was accompanied by similar and decidedly significant decreases in the production of roots, rhizomes, and tops in both the tall-growing and low-growing strains when the same proportions of foliage were removed from each strain. When cut at the ligule, for instance, the reduction in root production was 87 and 80 percent, that in rhizome production was 82 and 86 percent, and that in top production was 44 and 29 percent for the tall-growing and low-growing strains, respectively. The weight of the season's clippings also decreased equally in the two strains, with increase in severity of defoliation.

The removal of comparable proportions of foliage, however, resulted in strikingly different heights of cut in the two strains. For instance, clipping the leaves of the tall-growing strain just above the ligule resulted in a mean height of 1.4 inches, while a comparable height of 1.6 inches was only attained by the plants of the low-growing strain when they were permitted to grow unclipped. At these two comparable heights of top growth remaining on the plants after clipping, the low-growing strain produced approximately one and a half times as much weight of tops, more than five times as much weight of roots, and more than eight times as much weight of rhizomes as the tall-growing strain.

The conclusion is drawn, therefore, that when compared on the basis of comparable height of cut rather than comparable proportions of foliage removed, the low-growing strain produced strikingly more tops, roots, and rhizomes than did the tall-growing strain cut to a similar height. For practical purposes, then, a low-growing strain will produce a much better turf than taller strains.

Their table indicates that when neither strain was cut the tall-growing plants produced far more "forage" than the low-growing ones. From the standpoint of turf, the lower production of forage is an advantage because it necessitates less cutting during the season.

SULFUR MAY IMPROVE THE PHYSICAL CONDITION OF A HEAVY CLAY SOIL

Owing to the high proportion of the colloidal fraction, some heavy clay soils are difficult to work. They drain poorly and remain wet in spite of drainage lines. The remedy is to flocculate the soil so as to produce a crumb structure. In farm practice this is often done by a liberal use of lime. Since lime tends to encourage certain weeds and earthworms, R. B.

Dawson and B. M. Boyns of the St. Ives Research Station, Bingley, England, tested the value of elemental sulfur on a heavy clay course at the Malone Golf Club near Belfast, and have reported on their work in the Journal of the Board of Greenkeeping Research.

In November, 1934, applications of flowers of sulfur were made on plots in a fairway at the rates of 3.5, 7, 14, and 28 pounds to 1,000 square feet. Examination of these plots in February, 1936, showed that conditions in the soil had been much improved, but that the 14-pound rate had slightly damaged the grass and the 28-pound rate had completely killed it.

Further areas of the fairway were treated at the 14-pound rate, and in the spring of 1938 a marked improvement was noted. Following the sulfur treatment, applications of sulfate of ammonia and calcined sulfate of iron were made. The result was an absence of weeds and worm casts on the treated areas.

The writers warned against the adoption on other soils of the rate of sulfur found suitable on this course. The proper rate of application probably varies on different soils. Too high a rate can do irreparable damage to the turf, due to the direct burning action or to the increased soil acidity. Sulfur should never be applied to light soils.

CHLOROPICRIN FOR CONTROL OF NUTGRASS

Nutgrass, *Cyperus rotundus*, which is a sedge and not a true grass, is a serious weed in parts of the South. The control is difficult since hand weeding merely removes the leafy part, leaving the tubers on the underground stems to grow again. On a large scale it may be controlled by cultivating the soil every 3 weeks during the growing season for 2 years.

This is out of the question on small areas where intensive work must be carried on. G. H. Godfrey, of the Texas Agricultural Experiment Station, writing in Soil Science, has shown that on such small areas nutgrass may be eradicated in a few weeks by injections of chloropicrin. In his experiments the ground was spaded and the chloropicrin injected to a depth of 7 inches. In various trials, rates of approximately 9, 13 and 17 pounds to 1,000 square feet were used and the treated areas covered with glue-coated paper. In one trial no paper was used but the soil was wetted down about 2 inches and