SPRAYING

Mr. Stevens Gives Valuable Information Regarding the Spraying of Orchards

Editor Independent: The up-to-date orchardist in addition to giving his orchard suitable cultivation with necessary pruning, finds it advantageous to spray. Young orchards likely require nothing more than to guard against the larva of the codlin moth. Older orchards, like our own, are also benefited by spraying with bordeaux to guard against fungus diseases.

Spores live through winter in leaves on the ground, or on the trunks and branches of trees. Our first spraying began late in March before the buds opened. We used sulphate of copper, about 4 pounds, to 50 gallons of water. Where this solution is used before the buds open it is not necessary to use lime, and this early spraying is in the hope of destroying many of the fungus spores before they have had time to attack the foliage. Just before the buds open is a good time to spray with bordeaux mixture. Blue vitriol, 5 pounds; quick lime, not air slacked, 6-8 pounds, or as much as you can get to pass through the nozzle; water, 50 gallons; green arsenoid or Paris green, 4 ounces. This spraying is to check leaf eating insects, budmoths, and perhaps the earliest appearing canker worms.

After the blossoms fall, not commencing until the petals have fallen, and the apple is formed, the orchardist sprays with bordeaux mixture, with the addition of green arsenoid or Paris green, or some arsenical poison. Ten days later this spraying should be repeated. Perhaps some suggestion may be useful.

Not infrequently, the orchardist sprays a portion of his orchard and compares it with another orchard left unsprayed. He is sometimes left in doubt regarding the success of his work. Spraying may be followed by dashing rains, or perhaps a more common cause of failure in spraying is that he uses a coarse nozzle. If the lime is not properly slacked little particles of lime interfere with the free use of such a nozzle as would give a fine, misty spray. Some nozzles can be graduated so as to throw a fine or coarse stream. A coarse stream carries farther, and can be thrown quite a distance. Poison, however, applied in this way is not as effective, and does not accomplish the end desired. Should the water fall upon the foliage in drops, these drops are apt to run down the leaf and drop off. The poison, however, being heavier than the water would settle at the bottom of each drop and be the first to drip off the foliage. The spray should be so fine and fog-like that it cannot be carried very far. It will be necessary to elevate the nozzle using a bamboo or some other light pole. Just enough of the fine misty spray should be applied to cover the leaves of the tree, but not to run.

Spraying against the codlin moth is in the hope that a little of the poison may lodge in the calyx of the apple: that the larva of the codlin moth instinctively seeking shelter, is quite likely to enter the calyx. A careful count made by Prof. F. W. Card of the state university showed that 80 per cent of the larva enter the apple at this point. The codlin moth does not emerge from its winter hiding as a rule until some days after the apple trees have blossoms. Hence, there is no possible advantage gained by spraying when the orchard is in bloom since the codlin moth has not yet appeared. On the contrary, there is considerable harm, since spraying while the trees are in bloom is quite likely to destroy the bloom. There is also some risk of harm to the bees and other beneficial insects whose usefulness is desired by the orchardist to help in pollenization. On the other hand, should the spraying be delayed so long that the calyx of the apple is tightly closed, then poison may not be lodged within the calyx.

The egg of the codlin moth may be laid upon the apple or it may be deposited on the leaf. In either case, instinct teaches the larva to get within the apple as soon as possible and to hide from its enemies, the birds. The second brood often bores into the apple under the protection of the leaf, or between two apples lying close together.

The thoroughness with which the first spraying is done is a measure of its effectiveness, since spraying with arsenates does not seem to be a successful method of combating the second and third broods of the codlin moth. The larva escaping the first spraying, attain their growth within the apple and then emerge from the apple on the tree and go down the limbs until they find a suitable hiding place, usually under some rough scale of bark; or the apple falls to the ground and the escaping larva ascends the tree seeking a hiding place. To guard against the second and third broods the most effective method is to bind the trees with burlap, preferably within 12 or 18 inches of the ground. This band is easily secured by a tack. Once in seven or eight days these bands should be removed and the larva destroyed. The first application of bands should be made about the middle of June.

Bordeaux mixture is composed of sulphate of copper, commonly spoken of as blue vitriol, and lime. This may be applied in combating fungus diseases at the same time we spray with arsenical poisons. One operation answers both purposes. Lime is used in the composition of bordeaux mixture in order to check the rapidity with which the copper solution may be absorbed by the plant on which it is sprayed. Should the action of the sulphate of copper be too intense, too rapid, the foliage may be harmed, since cell structure of the leaf might be destroyed almost as surely as the fungus spores the orchardist hopes to kill. In the application of bordeaux mixture it is of the utmost importance that it should be applied as a fine, misty spray. Thus applied, it remains longer on the surface than when applied in a coarse stream, or drops. In dissolving sulphate of copper we have found it convenient to suspend 50 pounds of the blue vitriol in a sack in a 50-gallon barrel of water. Should the sack containing the sulphate of lime be allowed to rest on the bottom of the barrel, the liquid at the bottom of the barrel becomes so strong that the sulphate does not rapidly dissolve.

