

Implementation

A SYSTEMS APPROACH ALTERNATIVE TO METHYL BROMIDE FUMIGATION FOR THE EXPORT OF APRICOTS, NECTARINES AND PEACHES TO BRITISH COLUMBIA, CANADA

Michael J. Willett
Northwest Horticultural Council, Yakima, WA

Keywords: methyl bromide, oriental fruit moth, *Grapholita molesta*, systems approach, British Columbia, apricot, nectarine, peach

Introduction. Postharvest fumigation with methyl bromide (MeBr) is a commonly used treatment to provide security against the movement of quarantine pests when exporting agricultural products. However, MeBr has been implicated as an ozone-depleting substance. Under terms of the Montreal Protocol postharvest commodity treatment uses will be retained in some form. Until its amendment in the 105th Congress, the U.S. Clean Air Act was even more restrictive, eliminating all uses of methyl bromide by 2005. MeBr restrictions under the amended Clean Air Act are in line with current Montreal Protocol requirements regarding postharvest use of the product.

For soft fruit growers in the Pacific Northwest, British Columbia, Canada, is an important market. In 2000 for peaches alone, British Columbia was the third largest export market following Taiwan and the province of Alberta. Based on official survey information, a key stone fruit pest, oriental fruit moth (*Grapholita molesta* Busck) (OFM), does not exist in British Columbia. This insect is found in the Northwest states of Idaho, Oregon and Washington as well as California. Prior to 1999, all soft fruit exported to British Columbia was required to be fumigated with MeBr.

In spite of its relative importance, the absolute size of the British Columbia market precludes Northwest growers from making unjustifiable investments in sophisticated fumigation and cooling facilities. Fruit kept at lower pulp temperatures must be fumigated with higher rates of MeBr, risking phytotoxicity or, if warmed for fumigation at lower MeBr rates, risking product quality deterioration unless rapidly cooled immediately after fumigation. Northwest soft fruit shippers would prefer not to fumigate.

In 1998, the Canadian Food Inspection Service (CFIA) approached USDA's Animal and Plant Health Inspection Service (APHIS) seeking to determine if the U.S. would be interested in developing an alternative to fumigation of soft fruit exported to British Columbia. This request was driven by that region's retail produce industry concerns about the loss of soft fruit supplies should postharvest quarantine uses of MeBr be eliminated in the U.S. On behalf of its potentially affected industries, APHIS responded positively. The Northwest Horticultural Council represented the Northwest industry in developing a protocol, assisted by a subcommittee of the industry's growers and shippers.

A Systems Approach as an Alternative. No direct treatment alternative to MeBr that would provide quarantine security for OFM has been shown to be effective for use on soft fruit. However, in 1997 the California stone fruit industry developed a systems approach alternative to MeBr fumigation for the export of peaches to Mexico. Again the pest of quarantine concern is OFM. Since 1997, APHIS has operated a pilot program, qualifying a percentage of their shipments to Mexico. The balance is fumigated.

Systems approaches integrate biological, physical, and operational factors that can affect the incidence, viability and reproductive potential of a pest into a system of practices and procedures that together provide quarantine security. Because an approach such as this requires two or more components to provide quarantine security, systems approaches can be more difficult to manage and costly. On June 26, 1999, CFIA approved an OFM certification pilot program for the states of Idaho and Washington based on the Mexico systems approach concept. A separate program with slightly different requirements was approved for California. Nineteen loads a week were approved for all three states.

The specific components of the Pacific Northwest OFM systems approach are:

- Low prevalence of OFM in production areas.
- Orchard monitoring for OFM.
- Control in the orchard: Mating disruption or insecticides.
- Recordkeeping: Monitoring and treatment records.
- Fruit inspection in the orchard, from the cull bin and from packed boxes.
- Inspection upon arrival in British Columbia.

1999-2000 Results and Considerations for 2001. Approximately 15 loads of soft fruit from the state of Washington were shipped to British Columbia from July through September 1999. No quarantine pests were detected in any load. Insects detected were peach twig borer and leafrollers. Most exports to British Columbia were fumigated. Preliminary indications are that this volume has increased substantially this past year. In 2000 one live and one dead OFM larvae were reportedly detected in two separate shipments late in the season. Specific work plan issues which would improve systems approach implementation are reducing the amount of fruit cut from the orchard and cull bin; eliminating the shipment quota; and including plums and prunes in the work plan.