

NOTES ON MITES ATTACKING ORCHARD AND FIELD CROPS IN UTAH<sup>1</sup>

DURING the summers of 1915 and 1916 while making investigations for the laboratory of the American Smelting & Refining Company, Department of Agricultural Investigations, I found certain mites to be particularly abundant and destructive to grains in Utah.

The most important of these was the common *Tetranychus bimaculatus* Harvey, which Ewing believes is the same as *T. telarius* Linn. The host list for this species, as Ewing has pointed out, is a long one, and it is an important pest on a surprisingly large number of crops. In 1916 it was so abundant in orchards that many cherry trees were completely defoliated before the end of August, and apricot, pear, plum and apple trees were only a little less seriously affected. Raspberry and currant bushes suffered severely, some of them losing all of their leaves. Peas, beans, tomatoes and other kinds of garden truck showed more or less injury in all stages of their development, and in one field of sugar beets, I found many leaves drying and turning brown on account of the attacks of this mite. The loss of the foliage of many ornamental plants, while not of so much economic importance, was, of course, a very annoying thing.

Corn probably suffered more than any other field crop. In many fields practically every plant suffered the loss of some of its leaves, and in other places all of the leaves turned brown and became thoroughly dry because of the presence of the myriads of mites that covered the undersides of the leaves. The parts of the fields where the soil was lighter and dryer usually suffered most, but no parts seemed to be immune from the attacks of this pest. The suckers and lower leaves were the first to be attacked and to show the brown spots or streaks where colonies of the mites were feeding. When the trouble went no further it was of but little economic importance, but when the upper leaves were attacked and practically all destroyed the plant withered and was not even good for fodder.

<sup>1</sup>Contribution from the laboratories of the American Smelting and Refining Co., Department of Agricultural Investigations.

Many wheat fields also sustained considerable losses due to the attacks of the same mite. The wheat plants would usually be attacked a short time before the head burst from the sheath and when the infestation was bad the leaves would become dry and brown at the point of attack and the portion of the leaf beyond this would droop down and dry out. Often all of the leaves would be affected in this way and the heads, if they developed at all, would be small and poorly filled.

Earlier in the season, while the wheat plants were much smaller, they were often attacked by two other species of mites. One of these is the well-known clover mite, *Bryobia pratensis*. The other has been called the jumping mite on account of its habit of quickly folding its legs and dropping from the plant when disturbed. Banks in *Proc. Ent. Soc. Wash.*, Vol. 14, p. 97, named this species *Tetranychus longipes*. A letter dated June 29, 1915, says that he now places it with two others in a new genus, *Tetranobia*. He refers to this genus again in his bulletin on "The Acarina or Mites" (Rept. No. 108, U. S. Dept. Agric. Office of Sec., pp. 33 and 38) but the formal description of the genus has not yet been published. The common name, jumping mite, is somewhat misleading, for the mite does not actually jump, but, when alarmed, it folds its legs quickly and may thus be thrown a short distance from the spot where it was feeding. In fields where the mite is abundant the leaves turn distinctly gray and many of them become so dry that the growth of the plant is seriously affected. Both *B. pratensis* and *Tetranobia longipes* were found destructively abundant not only on wheat, but on barley, oats and many wild grasses.

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## THE OCCURRENCE OF MANNITE IN SILAGE AND ITS POSSIBLE UTILIZATION IN THE MANUFACTURE OF EXPLOSIVES

DURING the course of our investigations on the fermentation processes that occur immediately after the ensiling of corn, and the chemical products resulting therefrom, it was found