

## **Area-wide mating disruption of multiple species in horticulture.**

Alex IL'ICHEV

Biosciences Research Division, Department of Primary Industries, Victoria, 3616, Australia

[alex.ilichev@dpi.vic.gov.au](mailto:alex.ilichev@dpi.vic.gov.au)

Area-wide pheromone-mediated mating disruption (MD) has been successfully used for long-term and sustainable Integrated Pest Management (IPM) programs in Australian orchards. An initial area-wide MD program, with more than 1,100 ha of 40 contiguous orchards covered with MD dispensers, applied to all fruit trees in the Cobram region of northern Victoria, Australia, substantially improved protection against OFM damage during 3 years. The successful use of hand-applied MD dispensers for long-term sustainable control of oriental fruit moth (OFM) and codling moth (CM) have been well documented for over 20 years in Australian orchards. At the beginning the general approach was to treat individual orchard blocks and only known host-plant with MD for individual pest species. The ability of OFM and CM to migrate between orchards, quickly invade new host-plants and together damage the same variety stimulated grower's need to cater for both pests in their IPM strategies. Later area-wide MD program to control OFM and CM has been successfully established in Greater Shepparton and Invergordon regions of northern Victoria. Our results of field trials conducted over three consecutive seasons demonstrated that dual-species hand-applied dispensers, designed to disrupt both CM and OFM, were as effective as single-species dispensers applied individually by reducing moth numbers and fruit damage to a similar degree. However, disruption efficacy of some dual-species dispensers was significantly lower near the end of the season for OFM because of depletion of active ingredients. Effective disruption of CM and OFM was also obtained with a multi-species formulation that releases the main pheromone components of both CM and OFM and several leafroller species. Our results provided evidence that simultaneous disruption of several Tortricidae species with a single hand-applied dispenser will be economically advantageous in regions where control of multiple pests is needed in the same variety. Some problems of simultaneous disruption of multiple species in horticultural crops will also be discussed. Semiochemical-based IPM and selective area-wide MD programs are the key elements in development of cost effective strategies for pest control while protecting the environment by reducing pesticide pressure in orchards.