are determined from the actual yields of the plots in every instance. All experiments are conducted with the greatest care, and for several years in succession, in order to secure strictly accurate results. These experiments deal with the crops grown on fully nine-tenths of the cultivated land in Ontario. As a rule all field experiments are conducted for at least five years before they are dropped. Many are continued for a longer period of time. It is recognized that it takes quite five years in most experiments before results of a reliable nature can be obtained. This in a great measure is due to the variations of the season's temperatures, rainfall, &c.

Co-operative Experiments in Agriculture.

These are conducted through the medium of the Ontario Agricultural and Experimental Union. Probably in no other country is experimental work amongst farmers carried out on so extensive and complete a system, which had its beginning in 1886. In 1914 co-operative work was conducted on farms throughout Ontario in agriculture, agricultural chemistry, agricultural botany, beekeeping, forestry, and, in connection with the public schools, in elementary agriculture, horticulture, and forestry. During 1914 4,519 farmers acted as experimenters on their own farms, which indicates that the work is appreciated and that it has become very comprehensive. Apart from the incalculable value of the co-operative experiments and the opportunities that farmers are given to inspect the experimental plots at the college, the whole subject is treated, with illustrations, in a bulletin which might run to eighty or a hundred pages, with clear and simple notes on the production of every imaginable crop.

Professor Zavitz, as secretary of the Ontario Agricultural and Experimental Union, in his report for 1914 has the following, which is worthy of quotation :—

"The Ontario Agricultural and Experimental Union has a peculiar field of its own. It is an organization of active workers. These men are doing things that count for much. They are furnishing material which forms the basis of talk and discussions at farmers' institutes and at farmers' clubs. Each experiment forms a centre of interest and of inspiration. Failures in the co-operative work as well as successes may have their lessons. The experimenters, who are active farmers, endeavour to interpret the results of their various experiments. The very act of experimenting, the interesting observations made during the growing season, the preparation of the records, and the endeavour to understand the real meaning of the results are all conducive to a more thoughtful and wholesome consideration not only of the experiments themselves, but also of the various other operations of the farm. It is probably safe to say that the successful development of a system of co-operative work rests not only with those actively engaged in carrying forward the work, but also upon the intelligence and the progress of the people as a whole. The fact that Ontario has been so successful with its system of co-operative experiments in agriculture indicates more than words can express the intelligence and the ability of the farmers of the province."

Loose-smut in Oats and Stinking-smut in Wheat.

At the Ontario Agricultural College for five years in succession experiments have been conducted for the prevention of the loose-smut in oats and the stinking-smut in wheat. Careful determinations were made each year to ascertain the comparative influence of different treatments. The following treatments were used throughout, with the exception of Nos. 3 and 6, which were omitted from the treatments for the stinking-smut in wheat :—

(1.) Untreated. One sample of oats and one sample of wheat of each variety was left untreated, in order that the influence of the various treatments might be better observed.
(2.) Immersion in hot water.
(3.) Immersion in bluestone-solution for five minutes.
(4.) Immersion in bluestone-solution for twelve hours.
(5.) Sprinkling with bluestone-solution.
(6.) Immersion in potassium-sulphide solution.
(7.) Immersion in diluted formalin.
(8.) Sprinkling with diluted formalin.

The results show that the greatest yields of both winter wheat and oats per acre were produced from the grain which was immersed for twenty minutes in a solution made by adding half a pint of formalin to 21 gallons of water. They also show that this treatment was effectual in completely killing the smut. The formalin which was used in the experiments was the same as a 40-per-cent. formaldehyde solution.

Short Courses.

The short courses provided at the agricultural colleges of Canada and America are designed to meet the case of those who have not the time or the means to take a longer course. An outline of the short courses at the Ontario Agricultural College, Guelph, Canada, will give an idea of the thoroughness and value of the instruction provided. Board and residence is obtainable cheaply in Guelph, and the farmer or farmer's son or daughter has merely to attend the classes and demonstrations set out in the syllabus. No tuition fee is charged, nor is any entrance examination required.

The stock and seed judging course was timed to start on the 11th January and close on 22nd January. A judging-pavilion, with a 50 ft. ring and with a seating-capacity of three hundred, has been built specially for those taking the short course in live-stock. Into this ring classes of horses, beef and dairy cattle, sheep, and swine are brought, the college herds and other notable herds being drawn on for the purpose. From 10 a.m. until noon and from 1.30 to 4 p.m. each