



WASHINGTON STATE
UNIVERSITY
EXTENSION



ENHANCED PEST CONTROL IN CRANBERRIES

BY THE NUMBERS

- 20 seminars, workshops, demonstrations, field days, and educational events conducted annually that focus on agricultural profitability and food security.
- 80% of evaluated participants demonstrated increased knowledge and skills relative to one or more key learning objectives for enhancing productivity, efficiency, risk management, or sustainability of crop production systems.
- 80% of evaluated program participants applied knowledge gained from the program to enhance productivity, efficiency, risk management, or sustainability of crop systems.
- 4,500 acres of cranberries were impacted by WSU Research and Extension programs that enhanced productivity, efficiency, or sustainability of crop production enterprises.

2016

ISSUE

The Pacific Northwest (PNW) cranberry industry lacks effective means to control many of its insect, disease, and weed pests. In addition, it is losing the federal registration of many of its control tools. With the switch to new, reduced-risk pesticides, both new and secondary pests recently have become limiting factors in crop production. An outbreak of cranberry tipworm in one Washington growing region resulted in a crop reduction of 30% in 2013 and 2014. Growers have no available control for tipworm. Programs are needed to develop pest control alternatives, and outreach is needed to provide these programs to the industry. Cranberry production in Washington also has been limited by the availability of suitable varieties for the PNW. As a consequence, average state production of cranberries per acre has been merely half that of other growing regions. It is suspected that the genetic purity of cranberry vines in the PNW has been compromised. A program to assess the genetic purity of vines and one that evaluates and develops new cranberry germplasm for Washington is critical for improving production and marketability. An oversupply of the world's cranberries has resulted in a major decline in grower returns from 2013 to 2015. To make Washington growers competitive, opportunities for new markets need to be developed.

RESPONSE

WSU Extension obtained funding and conducted research to develop new pest management tools, assess genetic purity of current vines in Washington, and establish cranberry germplasm screening trials in Oregon and Washington. Cooperative research programs with other cranberry researchers from Rutgers University, USDA, the Universities of Wisconsin and Massachusetts, and Ocean Spray were developed and maintained. Grower trials in pest management and variety selection were implemented across the different growing regions in Washington, Oregon, and British Columbia. A new variety of cranberry, Willapa Red, was developed and released to growers. Outreach programs on research findings were provided to growers via workshops, field days, newsletters, professional meetings, YouTube videos, and short courses. A four-day short course to help growers achieve Global GAP certification was conducted to enhance the marketability of their fresh fruit.



QUOTES

“Research and outreach provided by WSU Longbeach has been critical to maintaining the cranberry industry in the PNW. Dr. Patten’s work on pest management has solved most of the industry’s major insect and weed problems. His work on variety development and purity has helped to turn around our low yields.”

PARTNERSHIPS

Research Partners include Dr. DeFrancesco, OSU; Kevin Talbot and Brian Mauza, Ocean Spray; Drs. Caruso and Sandler, University of Mass.; Drs. Vorsa and Oudemans, Rutgers University; and Drs. Polashock and Steffan, USDA. Funding Partners include Washington State Cranberry Commission, BC Cranberry Marketing Commission, Ocean Spray, Cranberry Institute, Oregon Cranberry Growers Association, and Washington State Commission on Pesticide Registration.

IMPACTS

Over the past decade this program’s efforts have resulted in more than a dozen new pesticides being registered. This includes herbicides, insecticides, and fungicides. These products are being used to replace older, traditionally high-risk chemistries.

Their combined uses on a majority of all the cranberry acres in the Pacific Northwest have resulted in a significant increase in yield, reduced crop loss, and reduced overall tonnage of pesticide used (from 250,000 pounds of herbicide and 10,000 gallons of insecticide per year to less than 50,000 pounds of herbicide and 1,000 gallons of insecticide). This resulted in WSDA waste pesticide pickup of more than 30,000 pounds from cranberry growers in Washington, and an improved water quality in total maximum daily loads for the Grayland drainage district.

The project also has resulted in the virtual elimination of a major pest (Blackvine Weevil) that was causing more than \$100,000 a year in crop damage. Several chemistries were found that would control tipworm and an integrated pest management program for its control was developed. As a result of our DNA screenings, it was determined that off-type varieties were being grown in Washington and still being used for new plantings. These off-types were the major reason for Washington’s low production. New sources of “pure” varieties were identified and are now in use.

As a result of our germplasm trials, many growers are transitioning to new, better adapted varieties and obtaining superlative yields. Several independent growers received Global Gap certification in 2014, allowing for a five-fold increase in their returns, which helped prevent the loss of their farms.