



Occurrence of a resistance breaking biotype of lettuce leaf aphid confirmed by Naktuinbouw

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Abstract

Lettuce leaf aphid (*Nasonovia ribisnigri*) is an important pest of lettuce worldwide. *Nasonovia*-resistant varieties were first introduced in 1998 and have been cultivated ever since on a considerable, gradually increasing acreage. The resistance appeared to remain stable until in the summer of 2007 persistent rumours from several locations in France and Germany were investigated by breeding companies. Naktuinbouw was asked to confirm experimentally that a new variant of *N. ribisnigri* was found at these locations. Naktuinbouw has an independent laboratory that is performing *Nasonovia* resistance tests routinely to fulfil the requirements for variety registration.

Three strains of the putative resistance-breaking biotype were obtained from breeding companies. These three strains were compared with one routinely used wild type strain. Three susceptible and six resistant varieties were tested in two experiments. Also a gene bank accession of wild lettuce (*Lactuca virosa* IVT280) was tested. This accession represents the sole source of aphid resistance in cultivated lettuce (*L. sativa*). The tests started by placing five aphids on 13 days old seedlings. Nine days later the number of aphids was counted on each plant.

The experiment showed that the aphid populations that were suspected of breaking the resistance in lettuce were indeed multiplying on resistant lettuce varieties and also on resistant *L. virosa*. The common aphid populations, dubbed biotype Nr:0, did not multiply on resistant plants in the same experiment. It is not yet clear if this resistance-breaking biotype, dubbed biotype Nr:1, has the potential to replace biotype Nr:0. Clearly, it is important to minimize the risk of further multiplication and spread of *Nasonovia ribisnigri* biotype Nr:1 by taking proper crop hygienic measures in all areas where they are detected, and by developing lettuce varieties with a broader type of resistance.