## direct contact with the insect's hody, and are called contact poisons. Food Poisons.

Paris Green, arsenate of lead, and calicum arsenate or calpoiso are some of the most effective food poisons on the market at present. To overcome the burning property which is sometimes present in Paris Green, add double the quantity of fresh unslacked line when preparing it for use as a spray. As an example, when spraying for potato beettes, use one pound of Paris green and two pounds of line to forty gallons of water. From a half to one pound of Paris green to forty gattons of water is the quantity generatly used to destroy chewing insects. The non-adhesive qualities of this poison, the danger from hurning, and the present high price of the product have caused some falling off in its use.

Arsenate of lead is one of the newer insecticides to be used in Manitoba. It possesses several distinct advantages over Parts green, and in many places in Eastern Canada and the United States it has superseded Paris green enlirely. At present it is much cheaper than Paris green, will not burn the foliage in the least, will adhere much better to the foliage of the plants than Paris green, and, in addition to lbese advantages, it is quite effective as a food poison. It can be purchased in both paste and powdered form. The powder is perhaps the better of the two forms as it can be transported easier, will mix more readily with water, and will keep for a longer time without deterioration. Dosage: Powder --from one to three pounds to 40 gallons of water, depending on the kind of insect it is used against. Paste---from three to four pounds to 40 gallons of water.

Calcium Arsenate—Calcium arsenate, the trade name for which is "calpoise," has recently been put on the market in Western Canada. It is one of the newest arsenicat poisons, and, according to some authorities, it is quite satisfactory as a means of destroying many kinds of biting insects. The commercial article is sold in the form of a very fine powder. It mixes readity with water and remains in suspension for some time. Dosage: three pounds of powder to 10 gallons of water is the quantity recommended by the manufacturers.

## **Contact Poisons**

Nicotine solutions, such as nicotine sulphate and "Black leaf 30," are amongst the best contact poisons. Pyrethrum powder and beliebore may also be used as contact poisons on the tarval form of certain insects. Black leaf 40 and nicotine sulphate are made from the stems and leaves of tobacco and are guaranteed to contain 40 percent, of nicotine. Both of these materials have been used in Canada for some time and have proved to be quite satisfactory. They mix readily with water, will not injure the most delicate foliage, and are comparatively low in cost. As a means of destroying all kinds of ptant lice or aphis they are unexcelled.

In the face of what has been stated above, a general statement can be made regarding the control of insect pests. Insects which devour the external tissues of plants can be most effectively controlled by using food poisons. Those which suck the juices of plants cannot be killed by a food poison but, instead, require a contact poison such as "Black leaf 40" or nicotine sulphate.