

COSTLY FOE OF FARMERS

Destructive Capacity of Chinch Bugs Measured by Government Experts.

ENORMOUS DAMAGE DONE IN A YEAR

Most Dangerous of the Insect Foes Against Which Agriculturalists Battle—Proposed Measures for Its Suppression.

An insect that is able to do \$100,000,000 worth of damage to the farmers of the United States in a single year may well be regarded as the most dangerous and destructive of the many foes against which the agriculturists of this country are obliged to fight for a living.

Prof. Webster says that the chinch bug has not its presence known in this country by its ravages in the wheat fields of the North Carolina farmers, in 1785. From 1845 to 1850 it attacked Illinois and portions of Indiana and Wisconsin.

There was a serious outbreak of the chinch bug in the west in 1865, and again in 1871, but in 1874 the ravages were widespread and enormous. The loss in 1871 in seven states, viz., Iowa, Missouri, Illinois, Kansas, Nebraska, Wisconsin and Indiana, was computed at \$10,000,000.

It should be taken into consideration that the financial losses above estimated have not taken upon the chinch bug, but upon the nine states named. In fact, as it is the chinch bug has cost the people of these nine states a sum of money sufficient to defray the entire expense of the national government for a whole year.

From attack by enemies the chinch bug seems to be protected in some degree by its vile odor, which is similar to that of the related bedbug. However, in the middle west the birds which are its natural enemies, such as the quail, are being ruthlessly wiped out by the shotgun.

The most important natural foe of the chinch bug is a species of parasitic fungus, which under favorable circumstances destroys them wholesale, literally eating them up. For some years past a distinguished Kansas entomologist, Prof. Snow, has been engaged in propagating these humble but destructive plants for the purpose of inflicting healthy chinch bugs with a fatal mummy. He has widely advertised a proposal to exchange sick chinch bugs for well ones the latter, as fast as they arrive, being infected with the deadly complaint by placing them together with insects already diseased.

There has been devised recently an important improvement on this plan, by which the disease-fungus is propagated artificially in a mixture of cornmeal and beef soup. The spores of the plant, being stirred up in the mixture, are fed to the chinch bugs, and result in the production of infectious producing material. This substance is very much more convenient to handle than moribund insects, and it may be scattered over a field with far greater ease and convenience.

Some Good in This. The effectiveness of this plan for communicating plague to chinch bugs artificially has been much questioned, but Prof. Webster and other scientists today pretty generally admit that it accomplishes wonderful results. In a field of wheat that has been treated in the manner described the track of the insects as they move in any direction is literally paved with their dead bodies, each little corpse enveloped in a white winding-sheet of fungus. In places the ground

is white with them and, on stirring up the soil at the edge of a cornfield, it is found to be full of dead chinch bugs to a depth of two or three inches, the white fungus-covered bodies contrasting strongly with the black color of the rich loam. Nevertheless, it seems that the fungus has little effect except where the insects are very thick, so as to make contact easy. Furthermore, it requires moist weather for its maximum efficiency.

There ought to be a central propagating station for the disease-fungus, from which supply, says Prof. Webster. Farmers, also, should watch the seasons carefully and when there are two dry summers in succession they preventively measure should be adopted—notably the burning of leaves, dead grass and other rubbish during winter or early spring, followed up by sowing small sprays of early millet, Hungarian grass or spring wheat in low damp places in the field with a view of attracting the females and masting the bugs and then freely applying the fungus in their midst.

One very effective method of fighting chinch bugs is to lay a line of fresh coal-tar as a barrier between a migrating horde and the field which they are advancing to attack. The line of coal-tar, when applied to a watering-pot with the sprinkler removed, needs to be only three-quarters of an inch wide, and at intervals of twenty feet in length are dug holes, in which tin cans are sunk. The insects proceed along the tin line until they are killed with little loss to the farmer. In this way the bugs are caught literally by the bushel.

Chinch bugs are essentially gregarious, gathering and feeding together in flocks. On reaching a suitable field of grain they literally cover it with the insects, varying in color from the black-and-white adults to the differently-tinted larvae. Only the winged adults fly away, the main body of less developed bugs remaining and leaving in a body only when the plants on which they have congregated have been drained of their juices and have begun to wither. Then they simply crawl to the nearest healthy plants and begin work on them. A general migration by flight takes place in the autumn.

Favorite articles of chinch bug diet are broomcorn, sorghum, Bermuda grass, blue grass, bottle grass and crab grass. Over the western country the major portion of the damage done is to fields of wheat, barley, rye and some cereals. In the east, the insect attacks the corn crop, though the occasion of smaller money loss, even more disastrous; for the destruction of the grain crops in those pioneer days not only took away all cash profits, but also deprived the early settlers of their very living and in some cases reduced them to starvation. From 1863 to 1865 the insect was again destructive, and it was estimated that three-fourths of the wheat and one-half of the corn crop were wiped out through almost the entire northwest. This meant a loss of 30,000,000 bushels of wheat and 138,000,000 bushels of corn, representing a total value of more than \$75,000,000.

