

weeds, but under other conditions it is not effective. At the Arlington Turf Garden combinations of sulphate of iron and ammonium sulphate, particularly when applied during the summer months, have invariably given discouraging results.

CRABGRASS CONTROL WITH LEAD
ARSENATE AND CALCIUM
ARSENATE

Arsenic compounds are rather widely used as weed killers, and any information showing that the use of these compounds can control crabgrass, the worst turf pest in many regions, is welcome. Welton and Carroll in Ohio conducted experiments in which they used lead arsenate and calcium arsenate applied in late fall, early spring, or summer. A report on this work appeared in the *Journal of the American Society of Agronomy*. The crabgrass plants on the treated areas were counted in October after the applications were made and checked against those on an area which was not treated. While there was some variation in effectiveness, the date of application was not an important feature. Rates of application less than 20 pounds to 1,000 square feet were not as effective as higher rates, whereas rates higher than 25 pounds were but little more effective than the

20 to 25-pound rates and were more injurious to the bluegrass. The best rates, therefore, were 20 and 25 pounds to 1,000 square feet. In 1933, 20 pounds of lead arsenate were applied to 1,000 square feet on various dates, and in October, 1934, and again in October, 1935, counts were made of the number of crabgrass plants on the treated areas. In 1934 the treated plots contained only 4 per cent as many crabgrass plants as the untreated areas. In 1935 the number on the treated plots had increased to 14 per cent of that on the untreated plots. Even at the 20-pound rate of application there was some injury to the grass, but this did not appear until a year or more after the application and was overcome by a liberal use of fertilizers high in nitrogen.

Calcium arsenate was, pound for pound, more effective than lead arsenate. Fifteen pounds of calcium arsenate did as good a job as 25 pounds of lead arsenate. When used at rates in excess of 15 pounds to 1,000 square feet, calcium arsenate was hard on turf, in fact it killed some of the grass.

As was pointed out by the authors, the reports on the use of arsenate of lead for the control of weeds in the different districts have been variable.

The first observations on the control of turf weeds by this chemical were published by the Green Section. Later tests showed that under many conditions the treatment was ineffective. It undoubtedly is a valuable remedy where conditions are favorable for its operation. On the other hand, it is an expensive method for one to use on a large scale only to find that his particular conditions are unsuitable for this remedy. It is therefore advisable to test this method in a small way before making general applications.

ARSENIC INTERFERES WITH PHOSPHORUS TESTS

As a help in determining the fertilizer requirements of turf, a series of rapid chemical tests is used to show the amounts of the more important food elements which the plants may obtain from the soil. There are different methods for making these rapid tests but those that are commonly used for phosphorus all depend on the fact that a solution of phosphorus turns blue on the addition of stannous chloride. Chemists have shown that a solution of arsenic gives the same color reaction. Anderson and Bengtson in a recent number of the *Journal of the American Society of Agronomy* have reported on some tests made of sam-

ples obtained from the Arlington Turf Garden. They found that when arsenic compounds have been used on turf the blue color of this test may be due to the presence of arsenic rather than to phosphorus. Therefore, where medium or heavy applications of arsenic compounds have been made as insecticides or as weed killers, other procedures will have to be used when it is desired to determine the phosphorus requirements of soils.

Periodical coring of greens by means of tubular tines or other devices is considered important in New Zealand. The Grass Research Station there says: "If you want to get over all your surface difficulties, it is necessary to core your greens from time to time." Some greens cored every year for the past three years are said to go through the season with less trouble than those that have not been cored.

Professor Stapledon stated at the Fourth International Grassland Congress that "grass is greener and more variedly and more vitally green than anything in the whole wide world, and green is the vital color."