

and appetizing and consequently was eaten by more of the locusts. Professor Geo. A. Dean, Entomologist, Kansas State Agricultural College and Experiment Station, referring to the application of the mixture states: "The damp mash, or bait, should be sown broadcast in the infested areas early in the morning, or also at the time the grasshoppers are beginning to move about from their night's rest. It should be scattered in such a manner as to cover five acres with the amount of bait made by using the quantities of ingredients given in the above formula. Since very little of the bran is eaten after it becomes dry, scattering it broadcast in the morning, and very thinly, places it where the largest number will find it in the shortest time. Sowing it in this manner also makes it impossible for birds, barnyard fowls, or live stock to secure a sufficient amount of the poison to kill them. Inasmuch as the poisoned bait does not act quickly, it will be from two to four days before the grasshoppers are found dead, and these will be more numerous in the sheltered places. It does not require much of the poison to kill them. Even a small portion from one of the poisoned flakes will be sufficient to cause death."

In view of the remarkable success in Kansas in the control of locusts, by adding to the poisoned bran the juice of lemons or oranges, the Entomological Branch decided to test out this remedy, near Ottawa, and also to experiment with other mixtures. These experiments were conducted at Bowesville, Ont., where a fairly large section of the country has been badly infested with these insects since 1912. The results obtained were, indeed, very promising and would indicate that the Kansas formula, particularly when lemons are used, will be found of equal value in Canada, at least in the provinces of Ontario and Quebec. In addition to the Bowesville experiments, applications were also made, under our direction, in the province of Quebec, near St. Etienne de Grés, St. Maurice county, where locusts have been extremely destructive.

In the Bowesville experiments the applications were made about the beginning of the last week in June. The locusts were very numerous and only a few, comparatively, had wings. The mixture was broadcasted early in the morning and counts of the locusts killed were made four days later. These gave from 50 to 414 dead locusts to the square yard.

As a result of these experiments Mr. W. D. Jackson, the District Representative of the Ontario Department of Agriculture for Carleton county, arranged to supply bran, molasses, Paris green and lemons—sufficient to treat 400 acres—to the farmers in the immediate district where the locusts were abundant. On June 30, accompanied by Mr. Jackson and his assistant, Mr. Waterman, five farms were visited where it had been decided to apply the mixture. At this time the locusts were mostly in the winged condition, although a number were still in the hopping stage. Within a week after the application counts were made diagonally across oat fields, etc., and these gave from 13 to 124 dead locusts to the square yard, the average being 57. The farmers of the district reported later that they were well pleased with the results of the experiment.

In addition to the Bowesville experiment, at our request, the Rev. J. I. Trudel and Rev. E. Fussey arranged to treat fields in their parishes, St. Etienne de Grés and Valmont, Que., and in this province even better results were obtained with the Kansas formula. Some farmers used lemons, and some oranges, and a stronger strength of Paris green was used, namely, $1\frac{1}{2}$ pounds to the 20 pounds of bran. The Rev. J. I. Trudel reports that 8 days after the poisoned bran was broadcasted counts were made in various fields and these gave from 900 to 1,200 dead locusts to the square yard. These results are certainly very remarkable and indicate the extraordinary abundance of locusts in that district. At the time of the applications the locusts had their wings and were migrating from one place to another.

As regards the cost of applying this new poisoned bran mixture, the following are the figures for the Bowesville experiments: 100 pounds of bran, \$1.25; 5 pounds of Paris green, \$1.25; 2 gallons molasses, \$1.00; 15 lemons, \$0.30;