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Myzus (Nectarosiphon) certus (Wlk.) as a problem in studies on flights of Myzus (Nectarosiphon) persicae (Sulz.) (Homoptera, Aphididae)

by

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In 1929 and following years we found that there is a red to brown *Myzus* on various plants, including many Caryophyllaceae and some *Viola* spp., which has apterous males and, therefore, can not migrate to peach, and which hibernates as eggs on herbaceous plants. All its morphs are red or reddish. On all its host-plants it causes malformations, usually consisting of shortening of internodes, curling of the leaves and sometimes chlorotic spots. The name *Myzus (Nectarosiphon) certus* (Wlk.) was chosen for this aphid.

In attempts made during about 15 years the species could not be induced to feed on potato. The aphids walked off the plants, whatever the development of the potatoes offered was. MACGILLIVRAY's (1954) statement that she reared several generations on excised potato leaves and young potato plants in 1953 seems doubtful in view of her remark that the aphid is very similar to *M. persicae*; in life the two species are extremely different. Her successful transmission results of 1952 were certainly the result of a mixed infection, as our examination of her material showed.

Later we found that there are two more similar species, one (*Myzus (Nectarosiphon) ajugae* (Schout.)) which lives exclusively on more or less shadowed leaves of *Ajuga reptans* and *A. genevensis*, which leaves are rolled into cigarettes; this species is always green and it can not be transmitted to other plants. The second is green with the exception of the oviparae which are red and this species, *Myzus (Nectarosiphon) myosotidis* Börner, lives exclusively on *Myosotis palustris*.

Myzus ajugae and *M. myosotidis* are rather rare, but *M. certus* may be abundant.

When BROADBENT had shown that there was a correlation between trapped alate *Myzus persicae* and the spread of leaf-roll it was thought necessary to investigate this in the Netherlands. However, for that purpose it was necessary that alate *Myzus certus* could be distinguished from the extremely alike alate *Myzus persicae*, for *M. certus* refuses to feed on potato and, therefore, can play no rôle as a vector of leaf-roll. This problem had not been realized in other countries, where *Myzus certus* had not been noticed. *Myzus certus* occurs in England, from which country it was described and also in North America, where it was first collected by MACGILLIVRAY (1954) and where we found it in Maine; we found mounted specimens from Washington in the U.S. Nat. Museum.

After 4 years of morphological studies it was found that in the chaetotaxy of the last rostral segments *Myzus certus* and *M. persicae* show small differences. Then it became possible to start trapping operations. In 1951 132 traps were operated but only very few *Myzus certus* were encountered. In 1952 *Myzus certus* for the first time made its appearance in numbers in traps, in this case in the Wieringermeerpolder, where it started to fly 10 days before the flight of *Myzus persicae* began. As early lifting policy to a rather large extent is based on flight-data of *Myzus persicae*, it is evidently essential to distinguish between the two species, particularly when their flight-periodicity does not coincide. In the following years the species was caught regularly, but never in such quantity that false alarms could be based on its occurrence.

In the autumn of 1957 it was found in the Noordoostpolder that great numbers of sexuales occurred on the roadside weed *Cerastium triviale*, and in the summer of 1958 large numbers were trapped. The catches were particularly large in the northern districts (Anna Paulownapolder, Wieringermeerpolder, Noordoostpolder, Friesland, and Groningen), where the catches sometimes were so large that they could not be explained by the locally rather scarce familiar hostplants *Cerastium* spp. and *Viola* spp. As a weed *Viola arvensis* does not or hardly occur on clayish soil, and the incidence of *Cerastium* spp., which rarely carry large aphid populations except in early summer, was not nearly great enough to explain the trap catches.

The origin of the animals in the Wieringermeerpolder was discovered in the second half of July. It appeared that *Cerastium triviale* was practically aphid free, although still traces could be found of an earlier infestation. But the insects were breeding in very great quantity on *Stellaria media* which was abundant as a weed in cereals and potato fields. Alatae were produced in vast numbers. It is evident that hibernation had not occurred on *Stellaria*, an annual, but that the winter host must have been *Cerastium triviale*, from which around the end of May *Stellaria media* was infected.

The figures of the Wieringermeerpolder show that about a fortnight before really a warning was necessary an advice to lift would have been given if *M. certus* had not been recognized. This might have resulted in a loss in yield of about 7000—9000 kg./ha. Some of the traps in the Wieringermeerpolder on some days contained 25 times as many *Myzus certus* as *M. persicae*.

Some trap catches may be summarized as follows:

Table I. Numbers of alate aphids caught per 6 yellow Moericke traps per week in 1958.

Anna Paulownapolder			Wieringermeerpolder	
<i>M. certus</i>	<i>M. persicae</i>	week	<i>M. certus</i>	<i>M. persicae</i>
8	5	30/6—5/7	17	4
22	40	6/7—12/7	134	28
143	211	13/7—19/7	39	77
50	741	20/7—26/7	72	85
X	X	27/7—2/8	37	72
X	X	4/8—8/8	0	4

With the vast numbers of *Myzus* that had to be examined immediately after arrival it would have been impossible to examine the chaetotaxy of the last rostral segment of each specimen. It is now possible to distinguish *Myzus certus* as alatae from *M. persicae* with a pocket lens. The ventral spots on the abdomen in *Myzus certus* are much more pronounced and they generally occur in an uninterrupted row. The animals are generally darker pigmented so that also the wing venation usually is heavier. The processus terminalis is generally slightly shorter than that in *M. persicae*, the siphunculi are slightly more swollen. With the microscope one rather frequently finds rhinaria also on the IVth antennal segment, often only on one side. But the macroscopical differences are gradual ones and it requires years of training before one can distinguish every single specimen of the two species with a pocket lens.

The species provided an interesting problem. It appears that the predator-parasite complex of *Myzus certus* is about the same as that of *M. persicae*. Therefore, the earlier developing *Myzus certus* may attract and build up a predator-parasite store in the potato fields which later may attack the then appearing *M. persicae*. This problem requires further investigation of a quantitative nature.

From trapping results over 7 years in which annually between 50,000—150,000 *Myzus persicae* were caught and examined it appears that *Myzus (Nectarosiphon) ajugae* was not caught or not recognized and that annually 0—8 *Myzus (Nectarosiphon) myosotidis* which can fairly easily be recognized, turn up. Distinguishing these species is, therefore, of no importance with respect to aphid warnings.

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Eulype hastate L. (Lep., Geom.). In de avond van 1 juni 1958 ving ik in het centrum van Amsterdam een vlinder vanaf de bovenkant van een helderverlicht etalageraam. Het dier viel mij al bijzonder op door de fel zwart-witte tekening. Later bleek mij tot mijn verbazing, dat het een kersvers vrouwtje van *Eulype bastata* L. was, welke soort bekend is uit bossen met ondergroei van bosbessen.

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