

size and abundance, was the nine-spotted lady bug (*Coccinella 9-notata*). It may be recognized by the arrangement of the nine black spots on the brown wing covers—four on each side, the ninth just behind the thorax and overlying the middle line. It is very nearly a half sphere in shape. The other species are like it in general shape, but differ in details of colour and markings. A small list of other insects which do more or less good in destroying the aphides could be given, but this will suffice to give an idea of the more abundant and useful of our insect friends.

Birds have been thought to destroy the lice, but I have seen no evidence of their doing so. Most birds depend on larger insects, and it is only occasionally that the small species, such as warblers, eat plant lice of any kind. Excepting the Maryland yellow-throat, birds of this family rarely occur in our grain fields, so that we can hope nothing from their help. The English sparrow, with its clumsy beak and grain-eating propensity, certainly does no good in this direction.

EXPERIMENTS WITH ARSENITES.—In the Bulletin of the Iowa Agricultural Experiment Station for August, 1890, Prof. Gillette gives an elaborate and interesting account of a series of experiments that he carried out for the purpose of testing the use of arsenites in the warfare against noxious insects.

"Paris green, he says, was brought into prominence as an insecticide for the first time in this country in 1869, and London purple in 1877. Arsenious acid (white arsenic) was successfully used for the destruction of the Canker-worm as early as 1875 and is still frequently recommended for the destruction of insects. During these years the arsenites have arisen to the first rank as insect destroyers. They have been largely experimented with by entomologists and widely used by farmers and fruit-growers, and yet there is much difference of opinion as to the proportions in which each may be safely applied to different plants for the destruction of insects. In fact a serious obstacle in the way of a more free and successful use of the arsenites has been their liability to injure tender foliage, even when applied very dilute. In the experiments of the past two seasons, herein reported, I have given much attention to the finding of some method of applying these poisons so as to prevent injury to foliage without lessening their effectiveness in destroying insect life, and the success met with in this direction has been most gratifying. I also give the results of experiments to determine relative injuries to foliage from applications of the arsenites when freshly mixed and when allowed to stand a few days before being applied; to show the effect upon foliage by adding paste or soap to arsenical mixtures; to show the effects of sun, dew and rain upon foliage treated with arsenical mixtures; to show whether or not it is practical and safe, so far as injury to the plant is concerned, to mix the arsenites with insecticides that kill by external contact; and to show the effects of combining the arsenites with fungicides."

After giving a detailed account of his various experiments, he arrives at the following conclusions:—

"1. *The oldest leaves are most susceptible to injury from arsenical applications. They often turn yellow and drop without showing the burnt spotted appearance.**

"2. *Dews, and probably direct sunlight, increase the injuries done by the arsenites to foliage.*

* I have put in italics those conclusions that seem to me to be well proven from the experiments here reported. Concerning the others there is some doubt, and further experiments are necessary to determine positively the facts.