

ENTOMOLOGY

Tiny Chinch Bug Threatens War On Wide Front in U. S.

Solidly Entrenched in the Grain Area, Enemy May Do Immense Damage Unless Weather Comes to Rescue

WAR on a wide front, a major campaign by hordes of man's swarming insect enemies, menaces the great central bread-producing area of the country during the coming summer.

This time the attacker is the chinch bug, a tiny, gnat-sized insect with glistening white wings.

Seasoned campaigners of the U. S. Department of Agriculture, veterans of many battles against winged foes, are girding for the conflict. They have \$2,500,000—the price of a few hour's barrage by modern artillery—for the season's fight, and with it they expect to accomplish a good deal in the way of defense; but they are really hoping for a favoring "break" from the weather if the campaign is to be decisive this year.

The chinch bug's kingdom has been extended into an empire by favor of the weather during the past two or three hot, dry summers in the great grain area of this country. Normally, chinch bugs are troublesome in the Kansas-Oklahoma-Missouri region, and not very far outside it. Their farthest northeast outpost for years has been the southwestern corner of Iowa; in the central part of that state only veteran farmers had ever seen a live one—and that was forty years ago. But now their farthest north is near Minneapolis, and their farthest east is the upper Ohio Valley.

Drought Favored Spread

Last summer's drought was especially favorable to their spread, so that the center of heaviest infestation is now also the center of the grain belt. They have been overwintering safely in the wild grasses of the roadsides and fencerows.

Now they are beginning to move into the fields of young wheat, oats and other small grains. There the overwintering generation of females will lay their eggs, and then die. The young of the new generation will feed in swarms, severely damaging the crop—in some places probably will make it too poor to be worth harvesting.

All this time they will still be in the

immature stage, without wings. When the harvesting of small grains begins, or if a new drought makes their food scarce, they begin to crawl toward the adjacent fields of corn and other succulent forage crops. Like a living carpet, every stitch of it a ravenous little appetite, they cover the ground. The very soil seems to be moving.

Such a wave of chinch bugs will ruin a cornfield like fire, while you watch. The insects do not chew, like locusts; they drive in their tiny sharp beaks and suck the juice. And the corn wilts to ruin before your eyes.

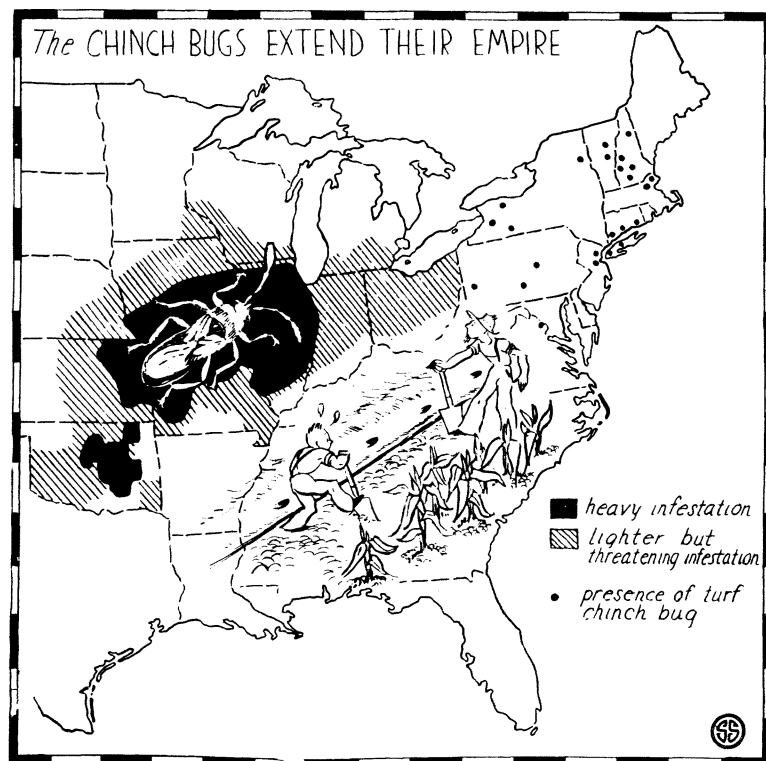
It is during this crawling stage that they are most exposed to destruction. If a week or ten days of wet, cool weather comes in late spring, their menace is reduced to a fraction. The ones still in the small-grain fields will not leave; the ones that have committed themselves to

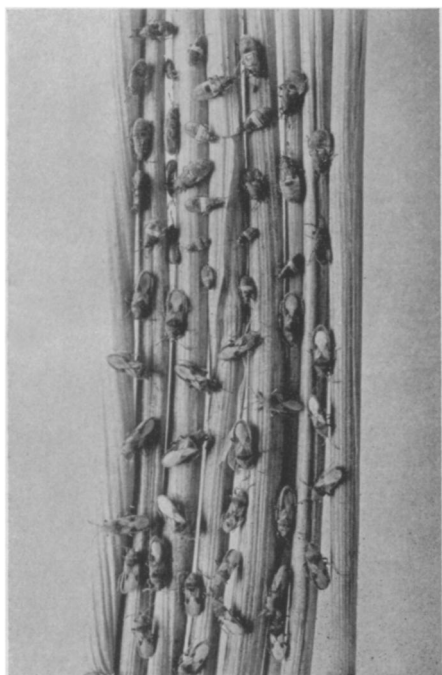
the overland crawl are beaten into the dirt by the rain and so perish. Also, during wet weather they are exposed to a destructive fungus disease that wipes them out in billions.

