College of Agriculture, Food and Environment
Cooperative Extension Service

Kentucky Nursery LISTSERV Bulletin

University of Kentucky Nursery Crops Team | End of April 2019

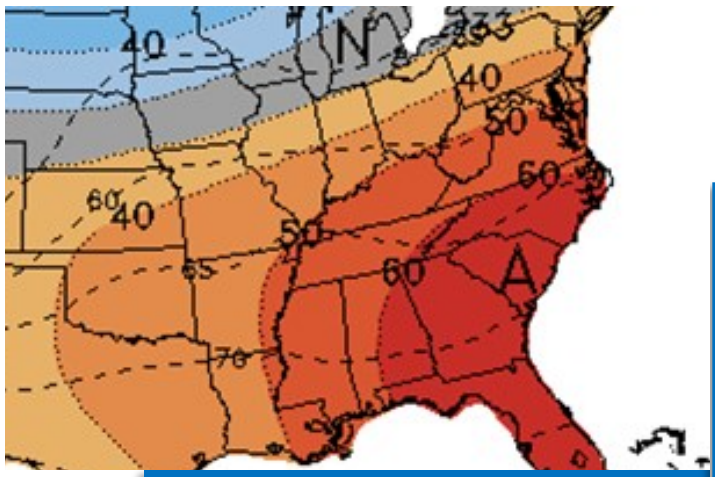
Warmer and Wetter than Average Trend Continues

Though non-typical cold weather pattern is predicted to move across Dakotas in the first week of May, it is not forecasted to reach down to the Commonwealth. The eastern half of the U.S., including Kentucky, is predicted to be overall warmer than average for the entire month of May.

The wetter than average trend will continue into early May, but might very well drop off in the latter half of the month, while the deep south will continue to receive more precipitation than average.

Typically, the last frost for the season occurs between April 15th in the western part of the state and May 18th in the eastern part of the state.

See **UKAg Weather's Long Range Outlooks** for a variety of forecasts of temperature and precipitation probabilities.



May 02—08, Temperature Probability
Image: NOAA Climate.gov, 24 APR 2019

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Joshua Knight, Managing Editor

- **Last Year's Ornamental Diseases Equal This Year's Disease Risk**
- **Free Grower Tool: Waterborne Solutions**

Last Year's Ornamental Diseases Equal This Year's Disease Risk

Kim Leonberger, Extension Associate, Plant Pathology
Nicole Ward Gauthier, Extension Specialist, Plant Pathology

Disease presence last year can indicate a risk for the same disease this year. Many pathogens overwinter in Kentucky on infected plant material or as pathogen survival structures. Poor sanitation practices can lead to an increased risk of these diseases in the upcoming season. A summary of ornamental samples submitted to University of Kentucky Plant Disease Diagnostic Laboratories in 2018 are displayed here.

The most common diseases of **herbaceous ornamentals** were root, stem, and crown rots (Pythium, Phytophthora, Rhizoctonia, Thielaviopsis, Anthracnose) and foliar blights (Rhizoctonia, Botrytis, Phytophthora, Ascochyta, Phoma, Calonectria) **(Figure 1).**

