

CONTROL OF ROOT-KNOT BY CALCIUM CYANAMIDE AND OTHER MEANS

By J. R. WATSON

In November, 1914, the attention of the writer was called to the poisonous properties of the commercial compound called "cyanamid." It occurred to him that the substance might have some value if used against pests inhabiting the soil; against nematodes in particular. Some preliminary tests on radishes in infested soil were so encouraging that during the spring of 1915 more extensive tests were undertaken, and in July of that year the matter was taken up as a regular project for investigation. Varying results were secured by a variation of the quantities of cyanamid applied, the manner of application, and the soil used. It is not the purpose of this bulletin to go into the details of these experiments or to tabulate the results. The aim is to state only the essential results of experiments and to give those details which are essential to the trucker or gardener applying the material.

WHAT IS ROOT-KNOT?

Root-knot is a disease of certain plants, characterized by irregular swellings of the roots. These should not be confused with the nodules of the nitrogen-fixing bacteria which are found on most legumes and a few other plants. Such nodules are usually small, roundish, and all on any given plant are of about uniform size and appearance, also, they are attached loosely to the root. The galls of the root-knot nematodes vary much in size and shape, and are swellings in the root itself instead of being attached to it. (Fig. 67.) Above the ground the symptoms of the presence of root-knot are, progressively, a checking of plant growth, failure to produce normal fruits, a yellow, sickly appearance and a premature death.

CAUSE

These swellings are caused by minute worms which belong to the group commonly known as eel-worms or round worms, and technically called nematodes. They are related to hook worms, "vinegar eels" and intestinal worms. The males are long and slender but the adult females are pear-shaped. Both are minute, and barely visible to the unaided eye.

After fertilization, the females produce young which are slender like the mature males. These force their way thru the