

be ready for use. The best results are obtained when the application is made as soon as possible after blending the two solutions. If allowed to stand over eight hours the fungicidal properties largely depreciate. Stock solutions of the ingredients may be kept satisfactorily, but, as just stated, they should not be mixed until required. Bordeaux should be neutral or slightly alkaline; it should never contain an excess of copper sulphate. It should give no reaction to litmus paper. A bright steel knife-blade dipped in the acid mixture is quickly covered with a deposit of metallic copper. Again, free copper is quickly detected if a little of the mixture is placed in a saucer and a drop of solution of ferro-cyanide of potassium is poured on it, when it will immediately assume a muddy brown appearance. This precaution is important when spraying during the growing-period.

(2.) *Lime-sulphur*.—This is sulphur made into a liquid form by boiling it in lime-water. Large users generally make their own. It may be made as follows: Sulphur, 100 lb.; rock lime (95 per cent. pure), 50 lb.; water, 50 gallons. Slake the lime carefully and strain it into an iron boiler. Mix the sulphur to a paste and add it to the lime-water, also sufficient water to make it up to 50 gallons. Boil the mixture until all the sulphur is dissolved (about an hour), taking care to replace the water evaporated. Solutions made in this way usually register 20° to 25° Beaume. To make correct dilutions the specific gravity of the concentrate should be ascertained by means of the Beaume hydrometer, and reference made to the dilution table on page 48.

(3.) *Finely Precipitated Sulphur (In Paste Form)*.—The commercial proprietary preparations of this material are generally used.

#### CONTROL TREATMENTS.

*Apple, for Black-spot and Powdery Mildew*.—In spring, as the buds are breaking (green-tip), apply lime-sulphur (33° Beaume test), 1-10. As the flower-buds break (pink), make another application, 1-35 or 1-50. When the petals fall give the calyx spray, 1-80 or 1-100. Follow at intervals thereafter, as required, at 1-125. In some localities it has been found necessary to use the stronger fungicide bordeaux, 6-4-50, at the green-tip, and 3-4-50 at the pink stage, subsequent sprays being lime-sulphur, 1-100 or 1-125. On some varieties the use of bordeaux has a tendency to cause russetting of the skin of the fruit. Some varieties that are specially tender, and trees in weak condition, are sometimes sprayed at the calyx stage and after with finely precipitated sulphur, 1 lb. to 8 or 10 gallons of water. (See illustration of various stages of blossom-development.)

*Pear, for Black-spot*.—Apply bordeaux, 6-4-50, at green-tip, 4-4-50 at the pink, and 3-4-50 at the calyx stage; and at intervals thereafter as required.

*Stone-fruits, for Leaf-curl, Shot-hole, Bladder-plum, and Brown-rot*.—Apply bordeaux, 8-6-50, as the buds commence to move, and 6-4-50 at the pink stage. Where brown-rot is prevalent trees should be sprayed with lime-sulphur, 1-125, when the fruit has set, and at intervals of about twenty-one days thereafter till within a week or so of picking. It is also necessary to go over the trees carefully every week during the fruiting season and gather and destroy affected fruit.