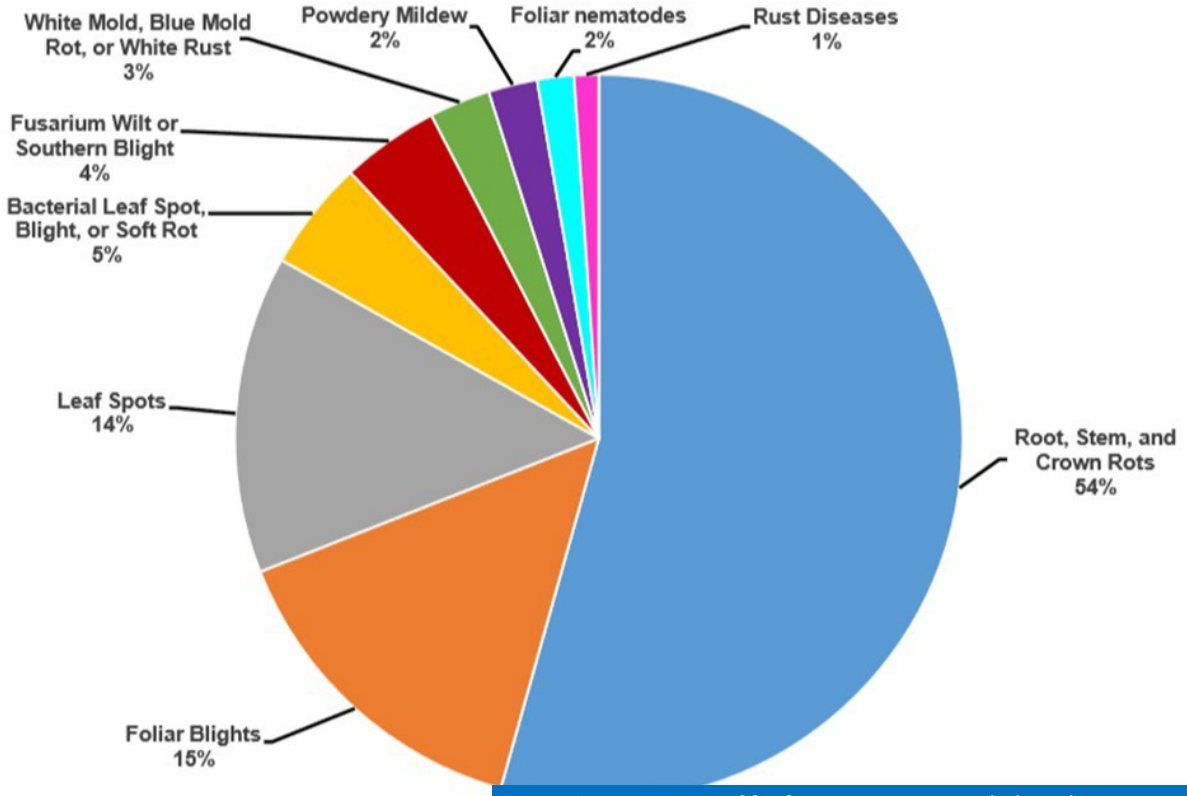

Figure 1. A summary of **herbaceous** ornamental plant disease samples submitted to UK Plant Disease Diagnostic Laboratories in 2018.

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In **woody ornamentals** (trees and woody shrubs), the most common diseases were leaf spots (including anthracnose, powdery mildew, and other misc. fungal diseases) and foliar, tip, or twig blights (including boxwood blight and Volutella blight) **(Figure 2)**.

