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FILE UNDER: HORTICULTURE

Safeguarding the Apple Crop from SCAB and MAGGOTS -- Information and suggestions

drawn from original articles by E. G. Sharvelle, Division of Plant Pathology, and
A. C. Hodson, Division of Entomology.

New Control for Apple Scab -- Spraying dead, overwintered apple leaves right on the ground, underneath the trees--a method known as "ground spraying" or "floor spraying" --is the latest weapon for the control of apple scab. The new chemical used for this purpose is ELGETOL and the idea is to kill the scab fungus at its source before it has a chance to send forth millions of spores to produce infection on the new leaves and later on the fruit itself.

In these days of war-mindedness, this new method might be called a frontal attack. The older method was a kind of rear-guard action designed to kill the spores as they came in contact with the young leaves and fruit, by spraying the trees at frequent intervals with lime-sulphur. Now, both methods are recommended to be used in combination.

A ground spray with Elgetol should be given in the spring, before the buds open. Then the usual spray schedule of lime-sulphur applications should be followed because some of the scab fungus may escape the ground spray, or spores may blow in from distant orchards. This system affords double insurance. It has given very promising results for three years in Wisconsin, Illinois, Indiana and New York and demonstrated its worth last year in one Minnesota orchard where it was tried under Dr. Sharvelle's supervision.

For orchards containing varieties susceptible to scab, and particularly for those where scab has been troublesome for several years, Sharvelle now recommends that, before the buds open in the spring, the ground under the trees be thoroughly sprayed with a one half per cent solution of Elgetol at the rate of 500 gallons of spray to the acre, making sure that all dead leaves under the trees are thoroughly sprayed.

Then follow the regular spray schedule of lime-sulphur applications--pre-pink, pink, calyx, first, second and third cover sprays--but Sharvelle suggests:

1. Reducing the concentration of lime-sulphur to decrease risk of burning the foliage. Concentrations of 1-60 up to 1-40 should be adequate where a thorough ground spray has been applied.
2. Including Casco glue in the spray mixture--3 ounces to 100 gallons of spray--to make the spray stick better and withstand weathering better. Casco glue is a non-reversible casein glue widely used by cabinetmakers and available at hardware stores.

Sanitation and Spraying Thwart Apple Maggot -- Though infrequent in appearing, the apple maggot or railroad worm is so destructive that orchardists should be on guard because the regular spray schedule does not afford protection. This pest did enormous damage to Minnesota's apple crop in 1940.

Sanitation is the Number One precaution. During years of infestation, apples that fall from the trees about harvest time will contain maggots which after a few days will burrow into the ground to emerge the next summer as adult apple maggot flies, ready to lay eggs for a new generation of pests. If fallen apples are cleaned up about every three days and properly disposed of, much trouble can be avoided. Apples may be fed to livestock, covered with lime or oil to kill the escaping maggots, or buried under two feet of well-packed soil.

Since apple maggot flies will move about a quarter of a mile, abandoned or neglected orchards are a constant threat. Maggot control will therefore be most effective if made a community project. Wild thorn apples are hosts of the maggot and should be removed from woodlots bordering orchards.

Spraying at the proper time is control method Number Two. Dr. Hodson, from whose article these suggestions are taken, writes:

"The trees should be sprayed with lead arsenate at the rate of three pounds to one hundred gallons of water and the material can be applied safely up to the first of August. Early fruit is often the preferred food and cannot be sprayed because the time of harvest coincides with the appearance of the fly, but later varieties can be protected. In the Minnetonka region the apple maggot spray if applied about the last week in July will often be timed correctly to kill many second generation coddling moth worms which cause side injury. The presence of the flies in the orchard is the best guide to spray timing. This can be determined by placing a screen cage over ground known to contain the hibernating pupae or by observing the flies in the trees. It must be remembered that only the adult flies are killed by the poison.

"The adult flies are a little smaller than a common house fly, and have a very characteristic marking. The wings are decorated with dark bands, the bands forming the letter I F with the I near the base of the wing and joining the F at its lower end. There are conspicuous black and white bands across the abdomen also. These flies do not hover or sail about like many common species but instead they seem to dart from one part of the tree to another. In Minnesota the flies appear first about the middle of July and some may continue to emerge from the ground even in early September. They feed for several days before any eggs are laid and then the eggs are placed in punctures which are made in the skin of the fruit. These eggs are well protected and cannot be killed by poisons. The eggs hatch in about one week and at first the young maggots grow very slowly in green fruit, in fact, they usually do not complete their growth until the fruit has ripened and has fallen from the tree. The infested apples are not easily recognized until the fruit ripens. At this time the maggot tunnels are easily seen as dark lines under the skin. It is common for fruit to be marketed while heavily infested without the grower being aware of the presence of the maggot. As one can imagine the buyer is somewhat disturbed when the fruit breaks down into a worthless pulp in a rather short time."