

# IOBC-WPRS | Working Groups "Integrated Protection of Fruit Crops"

Joint meeting of Sub-Groups "Pome Fruit Diseases" & "Pome Fruit Arthropods"

14th - 18th September 2025 | The Netherlands



	application of pest management strategies	
12:05-12.15	Discussion	
12:15-13:15	Lunch	
13:15	Session Pome Fruit Arthropods - IPM apple aphids	Chairs: Herman Helsen & Adriana Escudero
13:15-13:35	Application of <i>Cinnamomum cassia</i> essential oil by trunk injection as a bio-insecticide in fruit arboriculture	Thierry Hance
13:35-13:55	Preliminary Results of inundative Release of beneficial Insects in Apple Orchard	Nina Haas
13:55-14:15	Can augmented release of earwig ( <i>Forficula auricularis</i> ) control woolly apple aphid ( <i>Eriosoma lanigerum</i> ) in apple trees?	Michelle T Fountain
14:15-14:35	Offering alternative sugar to disrupt ant-aphid mutualism: control of rosy apple aphid	Sarah Kemp
14.35-14.55	Reinforcing ecosystem services through diversification towards pesticide-free orchards	Aude Alaphilippe
14:55-15:30	<b>Flash Presentations</b>	
	Susceptibility of <i>Aphelinus mali</i> (Haldeman) to different products used in apple orchards in Trentino (Northern Italy)	Serena Giorgia Chiesa
	Side-effects of insecticides on the survival and behaviour of <i>Aphelinus mali</i> , the parasitoid of the woolly apple aphid <i>Eriosoma lanigerum</i>	Alberto Pozzebon / Alberto Mele
	The use of alternative products in the control of apple woolly aphid ( <i>Eriosoma lanigerum</i> )	Jana Ouředníčková
	Chemical investigation of the alarm pheromone of <i>Eriosoma lanigerum</i> for sustainable pest management	Eleonora Fabris
	Discussion	

## Susceptibility of *Aphelinus mali* (Haldeman) to different products used in apple orchards in Trentino (Northern Italy)

Sara Zanoni, Cristina Tomasi, Emanuela Coller, Serena Giorgia Chiesa

Technology Transfer Centre, Fondazione Edmund Mach, via E. Mach 1, 38098 San Michele all'Adige, Italy

*Aphelinus mali* (Haldeman) is the most important biological control agent of woolly apple aphid (WAA) *Eriosoma lanigerum* (Hausmann), a serious pest of apple. The first adults of *A. mali* emerge only when the WAA has already gone through one generation, and its innate capacity to increase is considerably lower than its host. In fact, the rate of parasitism reaches high levels (80-90%) in late summer. Furthermore, some plant protection products commonly used in apple orchards could compromise the effectiveness of *A. mali* on biological control. In Trentino region (Italy), the first flight peak of *A. mali* usually occurs in the post-flowering period. Afterwards, an exponential flight increase and the consequent culmination of the parasitisation ratio in summer is observed, generally at the end of July. To understand the possible effects of different active substances on *A. mali* activity, we tested several plant protection products commonly used in integrated and organic pest management programs. The direct treatment effect (topical sprays in Potter's Tower) of insecticides and fungicides on parasitized mummies (closed, with parasitoid inside) were investigated under laboratory conditions. The products used in trials were Decis®Evo (a.i. Delthametrin, as a chemical reference), a mixture preparation containing Vernoil (paraffin mineral oil) and Thiopron® (a.i. Sulphur), Polithiol® (a commercial formulation of emulsifiable suspension containing paraffin oil and sulphur) and Pirimor®50 (a.i. pirimicarb). A treatment with water was used as control. The products were tested at recommended field rates. Twigs with parasitized woolly apple aphids were collected in spring from an untreated orchard and kept in a cool room until needed. Parasitized mummies were removed from the infested twigs and selected under the stereomicroscope for the Potter's tower treatments. Forty mummies per thesis were used. The experimental design was replicated and reproduced in two different timings. After the treatment, the mummies were kept in a climatic chamber under constant climatic conditions ( $25\pm 1^\circ\text{C}$ ,  $60\pm 5\%$  R.H. and photoperiod 16:8 (L:D). The mummies were examined at 5, 7, 12, 16 days after the treatment and the emergence of adult parasitoids was evaluated. At the same time, a commercial apple orchard was divided in two blocks: untreated and treated with the mixture preparation containing Vernoil (paraffin mineral oil) and Thiopron (a.i. Sulphur), at BBCH 01. After that, treated and untreated *Eriosoma lanigerum* colonies were collected from the field, selected under stereomicroscope and positioned in an aerated box until *A. mali* adults completely emerged. The results of direct effect trial in Potter's Tower showed that the commercial formulation containing paraffin oil and sulphur (Polithiol) caused a lower *A. mali* emergence rate than the other products. The preliminary field results showed a lower percentage of parasitoid emergence on mummies collected in the plot subjected to the winter treatment. Further studies are necessary to understand if insecticides and fungicides can influence the first peak of *A. mali* flight in the post-flowering period and the consequent parasitisation ratio in summer.