

HANDLING THE SPRAY.

The pumps used with sulphur-lime wash must be washed out each night after using. Pumps with brass working parts will have a scaly crust formed over the brass after continued use. Brass nozzles are eaten out by several days' spraying, and a sufficient supply should be kept on hand to replace those worn out. Sulphur-lime will keep for several days. The horses as well as the men should be protected during the time of application. This is done by blankets and hoods of gunny-sacking or canvas. Sulphur-lime is caustic to the skin and may produce ulcers. It is a good plan to anoint the hands and face with vaseline before spraying.

No. 2.—*Quassia Chips and Whale-oil Soap*.—Summer spray for aphids:—

Quassia chips	8 lbs.
Whale-oil soap	7 "
Water	100 gallons.

Boil the quassia chips in about 8 gallons of water for one hour. Dissolve the soap in hot water, strain and mix both solutions together, and dilute with sufficient water to make 100 gallons altogether. To be used with a spray pump with as much force as possible in applying. This mixture is the standard remedy for hop-aphids, and has given most satisfactory results against other forms of aphides, with no injury to the foliage of trees treated.

No. 5.—*Kerosene Emulsions*.—These are particularly valuable against insects as plant-lice, scale insects, and animal parasites. The best formula is:

Kerosene (coal oil)	2 gallons.
Rain water	1 "
Soap	½ pound.

Boil the soap in the water till all is dissolved; then, while boiling hot, turn it into the kerosene, and churn the mixture constantly and forcibly with a syringe or force pump for five minutes, when it will be of a smooth, creamy nature. If the emulsion is perfect, it will adhere to the surface of glass without oiliness. As it cools, it thickens into a jelly-like mass. This gives the stock emulsion, which must be diluted with nine times its measure of warm water before using on vegetation. The above quantity of 3 gallons of emulsion will make 30 gallons of wash. Insects breathe through small openings along their sides. The effect of kerosene emulsion is to suffocate them, by stopping up these breathing pores.

Kerosene emulsions may also be made conveniently by using an equal amount of sour milk instead of soap and water in the above formula, and churning for the same time to get the stock emulsion. Recently another method has been suggested by M. F. T. Shutt and Mr. W. T. Macoun, of mixing kerosene first of all with flour and afterwards with water, by churning the two together. This convenient plan is a modification of a method proposed by Prof. Close, of the Delaware Experiment Station, in which it was shown that lime has the power of holding kerosene in suspension and forming an emulsion which does not separate for a long time. Lime is not conveniently obtainable in all parts of Canada, and Mr. Shutt made the valuable discovery that flour, which is to be had everywhere, may be used with equally good