

2021 PureSpray Green/Dymax Trial Results

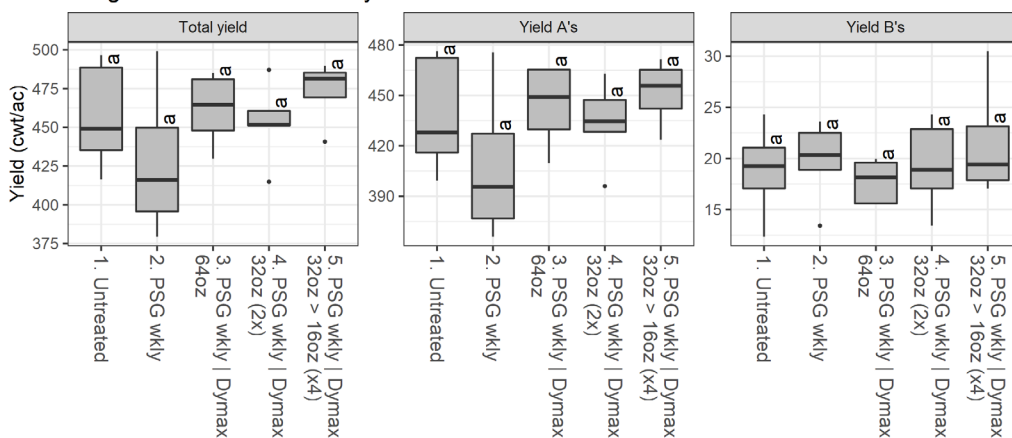
While necessary to prevent PVY transmission from non-colonizing aphids, paraffinic oil applications on potato stress the plant and reduce yield. For that reason, it may be beneficial to combine weekly oil applications with periodic foliar nutrient applications that could ameliorate some plant stress. In 2021 (and again this year, see right) we conducted a field trial combining weekly PureSpray GREEN (Intelligro) applications with several different rates and timings of Dymax, a foliar bionutrient (Growmark FS). ‘Silverton Russet’ B-size tubers were machine-planted on May 15, 2021, with closing discs attached. Seed was spaced approximately 12 in. apart within rows. Five replicate blocks of 5 treatment plots were arranged in a randomized complete block design. Plots measured 4 rows wide by 20 ft. long with rows spaced on 3 ft. centers.

Trt Description

- 1 Untreated control
- 2 PureSpray Green 1 gal/ac (weekly)
- 3 PureSpray Green 1 gal/ac (weekly)
Dymax 64 fl oz/ac (1 app with first oil app)
- 4 PureSpray Green 1 gal/ac (weekly)
Dymax 32 fl oz/ac (2 apps one month apart)
- 5 PureSpray Green 1 gal/ac (weekly)
Dymax 32 oz/ac (1 app with first oil app),
then Dymax 16 oz/a (4 apps, every 2 weeks)

Evaluation. Mid-season evaluations consisted of visual assessments of disease symptoms and plant vigor on a 9-point scale (1=worst, 9=best). Stand counts were taken in rows 2 and 3 of each four-row plot just prior to harvesting those rows on Sep 30 for yield. Harvested tubers were run through a mechanical grading line to separate A’s and B’s and obtain total weights for each tuber size class. Yield data was obtained by harvesting the center two rows from each plot on Sep 30 to determine yield. Tubers were graded into A and B size on a mechanical grading line and total weights were obtained.

Antigo FS Growmark PSG/Dymax Trial



2022 PureSpray Green/Dymax Trial

The 2021 trial is being repeated this year with some modifications to the treatment list. It was observed that the single 64 oz Dymax app and the 32 oz app followed by biweekly 16 oz apps had the best results, so this year those treatments are present once more, plus a 32 oz app followed by weekly 16 oz apps. See the new treatment list, below:

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- 1 Untreated control
- 2 PureSpray Green 1 gal/ac (weekly)
- 3 PureSpray Green 1 gal/ac (weekly)
Dymax 64 fl oz/ac (1 app with first oil app)
- 4 PureSpray Green 1 gal/ac (weekly)
Dymax 32 oz/ac (1 app with first oil app),
then Dymax 16 oz/a (6 apps, every week)
- 5 PureSpray Green 1 gal/ac (weekly)
Dymax 32 oz/ac (1 app with first oil app),
then Dymax 16 oz/a (4 apps, every 2 weeks)

