

Arocatus melanocephalus a hemipteran pest on elm in the urban environment

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Abstract

Following sudden outbreaks of *Arocatus melanocephalus* (F.) (Heteroptera Lygaeidae) in Turin (northwestern Italy), investigations have been carried out between 2006 and 2007. The population of the bug was assessed hanging yellow sticky traps on *Ulmus* spp. trees, according to the height of the foliage, and using beat trays. A white plastic tray was held under the main branches, which were struck 15 times, to dislodge the bugs onto the trays. In the laboratory all the traps were checked and the collected bugs were then counted. During both years chemical treatments were performed.

Adults of *A. melanocephalus* began to move from the wintering sites to the host plants in March. Adults were always recorded during monitoring; but in 2007, despite the chemical treatments, a clear increase in the bug population was observed. All the bugs collected were 3,374, and 7,614 in 2006 and 2007, respectively, showing a poor effectiveness of the chemical measures applied. An effective method to contrast the arrival of the adults inside the houses may be pruning trees and thinning the foliage. The data collected show the need to carry out sprayings during May, in order to hit the young instars.

Key words: bug, *Ulmus* spp., outbreaks, urban pest, chemical control.

Introduction

During the last years outbreaks of *Arocatus melanocephalus* (F.) occurred in several regions of Italy, such as Friuli-Venezia Giulia, Veneto (Zandigiacomo, 2003), Reggio Emilia (Santi and Baronio, 2002). This species is commonly distributed in central-southern Europe. In Italy it is present in the entire Peninsula, and it was already reported in Turin (Piedmont) in the second half of the nineteenth century, as reported by Lessona (1878). This bug feeds on elm seeds (*Ulmus* spp.), but it can also be observed on other trees. It accomplishes one generation per year and adults overwinter in the cracks or under the bark of elms or other trees. Mating and egg-laying occur in the fruits (samaras). The presence of the pest caused problems to people, due to its habit of entering in large numbers inside houses and other buildings.

Materials and methods

Investigations were carried out in the two-year period (2006-2007) in Turin, and six avenues with elm trees were chosen to assess the bug population. In each site the traps were placed on four plants, and replaced weekly from March to September. On each plant four yellow sticky traps were hung homogeneously, according to the height of the foliage, with the aid of an elevating system. In addition to sticky traps, the pest was also monitored using beat trays. A white plastic tray was held under the main branches, which were struck 15 times, to dislodge bugs into trays. During sampling, plants were carefully examined for the presence of eggs, nymphs, and adults. In the laboratory all the traps were checked and the bugs collected were then counted.

In 2006 trees were sprayed initially with Biopiren Plus® and after one month an endothermic treatment was performed in all the sites using Vertimec®, while in

2007 Decis® Jet was sprayed experimentally only in two sites. Furthermore, the effect of pruning was also tested.

Results

Adults of *A. melanocephalus* began to move from the wintering sites to the host plants in March. In both years, first eggs, laid inside the flower cup, were observed since the beginning of May, while young instars appeared since 20th May. Adults were always recorded during monitoring; but in 2007, despite the chemical control measures taken, a clear increase in bug population was observed. In fact, while in 2006 a total of 1,754 and 1,620 adults was collected using sticky traps and beat trays, respectively, in 2007 1,154 adults were already caught at the end of March only by using sticky traps. This showed a poor effectiveness of the chemical measures applied.

The population trend recorded with both sampling methods is shown in figures 1-2.

At the middle of June a lower presence of adults was recorded on the plants and at the same time there were many reports on the presence of tens of adults on balconies and inside houses. In fact, as reported by Reggiani (2005), in the adult stage the bug leaves elm trees and spreads in the environment, also invading the buildings closer to plants, probably due to the higher temperature inside them.

On the trees, which were pruned in winter, adults were collected only from the end of May.

Discussion

The causes of the outbreaks of the bug population, that occurred suddenly in these last years, have not yet been explained.

