

Leaflet G

SPRAYING

FOR THE

CODLING

MOTH

New York Agricultural Experiment Station
Geneva, N. Y.

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This moth causes wormy apples.

The codling moth is responsible for "wormy" apples. It is one of the worst pests against which fruit growers have to contend, and causes an immense yearly loss in the apple crop of this State. It is an annual pest and for several years has been increasingly destructive. Spraying with an arsenical poison is the most practical treatment, and it affords the most efficient protection to the crop.

Life history of codling moth. The damage to the fruit is done by a worm or caterpillar of a small moth, known as the codling moth. There are two broods of worms. The first brood appears in early summer, while the second brood is active during the late summer. The worms of the first brood are hatched from tiny disk-like eggs, laid on the trees by the parent moths, on or near young apples, hatching two or three weeks after the trees have blossomed. The young worm crawls to the blossom end of the apple, and burrows into the interior of the young fruit, feeding as it goes. After feeding for two or three weeks, the worm leaves the apple and spins a cocoon under the rough bark of the trees or under adjacent rubbish. Within this cocoon it changes to a pupa, and later to a moth, which is the codling moth of the second brood. In the latitude of Geneva, the second brood of moths appears during the latter part of July or early August. The late brood of worms is more numerous than the first brood and is responsible for the increasing number of wormy apples, as the time of picking approaches. These late worms spend the winter in cocoons as described and do not transform to moths until spring after the apple trees have blossomed.

Time to spray. Nearly all the codling moth worms seek the blossom or calyx end of the young apple, where they feed before burrowing into the interior. The object of spraying is to coat this portion of the apple with poison, so that the young worm may be destroyed at its first meal. The best time to apply the poison is after the blossoms have largely dropped and before the calyx cup has closed. Direct the nozzles so that the spray will be shot into the throat of every blossom or calyx cavity. **This is the first and most important treatment for the codling moth. It is more efficient than all subsequent treatments, and should never be omitted.**

As worms hatch and burrow into the apples as long as two weeks after the falling of the blossoms, a second spraying, ten or fourteen days later than the first treatment, is practiced by a few fruit growers. While this application undoubtedly kills many worms it is not made by orchardists generally, because of the lack of time and the pressure of other farm work. These two sprayings, as described, are the first and chief steps in the campaign against the first brood of worms. **Fortunately these are also very efficient treatments for the prevention of apple scab, but in order to control this disease dilute lime-sulphur solution, 1-40, or bordeaux mixture must always be used as a carrier of the poison.**

Spraying for second brood. The next step in point of effectiveness is to spray for the second brood of worms. This is being practiced by an increased number of fruit growers each year. The time to make this treatment is in late July or early August, according to the season. To

ascertain the time for spraying, examine the undersides of burlap bands about a few trees, selected for that purpose, for the appearance of empty pupa skins. These indicate that the second brood of moths is making its appearance when spraying should commence in about a week. **Aim to coat the fruit with poison, which can be more successfully done by high pressure and a misty spray.** Subsequent sprayings of a similar character may be made later at intervals of two or three weeks if desired. The extra applications, if the previous spraying has been thoroughly done, are not necessary, and are not generally made.

The efficient poisons for codling moth are arsenate of lead, paris green and arsenate of soda. See Leaflet D. Arsenate of lead is especially recommended as it is extremely poisonous to the young codling moth worms and on drying is very evenly distributed. If it is properly made it is the most adhesive of spraying poisons, and will not burn foliage. It is the only poison to use with lime-sulphur solution. Use $2\frac{1}{2}$ to 3 lbs. to 50 gallons of water or lime-sulphur solution or bordeaux mixture. Paris green is used in strengths varying from $\frac{1}{4}$ to $\frac{1}{2}$ lb. and arsenite of soda in quantities of 1 to 2 pints to one barrel of 50 gallons capacity of water or bordeaux mixture.