

thorough spraying. As four or five treatments will be needed for a thorough application of the remedy, the amount of the materials required for any given orchard may be readily computed.

The best formula that can be given in the present state of our knowledge is to dissolve one ounce of the copper carbonate in one quart of ammonia, and dilute this, when ready to commence the application, with twenty-five gallons of water.

WHEN TO MAKE THE APPLICATIONS.

In the experiments made the past season in Mr. Hatch's orchard the first application was made after the petals of the flowers had fallen, and when the young apples were slightly larger than peas. But it is the opinion of Mr. Hatch and myself that one spraying before the flowers had opened would have proved beneficial. I would recommend, therefore, one treatment just before the flowers open, a second after the petals have entirely fallen, and others at intervals of two or three weeks until midsummer, or after, if the latter part of Summer should be wet.

APPARATUS FOR SPRAYING.

For applying the liquid to the trees, a force-pump, to which is attached a few feet of hose, fitted at the end with a spraying nozzle, will be needed. Excellent pumps are now made by the larger manufacturers expressly for spraying purposes, fitted with all necessary attachments, and costing \$10 and upwards. Smaller pumps, which would answer fairly well for a few trees, may be had at from \$2 to \$10 each.

The same pump which is used for treating the trees for the apple scab may, of course, be used for applying poisons for the codling moth and other insects. Unfortunately it will not be prudent to add the copper carbonate solution to the same water that is used in applying Paris green or London purple, as the ammonia renders the arsenic more or less soluble, and thus the latter would be liable to injure the foliage. But if applied a few hours in advance of the water containing the arsenites, no harm can result from this source.

SUGGESTIONS FOR FURTHER EXPERIMENTS.

The time at which the applications should commence, the number that should be made and the amount of copper carbonate to be used to accomplish the greatest benefit at the least cost, remain to be settled by experiment.

The most practical remedy for the apple scab must be one that may be applied in the same water with Paris green or London purple without thereby endangering the foliage. It is the opinion of our station chemist, Dr. Babcock, that not only the ammoniacal copper carbonate, but the sodium