

cyme was determined for each plant as a measure of bud abscission prior to flowering. The average numbers of buds per cyme for treated and non-treated plants were 7.5 and 7.0, which was not significant.

Fusarium moniliforme was isolated more frequently than other fungi from all floral parts, and although its occurrence was reduced by all treatments, none eradicated it. The frequency of *Alternaria tenuis* Auct. apparently increased after treatment with Daconil and Dithane. *Phoma* sp.

occurred less frequently following all treatments, but was not controlled by any. *Colletotrichum dematium* (Pers. ex Fr.) Grove was isolated only from untreated buds and capsules. *Fusarium moniliforme* occurred frequently in both sound and aborted seed, *Alternaria tenuis* occurred less frequently and a *Chaetomium* sp. was isolated from one seed.

Flowers setting pods and seed per pod were not increased by any treatment. Likewise, no change in bud abscission was detected. It appears

that seed set is not improved by the application of fungicides, even when the frequency of various fungi is reduced. Therefore, disease organisms do not seem to be a significant contributing factor to low seed set.

Literature Cited

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Reaction of Tomato Varieties and Breeding Lines to Aphids

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The potato aphid (*Macrosiphum euphorbiae*) is a common insect pest of tomatoes. This insect damages the plants by sucking the sap from the leaves and by transmitting plant viruses. The severity of aphid infestations on tomatoes varies from season to season and within a season. They are generally most severe during periods of cool weather.

This species of aphid can be controlled with insecticides except when prolonged rainy periods interfere. Under these conditions, it is often difficult to apply insecticides; and even when they are applied they may be washed off of the plants before they have an effect on the insect.

Such conditions existed during part of the 1967 growing season at Beltsville. This, coupled with the cool weather, allowed the potato aphid population to build up to serious levels. These conditions allowed us to make observations on differences in susceptibility to this pest of standard commercial varieties and advanced breeding lines. Eight widely grown commercial tomato varieties were planted in 5 replications at Beltsville in the spring of 1967. The replications were in widely separated field plots. The number of plants of each variety ranged from 25 to 50 per replication. In addition, 54 F₅ breeding lines were planted in 2 different locations. One planting consisted of 50 plants of each line and the other planting 10 plants of each. Standard cultivation and fertilization practices were followed.

During the last 2 weeks of June,

populations of the potato aphid began to build up. By July 17 the infestation was extremely heavy. Efforts to control the insect were not successful until August 3 because of frequent rains and wet fields. At this time, visual ratings were made on the amount of damage inflicted by the aphids. A 1-5 rating scale was used where 1 was no damage. Any question as to the damage being inflicted by aphids was resolved by checks made for spider mites and foliar diseases. The relatively cool temperatures had prevented a buildup of spider mites; none of the usual foliar diseases were present at this early date in the season.

Although none of the varieties had ever been knowingly selected for aphid resistance during their development, large differences existed. In Table 1 the ratings given the 8 commercial varieties are shown. The differences between varieties were consistent between the replications, and the variety Campbell was rated the most resistant in all replications. Even though Campbell 16 does not possess complete resistance to aphids, we feel that it has sufficient resistance to allow it to withstand the level of infestation normally expected in most growing seasons, without showing highly significant damage.

Table 1. Aphid resistance ratings of 8 commercial tomato varieties. A rating of 1 = no damage and 5 = very severe damage.

Variety	Replication					Average Rating
	1	2	3	4	5	
C16	1.5	1.5	2	2	2	1.8
VF145	2	2	2.5	2.5	2	2.2
Enterpriser	3	2.5	3	3	-	2.3
VF13L	2.5	2.5	2.5	2.5	2	2.4
Bouncer	3	3	4	3.5	3	3.3
H1350	3	3.5	3.5	3.5	4	3.5
Fireball	4	4	4	4.5	2	3.7
H6201	4	3.5	4.5	4.5	3	3.9

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