

below the surface, and usually out of sight. The injury to the plant is caused by the larvae sucking the sap from the finer tendrils of the roots. It has not been definitely ascertained how long they may feed below the surface, but they may feed in this manner for at least a month, for I have several times taken specimens very delicate in body and colour, with the wing pads partly developed, and on exposure to light they would turn nearly black almost immediately. This, however, must be regarded as exceptional. Should the day be cold and windy the bugs are very sluggish and usually concentrated around the base of the plants; but as soon as the sun shines out the bugs will be seen climbing up and down the stalks and moving in all directions through the field. They seek the higher and drier portions of a field, for a wet location is detrimental to Chinch Bug progress. Hence it is that the poorer condition a field is in, the more liable it is to serious injury, as where plant growth is rank, or the crop in good heart, forming a dense shade, little injury will usually result.

### FOOD PLANTS.

The principal plants which have suffered are the meadow grasses and particularly is this true of timothy. Wheat, corn and oats have been but very slightly injured, and in no case except where such a field was adjacent to a meadow or pasture. This does not mean that they prefer the meadow grasses to other crops, but that grain crops have been scarce and the succulent nature of the grasses all through the summer had not caused them to migrate to any extent in search of food. Had the season been a dry one, considerably more injury would have been done to the oat and corn crop. So insidious is their work in a field of timothy that the plants may be killed outright without the owner knowing the reason. On corn, the bugs may so cluster around the base of the corn stalks as to prevent the development of the brace roots, which keep the plant upright, and thus in the latter part of the summer many stalks may be levelled to the ground by high winds, and fail to properly mature their ears. Such an instance occurred last year on the farm of Mr. Chas. Hudson, one mile south of Devizes. Adjoining his corn field, of some four acres, was an old timothy meadow. The timothy had been killed outright and, in the latter part of September, the field corn next the infested meadow having failed to develop brace roots, a wind storm levelled the plants to the ground. As mentioned before, all kinds of grasses are subject to injury, and the common grains are also likely to be destroyed, but clover, alfalfa, peas, potatoes, garden vegetables and fruiting plants of all kinds are practically immune.

### AREA OF INFESTATION.

The infested area covers about five square miles in Middlesex county, embracing altogether some 1,800 acres of hay and pasture land, the greatest injury occurring in the centre of this area. It includes St. Ives, Devizes and Bryanston. The insect has also been reported in the vicinity of Guelph, by Mr. L. Caesar, and also in Nova Scotia by Mr. G. E. Sanders; but in these localities no serious injury was recorded.

It was on what may be termed grass farms, where the greater portion of the land is always in sod, that the most injury was observed; on the other hand, where a regular system of rotation has been followed and land ploughed every three or four years, Chinch Bugs were very scarce, except in such woodland pasture which was deemed inadvisable to cultivate. Under the present system of farming, where pasture is allowed to lie for a number of years, Chinch Bug injury is likely to be on the increase, unless we should be favoured with open winters or wet summers, as heavy rains at hatching time are disastrous to Chinch Bug increase. Such a season as was experienced in 1912 materially reduced their numbers. Wet weather at hatching time was a severe check to undue increase, and this was followed later in the season in September by the appearance of the white fungus, *Sporotrichum globuliferum*, which killed fully 25 per cent of the mature insects.