

OBSERVATIONS AND SUGGESTIONS

By A. U. CHANEY

FIGHTING THE FIRE WORM

Wisconsin seems to have suffered unusual damage from this pest last season. Probably the cold summer was the cause of the eggs hatching so irregularly that repeated floodings seemed necessary. These repeated floodings greatly reduced and often destroyed the crops. For a number of years the New Jersey growers have suffered severe ravages of the fire worm. The New Jersey growers, Mr. Scammell and other government experts, have tried many experiments. Some of them seem to have proven very successful. During last season I made diligent inquiry as to methods and results. Mr. Scammell seems to have proven the nicotine, mixed one gallon to seven or eight hundred gallons of water and sprayed at the proper time, is very effective. When the fire worm appears in the blossoming period, or after the fruit is set, flooding is very likely to injure or destroy the crop, whereas spraying with nicotine greatly retards the fire worm damage and very frequently totally destroys them. Mr. White, Mr. Harrison, Mr. Holman and other well-known growers have proven that by spraying at these times they often save at least one-half of the crop, whereas the flooding at that dangerous period would totally destroy it.

This nicotine is a contact poison, known as "Black Leaf 40" and is much more effective than food poison, such as arsenate of lead, Paris green, etc. It is sold by the Tobacco Products Company of Louisville, Ky., and costs about \$10.00 per gallon; but using only one gallon to eight hundred gallons of water does not make it expensive.

Two sprayings are often advisable, and the sprayings should be two or three days apart, as it is strictly contact poison. That which appears to have been the most successful remedy is about as follows:

In the spring, before taking the water off lower the head so that the vines are just barely covered with water. This shallow flooding will help to warm the soil and give the vines an opportunity for an early start. Then at about the usual time take the water off and leave it off from three to five weeks watching very closely for the fire worm to appear. After they have appeared pretty generally over the bog and most of the eggs have apparently hatched, re-flood, covering everything with water and keeping it under water five days. Make a kerosene torch with a gas pipe or tubular handle to hold the oil fuel and wade over the bog, or go over it with boats, and burn everything that sticks over the water, such as high vines, grasses or weeds, giving the worms no opportunity to crawl above the water and live. Some suggest that cutting off these grasses or weeds that stick above the water and letting them fall into the water will accomplish the same results. This method seems to have effectively destroyed the fire

worms when flooded at the right time. Some growers insist that when the eggs are almost ready to hatch that by putting them under the water for several days they will never hatch. It is well then to have some Black Leaf 40 on hand ready to use and, if the second crop does appear during or after the blossoming period, spray with the Black Leaf 40 to avoid endangering your crop. Give it two or three sprayings.

ANOTHER METHOD

One of the largest and very successful growers in New Jersey seems to have overcome the fire worm very completely by using the following plan.

He makes it a practice to spray with Black Leaf 40 as soon as the buds begin to burst, using one gallon to 700 gallons of water. He follows this spraying with a reflooding after any worms that are left appear, or have had ample time to appear and become about half an inch long, or have dropped to the ground. He says he has not lost 500 bushels by the fire worm in the last four years by following this method. He thinks, and it seems to me he has demonstrated it, that by spraying before the fire worm is easily seen and follow with the flooding is more successful than the first plan mentioned.

CULTIVATING AND FERTILIZING WITH WATER

Experiments in New Jersey have developed the fact that by the proper, judicious use of the water much labor can be saved in keeping the bog clean, give the vines a rest and opportunity for vigorous growth and overcome other vegetation. Where vines are weak, old or thin, or where there is an unusual amount of grasses, weeds or foreign vegetation, it seems to have been demonstrated that by keeping the vines under water until about July 10, to 15th, taking the water off just in time to permit the vines to grow and bud for the next seasons crop, has the effect of killing down other vegetation, giving the vines a rest and renewed vigorous growth, whereas the foreign vegetation dies down giving the vines a material advantage over it and driving much of it out. One of New Jersey's successful growers is now following this plan by keeping one-fifth of his total bog area under water every year, thus practically renewing his whole bog once in five years. This has greatly increased the size of his berries, his total yield, and reduced the expense of weeding and cleaning.

Where bogs are unusually grassy and weedy, it seems to have been advisable to even follow this up two years in succession, or some argue, keep the bog under water the whole season. By taking off in time to permit the vine to grow and bud for the following season only loses one crop. Quite a number of experiments along this line seem to have proven very successful.

July 10th, in New Jersey seems to be about the proper date to take the water off, but a different date might be necessary in Wisconsin. Some experiments along this line should be tried out.