



PROVINCE OF BRITISH COLUMBIA.

DEPARTMENT OF AGRICULTURE
(HORTICULTURAL BRANCH).

Soap Solutions for Spraying.

INSECTS which attack growing crops may, in general, be divided into two classes—those that bite and actually devour their food and those that derive their nourishment from plants by sucking. To the latter class belong such insects as the *cabbage-aphis*, *rose-bush aphis*, *apple-aphides*, *woolly aphis*, *thrips*, *chermes*, *scale-insects*, and the immature stages of true bugs. All of these types possess minute tube-like mouth-parts which are inserted into the epidermis of plant-tissues, the juice of the plant being thereby sucked up into the body of the insect. It is obviously impossible to poison such insects by the application of an arsenical or any other stomach-poison which is deposited in the free state on the outer layers of the plant.

It is a matter of common knowledge, however, that insects breathe by special organs located along the sides of the body. Further, it is known that the body-walls of a great many sucking-insects are delicate and easily affected by caustic or corrosive mixtures. Consequently, if it is necessary to combat an insect of the sucking type, some spraying solution must be found which either destroys the body-wall or plugs up or affects the breathing-organs. To the former class belong such insecticides as caustic lye and to some extent lime-sulphur solution. To the latter class belong the soaps and oils and nicotine solutions. A necessary adjunct to effective control lies obviously in thorough applications, by means of which nearly every individual insect is directly touched with particles of spray.

The following formulæ are given, with their methods of manufacture, as a guide to fruit-growers and gardeners in the control of such insects as have already been mentioned:—