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## SEED GROWING PROBLEMS SOLVED BY RESEARCHERS<sup>1</sup>

By Wilbert Schaal, Chicago, Illinois

Many of the problems associated with the production of seed of the better forage crops are being investigated by several state agricultural experiment stations.

The Kentucky Station, for instance, found that seed yields and the percentage recovery of seed in Kentucky bluegrass are determined largely by the numbers of two destructive insects, Miris dolabratus and Amblytylus nasutus, and the supply of available nitrogen in the soil. Chlordane rated high in the control of these insects, and it was estimated that the seed yield was doubled when the insect population was reduced. Spring application of nitrogen was more effective than fall application; and where insect control was practiced, nitrogen was effective up to the 50-pound-per-acre level. When insects were not controlled, nitrogen was effective up to the 100-pound level.

In the case of Kentucky 31 fescue, the seed yield was doubled by the application of 200 pounds per acre of ammonium nitrate (65 pounds of N per acre). It was estimated that, as a result of these studies, growers of Kentucky bluegrass seed in 1949 increased their profits by \$75,000.

A study of bromegrass seed production by the Iowa Station revealed that substantial increases were brought about by a single application of insecticide just before the second crop bloomed. Here again nitrogen was the key nutrient element, and seed yields ranged from 213 pounds of ammonium nitrate were applied.

The Utah Station found that dusting with DDT to control lygus bugs increased the acre-yield of alfalfa seed four to ten times. The average Utah yields have increased almost threefold, since DDT became available as

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an agricultural insecticide.

In many instances, success or failure in producing legume seed is dependent on insect pollination. The Florida Station found that red clover supplied with extra honey bees produced 90 pounds of seed per acre, as compared to 11 pounds where bees were not supplied. Similarly, studies at the Kansas Station gave evidence that a colony of honey bees, consisting of from 10,000 to 11,000 bees, will visit enough alfalfa flowers during a 20-day blooming period to make 120 pounds of seed and at the same time gather enough nectar to store 53 pounds of honey.

Furthermore, enough nectar is produced on one acre of alfalfa to support three colonies of bees. In an extensive study of the role of bees in legume pollination, the Oregon Station found that Ladino clover, caged to prevent visitation by bees, produced an average of 444 seeds per 100 heads, whereas uncaged planted produced 15,554 seeds per 100 heads.