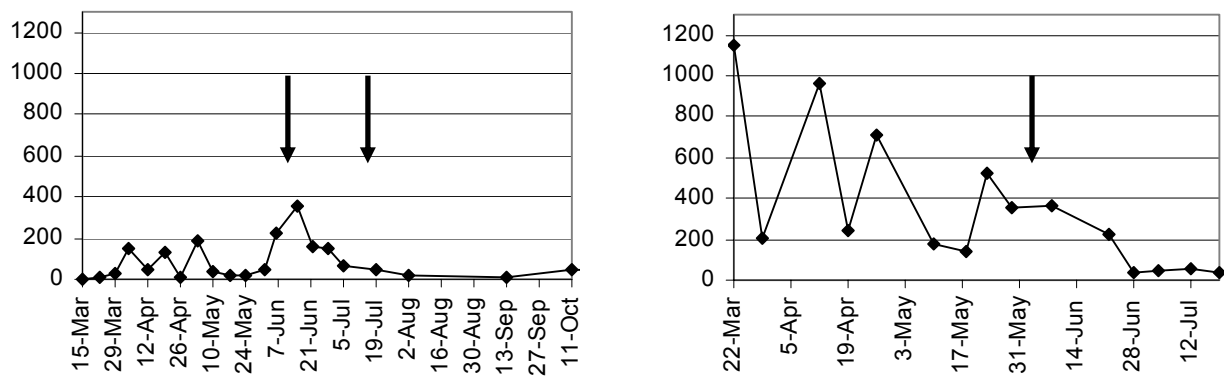


Figure 1. Population trend of *A. melanocephalus* adults, recorded on sticky traps in 2006 (left) and 2007 (right). Arrows show treatments applied with Biopiren Plus® and Vertimec® in 2006 and with Decis® Jet in 2007.

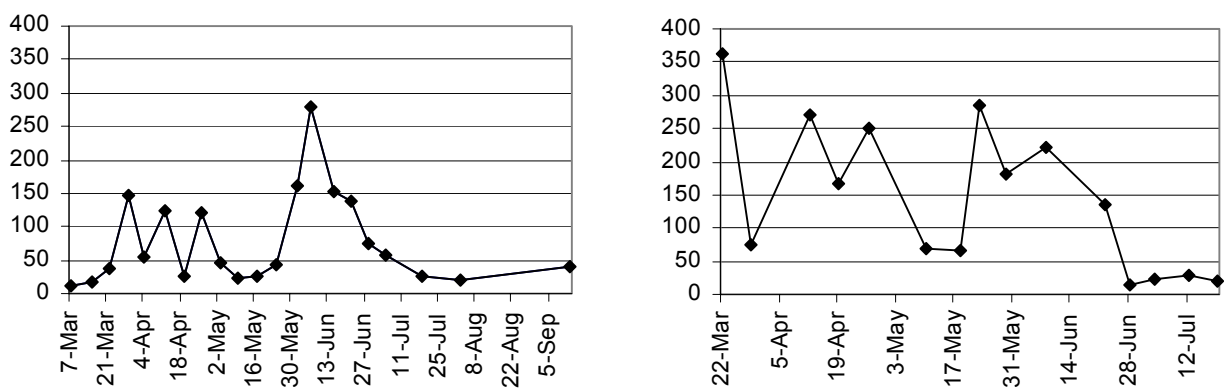


Figure 2. Population trend of *A. melanocephalus* adults, recorded using beat trays in 2006 (left) and 2007 (right).

To minimize the inconvenience caused to people, it is important to contrast the arrival of the adults in the houses; an effective method may be pruning trees and thinning the foliage. In this way, the number of fruits may be reduced and at the same time chemical control measures may be favoured. The use of mosquito nets may be also useful to avoid the entrance of adults. In other cities treatments with etofenprox, pyrethrum, and rotenone were made, but only the first one proved to be effective.

The data collected in the two-year period and the results presented by other authors show the need to carry out sprayings before, during May, in order to hit the young instars.

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