

intended. Unfortunately, much of the so-called spraying, as usually carried out, could more accurately be designated by these terms, which describe a much less careful and less even distribution of liquids.

REMEDIES.

Remedies are either Preventive or Active and must be applied in accordance with the circumstances of the case and the habits of the attacking insects. *Preventive remedies* are either agricultural or deterrent. The former of these consist chiefly of such methods as special rotation of crops, high culture, so as to stimulate a healthy growth of the crop and keep the land free of weeds and rubbish; early and late seedling, so as to present a crop to its insect enemies when they appear, in such condition that they cannot injure it, and rotation of crops, by which insects attracted to a locality by a crop will not have in that place the same crop to feed upon the following year. Deterrent preventive remedies consist of the application of mechanical contrivances, such as bands of paper or tin placed round plants to prevent cutworms getting at them, or the destroying or masking of the natural odours of some plants by scattering amongst them substances possessed of a stronger or a disagreeable odour, like gas lime, carbolic acid, etc. *Active remedies* include such methods as hand-picking and the application of various poisonous substances to the plants to be protected.

Arsenites.—The best known of these are Paris green, Arsenate of lead, the Arsenate of lime with soda, which has lately come into very much more general use, and Green Arsenoid.

In all of these poisons, arsenic is the essential ingredient, and other chemicals are mixed with the arsenic for the purpose of preventing it from injuring vegetation. There are many spraying compounds which contain arsenic, some of which are sold ready-made, and many others are made at home by combining the necessary ingredients.

Paris Green.—Undoubtedly the best known, and in many respects the safest, poison to use, is Paris green. It has passed through many years of trial, is well known, has a distinctive colour, and is a definite chemical compound containing 58.65 per cent. of arsenious oxide, 31.29 per cent. of copper oxide, and 10.06 per cent. of acetic acid. It is, therefore, an aceto-arsenite of copper. It is soluble in ammonia. Paris green, if demanded, is obtained pure in all parts of Canada; but, as there is sometimes an adulterated article found in the market, it is wisest always to add an equal amount, with the Paris green, of freshly slaked lime, when the free arsenic will combine with the lime, and it can then be used safely at the rate of one pound of Paris green in 160 gallons of water on all vegetation, and, for a dry application, one pound Paris green in 50 pounds flour, land-plaster, slaked lime, or some other perfectly dry powder.

As a general principle, lime should always be used with Paris green whenever it is applied in a liquid insecticide. Paris green is very heavy, and the particles quickly sink to the bottom of any liquid with which it is mixed.