INSECTICIDES.

Food Poisons.

Food poisons are that class of compounds which contain some poisonous substance that if eaten and absorbed by the system will cause death. The most commonly used material that produces this toxic effect is arsenic, but other materials may be and are used.

"White Arsenic," known also as ratsbane, arsenious oxide, (As_2O_3), is the basis of many food poisons. It is a white powder, but occurs also in two crystalline forms. It is sparingly soluble in water, the solubility varying with circumstances. If water at 15° C. be shaken for a long time with the solids, 100 parts of the water will dissolve .28 parts of the crystalline and .92 parts of the powder, while if saturated solutions at 100° C., be cooled at 15° C., 2.18 parts of the crystalline and 3.33 parts of the powder form remain in solution. Water containing carbon dioxide, however, dissolves much greater quantities than does pure water. White arsenic completely and readily dissolves in solutions of caustic alkalies, such as ammonia, and in solutions of alkaline carbonates, such as washing soda. To both plants and animals it is, along with its compounds, a powerful poison, two or three grains being sufficient to cause death with the human being. Cultural solutions containing 0.0002% will destroy plant life.

Arsenic pentoxide, (As_2O_5) also called arsenic oxide, is likewise the basis of many food poisons. It is a white, solid substance slowly soluble in water. It is also a strong poison, but not so active as the arsenious oxide. Cultural solutions containing as much as 0.02% will alow the growth of plants to still continue.

What is important to know about arsenious and arsenic oxides in this connection, however, is that with water they form acids. For this reason they cannot be used directly as sprays for they would burn and destroy foliage; they must have their acid or scorching property removed. This is done by combining them with such substances as calcium, copper, lead, barium, etc., which change them into *salts.* These salts retain the poisonous property of the arsenious and arsenic oxides and can be sprayed on to foliage without fear of doing any considerable harm.

But all salts of arsenious and arsenic oxides cannot be used for spraying purposes. Those which are *soluble in water,* such as sodium arsenite and sodium arsenate, cannot be employed. *Only those which do not dissolve but remain in suspension as solid particles* are of use.

Arsenical Compounds.

Paris Green.

This substance is used as an insecticide more largely than any other in the Province of Ontario, due to the fact that it was the first introduced, and, therefore, better known. It is an olive green material consisting of