

the outside—closing the breathing pores, or causing death by irritation of the skin. Besides these, however, various substances are used in preventing insect attacks, keeping the pests away because of offensive odours, or acting as mechanical barriers against them.

These are dealt with in the following ways:—

### SPRAYING MIXTURES.

No. 1.—Winter Spray for Woolly Aphis, Scale Insects, and Pear Leaf Blister Mite: the ingredients of which are as follows:—

Lime, unslacked .....	30 lbs.
Sulphur, powdered .....	20 "
Salt, coarse .....	15 "
Water .....	60 gals.

Place 10 pounds of lime and 20 pounds of sulphur in a boiler with 20 gallons of water, and boil over a brisk fire for two hours, until the sulphur is thoroughly dissolved. It will then be amber-coloured. Next place 20 pounds of lime in a cask and pour water enough over it to thoroughly slack it. Add the salt. When dissolved, add to the lime and sulphur and boil half an hour longer. Add enough water to make 60 gallons. Apply lukewarm.

Spray when the trees are dormant, or as soon as the leaves fall, and again in the spring before the buds swell. A good force-pump should be used, and care must be taken to thoroughly cover the infected trees with the mixture, which should be constantly stirred when applying.

To ensure freedom from lumps it is advisable to pass the mixture through a wire sieve or strainer. Nozzles which are self-cleaning and adjustable, such as the "Improved Bean" and "Bordeaux," are best adapted for distributing this and other spraying mixtures which contain a considerable amount of solid matter.

No. 2.—Summer Spray for Aphis; ingredients:—

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

Boil the quassia chips in about eight 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

Directions. as possible in applying. This mixture is the standard remedy for hop-aphis, and has given most satisfactory results against other form of aphides, with no injury to the foliage of trees treated.

No. 4.—Bordeaux Mixture for Apple-scab and all Fungous Diseases; ingredients:—

Sulphate of copper (bluestone) .....	1 lbs.
Unslacked lime .....	4 "
Water .....	50 gals.

It has been found that the method of combining the ingredients has an important bearing on both the chemical composition and physical structure of the mixture. For example, if the copper sulphate is dissolved in a small quantity of water and the lime milk diluted to a limited extent only, there results, when these materials are brought together, a thick mixture, having strikingly different characters from one made by pouring together weak solutions of lime and copper sulphate. It is true, furthermore, that if the copper sulphate solution and lime milk are poured together while the latter or both are warm, different effects are obtained than if both solutions are cool at the moment of mixing.