

CPB systemic trial with variable planting density (HARS E-12)

At-plant systemics are frequently used for early-season protection against CPB and extended protection against aphids and leafhoppers. However, maximum rates defined by product labels are based on a per-area basis, so when higher planting densities are employed, per-plant active ingredient rates may be reduced. This trial seeks to investigate whether there are any

Trt	Spacing	Seed/acre	Product	Delivery	Rate	Avg CPB	23-Jun	29-Jun	07-Jul
1	12 in.	14,520	Cruiser	Seed	0.16 fl oz/cwt	86.2	2.0%	6.8%	50.0%
2	12 in.	14,520	Platinum	In-furrow	2.67 oz wt/a	64.25	2.5%	3.8%	32.8%
3	12 in.	14,520	Verimark	Seed	0.75 fl oz/cwt	58.45	2.0%	6.3%	8.8%
4	12 in.	14,520	Verimark	In-furrow	13.5 fl oz/a	54.8	3.0%	3.5%	8.5%
5	8 in.	21,780	Cruiser	Seed	0.11 fl oz/cwt	73.1	2.0%	3.3%	44.3%
6	8 in.	21,780	Platinum	In-furrow	2.67 oz wt/a	74.7	2.5%	3.3%	23.3%
7	8 in.	21,780	Verimark	Seed	0.5 fl oz/cwt	63.35	3.0%	10.8%	12.5%
8	8 in.	21,780	Verimark	In-furrow	13.5 fl oz/a	57.2	3.0%	4.0%	16.5%
9	6 in.	29,040	Cruiser	Seed	0.088 fl oz/cwt	61.6	2.3%	4.0%	48.0%
10	6 in.	29,040	Platinum	In-furrow	2.67 oz wt/a	68.3	2.3%	9.3%	26.0%
11	6 in.	29,040	Verimark	Seed	0.372 fl oz/cwt	48.45	1.8%	5.0%	8.0%
12	6 in.	29,040	Verimark	In-furrow	13.5 fl oz/a	70.8	2.7%	5.7%	10.7%

effects of higher planting densities on plant protection from these products applied at maximum label rates. Snowden cut tubers were hand planted on Apr 24. Cruiser and Platinum both share thiamethoxam (group 4A) as an active ingredient; Verimark contains cyantraniliprole (group 28). We are seeing marginally better performance from Cruiser/Platinum as an in-furrow vs seed, and longer residual activity from Verimark with similar performance from both application methods.

Full-season CPB management trial (HARS K-9)

This trial includes 10 example full-season CPB management programs that should provide season-long control while rotating insecticide modes of action. Four additional programs are experimental (excluded from table). Goldrush was machine planted on Apr 21; most treatments received granulated Platinum with the starter fertilizer. Foliar treatments were initiated on either Jun 3 (10% hatch, Calantha/Rimon) or Jun 9 (50% hatch), followed by applications on Jun 18 and Jun 23 (Torac rescues). Avg CPB indicates mean total larvae + adults from 5 ratings between Jun 3 and Jul 1. Defoliation from Jul 1.

Trt	Systemic	1st Gen	2nd Gen	Avg CPB	Defol
1		- Untreated -		87.8	17.5%
2	Platinum	Falcondor	Enterik	17.9	0.8%
3	Platinum	Minecto Pro	Zivalgo	9.8	0.0%
4	Platinum	Zivalgo	Minecto Pro	10.8	0.5%
5	Platinum	Calantha » Torac	Delegate	25.9	0.8%
6	Platinum	Calantha » Torac	Coragen eVo	31.5	1.3%
7	Platinum	Agri-Mek » Torac	Zivalgo	16.0	1.0%
8	Platinum	Rimon » Torac	Minecto Pro	23.2	1.0%
9	Platinum	Delegate	Hanabi	22.5	1.5%
10	Platinum	Falcondor	Elevest	12.1	1.0%
15	Platinum	Calantha » Torac	Delegate	18.4	2.5%

Cultivar-specific PVY management (Langlade)

This trial seeks to evaluate the performance of potato cultivars under high and low intensity management programs to determine the potential for lower-input management in some cultivars, with the aim of sustainably reducing PVY incidence in seed potato production.