Estimating the Losses. There was a serious outbreak of the chinch bug in the west in 1865, and again in 1871, but in 1874 the ravages were widespread and enormous. The loss in 1871 in seven states, viz., Iowa, Missouri, Illinois, Kansas, Nebraska, Wisconsin and Indiana, was computed at \$10,000,000. The loss in the year 1874 in Missouri alone, to the whole country for 1874 was not less than \$100,000,000. The next great outbreak occurred in 1887. In this case the damage was estimated at \$60,000,000, the heaviest losses occurring in Illinois, Iowa, Missouri and Kansas. The insect, as the estimated loss in the thirty-seven years, 1850 to 1887, the enormous sum of \$287,000,000. Another chinch bug plague reached its maximum severity in 1896. Careful estimates of the loss during the last seven years would in all probability swell the amount to fully \$330,000,000 for the period from 1850 to 1898. During the outbreak in Ohio at least two farmers became discouraged and sought relief in suicide.

It should be taken into consideration that the financial losses above estimated have not taken upon the chinch bug, but upon the nine states named. In fact, as it is the chinch bug has cost the people of these nine states a sum of money sufficient to defray the entire expense of the national government for a whole year. Fire excepted, there is probably no other thing that has caused so great a financial loss within the same period in the history of this country.

No other insect, native to the western hemisphere, has spread its devastating horde over a wider area of country with more fatal effects to the stable grains of North America than has this one. But for the extreme susceptibility of the very young to destruction by drenching rain the practice of raising grain year after year on the same areas, as followed in the United States, would be altogether unprofitable. It seems to be a fact that plentiful rain destroys the chinch bugs, if it comes at the proper time. The years of greatest abundance of the pest are apt to be preceded by a series of years of drouth.

Each female chinch bug lays about 500 eggs and the adult insect is not produced until sixty days later. The newly hatched young are very active and the first to appear may be observed with their prolegs about the base of the wheat, corn or grass plants and later all stages are seen mingling together, having little appearance of belonging to the same species, so greatly do they vary in size and color in their several stages of development. On first emerging from the chrysalis the adult is generally of a dull pink color, but as the days pass the colors change to the normal ones of the species, which are black as to the body, with white wings.

Natural Foes. From attack by enemies the chinch bug seems to be protected in some degree by its vile odor, which is similar to that of the related bedbug. However, in the middle west the birds which are its natural enemies, such as the quail, are being ruthlessly wiped out by the shotgun. This fact may account, in a measure, for its spread and multiplication, but, as will be explained later, only in a small degree. Various predaceous insects feed on the chinch bug, but they do not seem to be of great importance. Indeed, the spread of the pest is accounted for largely by the absence of natural enemies within the limits of the United States.

The most important natural foe of the chinch bug is a species of parasitic fungus, which under favorable circumstances destroys them wholesale, literally eating them up. For some years past a distinguished Kansas entomologist, Prof. Snow, has been engaged in propagating these humble but destructive plants for the purpose of inflicting healthy chinch bugs with a fatal mummy. He has widely advertised a proposal to exchange sick chinch bugs for well ones the latter, as fast as they arrive, being infected with the deadly complaint by placing them together with insects already diseased.

OMAHA LIVE STOCK MARKET

Little Bunch of Cattle Wins Up Week of Light Receipts.

MEAN PRICES CUT OFF LOCAL ARRIVALS

Holdings Not Inclined to Press Things Under Existing Conditions—Hog Run Very Heavy, with Prices Fairly Well Sustained.

Table with columns for Receipts, Shipments, and Market Status for Cattle, Hogs, and Sheep. Includes sub-sections for SOUTH OMAHA, Dec. 17, and CATTLE, HOGS, SHEEP.

The official number of cars of stock brought in today by rail roads was: Cattle, 10; Hogs, 19; Sheep, 19.

The disposition of the day's receipts was as follows, each buyer purchasing the number of head indicated: Cattle, 10; Hogs, 19; Sheep, 19.

CATTLE.—A usual on the 17th of the week, there were very few arrivals of any kind on sale, but such as there were brought good prices. The market was quiet, with a few arrivals of cattle.

HOGS.—Receipts of hogs this week have been the largest of the year to date. During the week ending Dec. 17, 1898, when the crop failure forcing farmers to sell everything they had, the receipts reached 105,887, which was a record for the year.

On Monday there was an advance of \$1.00 in the price of hogs, and on Tuesday, the price advanced another \$1.00. The market was very active, and the price of hogs was well sustained.

On Friday the market was very active, and the price of hogs was well sustained. The market was very active, and the price of hogs was well sustained.

On Saturday the market was very active, and the price of hogs was well sustained. The market was very active, and the price of hogs was well sustained.

