

UNUSUAL DAMAGE BY INSECTS.

**This Was the Experience This Year
Altho Last Winter Was Exceptionally Cold.**

THE experience of this year gives emphatic denial to a certain popular idea.

Each winter we hear people say, (and local papers often repeat it) that the severe weather of winter will kill out the insect enemies of our crops. Last winter (1911-12) was much the most severe of any within the last decade in North Carolina, so that if this idea were founded on fact, we should have had less than the usual amount of damage this year. But this was not the fact.

I have no distinct evidence that any of our standard insect pests were less destructive than usual, but on the contrary, the list of abnormally destructive insects is larger than usual. The year 1912 has brought more complaints of insect damage to my office than any year of the present century, and I believe that to a considerable extent this is because the insects were helped rather than checked, by the severe winter.

It may be of interest to know what particular insects were abnormally destructive, and to know when their serious ravages began. I will state the facts first, and then theorize a little (if you will), afterward.

During January, February and March the complaints were normal, but during April the special outbreak began, beginning with the larger corn stalk borer, the first report of which was April 1, and the number and severity of complaints indicated more than usual damage.

On April 25, complaints began to come in of the pickle worm boring into squashes and cantaloupes, and it did thousands of dollars damage, being by far the most destructive of any year on record.

Only two days later (April 27) the elm leaf beetle became conspicuous as a pest on shade elms in the Piedmont section, and was more than usually destructive.

On May 24, we received the first of a series of complaints of the cottony maple louse attacking shade maples. On June 5, there was complaint of the sugar cane beetle attacking corn, and this is of special interest, as this is one of the insects which we might reasonably expect to have been checked by the severe winter (reasons later.)

On July 15 (schedule time for the pest,) we began to hear from the cotton red spider and it was more wide-spread and more destructive than usual. The last epidemic was that of the fall army worm, (a different insect from the worm on cotton of last year,) which began July 20, and this fall army worm apparently produced at least three distinct destructive broods, though not all in the same localities.

Now why should the extra cold weather of last winter have helped these insect pests?

It has been proved by experiment that insects can live thru a long period of steady cold, better than thru the same period of fluctuating temperatures, warm and cold alternating. The same principle holds good with ourselves. We have less sickness (provided we are in normal health to begin with) when we have steady cold winter weather, than when we have severe freezes one week, and warm thawing weather the next. The variability, fickleness, changeableness, of winter hurts us more than the normal cold. And so with an insect which is hidden away in some crevice to pass the winter. If it remains cold, it sleeps away the season in stupid, torpid condition, and when the weather moderates normally in spring, it comes out of hibernation in good shape. But if there

comes a thaw in mid-winter and he comes out of his quarters, and then is caught in a cold snap, he is likely to be a dead insect. So I reason it that unusually large numbers of our insects passed last winter successfully, because of the steady, constant cold.

The whole system of cold storage for meats, eggs, fish, etc., is based on this same idea. Put these articles in storage where they stay cold, and they keep well for a long time, but let the place once thaw and the damage is done.

Now there are a few pests which it seems to me that extra cold winters should help to control, and these are the ones which have migrated northward in comparatively recent years, and have not yet become thoroughly acclimated. The terrapin bug is one of these, and the sugar cane beetle (mentioned above) is more especially a Southern insect. Yet the cold of last winter did not seem to check them. So perhaps they have been here long enough to be acclimated, even tho they are immigrants from a warmer clime. On the other hand the potato beetle, Hessian fly and white cabbage butterflies are immigrants from colder regions, so of course, we would expect them to go thru last winter successfully, and they certainly did!

There is one insect which illustrates my point exactly. The cotton boll-weevil (native of Mexico and southward) was greatly reduced in number last winter.

Careful studies in Mississippi, Louisiana and Texas in the spring showed that it lost much in territory and numbers. But as the season advanced it spread again over the old ground, and now that the season is here for its invasion of new territory, we may expect it to take in about as much new ground as usual.

We know of no way to take advantage of these facts other than to get rid of rubbish and remnants which furnish winter quarters for the insects. But it is certainly worth our while to know what to expect and what not to expect, and then be prepared for the emergencies. No one could foretell what particular insects would afflict us this year, but I did tell the farmers at the institutes last winter (while the weather was at its coldest,) that the cold of winter would give us no relief.

FRANKLIN SHERMAN, JR.
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Raleigh, N. C.

Self-Boiled Lime-Sulfur No Good for San Jose Scale.

WRITING us in regard to the use of self-boiled lime-sulfur solution to combat the San Jose scale, Dr. W. E. Hinds, of the Alabama Experiment Station says:

"We cannot depend upon the heat of the lime to produce a combination that will be effective as a winter wash against San Jose scale. * * * I fear that the writers recommending this, confuse the preparation of self-boiled lime-sulfur for summer use for brown-rot with the fire-boiled wash for the scale. An ineffective wash means waste of the materials, labor and perhaps the ruin of the orchard also.

"There is of course, latitude for some variation in the proportion of lime and sulfur, ranging between 15 pounds and 20 pounds of each. Considering the danger of getting a poor grade of lime, and the cheapness of that material, I believe it advisable to use slightly more lime than sulfur. I would advise 18 or 20 pounds of lime and 15 pounds of sulfur to make 50 gallons of wash. It is necessary to boil this for at least 30 minutes, and better, for 45 or more, to get the most effective wash."

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