

2025 Langlade Agricultural Research Station Field Day
Department of Entomology, UW-Madison



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2025 Neonicotinoid Alternatives PVY Mgmt. Trial: For the second year now we are running an SCRI-funded trial to evaluate non-neonicotinoid strategies to for PVY risk mangement in seed potato production. Tubers were planted May 20, with Trt 1-6 Atlantic (susceptible) and Trt 7-8 Mackinaw (resistant). Plots measure 4 rows (12') wide by 30' long with 10' alleys between, arranged in 6 replicate blocks. Application A=in-furrow at plant, B-K are scheduled weekly foliar applications that were initiated on July 9. Delegate will be applied as required for Colorado potato beetle control.

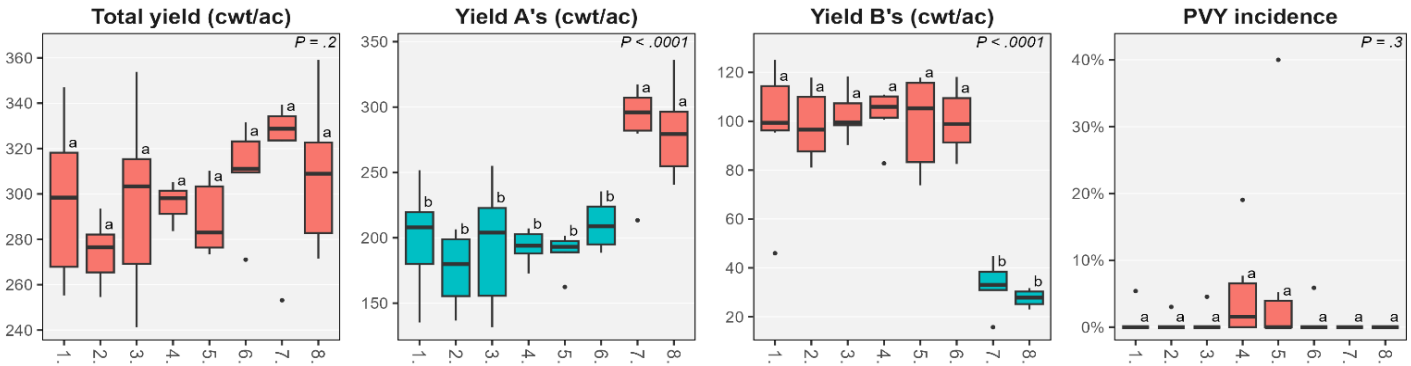
Table with 10 columns: Treatment, No., Cv., Product, Rate, Application Code (A-K). Rows 1-8 show various treatments including ATL and MKN with different products and rates.

2025 Early Vine Kill PVY Mgmt. Trial: This trial is designed to investigate how an earlier vine kill might reduce the incidence of PVY in potato seed. Vine kill will be initiated on Aug 10, or when test digs indicate we are nearing 50% set of 2.0 oz tubers. Selected treatment programs from the Neonic Alternatives trial will be repeated in this trial. Plots will be evaluated for yield, tuber size, and PVY incidence.

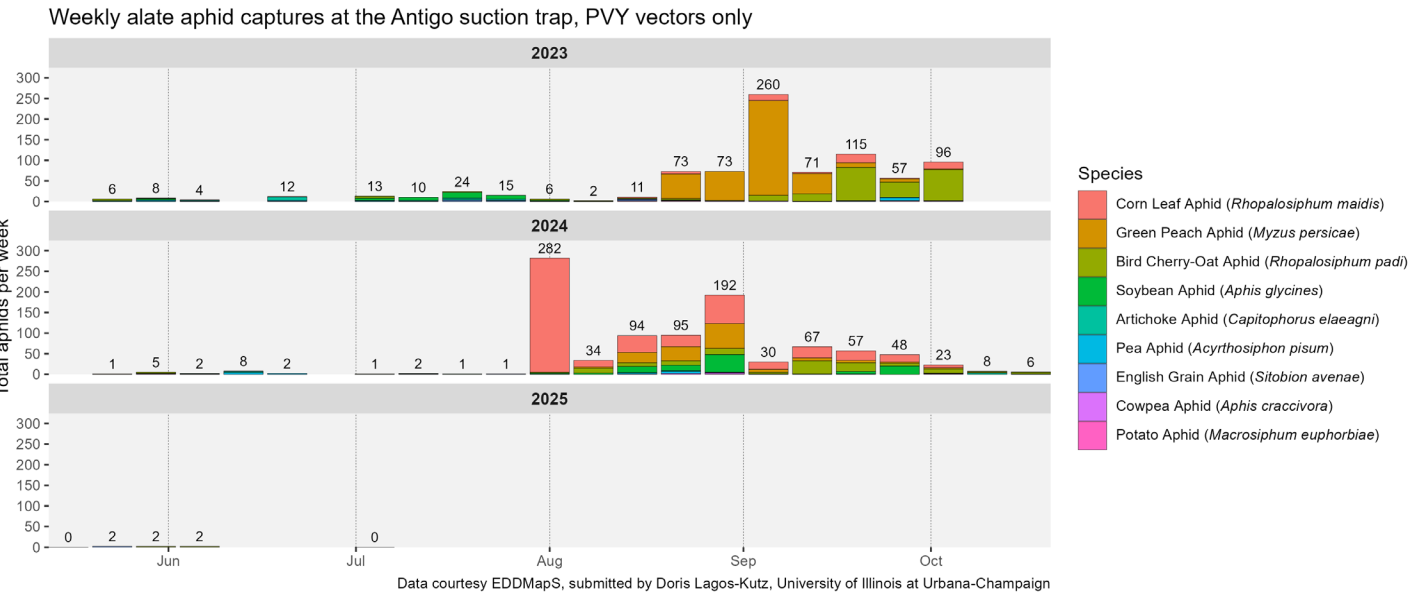
Table with 10 columns: Treatment, No., Cv., Product, Rate, Application Code (A-K). Rows 1-5 show treatments for ATL and MKN with products like Verimark, PureSpray Green, Transform, Movento, and Beleaf.