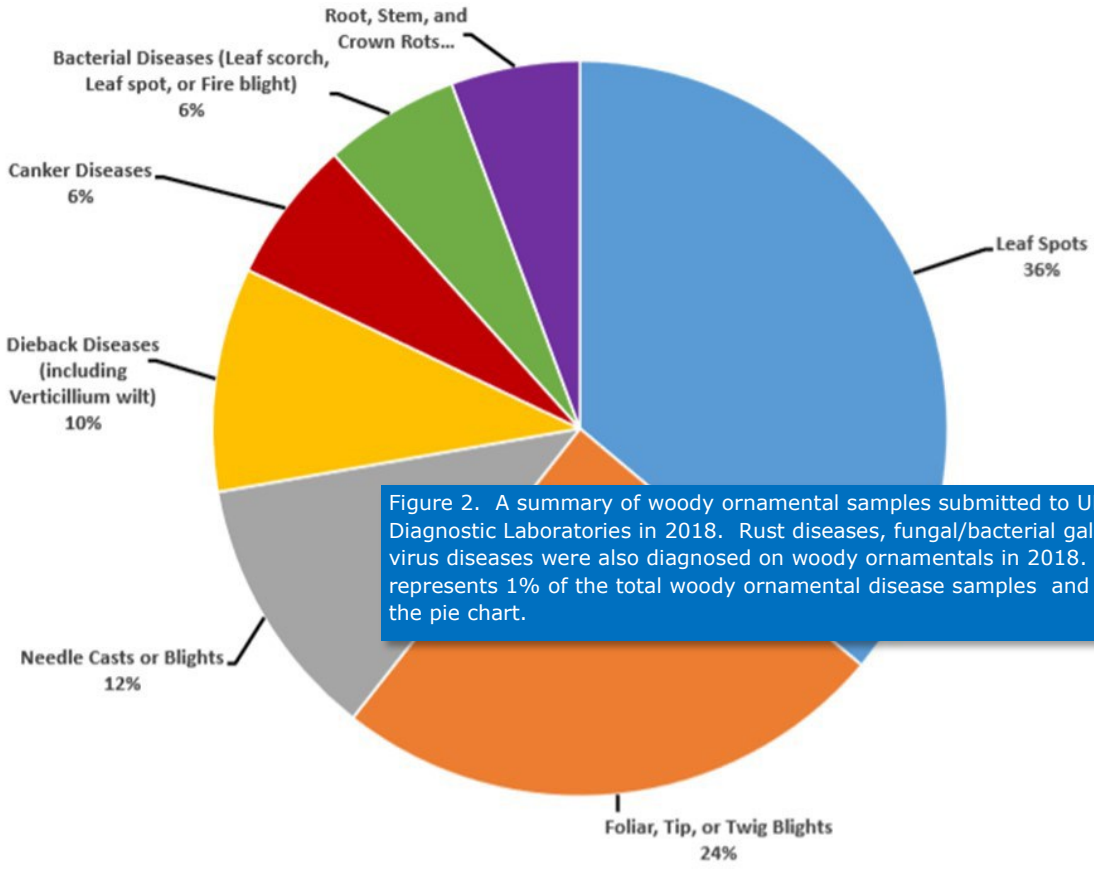

Figure 2. A summary of woody ornamental samples submitted to UK Plant Disease Diagnostic Laboratories in 2018. Rust diseases, fungal/bacterial gall diseases, and virus diseases were also diagnosed on woody ornamentals in 2018. Each group represents 1% of the total woody ornamental disease samples and are not included in the pie chart.

Assessment of diseases likely to occur during the growing season provides the opportunity to utilize preventative management measures. The University of Kentucky Plant Pathology Department provides numerous publications with additional information and management options for these diseases. County Extension agents also provide information on disease diagnosis and management.

Plant Pathology Extension Publications (Link)

- Black Root Rot of Ornamentals (PPFS-OR-W-03)
- "Wet Feet" of Ornamentals (PPFS-OR-W-04)
- Shade Tree Anthracnose (PPFS-OR-W-23)
- Powdery Mildew (PPFS-GEN-02)
- Volutella Blight of Boxwood (PPFS-OR-W-26)
- Boxwood Blight (PPFS-OR-W-20)
- Managing Diseases of Herbaceous Ornamentals (PPFS-OR-H-01)
- Greenhouse Sanitation (PPFS-GH-04)
- Landscape Sanitation (PPFS-GEN-04)
- Homeowner's guide to fungicides (PPFS-GEN-07)
- Fungicides for Management of Landscape Woody Ornamentals Diseases (PPFS-OR-W-14)

Free Grower Tool: Waterborne Solutions

Joshua Knight, Senior Extension Associate, Horticulture

Available at **https: //www.cleanwater3.org/gsearch.asp**, Waterborne Solutions exists to help growers make come up with solutions to plant pathogens and algae problems with published research. The tools provides information, but not specific dosages or solutions.

According to cleanwater3.org, it takes more than water treatment to control pathogens and algae. Disease management must be integrated and include proper sanitation, and the use of chemical controls like fungicides or biocontrols. The tool also suggests that over watering should be avoided to create a less favorable environment to pathogens.

Organisms

Solutions are offered for a variety of waterborne problems (Figure 1). For example, if your nursery is having algae problems, the tool suggests hydrogen peroxide, activated peroxygen, and copper sulfate to be helpful solutions. Click on the "show detail" link to see even more dosage and application information.

