

the bacteria into the soil before the Japanese beetle arrives, or shortly after it has reached a given area and before numbers of grubs sufficient to cause severe turf injury have become established.

The Bureau of Entomology and Plant Quarantine, however, emphasizes the fact that this method of controlling the Japanese beetle is still in its early experimental stages. The material is being used only by the Department of Agriculture cooperating with official State agencies in this work. No material is available for general use at this time.

HARVESTING BUFFALO GRASS SEED

Buffalo grass is an important grass in the dry regions of the United States, but seed has been difficult to obtain. The seeds are borne on very short stalks, so that they cannot be reached by mowers, and hand gathering is too costly.

H. O. Hill of Texas has recently described in the *Journal of the American Society of Agronomy* a machine by which a man can collect about 1 pound of seed an hour. The cutter bar and the roller are removed from an ordinary lawn mower and a grass catcher is attached. A canvas shield is fixed over the lawn mower and the shield extends well up the handle bar. The rotating cutter

blades then clip the seeds and beat them back into the catcher or against the shield, which in turn deflects them into the catcher.

The removal of the cutter bar reduces the amount of grass hay caught along with the seed, so that all but the finer particles of trash can be quickly removed by hand. The dirt can be removed by floating the seed out in a tub of water. This cleaning is not necessary when the collector himself is to use the seed.

SEED FORMATION IN KENTUCKY BLUESGRASS

In the April, 1939, issue of *TURF CULTURE*, page 144, investigations were reported which indicated that in Sweden the formation of seed without fertilization was found to be common in Kentucky bluegrass. E. Akerberg, whose work was mentioned in connection with that report, has since published in *Hereditas* a more detailed account of his work with Kentucky bluegrass.

According to him, it is possible to determine whether seed was set apomictically (without fertilization) or sexually (as a result of fertilization) by examining the progeny resulting from seed set in a single panicle. When the resulting seedlings exhibit a constancy in characteristics and

resemble the mother plant, the conclusion is drawn that the seed was formed apomictically. On the other hand, when they are aberrant—that is, deviate from the typical plant—and exhibit striking variations among themselves and from the mother plant, it is safe to say that the seed was produced sexually. Microscopic studies of the number and nature of the chromosomes have verified the conclusion that lack of variability is associated with apomictic seed formation and that variability is associated with sexual seed formation.

Akerberg examined 703 plants of Kentucky bluegrass grown at the Plant Breeding Institution at Weibullsholm. These had been obtained either by isolation, free-flowering, or cross-pollinating of strains which were considered to be apomictic. Of these 703 plants only 9.2 percent were aberrants. In other words, 90.8 percent of the plants had come from seed which was produced apomictically.

Akerberg then studied Kentucky bluegrass elsewhere in Sweden and also in Norway and Germany. In these studies he considered the plants resulting from the seed of a single panicle as families. He grew 44 such families. Among the 185 plants examined belonging to these 44 families only 5.9 percent were aberrants

and these were limited to seven of the families. Therefore, in nature he found 94.1 percent of the seed he examined was produced apomictically. These figures indicate that apomictic seed formation is common in other strains as well as in those cultivated at Weibullsholm.

CHLOROPICRIN MAY CONTROL SOME PLANT DISEASES

Treatment with chloropicrin is known to aid in the control of weeds by killing a large proportion of the weed seed in soil. This aspect of the problem has been discussed in *TURF CULTURE* for January, 1939. F. L. Howard and F. L. Stark, of the Rhode Island Experiment Station, writing in *Seed World* also call attention to this weed killing property of tear gas and point out that the susceptibility of weed seed to treatment varies, some being more susceptible than others.

They also give data showing that many soil diseases may be controlled and plants consequently make a better growth and yield larger crops after the soil has been treated with chloropicrin. Treatments were made in the field at rates of 201, 217 and 369 pounds to the acre and the material put into crowbar holes made 15 inches apart. Onions yielded 43 percent more in treated than in un-