A new addition to the trial this year will be a post-harvest grow-out of a selection of tubers collected during harvest. These plants will then be evaluated by Seed Certification specialists and graded for PVY symptoms. We expect to see the highest PVY incidence in the untreated potatoes, with lower incidence in all other treatments (which receive weekly paraffinic oil applications). It remains to be seen if there is any difference in PVY incidence between the oil applications and if the Dymax protocols have any effect on virus incidence.

Results. A yield drag of about 30 cwt/ac was observed between the untreated plots and trt 2, the weekly oil apps without Dymax. All Dymax programs improved yield relative to the oil-only treatment, with the best results seen in the single 64 oz app (trt 3) and the 32 oz app followed by 16 oz apps every other week. B-size yield was unaffected by treatment, with all differences apparent in the A-grade yield. A-size tubers made up about 95% of the yield.

Thank you to our sponsors and collaborators:

 **GROWMARK FS**

intelligro



Web resources from UW Madison Entomology & Plant Pathology

Ben Bradford, Russ Groves, and Amanda Gevens. For questions or more information contact bbradford@wisc.edu.

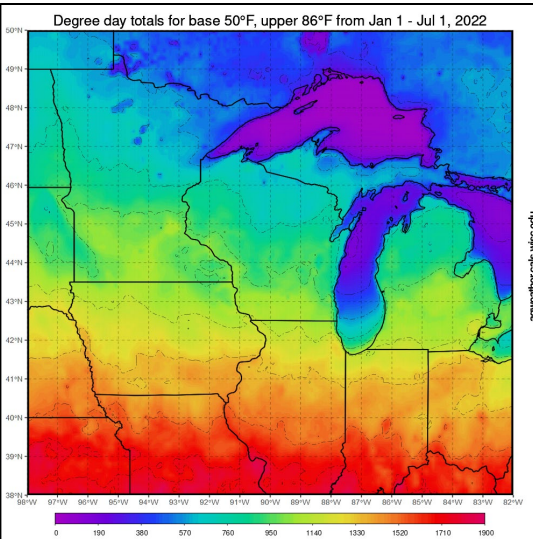
UW Extension AgWeather – agweather.cals.wisc.edu

This site provides easy access to several different types of weather data from our database. Data coverage extends across the upper Midwest, see map right.

- **Weather:** Min/max daily air temp, precipitation, dew point, vapor pressure, hours of high humidity, and mean temperature during periods of high humidity. Data sourced from NOAA.
- **Solar insolation:** A measure of the amount of solar radiation striking the surface of the earth, this data is sourced from the UW Space Science and Engineering Center and is used to compute potential evapotranspiration.
- **Evapotranspiration:** Useful in irrigation scheduling, these daily values are calculated from air temperature, solar insolation, latitude, and day of year.
- **Thermal 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 (home, field, etc) and get optional daily weather updates, forecasts, and degree day models.

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. Input your irrigation actions to update the model.



Vegetable Disease and Insect Forecasting Network

(VDIFN) – agweather.cals.wisc.edu/vdifn

VDIFN uses daily gridded weather data which are fed into various disease risk and insect developmental models and converted into daily disease severity values (or equivalents) or degree-days. 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.

When you visit VDIFN you will see the navigation and settings pane on the left, the map and pest severity display in the center, and a legend on the lower right. You can switch between disease, insect, and custom model modes with the buttons across the top of the left panel. Pick a model using the Model Selection section and use the question mark box to get more information on the disease or insect. After selecting a model, note that the date range boxes populate with defaults for each model, but can be adjusted if desired. Click on an individual grid point to bring up more details for that specific location, including a detailed history of weather readings and daily and cumulative disease severity value or degree-days (depending on the model selected).

VDIFN showing early blight risk as of Jul 1. More than 300 p-days have accumulated since May 15 in most locations. After 300 p-days, risk is indicated by daily average p-day values.



AgWeather



VDIFN



Vegetable Entomology



WISP



Vegetable Pathology