

American Fields and Forests Ravaged by Foreign Insects

Foreign Pests of Strange Insect Species which have Accidentally been Imported into America are Taking a Fearful Toll of Destruction in Our Fair Woodlands, Fields and Gardens

WITH EVERY passing year the battle between the human race and the food plant devouring species of insects, is growing more intense, in fact when the government records at Washington are being consulted and the fight that is on today on every farm and in every backyard is given some thought and attention, it becomes a serious question to determine whether the chances for victory are with the human race or with the insects. The city dweller who neither sows nor reaps, may be in ignorance of the battle royal that is on, except for the increased cost in food and clothing, which is charged up to the insect pest, but the farmer feels it more keenly in the wastage the insects produce which takes definite form in losses in dollars and cents.

Perhaps it does not interest you, but you should know that the experts of the United States department of agriculture, who are making man's organized efforts to conquer the insect enemies, looking beyond the present cost in money, wasted labor, and destroyed crops, regard the future of the struggle as potentially the greatest crisis ever to confront the race.

Though greatly accelerated resistant measures are being taken by the department, the destructive insect pests are constantly gaining. The most the department has been able to do in many cases is to retard the spread of insect blights. Insect depredations among American crops cost hundreds of millions of dollars annually and each year cost more than the last. If the increase in insect destruction continues at its present rate the time will come when what the insect takes will amount to so much that there will not be enough left to satisfy man's needs.

Incidentally this new insect menace has become acute within the last generation. Conditions brought into effect by civilization gave the insect its great opportunity. Originally, under natural conditions, for every insect there was a natural enemy. Parasites infested them. Birds ate them. Other carnivorous insects ate them. One species of insect lived on the eggs of another species. This natural balance restrained dangerous kinds of insects from becoming too numerous.

Nature's balance was distorted by civilization. Man denuded vast stretches of country of its natural forest. Bird life was restricted. With natural conditions destroyed various species of insects found a sudden opportunity to expand.

International commerce spread insects in strange parts of the world where, freed from their natural enemies, they could expand unhampered. Plants brought from Asia to America might carry two or three specimens of an insect, which, innocuous in its home-

land, found in its new environment a chance to flourish unmolested by its natural enemies. Immediately the strange insect multiplies and becomes a menace

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The cotton boll weevil, most noted of insect pests, was originally a little known and an unimportant bug which lived on wild cotton in the mountains of Mexico. Its food supply was strictly limited. Introduced by chance in the fringe of the cotton belt in southern Texas, it suddenly found in the endless fields of cultivated cotton a limitless food supply.

With a birth rate which it has been estimated produces over 12,000,000 offspring to a single pair of weevils in one season, the pest spread like wild fire through the cotton fields of the south. It lodged in Texas in 1892. Despite all efforts to resist the plague, it spread as far as North Carolina in the succeeding thirty years. The bug, which was of no importance in its natural wild state, had been given an opportunity by the natural conditions brought about by civilization to become a menace to one of the staple crops of the country, costing annually losses of from \$200,000,000 to \$300,000,000.

The history of the boll weevil illustrates the general insect menace. Pests which in their natural state faced so serious a fight for existence they barely were able to get along at all have suddenly been presented with an abounding food supply, been freed of their hereditary enemies, and as a result have multiplied with speed and vigor.

The Japanese beetle was accidentally introduced in Burlington county, New Jersey, in 1916. Like the boll weevil, it does not seem to have been a serious pest in its original environment but it has already become the most dangerous insect menace in New Jersey and Pennsylvania. It eats almost everything green from young fruit trees to weeds. Measures so far taken have failed to restrict its rapid spread and it is feared it may become as important a crop menace as the boll weevil.

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The corn borer was introduced from Hungary or Italy in 1909 and has already become a corn pest of prime importance. At present it has been identified only in portions of New England, New York and the borders of Lake Erie. Aside from attacking corn by tunneling in the stalk and in the actual ears, the corn borer attacks many other forms of economic plants, including beans, beets and celery. The department is taking drastic steps to prevent the spread of the pest to the great corn region of the middle west.

The codling moth is the most notable example of the hundreds of insect pests which cost apple growers approximately

twenty per cent of their crop annually. The larva of the moth burrows through the apple, either totally destroying it or spoiling its commercial value.

The cattle tick, formerly prevalent through most of the south, injures cattle by blood sucking and by transmitting "tick fever." It has been placed under some control by rigorous quarantine and dipping methods. Nevertheless it constitutes a menace to cattle which must be constantly guarded against and apart from the loss of cattle causes an important economic loss due to the necessity of preventive measures.

The southern pine beetle is smaller than a grain of rice and yet its attacks ruin millions of the finest southern pine trees every year. Its larva burrows under the bark, feeding on the tender inner surface of the bark, eventually killing the tree. Depredations of this beetle have caused far greater loss than forest fires in the south. The one practical method of control recommended by the department is felling infected trees and burning the bark to kill the hibernating beetles.

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In the war against insects the department of agriculture is man's general staff, with scientists as field marshals and entomologists as general officers and the war is waged with every scientific method of frightfulness that can be devised.

The insect enemy is assailed with every variety of poison, is starved, his winter quarters destroyed, is surrounded and cut off from his base, while every ally, parasites, carnivorous insects, birds, snakes and lizards is engaged to assist man in his battle.

But the general staff can only plan and direct. Against an enemy so numerous the general staff must have an army. In this army the department enlists farmers, children, housewives and everyone who can be persuaded to help. Farmers are educated to realize the serious financial losses caused annually by pests and then taught how to combat them. Children are enlisted in the cause and taught to become bug killers. Housewives are urged to fight the pests which infest their gardens.

But in the long run man cannot successfully combat his unbelievably numerous enemy. Airplanes may be resorted to to spray miles of cotton fields with poison, but boll weevils continue to flourish. Millions may be killed, but other millions, secreted in hiding places, continue to destroy cotton. The only outstanding success ever won by man in fighting serious insect pests have been won by the use of insect allies.

The boll weevil, withstanding all man-made attacks, is routed again and again by parasites, ants, and other tiny

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