

THE FARMER'S ADVOCATE

AND HOME MAGAZINE

* AGRICULTURE, STOCK, DAIRY, POULTRY, HORTICULTURE, VETERINARY, HOME CIRCLE. *

VOL. XXXV.

LONDON, ONT., AND WINNIPEG, MAN., JUNE 5, 1900.

No. 503

The Season.

Another exceptional season! In the 20 years of the writer's experience in the Province, there has not been a winter and spring to correspond with that of 1899 and 1900. Following a winter of light snowfall and without severe frost, spring opened early and wonderfully favorable for every department of farm work. Seeding progressed most satisfactorily, with ease to man and beast, and under peculiarly favorable soil conditions. But the dry weather continued somewhat too long, and high winds, followed by hard night frosts about the middle of May, in some districts, caused more or less injury to wheat, in some cases killing it entirely and necessitating re-seeding. A dry, warm spring is also favorable to insect life, and we have a plague of the Rocky Mountain locusts on some of the light soils bordering on the Assiniboin River south of Douglas, a visitation of cutworms in part of the Red River valley, whole fields being eaten off, and the insect enemies of trees and shrubs everywhere most numerous. Frequent rains help to wash insects off the trees, and by causing a vigorous, rapid growth of leaves, provide more abundant succulent food, and consequently the damage done by insect pests is not so noticeable nor so hard on the tree as during a protracted dry season. Spraying, and that early in the season, was the remedy.

In those parts of the Province where native swamp hay is depended upon, the supply is bound to be short, as most of these grasses only grow when covered with water during early spring. This year nearly all hay swamps were dry, and a shortage of hay will have to be faced. It is not yet too late to sow oats or barley, or some of the millets for green feed. Pasture, too, has been short and thin, and yet, as it lacks the usual washiness of spring grass, stock are reported as doing remarkably well on it.

A Grasshopper Plague.

For the past two years or so, grasshoppers, the genuine Rocky Mountain locust (*Melanoplus spretus*), has been making his presence felt in two or three localities in this Province. During the summers of '98 and '99 a careful watch was kept over these districts by Dr. Fletcher, Dominion Entomologist, as well as by the Local Department of Agriculture. Meetings were held from time to time, and farmers advised as to best means of preventing further damage. In the FARMER'S ADVOCATE of Oct. 5th, '98, and July 5th, '99, were published lengthy articles contributed by Dr. Fletcher, giving the results of his investigations, describing the nature and characteristics of the destructive hoppers, and the most approved methods of combating them. In the Turtle Mountain district, where they were present in very considerable numbers, the farmers appear to have acted upon the advice of the experts, and as a consequence there is nothing heard from that vicinity this year of the hoppers, but north of Stockton, on the light, sandy soil, on both sides of the Assiniboin River, evidently little or no attention has been paid to these warnings, and this year, favored by the early, dry and warm spring, the hoppers have hatched out in millions, and on many farms have devoured every green blade of wheat.

The Department of Agriculture, upon being notified of the trouble, took immediate action. Mr. McKellar visited the different localities affected, and Weed Inspector Braithwaite was dispatched to the scene of action with a supply of the munitions of war. Some farmers, by plowing at night, were enabled to destroy quantities. Spreading straw in rows along the lines of attack, and at night when the little hoppers had taken shelter under the straw, firing the piles, also proved helpful, but the easiest, quickest and most effective method of destroying them is by the use of what are called "hopper-doers." A number of the machines were sent out by the Department, and proved most useful. We cannot do better at this time than reproduce from our issue of July 5th, '99, extracts from Dr. Fletcher's article on the life history of this species of hopper, and the remedies he suggests:

The Life History of the Rocky Mountain Locust.—The eggs of the insect are laid towards autumn, and each female lays an average of 100 eggs. A healthy, well-fed female lays one large pod of about

80 eggs, and two or three smaller ones of from a dozen to 40, in varying numbers. These eggs are deposited in such places as there is little root fiber in the ground, and where the soil is not too loose or too hard. The most suitable places are fields which have been under crop, bare patches in timothy fields, along roadsides, and on railway banks. They are seldom laid in land heavily cropped or on the open prairie, where the land is full of roots (which form a mechanical hindrance to the female when making the holes to lay her eggs), or where a dense crop shades the ground. There is only one brood of this insect in a year, the eggs remaining in the ground all the winter, and the dark-colored young locusts (about $\frac{1}{4}$ to $\frac{1}{2}$ inch in length, shaped much like the full-grown ones) hatching, as a rule, when the wheat is about two inches high the following year. Last season this was towards the end of May. This year, in the same place, owing to the cold, wet and backward spring, the young were only beginning to hatch by the middle of June. [This spring (1900) being dry and warm, they began hatching shortly after the middle of May.—ED. F. A.] These grasshoppers take six or seven weeks after they leave the egg to become fully developed, during which time they pass through six stages, in the last of which alone do they possess wings with which they can fly. They are from the beginning social in their habits, and, when abundant, more like armies eating everything before them. This habit makes it possible to control them by plowing them down when young, or with mechanical contrivances.