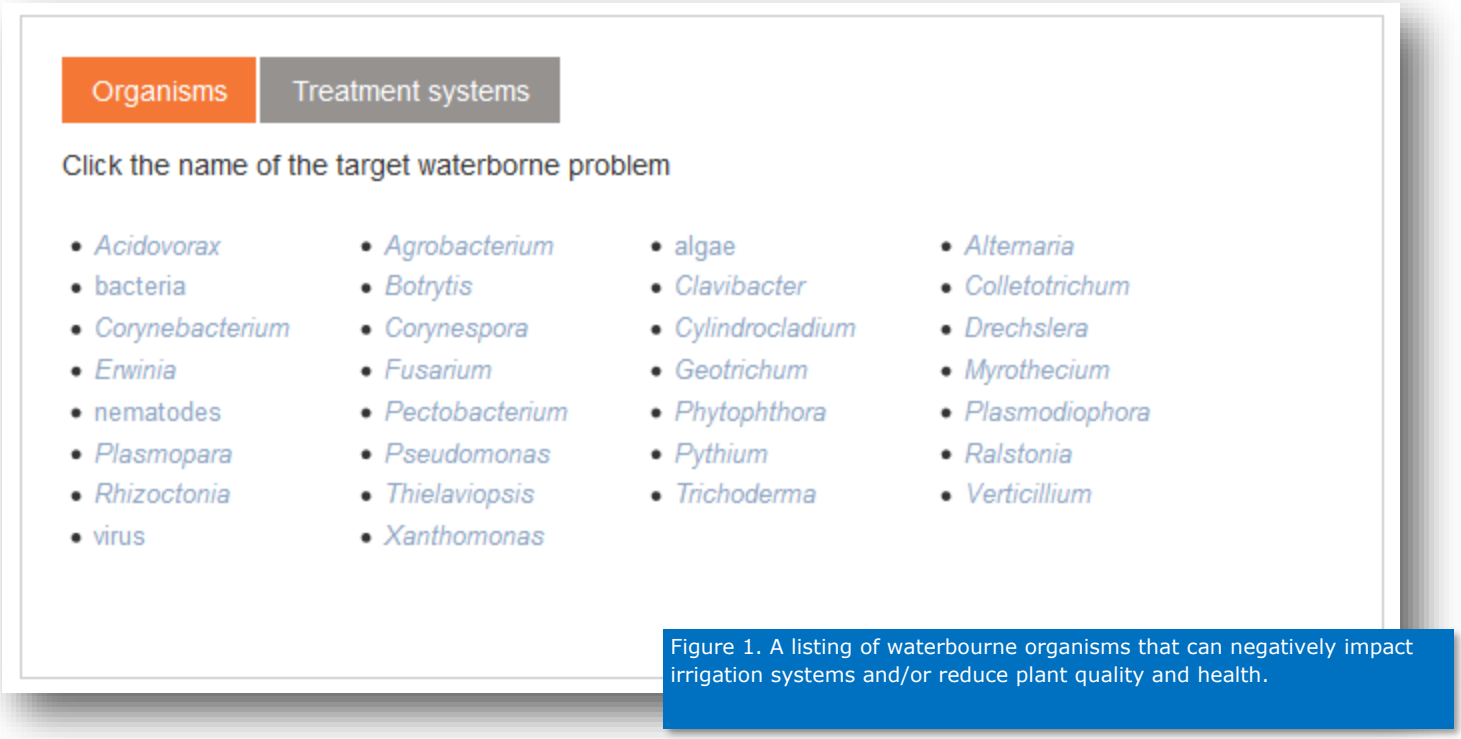

Figure 1. A listing of waterbourne organisms that can negatively impact irrigation systems and/or reduce plant quality and health.

For example, if a user clicks on the bulleted item "nematodes" (Figure 2) the site responds by displaying an overview of control systems with summary descriptions that are effective for managing nematodes. (See top of next page).

