

Program Activities and Outcomes

FQPA legislation instilled concerns about surface water contamination by pesticides usually used on cranberries (e.g., chlorpyrifos, diazinon). Research for acceptable alternatives led to the development of biorational control methodology (Kim Patten, WSU). Biorational implies that these chemicals are more selective for the pest and easier on the environment. There were 1,650 acres of cranberries grown in Washington State in 2003, mainly in Whatcom, Grays Harbor, and Pacific Counties, and half the acreage was treated with biorational pesticides.

Biorational control methods such as tebufenozide and methoxyfenozide for the blackheaded fireworm showed promise. Tebufenozide was used by 22% of the growers in 2003, but that use has decline because of a lack of consistent efficacy. Intrepid was not used, because Chenmigation was not ion the label. The new label with chemigation came to late for 2004. The use of Intrepid should increase in 2005. An expanded label for Admire (imidacloprid) for weevil control on cranberries led to more effective management of black vine weevil (used by 99% of growers with weevil problems). Efficacy has been reasonable and the financial impact to the industry has been considerable.

Research on alternative herbicides for pesky perennial weeds in cranberry showed that the IPM-compatible chemicals vinegar (acetic acid), mesotrione (Callisto), Raptor (imazamox) and chlorimuron-ethyl (Classic) were efficacious against certain perennial broadleaf weeds. Acetic acid provided excellent control of False Lily-of-the-Valley and moss; two applications of mesotrione managed most annual and perennial broadleaf weeds in the short-term. A Section 18 registration for mesotrione in 2004 resulted in major use of this herbicide and significant reduced in crop losses due to weed pressure.

Fungicide timing studies examined the effectiveness of a dual control program for twig blight and fruit rot (*Botrytis*), using azoxystrobin (Abound), chlorothalonil, and fenbuconazole. It was found that azoxystrobin plus fenbuconazole provided control for both twig blight and fruit rot. A Section 3 registration (supplemental label) of the reduced-risk fungicide, Abound (azoxystrobin), was obtained for control of fruit rot and twig blight in April 2003, but was used by less than 5% of the growers. In 2004, That use has expanded and growers have been very satisfied with the results. Much higher use is expected in 2005.

Educational outreach activities in the cranberry growing regions were designed to teach the procedures for using the newer products as replacements for organophosphates. In addition, there was training on Best Management Practices to improve surface water quality. Public events included Cranberry Field Day, attended by 60% of the growers, the Grower IPM Winter Workshop, attended by 90 % the growers, and the Spring Pesticide Training, attended by 85 of the growers. The Cranberry Pest Management Guide is updated annually.

Method of Collecting Information

Surveys were conducted in January to determine baseline adherence to IPM guidelines. Transition to use of reduced risk insecticides from organophosphate

insecticides by cranberry growers was and is being documented annually via grower surveys, pesticide use reports, and water quality monitoring data.

Major Pests

blackheaded fireworm, cranberry girdler, blackvine weevil, perennial weeds, fruit rot and twig bight

Leading Indicators

Indicator 1.1 Number of production units or entities using IPM

Year	Planned	Actual	Measurement Unit
2000	100		acres
2001	150	800	acres
2002	200	800	acres
2003	200	800	acres
2004	200	800	acres

Indicator 1.2 Transition from high risk to lower risk pesticides

Year	Planned	Actual	Measurement Unit
2000	1.0		growers
2001	2.0	60.0	growers
2002	2.0	40.0	growers
2003	2.0	20.0	growers
2004	3.0	20.0	growers

Indicator 1.3 Total amount of high risk pesticides applied

Year	Planned	Actual	Measurement Unit
2000	3.0		number of applications per season
2001	2.0	2.0	number of applications per season
2002	2.0	2.0	number of applications per season
2003	2.0	2.0	number of applications per season
2004	1.0	2.0	number of applications per season