

USU Extension Grant – Final Report

Project leader: Claudia Nischwitz

Project title: Survey of raspberries in Utah for plant diseases and insect pests

Beginning Date and End Date: June 1, 2015 – May 30, 2016

Total requested: \$9,261

Project objective:

A survey of Utah raspberry growers was conducted at the 2015 USU Urban and Small Farms conference to determine the main restrictions to their production. 72% of 29 participants indicated their biggest challenges were disease/insect pests. 71% indicated disease problems are unidentified. The survey of raspberries patches in Utah allowed us to identify disease/insect problems and provide management options to growers.

Project Results:

Twenty raspberry patches across Utah were surveyed. They were located in Cache (three patches), Rich (one), Davis (three), Utah (six), Salt Lake (one), Tooele (three) and Washington (three) counties. The raspberry patches were surveyed from May until September depending on growth stages of the plants.

Ten leaves were randomly collected for virus testing and another ten leaves for nutrient analyses. A soil sample for plant parasitic nematode testing was also collected. The plants were also surveyed for insect pests as well and samples collected for identification by Diane Alston.

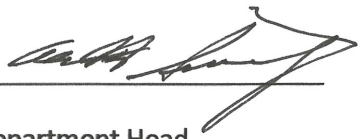
No fungal pathogens were found in the surveyed orchards. The most common viral infections were with Raspberry bushy dwarf virus (RBDV). It was found in 76% of the surveyed patches. This is not surprising since most varieties grown in Utah are not resistant to RBDV and most resistant varieties do not grow in Utah. The virus is pollen transmitted which makes the control of its spread very difficult. Another virus of concern for growers was Tomato ringspot virus (ToRSV) which we did not find in Utah. ToRSV is transmitted by dagger nematodes. The dagger nematodes were found in 24% of the raspberry patches tested. No other plant parasitic nematodes were found. By themselves these plant parasitic nematodes do not cause much damage to the plants. Their main negative impact is when they carry ToRSV. The most common nutrient problem was zinc and manganese deficiency. Many of the samples had high levels of nitrogen and iron in them. The symptoms of the iron, zinc, nitrogen and manganese deficiencies are very similar and due to the high pH in Utah soils, growers frequently assume that yellow to white leaves mean they are deficient in iron. Some of the growers commented that they applied iron, yet the leaves were still yellow/white. Spider mites, crown borer and horntail were the most common insect problems observed.

In conclusion, we were able to give the growers valuable information on what caused the symptoms in their raspberry patches. The information should help them improve their production. One grower tried

to get the other raspberry growers in his neighborhood to come together to manage RBDV but with limited success. The results were presented at the 2016 USU Urban and Small Farms conference and the undergraduate student working on the project presented it to the Utah legislature during the Utah Research on Capitol Hill event as well as at UCUR and NCUR. We will be applying for a Specialty crop Block grant in two or three years to repeat the survey to determine any changes in pests. With this survey we had covered all the raspberry patches in Utah of growers who were interested in the survey and we did not feel a SCBG at this time would provide a benefit.

Audra Nischwitz

Project leader



Department Head