Early Vine Kill - Results from 2024: We found no statistical difference between PVY rates in seed collected from treatments that received an early vine kill (1.5 pt Reglone Aug 6 + 13) vs those from the standard vine kill (Aug 26 + Sep 3). As with many others, this trial suffered from poor emergence in the Hawaii grow-out. We are hoping this year to have more success in the post-harvest grow-out, and to add greenhouse testing to the toolkit. The early vine kill also resulted in significantly lower total yields. If it is demonstrated more conclusively this year that an earlier vine kill date reduces PVY incidence in harvested tubers then it may be worth some yield loss to reduce the risk of seed lots not passing certification.

Neonic. Alternatives - Results from 2024: Last year's experiment was set up similarly to this year's (details above left) but used Umatilla Russet as the susceptible cultivar instead of Atlantic. Vine kill was initiated with 1.5 pt/ac Reglone on Aug 26 and Sep 3. There were no statically significant differences in total yield between treatments, but Umatilla russet yielded fewer A-size tubers vs Mackinaw. We were looking for any relationship between oil application (potential yield drag) and systemic insecticide (Platinum as a potential yield enhancer) but did not see these effects. The post-harvest grow-out in Hawaii struggled with poor emergence in many plots, so PVY incidence was hard to quantify. We did see PVY in all Umatilla treatments and none in Mackinaw, with highest in Trt 4 & 5 (Platinum).



Aphid captures at the Antigo/Langlade Suction Trap: A suction trap has been maintained at Antigo for many years and weekly trap catches are identified by Dr. Lagos-Kutz at the Univ. of Illinois-Urbana Champaign. This trap will only catch flying (alate) aphids, which may indicate the arrival of aphids to a crop (early summer, in small numbers), or the dispersal of aphids after population buildup in the crop or dispersal due to harvest or vine kill. The figure below illustrates weekly trap captures for aphid vectors of potato virus Y. In 2023 we observed a large **green peach aphid** flight starting mid August followed by **bird cherry-oat aphid** in September. In 2024 we had a huge dispersal event of **corn leaf aphid** starting the first week of August followed by a moderate **green peach aphid** flight through the latter part of the month. So far this year counts have been low but we are also missing several weeks of data from the web portal (EDDMapS). Growers are reminded to scout regularly, apply oils to discourage non-colonizing aphids from probing, and to employ aphicidal rotations to kill off any colonizing aphids that may arrive on the crop to reduce the risk of PVY transmission between plants.

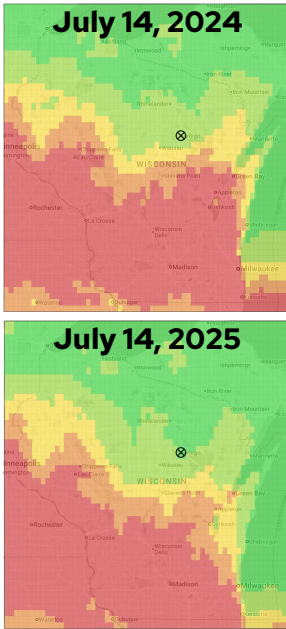


Predicting aphid flights and associated PVY transmission risk using VDIFN:

Using 10 years of aphid capture data from the Suction Trap Network we developed a degree-day model to predict aphid flight events. For the 2024 season the model was adjusted based on new data which moved the onset of risk forward by around 100 GDD.

The model is available on the Wisconsin Vegetable Disease and Insect Forecasting Network (VDIFN). To access this daily map, visit VDIFN and select 'Insect' for *Model Type*, then 'Aphid PVY Vectors' in the Model Selection box, then click the blue 'Submit' button. The current model predicts the onset of aphid flight risk at 1870 GDD (base 39F, upper threshold 86F), with peak flights likely around 3220 GDD. Aphids will persist in the environment and pose a PVY transmission risk through the end of crop senescence. Aphid vectors include Soybean aphid, Bird cherry-oat aphid, Green peach aphid, Pea aphid, Corn leaf aphid, and Potato aphid.

The risk prediction for Jul 14 this year and last year is shown in the figure on the right. Note that this year, Antigo is about 100 GDD behind last year, which is 3-4 days at 30 GDD per day accumulation. The phenology is only an estimate of when aphid flights will occur - always scout fields to identify colonizing aphid populations, and ensure oil applications are initiated before flights are predicted to protect crops from non-colonizing aphid feeding and associated PVY transmission risk.



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