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Control of nematodes

Active ingredient	Summary
Chlorine (hypochlorous acid)	• A very high dose of chlorine (200 ppm for juveniles and 50,000 ppm for egg hatching) was required to achieve high mortality of the different life stages of *Meloidogyne javanica* nematodes • However, a lower dose of 2 ppm reduced motility of juveniles • In addition, application of 4 ppm chlorine applied daily for 4 weeks before planting reduced the amount of root galls observed in tomato plants by over 90% under greenhouse conditions where containers with peat/vermiculite were inoculated with nematode eggs.
	▾ Show detail...
Heat	• Drain water from a closed recirculating system inoculated with the nematode *Radopholus similis* heat-treated at temperatures greater than 49°C for 15 seconds resulted in 100 % control of the pathogen.
	▾ Show detail...
Membrane filtration	• Successive cartridge filtration with a final stage of 3 µm or less removed ≥97% of nematodes.
	▾ Show detail...

Figure 2. Listing of effective controls for nematodes.

Treatment Systems

You can also select the treatment options tab (Figure 3) to view which biological waterborne problems can be treated with any given solution (see next page).

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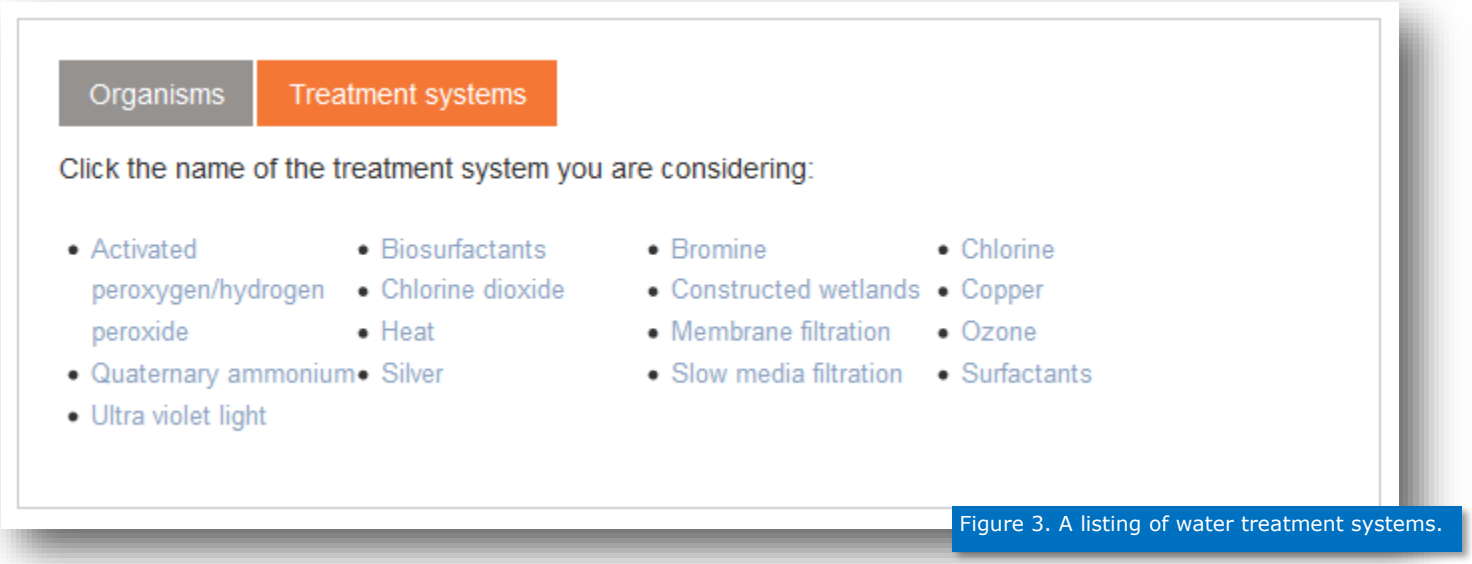

Figure 3. A listing of water treatment systems.

If the user clicks on **"surfactants"** (Figure 4) they can see what organisms are targeted by this treatment with summary information and detail on research.