If wet weather does not favor the embattled farmer and his ally, the fighting scientist, trench warfare must be resorted to. Around the cornfield they dig a trench a foot or so deep, throwing the dirt into a rounded ridge on the cornward side. They drag a log along the bottom of the trench, to make it as dusty as possible. This puts in the path of the advancing bugs a veritable artificial mountain ridge, very difficult for them to climb.

To complete the defenses, the farmer then lays along the ridge a strip of malodorous creosote, very repellant to the chinch bugs. At intervals, branch strips lead back toward the bottom of the trench. Each of these branch strips points at a post-hole some 15 or 18 inches deep. Into these pits the swarming insects fall—and the farmer comes along with fire or chemicals or other means of destruction and massacres them.

Such chinch bugs as manage to survive the battle and get into the corn feed and breed there, producing a second generation of insects. By now it is late summer or autumn, and this second brood flies again into the roadside and fieldside grasses, there to take up winter quarters.





Cornelia Clarke Photo

THE CHINCH BUG UNMASKED

Enlarged up from their natural pinhead size, chinch bugs show the markings of their tribe: the white-winged individuals are adults, the wingless ones are immature specimens.

Here again they can be attacked, by burning the grasses during December, January and February.

The individual chinch bug is a very small insect, no bigger than a gnat. Under a moderately strong lens, the adult displays a pair of glistening white wings, which have given it the second half of its scientific name, *Blissus leucopterus*. *Leucopterus* is made up of a pair of Greek words meaning white wing. The young bug has its growing wings packed away in a pair of stubby cases on its back, and is marked with a white band.

The average citizen is more apt to remember the chinch bug by its odor than by its rather insignificant appearance, for it smells most disagreeably when crushed. In this it is true to its tribe, for it belongs to the same general group that includes squash bugs, stink bugs and other malodorous citizens of bugdom.

Unlike many of our most serious insect enemies the chinch bug is not an immigrant. It is a native-born racketeer, which has always lived in the Southwest. It did not adopt a career of crime, however, until white settlers brought it "easy pickings" in the form of cultivated crops.

There is a second species, the turf chinch bug, which has lately been making

itself a major nuisance on golf courses, especially in New York and surrounding states. Entomologists at Cornell University are now endeavoring to find some

kind of gas attack that will stop its depredations without ruining the fairways and greens.

Science News Letter, April 27, 1935

AGRICULTURAL ECONOMICS

Partly Empty Grain Bins Hold No Bread for Soldiers

PROMOTE peace by filling your powder bins, is a stock argument of preparedness advocates, made familiar by much repetition.

Less familiar, but conceivably at least as legitimately arguable, is the thesis that the tottering peace of Europe may receive a little added support from this country's partly empty grain-bins.

Dr. James Brown Scott, of the Carnegie Endowment for International Peace, inquired a few days ago, "Without having the United States as the base of hostile operations from which to obtain an ever-increasing supply of arms and ammunition, and indeed foodstuffs, would the World War have lasted as long as it did?" And he pointed out that in a great war the belligerents, their own industrial and agricultural output diminished, always looked to accessible neutral powers as magazines of supplies.

If war should come, it is quite conceivable that overwhelming public opinion in this country might prevent sales of munitions or metals to the belligerents. But it might be more difficult, ordinarily, to obtain a popular mandate for an export embargo on foodstuffs and other agricultural products.

Right at present, however, even that might be strongly supported, simply because the average citizen has become a bit uneasy about having bread enough for himself. The first spring crop estimate of the U. S. Department of Agriculture indicated a probable harvest of 435,499,000 bushels of winter wheat, with more than an additional 93,699,000 bushels carried over from last year's crop. Since then, new dust storms have been raging, and what they may have done to the standing crop has not yet been determined.

"Adequate supplies for domestic requirements," says a leading agricultural spokesman. But that cheerful estimate significantly omits any allowance for rations to go into somebody else's haversack.

True, some of the European powers,

by the most strenuous kind of artificial encouragement, have boosted their own wheat production to a point of proud self-sufficiency. But let Hans and Jacques and Ivan lay down the scythe for the sword, leaving the womenfolk behind to tend the crop, and this self-sufficiency will soon begin to wear pretty thin.

Other grain areas—Argentina, Australia, India? Perhaps; but when delivery in a hurry has been a factor, the better organized North American facilities have always functioned first.

Moreover, practically all the great extra-European wheatfields, outside the United States, are not to be counted as neutral. They are dominated by Great Britain, either by actual political ties or through economic set-ups. The one great neutral cupboard is Uncle Sam's, and though he fears no famine for himself, he has no spare loaves this year to hand out to disturbers of the peace.

Science News Letter, April 27, 1935

CHEMISTRY

"Gas Attacks" Improve German-Grown Tobacco

SMOKERS are sometimes accused, by wisecracking friends, of conducting gas attacks. Less grounds for this accusation may some day be found in tobacco which has itself been the subject of a gas attack. Experiments pointing in this direction were reported by Dr. G. Pfützer and Dr. H. Losch. (*Die Umschau*, March 10)

Drs. Pfützer and Losch subjected German-grown tobacco to treatment with ethylene and other gases, during various parts of the fermentation or "ripening" process. These gases are the same as those used in the United States to speed the ripe coloration of fruit and the opening of cut flowers. The results, as tested by skilled tobacco judges, were noticeable improvements in both the color and the smoking qualities of the leaves.

Science News Letter, April 27, 1935