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Cotton Aphid Management in Pomegranate: Slowing the Spread of Citrus Tristeza Virus in the San Joaquin Valley

Organization: University of California, Davis

Grant Award Amount: \$227,714

Citrus tristeza virus (CTV) is an aphid-transmitted virus and one of the most damaging pathogens affecting citrus. The incidence of CTV has increased significantly in recent years in the San Joaquin Valley and has threatened commercial production. As pomegranates are the only over-wintering host for cotton aphids, the production of cotton aphid spring migrants in pomegranates is likely a key component of the aphid-CTV complex affecting citrus. This project is to study the seasonal phenology and life history of the cotton aphid in pomegranate and citrus systems, and investigate methods that reduce densities of cotton aphid overwintering forms in pomegranates that potentially move to spring citrus.

Populations of overwintering cotton aphids, as well as egg deposits, were monitored and collected over a two-season period. The initiation of the development of the winged aphid stage occurred from late March to early April and was consistent across locations and years. The movement of the cotton aphid from pomegranate to citrus was studied and revealed that populations on citrus was detectable most commonly in early April. The flux of aphids into citrus in late March-early April coincides with the occurrence of winged (alate) aphids developing in pomegranates in the nearby areas. Studies on the developmental response of overwintering cotton aphid eggs and the hatching stage to temperature were conducted. The studies revealed that the optimal temperature range for eggs to hatch is 6-25 degrees Celsius (43-77 degrees Fahrenheit).

In addition, methods of managing cotton aphid populations were studied, including mating disruption and parasitoids. Two different traps and pheromones were used for aphid monitoring to gather data in order to assess mating disruption as a management method. Parasitoids were sampled from six sites that had pomegranates next to citrus. Recoveries show that *Aphelinus* sp. parasitoid does well under warmer weather conditions than the native aphid parasitoids, *Lysiphlebus* and *Aphidius* sp.

Lastly, the pomegranate and citrus acreage in the San Joaquin Valley was mapped to determine the areas of high risk. The completed survey included 268 square miles, 406 individual fields and 29,935 total acres.

Results and findings were extended to the scientific community and the involved industries, and were also presented at the UC Davis Pest Control Advisors (PCA) Conference, the Entomological Society of America conference, and the UC-ANR IPM meeting.

Improving Long-Term Sales and Competitiveness of Monterey Area Wine Grape Growers

Organization: Monterey County Vintners and Growers Association

Grant Award: \$199,485

Monterey County Vintners and Growers Association (MCVGA) represent most Monterey County wine grape growers/vintners, promoting wines from nine unique American Viticulture Areas (AVA). The concept of this project evolved from documented research showing a lack of awareness of Monterey's fine AVA labeled wines. The goal of this project was to increase growers' long-term sales and competitiveness by creating market awareness and promoting the unique characteristics of each AVA to media, targeted buyers, and consumers.

The MCVGA created print and web-based interactive AVA maps and histories featuring videos, searchable databases, and photos. Over 250 media and trade professionals received the map in a targeted PR campaign and sales representatives at a variety of winery-vintner operations began to use the map as a sales tool within their portfolio presentations to wine buyers and distributors. Also, MCVGA members created a limited release "Signature Series" wines to highlight the exceptional grapes of selected AVAs. A sampling of over 20% of the winery membership indicated that all members experienced or exceeded the initial goal of a 10% increase in sales. For example, one member experienced 365% growth in Chardonnay, 87% increase in Pinot Noir, and Sauvignon Blanc grew by 208%. By 2012 an independent survey revealed an increase in consumer awareness with 33.8% of the respondents recognizing Monterey as an area for winegrowing. The MCVGA more than tripled the number of impressions in media outlets. For example, in 2010 MCVGA acquired 277,228,390 impressions and in 2011 this number jumped to 857,896,236 impressions. The media value of referenced articles in 2011 was tracked at \$1.89 million. Lastly, the MCVGA increased traffic to the MontereyWines.org website by 220% from December 2010 to July 2012 and the total number of visitors increased 238%.

Over 80 vintner-grower operations within Monterey County, as well as additional brands that procure grapes from Monterey County, and who opt to label as such, reaped the benefits from this project. According to the Monterey County Ag Commissioner's Office, a cooperating entity for the project, the newly developed 2012 Economic Report showed that the overall economic impact of Monterey grapes to the County is over \$632M.

Helping Small, Latino, and Hmong Specialty crop producers to profit from new values based marketing channels

Organization: University of California, Davis

Grant Award: \$86,851

A new market is emerging in the produce industry that is driven by consumer demand for products with values attached of "local," "sustainable," "family farmed," "ethnic," and "identity preserved." The distribution industry, non-profits, and farmer organizations are mobilizing to meet this demand. They need appropriately prepared farmers to make these 'values based supply chains' (VBSC) succeed. Small, Hmong, Mien, and Latino farmers are a rapidly growing segment of California's agricultural landscape. However, many do not understand how to create an effective marketing plan with authentic branding messages, prepare for food safety audits, manage pack and grade, explore appropriate aggregation options or act cooperatively.

A grant from the California Specialty Crop Block Grant program has made it possible to create an outreach and education program targeting this clientele.

While workshops proved to be a weak tool with this audience, the University of California, Davis (UC, Davis) instead focused its efforts on experiential learning by introducing the growers to buyers during three tours of produce marketing districts in San Francisco, Los Angeles, and Sacramento. The tours were preceded by short workshops that were taught by native speakers or with translators. Growers were assisted in creating an edited profile to give to buyers that provided their unique marketing profile and basic information about what they grow, their farm, their story, and how to make contact.

The workshops, in collaboration with University of California Farm Advisors, targeted 80-100 farmers who, as early adopters, influence other producers in their communities. Evaluations completed during the workshops, and several months after the tours helped UC, Davis assess the number of marketing connections and other impacts that occurred as a result of the project.

Photos related to this project:



Hmong Farmer Workshop in Fresno



Grower Tour (FreshPoint)



Grower Tour (Southern California)

San Joaquin County AgVenture

Organization: San Joaquin County Office of the Agricultural Commissioner

Grant Award: \$75,250

Over 11,000 San Joaquin County third grade students went on an AgVenture this year to discover the San Joaquin County's agriculture. AgVenture is a free County-sponsored field trip to a place where volunteers display farm equipment and give talks about farming. The talks and displays focus on the production and processing of specialty crops, soils, water, and nutrition. For many of these students it was the first time they tasted olives, cracked walnuts, sat on a tractor, and learned how ketchup is made. The amazement in their faces was priceless.

The County, in partnership with the agricultural industry, hosted three AgVenture events this year. AgVenture's goal is to take school children on a journey from the farm to the fridge. After a very full two hours of presentations and hands-on experiences, students gained a greater understanding of the variety, quality, and healthy benefits of locally grown produce. They also leave with a greater appreciation of farming and its importance to our way of life.

Bonnie Plants, a contributor to AgVenture, distributed free cabbage plants and lesson plans to teach each participating third grader how to grow their cabbage. The program, the Bonnie Plant Cabbage Program, offers an opportunity to participating third grade students to win a \$1,000 scholarship for the largest cabbage grown at the end of summer.

The AgVenture has been committed to ensure that students gain awareness of the roles of agriculture in everyday life and nutrition in relation to healthy living. Surveys indicate that the students' knowledge of nutrition in relation to healthy living increased by 14% while their knowledge of the importance of agriculture increased by 11%.