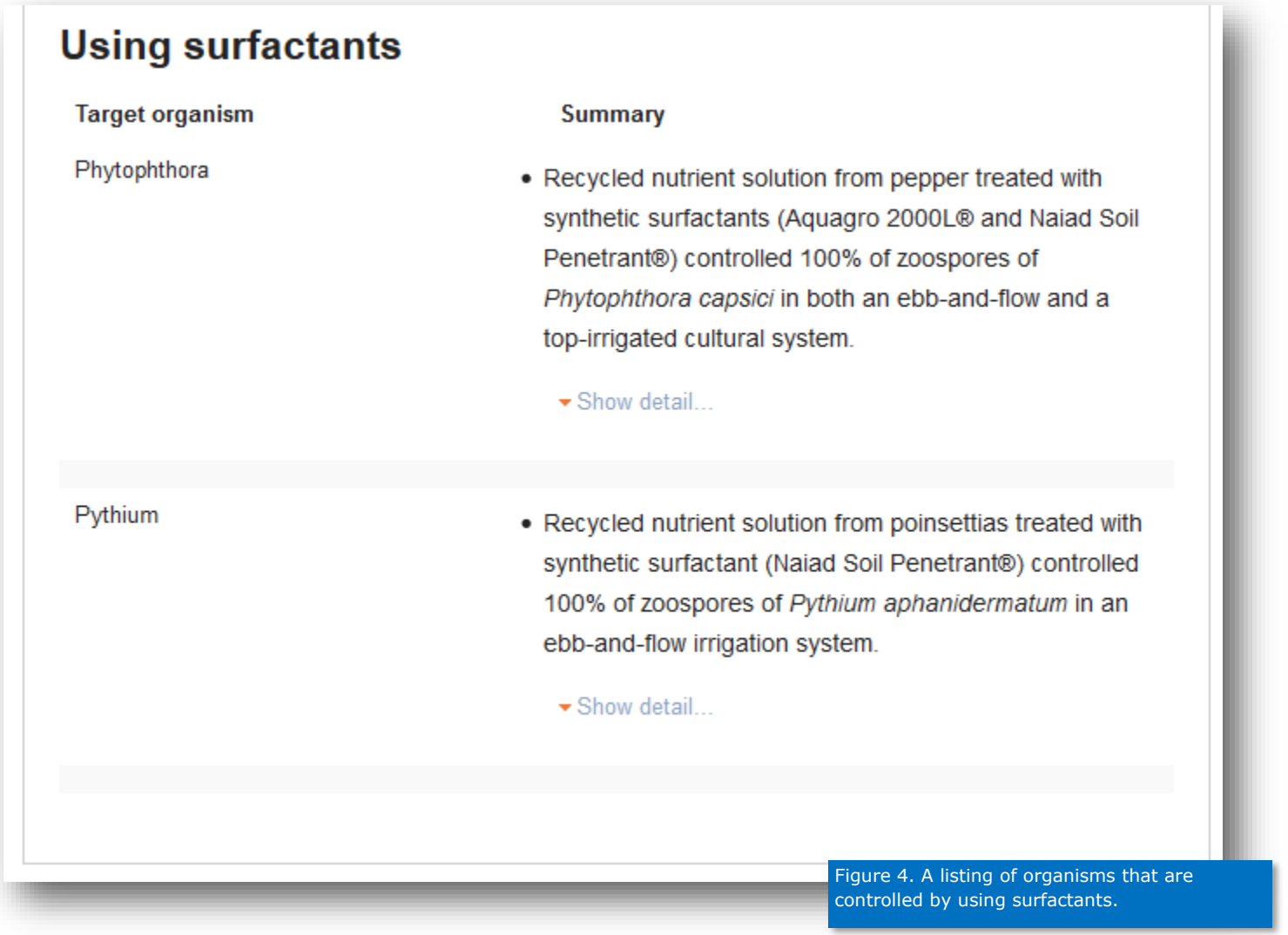

Figure 4. A listing of organisms that are controlled by using surfactants.

This free tool for growers and others are available on the **cleanwater3.org** site were developed with support from the **USDA Specialty Crop Research Initiative**. More information about this project is available on the website.

The University of Kentucky's **Nursery Crop Extension Research Team** is based out of two locations across the bluegrass to better serve our producers.

The **University of Kentucky Research and Education Center (UKREC)** in **Princeton** serves western Kentucky producers while our facilities and personnel on main campus in **Lexington** serve central and eastern Kentucky producers.

Check out our YouTube Channel!

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