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"Pheromones and other semiochemicals in integrated production" & "Integrated Protection of Fruit Crops"

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Book of Abstracts

ORAL PRESENTATIONS

ABSTRACTS

SESSION 1

MANAGING BENEFICIAL INSECTS BY SEMIOCHEMICALS

CHAIRPERSON: ANDREA LUCCHI

A new bisexual kairomone lure for codling moth

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Abstract

Finally, the promise of pear ester (*E, Z*)-2,4-decadienoate as a potent bisexual attractant for codling moth *Cydia pomonella* (L.) has been realized through the creation of powerful new multi-component kairomone blends. This discovery comes nearly 20 years after Dr. Douglas Light revealed the attractiveness of pear ester as the first identified individual kairomone that was effective at rates similar to a sex pheromone and attractive to both sexes of moths (Light et al. 2001). Pear ester used within walnut groves is a powerful attractant, but in pome fruits many factors impacted its effectiveness, such as crop, cultivar, seasonality, crop load, and the presence of fermenting fruit on the orchard floor. Pear ester also performed well when used in combination with the sex pheromone and a 'Combo' lure has been adopted throughout the world to monitor *C. pomonella* in orchards treated with sex pheromones for mating disruption (Knight et al. 2005). A number of studies have developed lure blends including pear ester that have improved its performance (Landolt et al. 2007; Landolt et al. 2014; Jaffe & Landolt, 2018). The use of n-butyl sulfide in combination with acetic acid and pear ester (BSAAPE) has been purported to be a more effective lure than pear ester alone and has recently been tested effectively to mass trap *C. pomonella* in commercial orchards (Jaffe et al. 2018). In a continuing effort to develop new bisexual lures for *C. pomonella* a series of field trials were conducted with delta traps with removable liners and with bucket traps using propylene glycol during 2018. During a serial process of testing new attractant blends a potent multi-component blend was identified. This blend consistently outperformed the use of BSAAPE, by 3-fold. The proportion of female moths caught with the new blend ranged from 60 to 80% during the summer. The new blend was equally effective in apple blocks with low fruit loads and in an orchard with a heavy fruit load with low (early season), moderate (mid-season) and high levels (late season) of fruit injury and even later in the season when the orchard floor was littered with fermenting fruits. The new blend outperformed several sex pheromone lures in blocks both untreated and treated with sex pheromone dispensers. The attractiveness of this blend was also tested in combination with sex pheromone lures and male catch was significantly increased and female catch declined slightly when the sex pheromone was added. Subsequent tests have expanded the list of plant volatiles that can be effective when substituted within this blend. Trials continue to develop these lures in the southern hemisphere during 2018-19 and updated information will be presented at the meeting.

Key words: apple, kairomones, n-butyl sulfide, acetic acid, pear ester

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