Leafminer on Tomato

control by dieldrin studied for northern California conditions

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The agromyzid leafminer—*Liriomyza subpusilla* Frost—was more abundant on tomato during the 1952 season than in any other recent year.

In some fields considerable fruit was lost through sunburn due in part to serious defoliation caused by the miner. In a number of cases where there was a light to moderate infestation of the pest, a dieback of the small shoots in the center of the vines caused by a fungus—probably verticillium—was attributed to the leafminer.

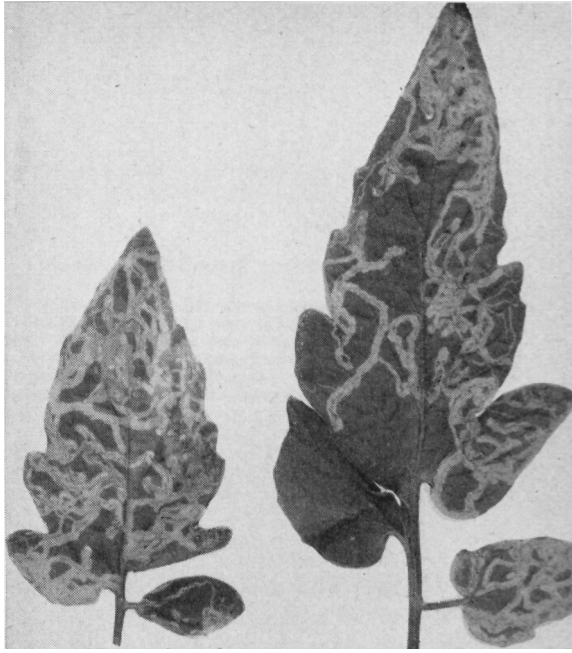
Experiments to control the pest were not undertaken until damage had progressed beyond a point that would be considered proper timing. When the treatments were applied, serious defoliation of the center of the vines had occurred, and most of the damage had already been done. The fields were swarming with adult flies, but an examination of the leaves did not reveal a great deal of maggot activity. The apical portions of the leaflets in particular were well covered with oviposition punctures. However, apparently eggs were not laid, or they failed to hatch or the maggots were unable to develop. It is possible that high temperatures along with the defoliation of the center of the vines created conditions unfavorable for the development of the pest. If this is the case, then the miner is limited largely by its own activity.

Portions of two fields near Linden, San Joaquin County, were treated by airplane with a 1½% dieldrin dust applied at the rate of approximately 30 pounds to the acre. The treatments resulted in excellent control of adults, and a marked reduction of maggots when compared with the checks. A portion of a third field in the same area was sprayed by airplane with a dieldrin emulsion used at the rate of ½ pound of dieldrin in 10 gallons of water per acre. Control of the leafminer was unsatisfactory which was surprising because on melons dieldrin applied as a spray was usually more effective than a dust against this same pest. It is possible that the dieldrin preparation used may have been faulty, but until additional information is obtained dusts are preferable to control the pest on tomato.

The leafminer larvae under some conditions are heavily parasitized, and parasites along with other natural agencies exert a strong influence in holding the pest in check.

Under conditions of serious infestation, control with insecticides may be necessary. Timing of application is important. Based upon present knowledge, treatment can be delayed until the center leaves of the vines show considerable mining, but before any defoliation has occurred. To secure satisfactory control, two treatments may be necessary applied at a two to three week interval.

Because dieldrin has not as yet been released for use on tomato, no definite recommendation can be made. Taste and residue studies indicate that no serious hazard is involved.



Tomato leaflets seriously mined by maggots of *Liriomyza subpusilla* Frost. Mining may occur to the point where the entire leaf is destroyed exposing the fruit to serious sunburn.

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PRICING

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of the allocation of the Class I premium between the two components.

The market does provide, indirectly, an opportunity to price the fat and skim components of Class I milk independently of direct consideration of the Class I premium. These values might be determined by use of an alternative value concept which would involve the acceptance of the relative values of fat and skim established by the butter and nonfat solids markets. From an operational standpoint, the net value of milk would be determined from the yields of butter and powder valued at net prices. The relative proportion—or percentage—of contribution of the butter—or fat—to the total value of the whole milk could be calculated. This percentage, applied to the Class I price for whole milk—determined independently—would provide an estimate of the value of the fat content of the whole milk. The whole milk price less the fat value would represent the skim milk value.

Alternatively, it is possible to estimate these values when the prices for any two fat and skim containing products are known—or given—provided the respective proportions of fat and skim in these products are also known. Grade A jobbing cream price quotations exist in the two major milk markets in California which relate to values of 40% cream—a product containing 0.4 pound of fat and 0.6 pound of skim milk per pound. On the other hand, the Bureau of Milk Control establishes Class I prices for whole milk of 3.8% fat content—a product which contains 3.8 pounds of fat and 96.2 pounds of skim milk per hundredweight. If it can be assumed that the Grade A jobbing cream markets which are open markets—where prices are not fixed by public agency—tend to value the difference in the composition of these two products, the two prices can be used as indicators of the way the market is currently valuing the Class I fat and the Class I skim components of whole milk. This involves an adjustment of the Grade A jobbing cream prices downward to a comparable level in the marketing process to that specified by the whole milk price—f.o.b. receiving platform—by deducting appropriate receiving and separating costs, marketing and transportation costs of the cream, and allowances for processing losses.

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The second report on pricing milk on the basis of fat and skim milk will appear next month and will be on the subject of physical yield relationships and the way these relationships may be used to formulate net values and so provide a basis for pricing.