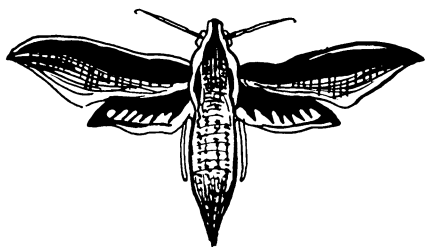




PLANT PATHOLOGY

# Heavy Tax on Farm Products Levied by Plant Diseases



Hawk-Moth

IF YOU HAVE a bed of larkspur, or a trumpet-creeper vine, or any of the other flowers beloved by humming-birds, you will often see, especially at dusk, numbers of big moths that at first you might mistake for humming-birds. They are almost as large in the body, they hover before the flowers with an invisible whirl of wings, they dart to a new position with the bulletlike flight of their tiny feathered prototypes.

But they are creatures far removed from birds—less like humming-birds in fundamental structure than they are like lobsters, even though their flight habits and food preferences may suggest kinship to these flying feathered jewels from the tropics. They are hawk-moths, among the largest and most highly evolved of moths, and also the swiftest and most expert in flight of these nocturnal insects.

If you are fortunate enough to find one of these living arrows at rest for a moment on a leaf, you will be struck by the resemblance between its general outline and that of a modern racing airplane. Its body is rather stout, it is true, like that of most moths; but it is tapered and streamlined and proportioned very much like the fuselage of an airplane. Its wings, instead of being great expanses such as those displayed by a Luna moth, adapted for flapping or fluttering, are trimmed down to a severe, athletic leanness, and shaped as an aviation engineer would like to shape the wings of his craft. The after pair of wings, much shortened and narrowed, have become virtually merely auxiliaries of the front pair: our moth is in effect a monoplane.

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TAXES on farm products, heavier than any legislative body would ever dare to levy, are assessed every year by plant diseases caused by fungi, bacteria and other parasitic microbes. This is made strikingly evident by a summary just issued by the U. S. Department of Agriculture, covering plant disease damage to the principal agricultural and horticultural crops for the years 1928, 1929 and 1930, the latest dates for which approximately complete figures are available.

Corn, the most important single crop in America, in 1928 had to give up 10.3 per cent. of its 2,839,959,000-bushel crop to its principal diseases. In 1929 the crop and the "tax" were both smaller: 2,622,189,000 bushels, with an 8.5 per cent. loss. Another drop occurred in 1930: crop 2,081,048,000; plant disease loss 7.6 per cent.

Cotton stands next to corn in economic importance in this country. The 1928 crop of 14,373,000 bales was cut 2,432,000 bales, or 17.2 per cent., by the worst of the cotton diseases. In 1929 a crop of nearly 15,000,000 bales suffered a 14 per cent. loss. In 1930 the crop was only a little smaller than that of 1928, but its damage was considerably less—just short of 10 per cent.

Wheat, the third big-money crop when prices are normal, was taxed by its main fungus enemies to the extent

of 7.8, 8.2 and 5.7 per cent., respectively, of its total yields during the period, which ran between eight and nine hundred millions of bushels.

Some regional losses naturally ran higher than the average for the country at large. This was not of country-wide importance in some instances; but when the great wheat state of Kansas lost by disease 9.75 per cent. of its 1930 wheat crop, while the national average was only 5.7 per cent., it was a matter of more than local concern.

The general average disease loss for the country as a whole, in the crops reported, ranged around the five to ten per cent. bracket. Thus, the 1930 loss in barley was 4.2 per cent.; in oats, 3.7 per cent.; in pears, 13.9 per cent.; in apples, 11.5 per cent.; in peaches, 4.5 per cent. Potatoes, however, seem to have more virulent enemies; their nation-wide loss in 1930 was 22.4 per cent.

The figures as given in this report are for plant diseases only; losses due to the inroads of insect enemies are not considered, since they are the concern of a different bureau of the Department of Agriculture. There are literally thousands of plant diseases, since every cultivated and wild plant has plant parasitic enemies ranging in numbers from single species to scores.

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