

Field Crops

Wheat-Stem Sawfly

THE Western wheat-stem sawfly has been known in Canada for about 22 years, when it was the cause of more or less injury at Indian Head and Souris. It is not known to be very troublesome outside of those sections where spring wheat is grown rather extensively. Previous to the settlement of the prairie provinces and before wheat was grown the Western wheat-stem sawfly lived on grasses commonly known as wheat grass, rye grass or bunch grass. In 1906 and the following year there was a serious outbreak of this pest in Manitoba. In fact the fly was so numerous that the native grasses were unable to provide sufficient nourishment and the wheat fields were attacked with the result that considerable injury to the crop was manifest. Since the attack in 1907 the sawfly has apparently formed the habit of attacking the wheat stems to a greater extent than it did previously.

The adult sawfly resembles somewhat a narrow-bodied wasp, the female being about three-quarters of an inch long, the male somewhat shorter. It is black in color, possessing four wings and three yellow rings surround the abdomen. The female fly has a short horn-shaped appendage at the end of the body for the purpose of depositing her eggs. The time of appearance of the fly is governed somewhat by the season. Ordinarily, however, it is seen about the second week in June and may be found on the stems of various grasses as well as on wheat and rye, resting with its head downwards. In cool, cloudy weather the fly is inactive, seeming to prefer bright warm days in which to work. The eggs are deposited by the female, usually above the topmost joint into the leaf sheath. It is not clear whether the egg is deposited on the outside of the stem, below the innermost leaf sheath or inside the stem, but it is known that the larva gains entrance to the inside of the stem. It takes about three days for the eggs to hatch when they commence to work their way down through the stems and about August 1 reach the ground. About this time evidences of the fly may be observed in that the heads of the infested plant turns white. Wheat is less affected than rye due to its size of stem. When the larva has reached that portion of the stem at the ground it eats a ring around it inside, and thus nearly severs the stem which causes it to break over. The larva then remains for the winter in that portion of the stem left in the ground and the following May emerges in the pupa stage, developing about a month later into a sawfly which, when the breeding season approaches, are ready to deposit their eggs on the plants.

The work of the sawfly is fairly easily recognized. The first indication noticeable is that the stems of the grain are broken down much like that seen from the effects of a hail storm. If the stem

is split open the work of the fly is apparent. The straw will be quite hollow, showing an eaten-out appearance. Quantities of dust, the result of the boring process, will be seen, and if further search is made the larva may be discovered either above or below the broken stem. Quite frequently the straw turns black, particularly near the joints.

Methods of Control

The following extract taken from Bulletin No. 11, published by the Dominion Department of Agriculture, explains very clearly methods by which the Western sawfly may be kept in check.

Ploughing.—All infested stubble should be plowed down to a depth of not less than five inches between August 1 and June 1 of the following year. The soil should be thoroughly packed afterwards; this may result through the action of snow and rain in winter, but when the land is plowed in spring time, it should be harrowed and then packed if possible. Loose shallow plowing in spring time is practically useless as a

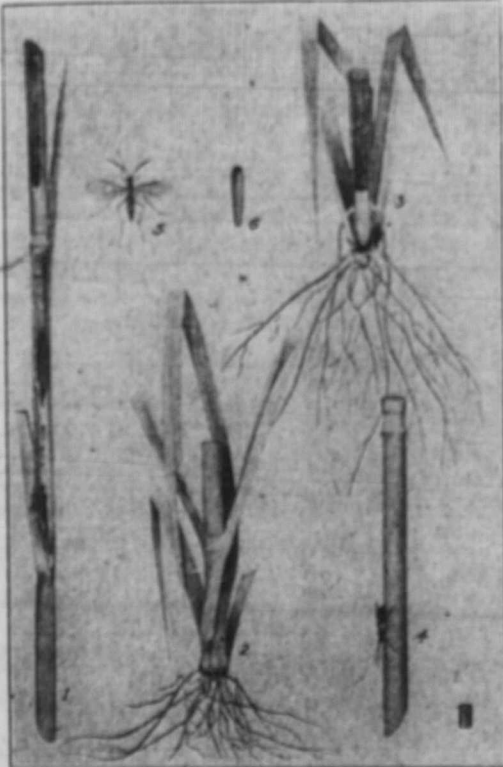
check, the flies being easily able to make their way through the soil to the surface, but when carried out as recommended above, very few, if any, of the insects are able to escape. This has been demonstrated by a number of experiments.

Cutting Infested Grasses.—Grasses known to harbor, or suspected of harboring larva should be cut with a mower between July 10 and August 1, but as soon as possible after the former date. By this means the larva will be caught in the stems before they are able to make their way to the lower portion of the plant beneath the ground, and as the grasses dry the grubs perish. Cutting grasses before that date would merely cause the flies to deposit their eggs elsewhere. This recommendation, however, does not refer to Redtop and its allies, nor to the Blue grasses, Bromegrass or the smaller Fescues, which apparently are not attacked by the sawfly.

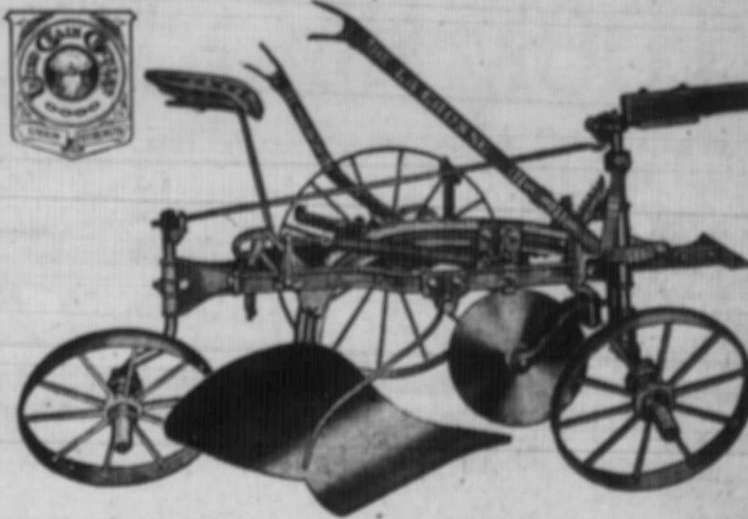
Provided it is impossible to thoroughly plow fields as mentioned above, the farmer should take careful note of that portion of his crop worst affected; this will be next to last year's stubble, either his own or that of his neighbor. In this case, under ordinary conditions, the worst injury will extend into the fields for about one hundred feet, gradually getting less severe towards the centre. By plowing down as much as possible of the worst infested portion between the dates mentioned above much future loss will be avoided.

A badly infested crop may sometimes be saved by harvesting it before the first of August, in other words, just before the sawfly larva have had time to cut through the stems. While at this time it will not make first-class grain, nevertheless by this method the crop will be saved from becoming a total loss.

Burning stubble or straw piles to destroy this insect is of no practical value, as at the date when stubble can be burnt, larva are only to be found in



Showing Adult Saw-Fly. Adult Larva and Portion of Injured Plant, much Enlarged.



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