



Koppert

Know Thy Enemy

The appearance of a
new *Myzus persicae*
genotype



Partners
with Nature

Myzus persicae is well known to quickly develop pesticide resistance. In the past 80 years they have become resistant to various organophosphates, cyclodienes, carbamates, pyrethroids and neonicotinoids. Well known products, such as Gazelle, Closer, Sequoia, Sivanto Prime and now recently also Teppeki (active ingredient flonicamid), have become ineffective at controlling these aphids. A new *Myzus persicae* genotype less sensitive (LS) to flonicamid appeared in 2021 in the Netherlands. It quickly spread throughout the country in 2022.

It has now also been found in various other countries, including Belgium, Germany, England, Portugal, Hungary and even Canada (Table 1). New products such as Verimark (active ingredient cyantraniliprole) have appeared on the market since. However, loss of sensitivity to such chemicals is expected to occur in only a few years, especially now that only few chemical products are available and therefore intensively used.

Country	# samples	LS genotype
Netherlands	37	57%
Hungary	2	100%
Canada	15	47%
Belgium	12	42%

Table 1. Occurrence of *Myzus persicae* flonicamid-less sensitive (LS) in sampled countries.

Identification

Despite earlier assumption that the new genotype of *Myzus persicae* could be easily distinguished from the 'regular' *M. persicae* in the field (based on how it looks), this was not the case. Claims about this genotype being a darker shade of green and having stripes on their body have proven false. Due to this lack of visual characteristics, the Samples & Diagnostics (S&D) and R&D Microbials departments of Koppert developed a new screening method.

It is based on methods developed at the Wageningen University & Research and uses DNA to identify not only the aphid species, but also whether it is a 'regular' or flonicamid-LS *Myzus persicae*. With this DNA technique they did not only track the occurrence, frequency and spread of the new genotype in the field, they also proved that red individuals of this new genotype occur despite initial thoughts that this would not be the case.



Red individuals among aphids are not uncommon, since aphids are well known to change colour within a few generations due to changes in environmental conditions such as light intensity and temperature.



Aphid biology & behaviour

Besides the change in pesticide sensitivity, the flonicamid-LS *Myzus persicae* genotype was also reported to be different in terms of biology and behaviour. The R&D Macrobials department validated several of these claims and have found that the new genotype reproduces 2x faster and that wingless adult aphids are 10% smaller. This confirms the observations from Koppert consultants and growers. The claims about aphids dropping faster from the

leaf and faster production of winged aphids in colonies have not been experimentally tested. Faster production of winged aphids is, however, highly likely since the faster growth of the aphid colony will more quickly lead to food scarcity due to overpopulation. These sub-optimal conditions will trigger the formation of winged aphids, allowing these individuals to colonize better places to feed and reproduce.



Due to limited chemical control options and the incredibly fast reproduction of this aphid genotype, growers are in direct need of more effective control methods. The R&D department has therefore started a project specifically focused on this challenge, with a dedicated team of researchers, assistants, and consultants. Through news items such as these, the Myzus project team will keep you informed about new insights on the control of this challenging pest.