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time old and thin wool may be depended upon to move slowly at the present time. On Thursday a bunch of spring lambs 114 head, including 100 head of 800 lbs. and 14 head of 100 lbs. were sold at \$5.50, thus proving that there is a market here for fancy stuff.

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JOBBERS AND MANUFACTURERS OF OMAHA.

DRY GOODS.

DRY GOODS. M. E. Smith & Co. Importers and Jobbers of Dry Goods, Furnishing Goods AND NOTIONS.

CREAMERY SUPPLIES. The Sharples Company Creamery Machinery and Supplies. Boilers, Engines, Feed Cookers, Wood Pulp, 1879, Blending, Butter Packing, etc. of all kinds. 97-103 Jones St.

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BUY THE GENUINE SYRUP OF FIGS. MANUFACTURED BY CALIFORNIA FIG SYRUP CO. NOTE THE NAME.

GRAIN RECEIPTS AT PRINCIPAL MARKETS. MINNAPOLIS, Dec. 17.—Receipts: Wheat, 63 cars; Corn, 17 cars; Oats, 25 cars; Rye, 1 car; Barley, 1 car; Flour, 1 car; Meal, 1 car; Bran, 1 car; Shorts, 1 car; Middlings, 1 car; Groats, 1 car; Buckwheat, 1 car; Potatoes, 1 car; Apples, 1 car; Peaches, 1 car; Pears, 1 car; Plums, 1 car; Cherries, 1 car; Strawberries, 1 car; Raspberries, 1 car; Blueberries, 1 car; Currants, 1 car; Grapes, 1 car; Applesauce, 1 car; Peachesauce, 1 car; Pearsauce, 1 car; Plumsauce, 1 car; Cherrysauce, 1 car; Strawberrysauce, 1 car; Raspberrysauce, 1 car; Blueberrysauce, 1 car; Currantsauce, 1 car; Grapesauce, 1 car; Applesauce, 1 car; Peachesauce, 1 car; Pearsauce, 1 car; Plumsauce, 1 car; Cherrysauce, 1 car; Strawberrysauce, 1 car; Raspberrysauce, 1 car; Blueberrysauce, 1 car; Currantsauce, 1 car; Grapesauce, 1 car.

ST. LOUIS, Dec. 17.—Receipts: Wheat, 119 cars; Corn, 100 cars; Oats, 25 cars; Rye, 1 car; Barley, 1 car; Flour, 1 car; Meal, 1 car; Bran, 1 car; Shorts, 1 car; Middlings, 1 car; Groats, 1 car; Buckwheat, 1 car; Potatoes, 1 car; Apples, 1 car; Peaches, 1 car; Pears, 1 car; Plums, 1 car; Cherries, 1 car; Strawberries, 1 car; Raspberries, 1 car; Blueberries, 1 car; Currants, 1 car; Grapes, 1 car; Applesauce, 1 car; Peachesauce, 1 car; Pearsauce, 1 car; Plumsauce, 1 car; Cherrysauce, 1 car; Strawberrysauce, 1 car; Raspberrysauce, 1 car; Blueberrysauce, 1 car; Currantsauce, 1 car; Grapesauce, 1 car.

CINCINNATI, Dec. 17.—Receipts: Wheat, 29 cars; Corn, 100 cars; Oats, 25 cars; Rye, 1 car; Barley, 1 car; Flour, 1 car; Meal, 1 car; Bran, 1 car; Shorts, 1 car; Middlings, 1 car; Groats, 1 car; Buckwheat, 1 car; Potatoes, 1 car; Apples, 1 car; Peaches, 1 car; Pears, 1 car; Plums, 1 car; Cherries, 1 car; Strawberries, 1 car; Raspberries, 1 car; Blueberries, 1 car; Currants, 1 car; Grapes, 1 car; Applesauce, 1 car; Peachesauce, 1 car; Pearsauce, 1 car; Plumsauce, 1 car; Cherrysauce, 1 car; Strawberrysauce, 1 car; Raspberrysauce, 1 car; Blueberrysauce, 1 car; Currantsauce, 1 car; Grapesauce, 1 car.

CHICAGO, Dec. 17.—Receipts: Wheat, 29 cars; Corn, 100 cars; Oats, 25 cars; Rye, 1 car; Barley, 1 car; Flour, 1 car; Meal, 1 car; Bran, 1 car; Shorts, 1 car; Middlings, 1 car; Groats, 1 car; Buckwheat, 1 car; Potatoes, 1 car; Apples, 1 car; Peaches, 1 car; Pears, 1 car; Plums, 1 car; Cherries, 1 car; Strawberries, 1 car; Raspberries, 1 car; Blueberries, 1 car; Currants, 1 car; Grapes, 1 car; Applesauce, 1 car; Peachesauce, 1 car; Pearsauce, 1 car; Plumsauce, 1 car; Cherrysauce, 1 car; Strawberrysauce, 1 car; Raspberrysauce, 1 car; Blueberrysauce, 1 car; Currantsauce, 1 car; Grapesauce, 1 car.