We should make two preventive sprayings, one just as the blossom buds have opened, and the second as soon as the last petals have fallen. It will not be sufficient to content ourselves with these, however; for although, the Bordeaux mixture will be all that is required to prevent the fungi from growing, it may not kill the larvæ of the moths, and to do this a third spraying may be needed.

It must be borne in mind that spraying without tillage, good soil, and good varieties, proper attention to pruning, and other care, cannot make an orchard productive, but is just as important as affecting the ultimate profit.

Spraying is no longer an experimental process, although of course there is much to learn about it as regards the appliances, mixtures, and enemies with which we have to contend, but it rests upon a solid basis of fact and is demonstrated as being a radical part of orchard management.

Spraying must be thorough to be effective. All the surface of the tree must be saturated with the mixture used. One good spraying will do more good than a number of half-hearted or careless ones.

Apparatus.

For small orchards, what is called a knapsack sprayer will be found the most useful. There are a number of spray pumps on the market; a great deal depends upon the nozzle used; in case of Paris green forming a part of the compound, a barrel provided with an agitator should be used to keep it stirred, because the arsenic is not soluble in water, and will clog the nozzle.

AN OUTLINE OF THE MATERIALS AND FORMUL USED IN SPRAYING.

Paris green.—Insecticide for all biting and chewing insects. One pound to two hundred gallons of water; one pound of quick lime will prevent injury to foliage. Bordeaux mixture in combination: to fifty gallons of mixture add four ounces of Paris green. To test the purity of Paris green disolve a small quantity in ammonia, the impure will not disolve.

London purple is used in the same way as Paris green, but is variable in its composition and therefore not preferable.

White Hellebore: one ounce to three gallons of water mix thoroughly: used chiefly for the currant worm but will destroy all insects which chew.

Tobacco water: prepare by placing tobacco stems in boiling water, allow it to stand several hours, then dilute with three to five times its quantity of water; for plant lice, and all soft skinned insects.

Whale Oil Soap.—One pound to five gallons of water: for tender, growing plants; to dress trees in winter, to prevent St. Jose scale use two pounds to the gallon and add a little resin or glue.

Coal oil emulsion.—Half pound hard soap, one gallon boiling water, coal oil two gallons; disolve the soap in the water, add the coal oil and churn for five to ten minutes, dilute four times for scale insects, including the St. Jose scale, and twenty-five times for such insects as plant lice, mealy bug, red spider, etc., and for cabbage and currant worms.

Bordeaux mixture —To prevent and destroy fungi, six pounds copper sulphate, (blue stone or vitriol) four pounds quick lime to forty gallons of water. Dissolve the blue stone by suspending it in a canvas bag in four or five gallons of water, use *only* an earthen or wooden vessel. The blue stone will take some time to dissolve: slake the lime in the same quantity of water, then mix the two solutions and add water enough to make forty gallons.

If used on tender foliage, an extra two pounds of lime should be added.

To know when a quantity of lime, sufficient to prevent injury has been introduced, test it with *yellow prussiate of potash*: dissolve five cents worth in a quart or two of water, then add to the Bordeaux mixture and when it ceases to give it a red or brown tinge the operator may know that sufficient lime has been added. Bordeaux mixture should be strained before using to keep the undissolved particles of lime from clogging the nozzle, but if it is