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Brief Information on

INJURY TO SPRUCE AND FIR BY THE SPRUCE BUD-WORM.

Evidence of Attack. Periodical outbreaks of the spruce bud-worm in Canada, New Brunswick, and northeastern United States cause widespread attention and considerable alarm on account of the brown and apparently dying condition of the spruce and balsam fir resulting from the work of this insect on the buds and needles.

History of Outbreaks. About 1882 there was a severe outbreak of this insect which continued its depredations for three or four years and then almost completely disappeared. It was not until the spring of 1909 that it again began to attract attention, first in Pennsylvania and later in Canada. In 1910 it was much worse in the centers of the infestation and in 1911 it had spread to the coast of Maine where its work in 1912 attracted general attention.

Habits. The insects pass the winter on the trees as very small caterpillars which, as soon as new growth starts in the spring, begin to feed on the leaves of the terminal twigs, thus causing the brown appearance of the trees. This stage of the insect stops feeding by the middle of June and transforms to the chrysalis stage in thin webs among the dead and living needles. By the first of July the adults begin to come out from the chrysalis stage and appear on the wing as small grayish moths or "millers", often appearing in vast numbers on the trees and flying to light. They continue to fly and to deposit their eggs in small greenish masses on the needles until about the middle of July, when the moths die and disappear. The eggs soon hatch and the young caterpillars remain on the trees until the following spring, when the life process is repeated.

Injury more apparent than real. The information acquired regarding the seasonal history and habits of this insect indicates that there is no occasion for alarm as to its continued presence, as no extensive loss of the spruce and fir will result from its work.

Natural Enemies. The insect has many natural enemies which multiply and in a few years reduce its numbers to a point where the limited amount of damage attracts no attention.

No Practical Control. There are no practical methods of protecting forest trees, but in the case of a limited number of small trees around a residence or in parks, the foliage could be protected by spraying with some poisonous insecticide, such as one of the arsenicals, about the time of the opening of the buds and the appearance of new growth in the spring.

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