Remedies.—All summer-fallows should be plowed at once, so as to bury the unhatched eggs and the recently-emerged young. When young are seen on stubble land, this should be plowed round from the outside, using as many teams of horses as possible, following each other in quick succession, so as to drive the young locusts to the center and bury them up as they fall into the furrows. When they have left the hatching grounds and have entered crops, these latter must be treated with the implements known as "hopper-doers," which may be cheaply made as explained by Prof. Luggner, who has had much experience in fighting locusts in Minnesota and Dakota: Take a sheet of stovepipe iron, 12 ft. long by 2 ft. wide, and turn up the edges 2 in. all 'round. Beneath this pan attach three pieces of board 6 in. wide as runners. The two outside ones of these must project 3 or 4 in. in front and all about 2 in. behind. To the two outside runners ropes 12 to 15 ft. long are attached by means of rings on holes bored through them. On the 2 in. projecting behind a light frame rests, covered with factory cotton or canvas, about 2 ft. high and stayed by means of side pieces at the ends. In the bottom of the pan about an inch of water is placed, and in this, to prevent slopping, a piece of canvas. A small quantity of kerosene oil is then poured in, and the machine is ready for use, at a cost of a little more than \$1. This is dragged quickly over infested fields by means of horses or boys, and two or three hopper-doers may be easily attached side by side and drawn by a single horse. About a foot in front of the pan a slack rope is attached to the two ropes, which drags along the ground and disturbs the locusts, so that they hop up and then drop into the pans. Tar has been used for the above purpose, but is far less satisfactory than kerosene oil (coal oil). It is much dirtier to use and sooner becomes thick by reason of the dust, which, on windy days or on dry land, soon thickens the contents of the pan. Kerosene oil is particularly fatal to grasshoppers. Prof. Luggner states that if the locusts fall in for a second and then jump out again, as many do, they are sure to die, for if even one foot gets into the oil a kind of paralysis soon sets in, which destroys them. Drawing the hopper-doers over crops until they are nearly a foot high does no harm, and as a rule two treatments are sufficient to destroy the insects. In restricted areas, as gardens, or where an army is just moving into a crop, good results may be secured by burning patches of dry straw spread over the fields, upon which young locusts perch at night, or by poisoning. This may be done either by spraying a strip of crop with a very strong mixture of Paris green, London purple or arsenate of lead in water, or by sprinkling wheat bran, poisoned with Paris green, in front of the moving army.

Do the hens trouble about eating their eggs? If so, arrange the nests in dark corners, feed a little fresh meat daily, scatter some china eggs about, and, best of all, let the hens out for a run on the grass. This habit is the result of idleness and liberal feeding.

Cutworms Damaging Crops.

From various sections of the country have come reports of more or less serious damage to field crops and garden stuff from cutworms. In response to an urgent appeal from the Tenlon district (north of Stonewall), the Department of Agriculture sent Mr. Melvin Bartlett to investigate and report on the extent of damage, and, if possible, suggest a remedy. The report reads, in part, as follows:

"Reaching Mr. Woods' about 9.30, he at once took me across to the field of 32 acres which he mentioned as having been almost completely destroyed. His report was not at all exaggerated. Only about eight acres remain intact. Along the edges of this small piece the worms were at work, and by running one's hand along the drills dozens of them were found about three-fourths of an inch below the surface. I recognized these as the caterpillar of the moth known as *Hadena devastatrix*, which is described by Dr. Fletcher as one of the worst enemies of the Ontario grain crops. They were present in the field in thousands. I collected ten in the space of one foot along a wheat drill. In the area where the wheat had been destroyed, not a worm could be found. They seemed to be advancing in a sort of army formation, the only place they were found being along the edges of the, as yet, untouched crop. The same conditions were found on the farm of Mr. Castle, which was next visited. The worms were not so numerous, owing to the fact, probably, that their attack is radiating from the corner of the field, giving them a fan-shaped front, while in Mr. Wood's field they were concentrating upon the last corner of the field.

"The grub burrows into the earth about three-fourths of an inch, remaining there during the day for protection from the sun, birds, etc., and at night comes to the surface to feed. It eats the whole plant, beginning just below the surface; occasionally small, uneaten portions of attacked plants will be found. They are omnivorous in their habits, preferring the more succulent plants. Thus, small plants of lamb's-quarters (*Chenopodium album*) standing in their track are preferred to the wheat and eaten first.

"The only remedy I can suggest in such cases is to thoroughly spray the grain along the front of their attack for a space of ten feet with a solution of Paris green. This has been found successful in small fields in the east, and I can see no reason why it should not succeed here. I visited fields on Mr. Mudd's farm, and heard reports of many other farmers in the district who were suffering similar losses.

"The worm hatches from the egg in the fall, and is still small when winter comes on. Usually large numbers of these are destroyed by the frost, and it may be that their unusual numbers this season is a result of the mildness of last winter. Full growth is attained about June 1st to 10th, and the moth appears about ten days later. There are two broods annually, but the second does no great damage, as by that time it appears there is abundance of food."

The following extracts are from the 1898 report of the Dominion Entomologist, Dr. Fletcher, in reference to this same species of cutworm. His advice may well be taken where the crop has been ruined, by sowing oats for green feed, as this year, owing to the dry spring, hay will be a light crop and fodder scarce:

"Occasionally considerable harm is done in grain crops by cutworms. There are several grass-feeding species in this large family which are liable to attack cereal crops. The injuries to Indian corn are well known and can be prevented in a large measure, but when a field of small grains is attacked the only resource is to adopt some agricultural treatment founded on the known life history of the depredator. The exact identity, then, of the species is of importance, so that the life history, if recorded, may be used as a guide to escape loss.

"These are the Glassy Cutworm, the caterpillar of the Devastating Dart Moth (*Hadena devastatrix*, Brace). I have waited a day or two before answering your letter (of June 2nd) so as to be able to say—what I now believe to be the case—that you can sow oats safely on your land. If you have any convenience for turning chickens or turkeys on to the field for a day before the oats are sown, they would doubtless destroy large numbers of the caterpillars or their chrysalids. I shall be very much obliged to you if you will let me hear from you later in the season what success you obtain from sowing oats on this land so late in the season. You will, I suppose, probably cut them for green feed."