Spraying Fruit Trees.

Inquiries are constantly coming to the Agricultural Experiment Station asking for information on the spraying of fruit trees, and especially information which will assist if possible in lessening the damage done by the apple scab fungus and the codlin moth. Many fruit growers too who have been spraying their trees are now asking whether or not it is advisable to spray during such unfavorable weather as we have been having during the past week or two. It is to answer such questions as these that we have prepared the following brief account of the most important points regarding sprays. It is also intended as a forerunner of a more comprehensive study of the same subject to be presented in bulletin form during the close of the present year.

The first application of solutions for the controlling of fungous diseases should be on the dormant wood before the buds have expanded. This consists of copper sulphate, 1 lb. to fifteen gallons of water. The object of this is to kill the mycelium and spores of the apple scab fungus or of other diseases which may be present on the twigs and branches. It has so happened however that throughout the greater part of the state it has been wholly impracticable to
make this application on account of the excessive spring rains. Do not apply copper sulphate after the leaves are out.

The second application, and the most important, is that of Bordeaux mixture and Paris green, which should be applied when the leaf buds are open, but before the flower buds expand. This solution is best prepared by dissolving six pounds of copper sulphate in a bag of coarse cloth hung in a vessel holding six gallons of water so that the bag is just covered. Slack four pounds of lime in one to two gallons of water. Then mix the two above solutions and after straining add forty gallons of water. In case of peach foliage two pounds more of lime should be added to lessen the caustic effect of the copper sulphate. To this solution should be added four ounces of Paris green for each fifty gallons for the purpose of destroying the larvae of the bud moth and of the codlin moth which may have made their appearance.

The third application, which with respect to the codlin moth is the most important one, should be made as soon as the blossoms have fallen. For this application use Bordeaux mixture with Paris green added as above.

If these three applications are made to fruit trees promptly and thoroughly by far the most important enemies to our fruits will be kept in check. In the case of the apple they hold in check the scab, bud moth, and codlin moth; of the pear, leaf blight; of the peach, brown rot; of the plum, brown rot, leaf blight, and to some extent black knot; of the cherry, leaf spot, black rot, and of the quince, leaf blight.

Similar applications to small fruit will keep in check blackberry Anthracnose, currant leaf blight, gooseberry mildew, and the currant worm. For the gooseberry mildew however potassium sulphide at the rate of one ounce to three gallons of water applied just as the buds are swelling is found to be the most effective remedy. In the case of currant worm make an application of Paris green solution at the rate of one pound to 250 gallons of water alone; or of white hellebore, one ounce to three gallons of water.

It often happens that other applications than the three above mentioned will be necessary. For example, when treating trees for
the apple scab it may be necessary to make a fourth application of Bordeaux mixture in ten or twelve days after the time of the third spraying. Or if the canker-worm or some other leaf eating insect makes its appearance, a solution of Paris green, one pound to two hundred and fifty gallons of water, will be necessary. Or again, if plant lice or some other sucking insects are injuring the trees, apply a spray of kerosene emulsion. This solution is made by dissolving one half pound of hard soap in one gallon of hot water, and to this adding two gallons of kerosene oil. Emulsify thoroughly by driving this solution repeatedly through a force pump back into the vessel originally containing it. Dilute each gallon of this emulsion with fifteen to twenty gallons of water. Whale oil soap, 1 to 2 pounds to the gallon of water may also be used for the same purpose.

In regard to the spraying of fruit trees during wet and unfavorable weather the principal thing that the operator should keep constantly in mind is the fact that fungous diseases and sometimes insects are more prevalent during the wet seasons. He should, therefore, be most diligent and persistent in his applications during such times. It is, however, not advisable, nor indeed practicable, to make applications of insecticides and fungicides during a rain. All applications should be made to the trees at least twelve hours before a heavy rain, otherwise the operation should be repeated.

In selecting pumps secure one that will give a pressure of at least 150 pounds to the square inch, with an air chamber as large as possible, and with as little as possible of the machinery projecting above the tank or barrel to which it is fitted. The nozzles used should throw a round, misty spray with considerable force. We have found the double Vermorel and McGowen nozzles the most satisfactory in our work.

J. C. Blair,
Assistant Horticulturist.