

VIRUS SPREAD BY MIGRATING APHIDS

The gladiolus mild virus infects clover, alfalfa and beans, as well as gladiolus. It is a serious problem in beans where it causes the disease known as bean yellow mosaic. Aphids transmit this virus. In transmission tests, the virus was transmitted by 19 of the 20 species tested. The 19 species included aphids breeding on such diverse plants as sow thistle, raspberry, carrot, bull thistle, bean, cucumber, strawberry, grasses, rose, potato, cherry, pansy, alfalfa, and clovers. The cabbage aphid -was the only species which did not transmit the virus.

Migration carries virus

Clovers and alfalfa are the primary overwintering plants for the virus. The pea aphid also overwinters on these plants. When this aphid migrates from clover and alfalfa in the spring and summer it may carry the virus to beans and gladiolus, even though it does not breed on them. The mild mosaic virus may also get into gladiolus fields through the planting of corms of plants infested the previous season. The mild mosaic virus does not appear to cause serious injury to gladiolus, so little effort is made to eliminate infected plants. Planting of infected corms is thus quite common.

Spread of mild mosaic virus in gladiolus is primarily clue to migrating aphids, rather than aphids which breed on gladiolus. A few species, especially the bean aphid, will breed to some extent on gladiolus but the number of aphids produced in this way, however, is usually not enough to be of any consequence in virus spread.

Healthy plants infected

Migrating aphids pick up the virus from diseased plants and carry it to healthy plants as they move through the held. After alighting on an unsuitable host, they feed briefly and move on. This continues, until they find a suitable host plant, or until they are killed or (die from natural causes. If they alight on a plant infected with mild mosaic, they may pick up the virus and transmit it to another plant. Aphids can pick up the mild mosaic virus in feeding periods as short as ten seconds and can transmit it immediately to healthy plants in feeding periods equally short.

The virus was transmitted by nineteen of twenty species tested. This indicates that the majority of aphid species migrating through gladiolus fields can probably transmit the mild mosaic virus.

Virus transmitted from glads

If beans grow next to gladiolus fields, migrating aphids will transmit the virus from gladiolus to the beans. This has been observed frequently, and beans planted adjacent to gladiolus fields are likely to sustain severe local injuries. Although the results are spectacular in these cases, gladiolus is probably not too important as a virus source for the bean crop because of the relative acreages involved.

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