

HERE'S THE
LATEST ON

SODIUM CHLORATE

By FRED V. GRAU,

Extension Agronomist, Pennsylvania State College

SINCE GOLFDOM in April, 1934, published the first article on the control of crabgrass with sodium chlorate there have been some additional developments which should be brought to the attention of those interested in this phase of turf management. The considerations of caution due to improper storage and handling, and methods of application remain the same. The time and the number of applications, however, are somewhat different, resulting in a great advantage in the saving of time, materials and labor.

Applications in May, June and August were originally specified for best results. It was learned that, in actual practice, this procedure was somewhat undesirable for several reasons. In the first place, there were objections because at three times during the season treated areas were brown and ugly looking. In the second place, there is the desire to have the entire job done in one single operation. Golf course superintendents have learned the value of light, repeated applications of materials but this is not true of the layman. In the third place, if the second and third applications were not made at the proper time and at the proper rates results were exceedingly variable. This is due to the fact that sodium chlorate does not appear to damage the viability of seeds in the soil. Since crabgrass seeds germinate throughout the season there is a continual reinfestation. Soil moisture during the summer months is variable, which further affects the results of the mid-season applications. During the time this work was being carried on by the Green Section it was learned that single applications made at various times during the season produced different results. Plots treated once early in the season had just as much if not more crabgrass in the fall as the untreated plots. After the first of July, however, single applications reduced the degree of infestation. This furnished the clue that was needed.

We have learned that the food reserves of a plant are at low ebb during the seed-producing period, indicating that this period marks a weak point in the life history of the plant. This fact has been made use of in the chemical and cultural control of

many farm weeds. Applied at the right time, sodium chlorate destroys the chloroplasts and starch grains and effectively prevents the formation of viable seed. In a plant which reproduces only by seeds, the destruction of a year's seed crop would greatly diminish the infestation in the succeeding year.

With this thought in mind, and, due to the ever-present crabgrass menace in turf, a number of demonstrations were conducted in 1935 on lawn and athletic field turf in and around Philadelphia in cooperation with Pennsylvania State College. Briefly, procedure was as follows:

A single application was made to crabgrass-infested areas at the time when the seed panicles were beginning to burst forth from the sheath (usually during July and early August) before the flowers had opened or had a chance to pollinate. Two to 2½ lbs. of sugar-fine sodium chlorate were thoroughly mixed with a 12 to 14 quart pailful of screened dry soil or sand, and *uniformly* broadcast on 1000 sq. ft. Water was applied as a spray to dissolve the chemical so that it would be more quickly absorbed by the plants. In some cases no water was needed, due to timely rainfall and a soil that was well supplied with moisture.

Report 100% Kill

In every case this simple operation accomplished the desired results. No crabgrass seeds matured and there was virtually 100% kill. The bluegrass was temporarily injured but within two weeks it was green and growing well. The operation was a success and the patient recovered! But, a convalescent patient cannot grow strong and healthy without food and it is a well-known fact that much of the turf in the East is poor because of a lack of fertility.

Three to four weeks after the chlorate treatment the dead crabgrass was removed with rakes and the surface soil was lightly

scarified. An application of complete fertilizer was made, a little seed scattered in the thin spots where the crabgrass had smothered everything, and the area was lightly rolled and then watered. About October 1, eight weeks after the initial application, the treated areas presented a desirable dense green cover of turf whereas the untreated areas were dull, dead, and brown, typical of dead crabgrass. Moreover, a heavy crop of seed matured in the untreated areas as is the custom with crabgrass.

Factors to Watch

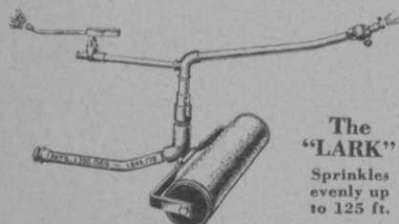
The success of this simple treatment of crabgrass is dependent upon several things:

1. Making the initial application just as the seed heads break from the sheath.
2. Uniform distribution of the chemical.
3. Ample supply of soil moisture.
4. Subsequent fertilization and seeding of thin places to encourage a dense sod of grass, and sound maintenance practices to prevent further invasion of crabgrass.

By the procedure outlined, the temporary discoloration of turf ceases to be a valid objection. It occurs at a time

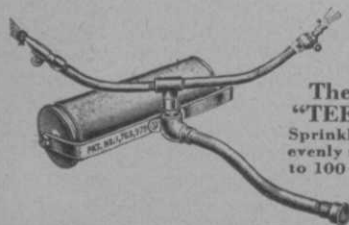
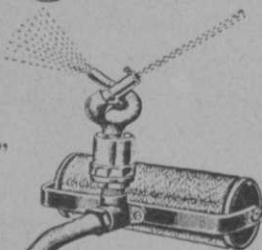
when there would be a natural discoloration within a few weeks and provides green turf at a time when ordinarily there is but little. The expense of the treatment and the time and labor involved are reduced to a minimum. Many of the other common weeds of lawn and golf course turf are greatly discouraged, some eliminated. In addition, it emphasizes the very great desirability of sound maintenance practices so that the turf grasses are benefited at the expense of the crabgrass. Briefly, these are: fall fertilization, fall seeding and reseeding, and adjustment of the height of cut to the point where the turf grasses are favored. With bluegrass this is from 1¼" to 2". On fairways where such height of cut is not feasible it becomes practicable to feed more heavily in the fall to encourage a thicker, more dense turf. Without following these sound practices the treatment would most likely be disappointing since many viable crabgrass seeds which remain in the soil from previous crops would reinfest the area the following year.

Just a word about the chlorates. Handle them carefully, store in metal or glass—NOT in wood. Keep away from organic materials such as wood and clothing.



The
"LARK"
Sprinkles
evenly up
to 125 ft.

The
"OLD
FAITHFUL"
Sprinkles
evenly up
to 125 ft.



The
"TEE"
Sprinkles
evenly up
to 100 ft.

NELSON

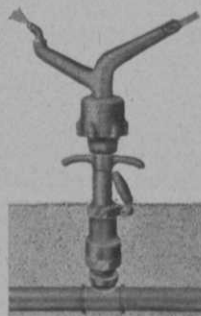
Portable and Underground, Sprinkling Equipment

Every sprinkler requirement can be met perfectly by some item in the complete Nelson line.

Nelson equipment is standard on golf courses throughout the country. Years of specialized sprinkler manufacturing experience insure perfect operation and long life.

Complete information on all types, either permanent or moveable, will be gladly sent on request.

L. R. NELSON
MFG. CO.
Peoria, Ill.



"Stream-Flo" sprinklers cover evenly areas 100 to 225 feet in diameter.



"Stream-Flo" Valve