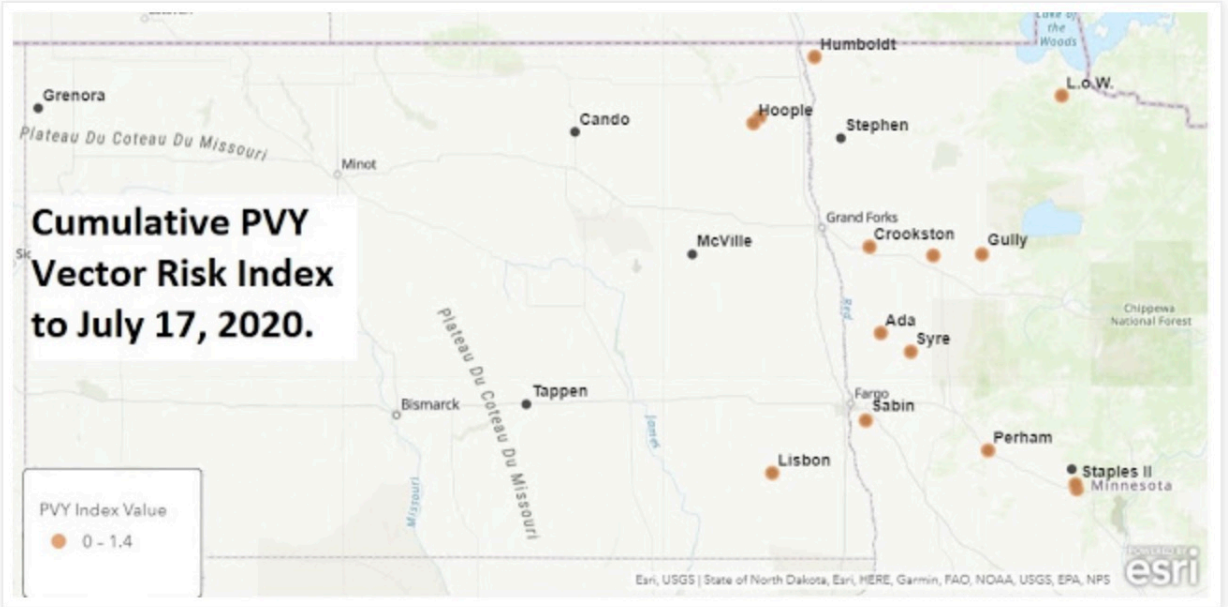
If you have a field where Colorado Potato Beetle aren't being controlled by insecticides, please let us know. We'd like to get samples of that population to test for insecticide resistance. Contact Ian MacRae at 218-280-9887.

As always, keep on scouting!
Scouting for aphids in potatoes:
- Select leaves from the lower to mid canopy. Start at the edge of the field.
- Lower, older leaves will have more established colonies and aphids prefer the balance of nutrients found here; aphids are rarely found on leaves in the upper canopy.
- Avoid leaves on the ground or in contact with the soil.
- In seed potatoes there is only a threshold for PLRV (10 aphids/100 leaves), reactive application of insecticides an effective control for PVY.
- The use of feeding suppressing insecticides, such as pymetrozine (Fulfill®) or flonicamid (Beleaf®) and refined crop oils, such as Aphoil and JMS Stylet Oil, at or prior to field colonization by aphids may reduce the transmission of PVY within fields. Some other insecticides, such as clothianidin (Belay®), imidacloprid (Admire Pro® or Provado®), and spirotetramat (Movento®), have also been demonstrated to reduce the transmission of PVY.
- In table stock potatoes, a treatment threshold of 30 aphids /100 leaves should deter yield loss due to aphid feeding.

The PVY Risk Index Index
Not all species of aphid are equally efficient at transmitting PVY, some are better than others (green peach being the most efficient vector of PVY). So, the total number of aphids in a trap don't necessarily reflect just how much vector pressure there is at that location. The PVY Vector Risk Index compares aphid numbers, incorporating their relative vector efficiency compared to the Queen of PVY vectors (green peach aphid!). Using averaged reference comparisons from the literature, we multiply the number of each aphid species captured by its efficiency compared to Green Peach Aphid to more accurately depict risk posed by the species being trapped. We then sum the totals. The PVY-VRI values are presented on the tables below but also on maps comparing current cumulative risk to the total risk from the sample sites of last year (to compare with your local winter grow out results).

Check out all the trap data at:
aphidalert.blogspot.com

Cumulative PVY Vector Risk Index to July 17, 2020.



Cumulative PVY Vector Risk Index for 2019 (for comparison)