

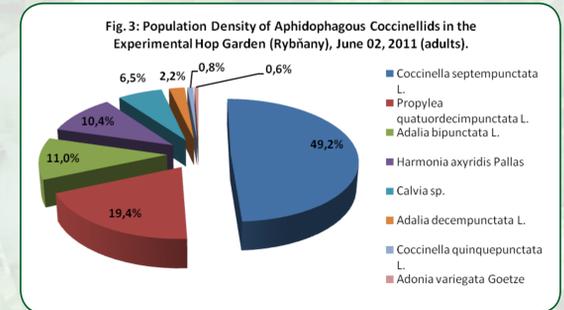
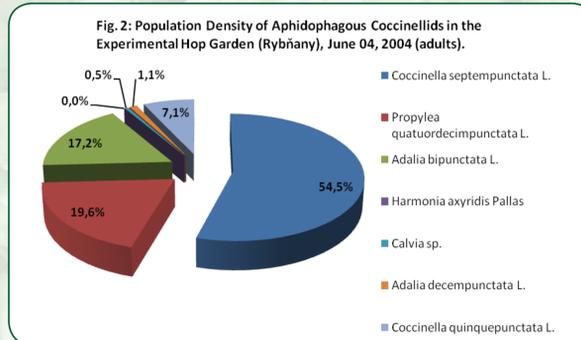
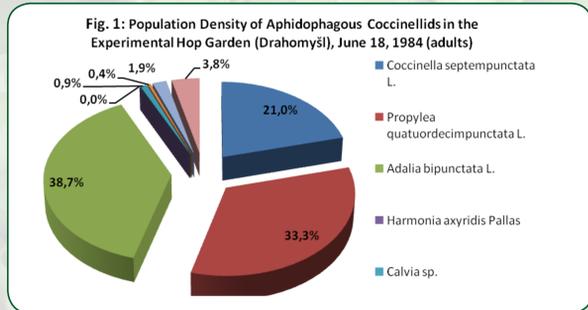
# STRUCTURAL CHANGES IN THE GUILD OF APHIDOPHAGOUS COCCINELLIDS IN BOHEMIAN HOP GARDENS.

Vostřel, J.

Hop Research Institute, Kadanska 2525, 438 46 Zatec, Czech Republic



The spectrum of aphidophagous coccinellids has changed considerably in Bohemian hop gardens. It was caused by invasion of Asian harlequin ladybird *Harmonia axyridis* (Pallas). Whereas, in the period before its invasion native species *Coccinella septempunctata* L., *Adalia bipunctata* L. and *Propylea quatuordecimpunctata* L. used to be the dominant predators of damson hop aphid (*Phorodon humuli* Schrank), *H. axyridis* is the most frequent ladybird species in Zatec (Saaz) hop growing region nowadays. Whereas six years ago harlequin ladybird represented just ten percent of the total *Coccinellidae*, since 2015 it has become the most abundant ladybird species. It may have been caused by aggressiveness of *H. axyridis*, whose larvae were observed to feed on eggs and young larvae of the native species. To prevent attacks from larvae of *H. axyridis*, females of *C. septempunctata* appeared on hop plants and began to lay eggs earlier as illustrated by the presence of the fourth instars larvae in the time when larvae of *H. axyridis* reached smaller size and were not competitive enough. This phenomenon was observed in our experimental garden in Steknik in 2016 again. Whereas *H. axyridis* represented 77.4% of all the coccinellid adults, native species, especially *C. septempunctata* and *A. bipunctata*, which used to be dominant predators of damson hop aphid in the past, were very scarce. The arrival of this aggressive invasion species has undoubtedly negative effect on native guild of aphidophagous coccinellids because of its huge aggressiveness and so its presence is questionable.



## ACKNOWLEDGEMENT

The work was supported by Ministry of Agriculture of CR within Institutional Support for the Development of Research Organization RO1486434704.

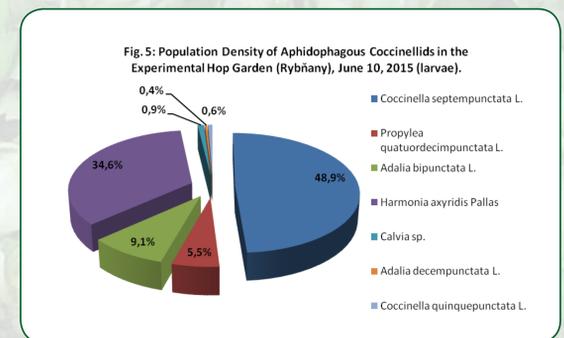
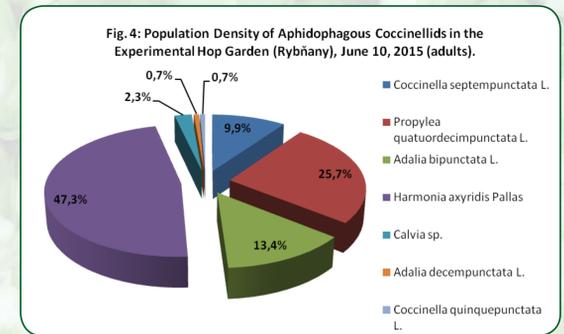
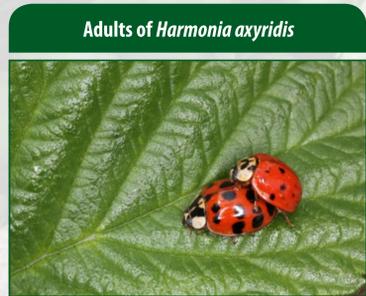


Figure 7: Population density of aphidophagous coccinellids in the experimental hop garden (Steknik near Zatec), June 2016 (adults)

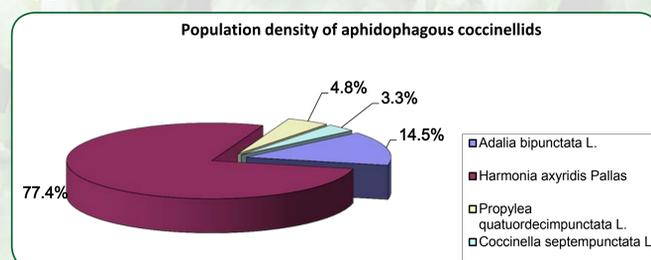


Fig. 6: Lady bird species - number of adults - years 1984, 2004, 2011 and 2015.

