# Vegetable Crop Update

*A newsletter for commercial potato and vegetable growers prepared by the University of Wisconsin-Madison vegetable research and extension specialists*

Division of Extension
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**In This Issue**



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***Linex 24c Special Local Need registration issued for Wisconsin potatoes.*** We're pleased to let you know that Wisconsin DATCP has issued a 24c Special Local Need registration of Linex 4L, WI-210001, for pre-emergent control of grass and broadleaf weeds for potatoes grown on coarse textured, low organic matter soils, such as sands, loamy sands and soils with less than 1% organic matter. Please carefully consider the details of the allowed uses described on the label.

The label is for Wisconsin only and will be valid until 12/31/2025. It's available on the DATCP Special Pesticide Registrations web page: https://datcp.wi.gov/Pages/Programs_Services/SpecialPesticideRegistrations.aspx

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**Disease forecasting and risk assessment tools for potato and vegetable crops:** Each year we host four weather stations in potato fields of Wisconsin to provide disease risk information to potato and vegetable growers for proactive management of late blight (of tomato and potato) and early blight of potato. A summary table of these outcomes will be posted in this newsletter on a weekly basis, as in past years, but the information is also available with daily updates at the Vegetable Pathology website (https://vegpath.plantpath.wisc.edu/). Additionally, we have an online tool, the UW-Madison Division of Extension Vegetable Disease and Insect Forecasting Network (VDIFNet) which draws from a larger public weather data set to offer statewide access to early blight and late blight risk information (as well as insect risk information for vegetable crops); https://agweather.cals.wisc.edu/vdifn/maps. Information, below, provides guidance on how to use the tools, and where to source information.

**Disease Forecasting: *What are potato Blitecast DSVs and P-days?***

Blitecast (late blight forecasting): Computation of 18 disease severity values (DSVs) relies on maximum and minimum temperatures each day, the duration of relative humidity periods above 90% and the maximum/minimum temperatures during the relative humidity periods above 90%. For a given day, up to 4 DSVs can accumulate. We start the severity value calculations at approximately 50% crop emergence. The 50% crop emergence date can be selected by the user at the website by simply starting the calculations on a particular date. When we reach a total of 18 severity values, we issue a warning which indicates that environmental conditions have been met which favor late blight. At 18 DSVs, the recommendation for preventive applications of effective late blight fungicides is made. Beyond initial 50% emergence, the accumulation of DSVs resets after each application of fungicide (directions also

included online). An additional alert is issued when the first symptoms of late blight appear anywhere in the state. The determination of late blight management recommendations is made by taking into consideration DSVs, projected weather forecast, and presence/risk of inoculum. This information is published in our newsletter and will be disseminated in various other outlets as the season progresses.

The Potato P-Day accumulator (early blight prediction tool) is based on potato physiological development and accumulated weather conditions to generate early blight recommendations. Once we reach 300 P-Days, calculated from 50% crop emergence onward, our spray recommendations take both the P-Day and severity value totals into account to generate 5 day, 7 day or 10 day spray interval recommendations. The interval is variable depending upon prevailing weather conditions and the presence of disease in the area. Typically, P-Day 300 is reached in early July and when potato rows are just beginning to touch (row closure).

**Other information resources for vegetable growers……**

**2021 University of Wisconsin Madison Extension Commercial Vegetable Crop Production Management Guide:** Our production guide is updated every October with release of a new guide in January. The **book can be downloaded for free as a pdf** at the link below, or can be purchased online for $14.50. https://learningstore.extension.wisc.edu/products/commercial-vegetable-production-in-wisconsin

**2021 University of Wisconsin Division of Extension & Wisconsin Potato and Vegetable Grower Association Grower Education Conference Proceedings are now available.** We have books and flashdrives at the UW Hancock Agricultural Research Station as well as at the WPVGA headquarters in Antigo. Links or pdfs can also be shared to registrants who would like to digitally access the documents associated with the meeting content from February 2021.