By measuring the liquid we know the amount of sulphate of copper used.

It will be found convenient to slack 75 pounds of lime to use with 50 pounds of sulphate of copper, using 1 1-2 pounds for each pound of sulphate of copper. After combining these two elements, sulphate and lime, after dissolution they should both be poured n a tank at the same time, and after they have mixed, we then add the arsenical poison.

After using a number of different kinds of nozzles our foreman, Mr. Walker, is in favor of the Seneca nozzle. Opening this on one side, it allows the nozzle to clear from any particles of lime and using the other side the stream is thrown against an overhanging lip breaking the stream into a fine, misty spray.

For some fourteen years we have used a power pump, with a sprocket gear attached to the hind wheel of the wagon. In this way we apply horse power to the pump from the wagon wheel, a material saying in spraying a commercial orchard. It is important that the pump should have working parts of brass, since sulphate of copper speedily corrodes iron. The hose should be wire bound, or it is likely to burst under great pressure. To secure a very fine, misty spray, a strong power is necessary. We find the work all three horses can carry. The operator holding the nozzle should protect himself with a Fish Bank slicker. The sulphate of copper will eat up a rubber coat in a very short time. A pair of rubber gloves will be destroyed in three days.

Handled in any way this work will be found disagreeable. Those who have smaller orchards, using hand power, can protect themselves to better advantage, and suffer less inconvenience from the spray. Where the trees are very large, in order to give the trees sufficient and effective amount of spraying material, it will be found not only necessary to drive on both sides of the tree, but sometimes to drive twice around the row. If possible, spray with the wind.

Trees 12 to 15 years old require the application of 2 quarts or a gallon to the tree. For large trees it will require more. A strong-geared wagon pump will apply from 2,000 to 2,500 gallons daily, something depends on the accessibility, and the distance to be traveled in going to and from the orchard.

These suggestions are based on our experience in commercial orchard work. Those who have but a few trees will, of course, use hand pumps, and will prepare smaller quantities of the sulphate and the lime at one time.

Purchased in barrel lots of 450 lbs. sulphate of copper should cost 6½c a pound. We have been using green arsenoid for some years, because it remains in suspension a little better than Paris green. It should cost from 14 to 15c lb.—E. F. Stephens, Crete.

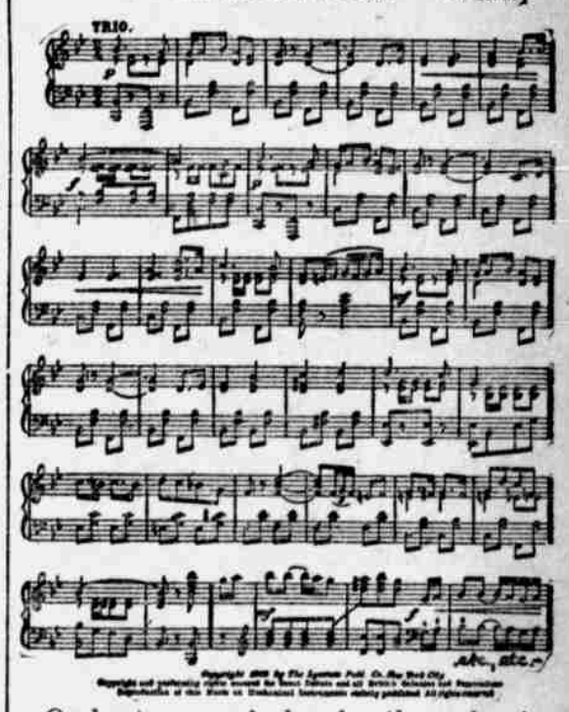
MEIER & MEIER, ATTORNEYS, LINCOLN, NEBRASKA.

Notice to Unknown Heirs and Devisees of Julia Oliver, Deceased.

Notice is hereby given to the unknown heirs and devisees of Julia Oliver, Deceased, that on the 20th day of March, 1903, an action was begun in the District Court in and for Lancaster County, Nebraska, wherein Otto William Meier is plaintiff and Fred L. Sumpter, and the Unknown Heirs of Julia Oliver, et al, are defendants, that the object of said action is to foreclose a tax lein and certificate of tax sale for the taxes for the years 1898, 1899, 1900 and 1901, on Lot numbered four (4) in Block numbered twenty-one (21) in Havelock, Lancaster County, Nebraska, and for the sale of said premises to satisfy said lien. You are required to answer the petition of the plaintiff in this action on or before the 15th day of June, 1903, or forever thereafter keep your peace.

OTTO WILLIAM MEIER.
Plaintiff.

The Colored Ragamuffins.



Orchestras and bands throughout the country are at present beating the life out of "The Colored Ragamuffins." Only figuratively speaking, however, for "The Colored Ragamuffins" is a musical composition in the form of a characteristic march and two-step. It is far superior to anything of its kind that has been written in years. It combines just enough of that peculiar style of composition known as "ragtime," with parts that are thoroughly musical to make it agreeable. The Lyceum Publishing Co., 111 East 14th st., New York, are the publishers.