

Corresponding to the two kinds of insects already mentioned, we have two general types of sprays. These are: (1.) Contact insecticides. (2.) Stomach-poisons.

Contact insecticides are for the control of sucking-insects, like aphides, scale-insects, and leaf-hoppers. These sprays can never be used as preventives. To be of service, every insect must be touched, and care taken to spray when the insects can be most easily reached by the mixture. For example, do not wait to spray for the green aphids until the leaves have all curled, forming a protection around them, or for the leaf-hoppers until they become winged and leave the tree at the first touch of the spray.

Stomach-poisons for biting-insects are, for the most part, arsenical preparations, of which lead-arsenate is probably the most valuable. Paris green is another in common use. Stomach-poisons may sometimes be used as preventives. In the Dry Belt, a spray of lead-arsenate, as soon as the trees are in full leaf, will remain on the leaves most of the season, and is very useful for destroying many leaf-eating insects.

### SOME PRINCIPAL ORCHARD INSECTS.

#### (1.) BITING-INSECTS.

*The Bud-moth.*—This is a small, cylindrical, cinnamon-brown coloured caterpillar, with legs, head, and segment back of the head black and shiny. When full grown it is nearly  $\frac{1}{2}$  inch long.

The greatest injury is done in spring, to the opening buds and tender foliage, the caterpillar protecting itself by crumpling up a leaf and hiding it with silk, or by tying two leaves together. They become full grown in about seven weeks, and form pupæ within their nests. Upon emerging, the adult moth deposits her eggs upon the under-side of the leaves. These hatch in about ten days, and the young caterpillars feed upon the under-surface of the leaf, skeletonizing it, and forming their silken tubes, within which they remain protected and concealed. The winter is passed within silken cases on the twigs.

To control this pest, spray with lead-arsenate, 2 lb. to 40 gallons, just as buds are opening, and again after the blossom-petals fall. Use a Bordenaux nozzle and a high pressure.

*The Codling-moth.*—This pest has not as yet become firmly established in British Columbia, but as outbreaks have occurred from time to time, it is well for fruit-growers to know something of the insect and of its control.

The small, pearly-white eggs of this insect are laid mostly on the leaves near the fruit. Upon hatching, most of the larvæ enter by the blossom end of the apple. The larvæ usually bore directly toward the core, around which they feed, and upon reaching full size emerge through a hole in the side of the apple. The newly hatched larva is about  $\frac{1}{16}$  inch long, with a shiny black head and whitish body, having numerous dark-coloured tubercles scattered over it. When full grown, it is about  $\frac{3}{4}$  inch long, of a light flesh colour, or occasionally whitish, with head glossy brown. The tubercles are more indistinct than in the young caterpillar.

The number of broods of this insect varies with climate and season. There may be as many as two complete broods, and a partial third brood in the interior of British Columbia. The work of the second brood is similar to that of the first, but a much larger percentage enters through the side of the apple.