**2020 Potato and Vegetable Disease Field Trial Summaries**: https://vegpath.plantpath.wisc.edu/field-trials/

**Vegetable Insect Update – Russell L. Groves, Professor and Department Chair, UW-Madison, Department of Entomology, 608-262-3229 (office), (608) 698-2434 (cell), e-mail: rgroves@wisc.edu**

**Vegetable Entomology Webpage: http://www.entomology.wisc.edu/vegento/index.html**

**Insect overwintering** – Pest species of insects overwinter in a variety of different locations (e.g., soil, soil surface, debris and organic matter) as well as many different stages (eggs, immatures and adults). Understanding where your pest of interest is attempting to overwinter, and how the climatic conditions we have just emerged from (winter) could impact these organisms, should influence the approach you might take in terms of cultural control measures. For instance, insect pests like flea beetle, striped cucumber beetle and squash bug all overwinter here in Wisconsin and are generally on the soil surface or in organic debris piles from last years crop residue. Several of these species will become active once the mean soil surface temperatures start to exceed 50$^{o}$F (development and activity threshold) during spring days. They will again become inactive in evenings and mornings once the nighttime and early morning temperatures drop below this threshold. If you have experienced problematic populations of these insects in past years, it can be beneficial to remove all debris from the soil surface at this time, exposing these pests to active biological control agents (returning passerine birds, animals, and other predatory insects). Try to chop this debris as much as possible since some pests will simply hide 'inside' of the debris (e.g., squash vine borer).

Pest insects overwintering below ground will often only begin emergence from the soil once 4" soil temps start to exceed 45-50°F. This can take longer into April to achieve, although we have very little snow cover (insulation) remaining over Wisconsin, with exception of far northern parts of the state along the Superior lakeshore. This absence of snow cover, coupled with the dry conditions over much of the northern half of the state, this set of conditions could translate into an earlier 'insect emergence' year if the 30 day climate prediction holds. Recall, insects emerging from overwintering are often more vulnerable to periods where food resources are absent. In this way, delayed planting (even though the spring conditions seems ideal) can have profound effects on newly emerged insects looking for food resources for sustenance and oviposition (egg laying). Examples mentioned above (squash bugs, cucumber beetles, flea beetles) can struggle if they do not find resources relatively soon after emergence (20-40 days). Delayed planting can really work under these conditions!!

The Colorado potato beetle (CPB) also overwinters as adults underground in the state. Typically, overwintering adults will burrow 10-30 cm into the soil, often choosing protected areas near trees or in grassy edges surrounding gardens or fields. Adults often emerge in the spring, at about the time potato breaks ground. Here again, if producers can delay planting by 10-14 days under the forecast spring conditions, these overwintered beetles will struggle to find food and greater spring mortality can result. Combined with adequate crop rotation (over distances of 400 m), these two circumstances can be very difficult for early-emerging insects and can result in a marked reduction in early season pest pressure. The 2011-12 years represented one of the more moderate to strong La Nina years we have had on recent record, and 2012 became a very challenging year for production (heat, drought). We did not delay planting in 2012, and in fact planted potatoes to coincide with insect emergence which resulted in a very challenging pest year since summer conditions gave rise to 3 full generations in southern Wisconsin, and nearly so in northern portions of the state.

**Migratory insects. –** In 2012, above average, early season (March-April) temperatures, combined with strong southern winds associated with advancing weather systems also resulted in large numbers of migratory insects entering the state in greater numbers and far earlier than normal. Specifically, we observed significant, early season populations of both Aster leafhoppers (ALHs), and potato leafhopper (PLH). Populations of the ALH initially colonized grass and grain cover crops upon arrival, and then moved onto susceptible carrot, celery, onion and even potato (purple top) in late May and early June. Recall that the ALH is the insect vector of Aster Yellows phytoplasma (AYp), and this disease was very serious in the upper Midwest during the spring of 2012. Early season surveys of PLH at multiple sites in southern WI in 2012 also revealed very large, migratory populations that had arrived and were present in alfalfa crops. Producers need to watch the developing weather and be mindful of the conditions that can give rise to early season migrations of large numbers of insects like PLH and ALH. Adequate control of these populations, if they do arise, can be very valuable to limit early-season damage to young, and susceptible crops as well as limiting disease transmission which can be devastating if infection gets established early in the crop season.

Based upon the weather conditions we see this spring, stay vigilant, and anticipate problems that may emerge from an early-spring season that often coincides with La Nina'. I feel like I did not see my shadow.