9 cultivars have been selected representing high innate PVY resistance (Lamoka, Red Norland, Frito-Lay), moderate PVY resistance (Superior, Yukon Gold, Mercury Russet), and low PVY resistance (Silverton, Atlantic, Russet Norkotah). Each cultivar will receive a low-input program (oil only) and a high input program (oil plus a rotation of foliar aphicides).

Foliar treatments of paraffinic oils and insecticides will be initiated when 1950 DD₃₉ have been reached or exceeded at the Langlade County location. This specific degree day accumulation signals the onset of risk for PVY transmission risk from among the 10 most commonly occurring aphid vectors within the suction trap network. Termination of the experiment will occur on August 25, or when test digs indicate we have reached a majority (>75%) set of 2.0 oz pieces.

PVY res.	Cultivar selection
High	Lamoka, Dark Red Norland, Frito-Lay
Moderate	Superior, Yukon Gold, Mercury Russet
Low	Silverton Russet, Atlantic, Russet Norkotah

Program	Application plan
Low input	Weekly oil only (PureSpray Green)
High input	Weekly oil PLUS aphicide rotation: Movento (2x) » Sefina (3x) » Beleaf (2x) » Admire Pro (3x)

Product Description	Application Rate Unit	Week									
		1	2	3	4	5	6	7	8	9	10
PureSpray Green	1.5 gal/a	X	X	X	X	X	X	X	X	X	X
Movento HL 4SC	2.5 fl oz/a	X	X								
Sefina 0.42DC	1.5 oz wt/a			X	X	X					
Beleaf 50SG	2.8 fl oz/a						X	X			
AdmirePro 4.6SC	1.3 fl oz/a								X	X	X

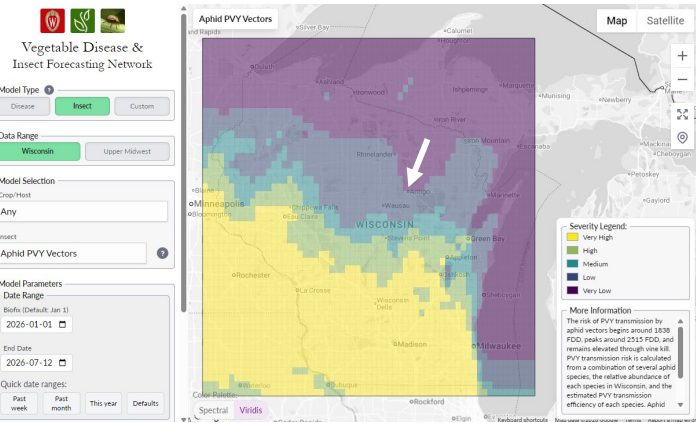
We expect that more resistant cultivars will require lower input programs to meet PVY targets in harvested tubers. Colorado potato beetle populations will be managed with at-plant Platinum, followed by Agri-Mek (1st gen, 2 x 3.5 fl oz/ac) and Delegate (2nd gen, 2 x 4 oz/ac). More info on back.

Weather and Decision Support Resources

Vegetable Disease and Insect Forecasting Network – agweather.cals.wisc.edu/vdifn

VDIFN uses daily gridded weather data to run disease risk and insect developmental models. These disease severity value and degree-day accumulations are then displayed on the map as color-coded risk scores based on the estimated risk to susceptible crops. Clicking on an individual grid cell brings up the daily history of weather data and disease severity values or degree-days for that location.

Shown below is the PVY vectors risk model from Jul 12, which estimates the populations and subsequent PVY transmission risk from 10 aphid species. As a thermal model, risk moves from south to north, and we are just seeing risk begin to tick up in Antigo.



CPB management options

See below for a list of products included in our CPB management trials. Remember to always rotate modes of action between CPB generations, including across years.

