

the soil, particularly in the early part of the season, will assist materially in retaining moisture, so necessary to produce strong, healthy plants. Everything possible should be done to induce vigorous growth from the beginning in order that the plants may be better able to withstand insect attack.

*Insects exposed by cultivation.*—When gardens are being dug or ploughed in spring, white grubs, wireworms, etc., are very often turned up. In small areas it is advisable to remove the same by hand when cultivating. Such would not be practicable in large gardens. Land near cities or towns to be used for gardens in which white grubs are present may be cleared of such insects by turning in some hogs if the same are available.

*Clean culture.*—Weeds of all kinds should be kept down throughout the entire growing season. The flea-beetles in the larval state feed upon the roots of common weeds such as the nightshades, lamb's quarters, pigweed, ragweed, etc. Weeds attract cutworm moths for the purpose of egg-laying. Remnants of garden crops and other refuse should be removed regularly, otherwise such refuse will serve as breeding places and hibernating quarters for many insects. All refuse should be either buried deeply or carefully gathered up in piles and burned.

### INSECTICIDES AND THEIR APPLICATION.

Insecticides for controlling outbreaks of injurious insects are applied either in a dry form or in solution. For the application of the former, dusters, sold by seedsmen, are useful, or the powders may be dusted over the plants from bags made of cheesecloth. For applying insecticides in solution, a spraying pump is desirable. There are many kinds of hand sprayers on the market suitable for garden use. An important consideration is that the nozzle should distribute the liquid evenly and as a fine spray.

#### FORMULÆ.

##### FOR BITING INSECTS.

##### PARIS GREEN:

*Liquid application.*—Use in the strength of 4 ounces to 40 gallons of water, with about half a pound of fresh lime added. Where only a few plants are being treated one teaspoonful, with the same quantity of lime, to a pail of water is sufficient.

*Dry application.*—1 pound of Paris green mixed with 20 pounds of land plaster, slaked lime or other perfectly dry powder. Should be used early in the morning when the plants are wet with dew.

*Sticker.*—When spraying cabbages or other plants, the leaves of which are covered with a waxy secretion, with a Paris green mixture the same will adhere better if a "sticker" is added. Such can be made by boiling together for about an hour, 2 pounds of resin and 1 pound of sal soda (crystals) in a gallon of water. This is sufficient for 40 gallons.

##### ARSENATE OF LEAD:

Preferred. Many growers owing to the fact that it does not burn the leaves and remains much longer on the foliage than Paris green, not being washed off to the same extent by rains. The powdered arsenate of lead is used in the strength of two pounds to 40 gallons of water, the paste form in the strength of 4 pounds to 40 gallons. For use in small quantities one tablespoonful of the paste arsenate of lead is sufficient for one gallon of water.

##### POISONED BORDEAUX MIXTURE:

Bordeaux mixture is made as follows:

Copper sulphate (bluestone).	4 lbs.
Unslaked lime.	4 lbs.
Water (1 barrel).	40 gallons.