

At the time I wrote for bugs my place was all in corn and a very large crop of chinch bugs. I am safe in saying that there were more bugs on my farm than on any two farms with the same amount of land under cultivation. At the time of sending to you for bugs I told two of my neighbors of my intention, and they laughed at the idea, nevertheless I sent. When I put them in my field it had rained fully a half day, and after noon I commenced to place them about in different places in my field. I noticed no change in the bugs for three days, it being cold. On the fourth and fifth days the weather was more warm, and it was then that the destruction of the enemy commenced with great satisfaction to myself and great surprise to my laughing neighbors. One of my neighbors, Mr. George Winchester, said that there ought to be a subscription raised and donated to me. I told him not to me but to you the praise belonged. I think that it took about eight days after the five from the time that I placed them in my field before they were all destroyed. The fifth day after I put out the diseased bugs I noticed that a great many bugs were flying away from my place. I cannot say if the disease spread in this way or not, or if it spread at all. Three or four persons said they would come and procure of me some of the dead bugs, but no one came. This much I can say, with me this experiment has been a complete success. It has done me a great deal of good. I cannot give it a money value, but am satisfied that had it not been for the infected bugs obtained of you that I would have lost twenty-seven acres of wheat and eight acres of rye, and when I wrote to you for bugs I then contemplated putting out considerable wheat, and I was at that time considerably troubled about the bugs in my corn, thinking that if I put out any wheat at all it would be destroyed by bugs; but thanks to you my wheat is now safe from bugs, at least those that were on my place before sowing my wheat. I only wish that I had written to you sooner than this. I will send by express one bottle of bugs that I gathered after they commenced to die. Respectfully yours, JOHN KNOBLE.

The following report from R. L. Stangaard is inserted as being of a more scientifically circumstantial character than most of the other reports:

FLORENCE, Kan., Aug. 22nd, 1890.

DEAR SIR.—In reply to your favor of July 27th, I would say that infected bugs were applied, after they were kept with live ones about forty-two hours. Most of the bugs mixed were dead when taken out of the box. They were applied in seven different hills, being put into every ninth hill. I marked every hill with a number so as to be better able to watch the progress. Examined after forty-eight hours application with the following results:—No. 1, mostly dead. No. 2, bugs mostly alive, seemingly very restless. No. 3, bugs seem to be sick. No. 4 bugs mostly dead. On hills around this one bugs seem to be restless. No. 5, not examined. On hills around it the bugs seem to be sick. Examination eight days after application with the following results:—No. 3, bugs seemingly in a dying condition. On the hills around it the bugs seem to be well with exception of one hill where they seem to be dying and some dead. No. 4, not a live bug in the hill. No. 5, apparently dying, also dying in the hills around this. No. 6, bugs dying in hill. No. 7, apparently not dying. On August 16th, twelve days after application, I found the bugs to be dying and dead all through the field—twelve acres. On August 20th, I again found the bugs to be dying rapidly. A field being forty rods distant had sure marks of bugs in a dying condition. What I mean by bugs being in a dying condition is this: they lay on their backs, almost motionless, and others lay in same position, moving limbs violently. This remedy was applied on A. G. Rosiere's farm on Bruno creek, Marion Co., Kansas, being nine miles east and three miles south of Marion. Thanking you for your favors, I remain, yours truly, R. L. STANGAARD.

The laboratory experiments have been continued through the season. Of the three diseases identified, that produced by the *Trichoderma* appears to be less fatal than the other two, as is indicated by the following laboratory notes:

September 28th, dead chinch-bugs showing no signs of fungus externally were taken from the infection jars and crushed on a glass slide in distilled water. Oval hyphal bodies of a fungus (*Trichoderma*) were found in considerable number. These were put under a bell jar.

September 29th, some of the hyphal bodies had put out slender mycelial growths; others in immense numbers were multiplying by division.

October 1st, the hyphal bodies were still multiplying by division. The mycelial growths had become much longer and in some instances had variously branched.

October 3rd, a dead chinch-bug taken from an infected field was crushed on a glass slide in distilled water. Both round and oval hyphal bodies were found in considerable numbers. The sewer put under a bell jar to prevent drying.

October 4th, both round and oval hyphal bodies were multiplying by division and were putting out mycelial growths.

October 5th, fresh chinch-bugs from an uninfected field were immersed in the liquid containing the above fungi and were put in a new jar with young corn plants.

October 16th, many of the bugs were dead; the others apparently lively. The dead bugs were found to contain hyphal bodies similar to those with which they were infected. A live chinch-bug from the same jar was crushed and found to contain round hyphal bodies; but these refused to germinate.

November 5th, not all of the bugs are yet dead. The few remaining are apparently lively.

The following is a summary of the results of the field experiments in the season of 1890:

Number of boxes of diseased bugs sent out, 38. Seven of these lots were either not received, or received and not used. Reports were received from 26 of

the 31
and 4 d
are not
them to
were de
of 1891.

In
ally rec
Stevens

BUTTER

The
exceptic
America
"Revisi
and Mr.
contains
two of
plete lif
in the in
stages.

Pla
species c
what me
or *Mon*
suppose
The mal
San Fra
proper l
constant
Atossa (
years; l
to be ve

Pla
is very c
but belie

THE CA
Bra
Fir

The
scientific
obtained
reputati
graph be
careful
7 (1