Product	Form	Vendor	Group	Active	Adjuvant
Platinum	75SG	Syngenta	4A	thiamethoxam	-
Admire Pro	4.6SC	Bayer	4A	imidacloprid	-
Scorpion	35SL	Gowan	4A	dinotefuran	NIS
Delegate	25WG	Corteva	5	spinetoram	NIS
Falcondor	2SC	Atticus	5	spinosad	NIS
Agri-Mek	0.7SC	Syngenta	6	abamectin	NIS
Enterik	0.7SC	Atticus	6	abamectin	NIS
Rimon	0.83EC	UPL	15	novaluron	NIS
Torac	15EC	Nichino	21A	tolfenpyrad	PBO + NIS
Sedaire	1.25EC	Atticus	22A	indoxacarb	PBO + NIS
Contigo	600SC	Atticus	28	chlorantraniliprole	MSO
Coragen eVo	5SC	FMC	28	chlorantraniliprole	MSO
Exirel	0.83EC	FMC	28	cyantraniliprole	MSO
Hanabi	100SL	ISK	28	cyclaniliprole	MSO
Harvanta	50SL	SummitAgro	28	cyclaniliprole	MSO
Verimark	1.67SC	FMC	28	cyantraniliprole	MSO
Minecto Pro	1.37SC	Syngenta	28	cyantraniliprole	MSO
			6	abamectin	
Elevest	2.22SC	FMC	3A	bifenthrin	MSO
			28	chlorantraniliprole	
Zivalgo	3.33SC	Syngenta	30	isocycloseram	NIS
Calantha	80SL	Greenlight	35	ledprona	NIS

Crop Protection Network Crop Risk Tool - connect.doit.wisc.edu/cpn-risk-tool

Use this tool to easily view and download hourly weather data for anywhere in the US. Gridded weather data (9km resolution) and a 16-day forecast is provided by OpenMeteo. Upload or define multiple locations and see weather, disease, or insect risk predictions for each location in parallel. More flexible than VDIFN, but doesn't provide an area-wide map. Crop models are currently available for corn (tar spot, gray leaf spot, Gibberella), soybean (white mold, frog-eye leaf spot), wheat (scab), potato (early blight, late blight), Alternaria, cercospora, and botrytis leaf blights, and more.

UW Extension AgWeather – agweather.cals.wisc.edu

This site provides access to several different types of weather data from our database. **Weather:** Min/max daily air temp, precipitation, dew point, vapor pressure, hours of high humidity, mean temperature during periods of high humidity, solar insolation, reference evapotranspiration. **Models:** View/calculate degree day models and some disease risk models. Also available is an oak wilt risk model, essential if pruning oaks. **Email subscriptions:** Add sites of your choosing, get optional daily weather updates, forecasts, and degree day models. **Free API:** Retrieve weather data via API for integration with custom software.

Irrigation Scheduling Program – wisp.cals.wisc.edu

A complete irrigation scheduling program for your farm, it uses a few simple initial and periodically updated conditions (soil moisture, crop, canopy cover) as well as weather and potential evapotranspiration values (automatically imported but can be manually adjusted). Create a farm, add pivot(s), each pivot can serve one or more fields, and each field can have one crop. Once set up it tracks water balance in the field and predicts soil water levels. It warns when a field crosses below the allowable depletion or experiences deep drainage due to excess water.

Wisconsin's Environmental Mesonet – wisconet.wisc.edu

The Wisconsin Environmental Mesonet (WiscoNet) is a growing network of weather and soil monitoring stations across Wisconsin, designed to provide high quality data at high spatial and temporal resolutions. Each WiscoNet station provides more than one dozen measurements every 5 minutes. The website was recently relaunched with many interface improvements including interactive maps and graphs. A new feature called the Almanac contextualizes current weather conditions relative to climactic averages. WiscoNet is funded by the USDA Rural Partnerships Institute and the Wisconsin Alumni Research Foundation.



VDIFN



CPN CRT



AgWeather



WISP



WiscoNet