

Turf Work Guidance In Rhode Island Report

Report on experiments with turf grass at the
Rhode Island Station in 1942

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THE fifty-fourth Annual Report of the Rhode Island Agricultural Experiment Station contained results of investigations on turf grasses for lawns, airports, fairways, and other similar areas. Dr. Jesse L. DeFrance was in charge of the work. Findings were reported under the following headings:

LAWNS AND LAWN GRASSES—The historic lawn grass plats, established in 1905 were abandoned because of labor shortage and the conviction that their further usefulness was negligible. The 37-year old project compared the effects of acid and alkaline fertilizers. Some plats received sulfate of ammonia, and others nitrate of soda, with and without phosphate and potash in both cases.

Weeds and clover disappeared like magic from the sulfate of ammonia treated plots, and turf remained weed-free. Thus, "the weedless lawn dream was realized by the discovery of a long sought fertilizer that would grow grass and kill weeds." The results obtained with sulfate of ammonia on these plats gave rise to the sulfate of ammonia, or acid era in turf management.

In recent years turf on the acid plats (pH 4.0) began to weaken, noticeably so after the winter season. Winter-kill or drying-out was observed first in the spring of 1938. Vigorous raking to remove dead grass helped restore grass that year, so there were no remaining bare spots by the end of the season. In 1939, 1940, and 1941 recovery was incomplete even with this treatment.

Raking revealed that at least three times the amount of dead grass and undecomposed clippings accumulated on the acid (pH 4.0) plats as on the alkaline (pH 7 to 8) ones. Even the moderately acid (pH 5 and 6) plats yielded twice as much undecomposed grass as the alkaline areas. Severe raking became necessary on the acid plats to remove the clippings and

dead grass that accumulated during the mowing season. It became apparent that grass on acid plats would die and disappear without a program of raking in June and September.

Organic matter accumulation, resulting in a "sod-bound" condition of the turf with consequent winter-killing, can be attributed in part to excessive acidity, and the lack of the lime needed to promote decomposition.

No dying-out of the turf, or excessive accumulation of undecomposed material was apparent on the neutral or slightly acid plats.

The action of certain chemicals used for weed control offered further evidence that turf on the acid plats was in a weakened condition. Sodium arsenite and lead arsenate severely damaged grass on the acid plats, but did very little or no harm on the neutral or slightly acid ones.

Turf on the alkaline plats became non-uniform and hence unsightly due to the invasion of weeds. The same amount of nitrogen was used on them as on the acid plats, but from nitrate of soda.

The slightly acid plats were satisfactory. A fertilizer containing both ammonium sulfate and sodium nitrate was used on them. Sulfate of ammonia, when mixed with an equal weight of lime was effective and superior to nitrate of soda. It is concluded that the continuous use of ammonium sulfate, or sodium nitrate is unadvisable.

The Piper, Merion and Kernwood strains of velvet bent planted in 1938 for comparison with Rhode Island bent and subsequently maintained at lawn length continue to appear superior. They have developed a turf of finer texture, greater density, and better color throughout the season. The velvets are less subject to weed invasion, they are more drought resistant and less susceptible to diseases, such as brown patch and dollar spot. After five years of similar cultural practice, these velvet bents appear to be satisfactory for lawn use and are also superior

to Washington strain of creeping bent, Kentucky Blue Grass, fescue and any mixture used on the lawn plats.

With velvet bent it appears best to remove clippings, especially during periods of lush growth in humid weather, to avoid smothering of the grass. Mowing at least twice a week is also advised. If velvet bent is allowed to grow tall and lodge it will smother the roots and die. If lawns planted with the improved strains of velvet bent are maintained with care and attention, studies indicate that the effort will be well worthwhile.

TURF FOR AIRPORTS—Tests were made on local airports. Bents, fescues, blue grasses, rye grasses, orchard grass, crested wheat grass and clovers, as well as five mixtures, were seeded in duplicate. Cutting was at 1½ to 2 inches. The ability of creeping red fescue to grow on soil considered far from ideal for turf, and the ability of newly planted velvet bent to withstand hot dry summer months were interesting observations the first year. Crested wheat grass started well, but did not survive the summer satisfactorily. Mixtures seeded at 50 pounds per acre did not give complete coverage the first year; at 100 pounds per acre plus 25 pounds perennial rye grass, coverage was excellent. Mixtures containing 5 percent white clover appeared superior. Provided there is no plane operating objection, its use would be of considerable benefit from the nitrogen usage standpoint.

FINE TURF AND TURF GRASSES—

On the closely clipped plots of pure single strain grass, selected strains of velvet bent continue to outrank the others. These plats are cut at ¼ inch with a power putting green mower. Color, texture, density, uniformity and disease resistance were the quality factors considered.

Disease prevention studies emphasized tests of new materials to replace mercurials. Sulfanilamid at the rates used appeared to stimulate rather than check brown patch and dollar spot. Wettable Spergon and Spergon-Dry gave variable results. The English Bordeaux mixture (1-5-50) plus one-half ounce of Auragreen gave good control of brown patch and dollar spot.

WEED CONTROL STUDIES WITH CHEMICALS—Young crab grass was easily killed in the two and three-leaf stages. Since crab grass has a prolonged germination period, many treatments were

necessary to eliminate the successive crops. It was considered advisable to determine a better time when fewer treatments would be needed. A practical time is the period of seed formation, when the pest is a tangled mass of bronzy, reddish-purple fingerlike seed-bearing stems. Crab grass is easily distinguishable at that time by anybody. Eradication is practical and comparatively inexpensive. Crab grass plants treated during the period of seed formation showed a very substantial decrease in the percentage germination of seed. The materials used included sodium arsenite, sodium fluoride, sodium chlorate, a mixture of sodium arsenite and sodium chlorate and some commercial products.

KILLING WEED SEEDS IN COMPOST BY THE USE OF CERTAIN FERTILIZERS AND CHEMICALS—In this work an efficient and economical method for the elimination of viable weed seeds in soil compost was sought. Previous methods of sterilization by steam electricity to generate heat, and by the use of chloropicrin were employed with varying success.

The object in this project was to use nitrogenous fertilizers and develop sufficient heat to kill seeds. Experiments were made using cardboard containers in the greenhouse, wooden bins in the compost shed, and finally in the compost pile itself.

The materials used were cottonseed meal, Milorganite, Agrinite, calcium cyanamide, ammonium sulfate, and chloropicrin. Milorganite developed a temperature of 130 degrees F. at the rate of 15 pounds of nitrogen per cubic yard. With Agrinite, at the same rate, the maximum temperature attained was 105 degrees. Satisfactory kill of weed seeds was obtained with organic or inorganic materials. There was little or no rise in temperature with the inorganic sources. Hence it appears that some other factor besides heat is involved.

This method of sterilization is practical and economical. From the greenkeeper's standpoint, it means that needed fertilizer and top-dressing can be applied in one operation.

Club Party for Pro.—Charley McKenna, who started to work for Oak Hill CC, Rochester, N. Y., in 1905 as a caddie earning 15 cents a round, was given a testimonial dinner and a bonus check by a large and lively gathering at the club late last year. Since 1926 Charley has been the club's pro. Club officials and members glowed in paying tribute to Charley.