Turf Research At Ames

REPORT OF EXPERIENCES AND RESEARCH WITH FINE TURF FOR 1943*—PROJECT 760

By H. L. LANTZ

★ **Bent grass, growing on golf greens, suffered considerable amounts of winter killing which was believed due at least in part to unseasonable weather during the month of March. The killing was most severe on wind swept and exposed greens. The injured areas were of varying size and were generally more or less patchy and irregular in outline. Fortunately, enough of the roots remained alive to enable the injured areas to repair themselves fairly well by the middle of the summer. Some areas, however, needed repair work to promote normal recovery of the affected parts of the greens.**

The bent grass plots in the turf garden at Ames suffered varying amounts of winter or freezing injury. The injury was specifically related to the variety or strain. The strains growing in Area A (1939 planting) were less injured than the same strains in Area E (1941 planting). The reason for this is not clear. Be that as it may, the same strains which were injured in one area were likewise injured in the other area. Records taken at seven different times during the growing season beginning in April present an interesting study and show the rate and amount of recovery of the various bent grasses. No repair work was done on any of the plots in order that self recovery of the various injured strains might be studied.

It seems to me to be significant that some of the strains came through the winter and early spring with no appreciable injury and that other strains were severely injured. These bent grass plots are on heavy Webster silt loam, a good grass soil, but it was especially prepared for bent grass as would have been done in constructing a green. This area tends to be wet and cold and is not well drained. Some of the strains which suffered winter injury might have fared considerably better on well prepared greens. However, the winter injury which occurred in 1942-43 shows quite clearly that there are distinct and measurable differences in the hardiness of the different bent grasses growing in these plots.

The three strains which showed no appreciable winter injury were C27, C1 and C19. There was not more than 2 percent difference between them. The strains which suffered the most injury were C36, C17, Washington and Metropolitan. An intermediate group included C15, C32 and C28. The differences in survival are clearly shown in the table, and the rate of recovery as shown is of especial interest.

A good bent grass with reasonable care should cover a green as early in the spring as weather conditions permit and continue in top playing condition throughout the season. Under Iowa conditions, July and August are trying times for the greenkeeper. We need to study any and all strains of bent grasses in the light of our general experience that many greens fail in July and August. Of course, not all of these failures are due to the bent grass, but may be due to a lack of drainage, packed soil, poor physical condition, starvation and disease.

It may be too much to expect any bent grass to go through the July and August season without deterioration, but I am convinced that heat resistant bent grasses are nearly as important as are hardy grasses. I am also convinced that we need to recognize adaptation of strains. For example, certain strains may do extremely well in central Iowa, but not be equally well adapted to all sections of the middle west. It may be that certain strains should be used in southern Iowa and not in northern Iowa, and so on. This whole question of adaptation is ready for exploration.

The table shows the rate of progress made by the various bent grass strains during the summer season of 1943. It is significant that C36, C17, Washington and Metropolitan lagged behind nearly all season in their development. However, by July 6 the plots of these strains did produce fairly good playing surfaces, but deteriorated somewhat toward the end of the season.

Under Iowa conditions it is highly desirable that the bent grass strains used in the construction of golf greens be hardy, heat resistant and as free of disease as possible. The most valuable characteristic of any bent grass strain grown in Iowa is the ability to grow and keep growing throughout the season. It should, of course, make a satisfactory turf with good putting quality.

The growth and health characters are, it seems to me, far more important than is color or grain. Considering the charac-

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teristics enumerated above, C19, C1 and C27 are promising because of their excellent showing up to date. Several strains, C36 and C28 both grow vigorously but these lack toughness, are inclined to be soft and scuff easily. Cut worms seem to like C28 especially well. The ten strains of bent grass received from Dr. H. B. Musser, Pennsylvania State College, were planted in September, 1942 in replications of three, making a total of thirty plots. These plots grew well and filled out nicely. Several strains were exceedingly interesting from the standpoint of the quality of the turf produced. These variety tests will be continued for some years since the plot tests of new strains of bent grasses are primarily designed to determine their adaptability and disease resistance under Iowa conditions. Iowa golf courses need better adapted and disease resistant bent grasses. The discovery of such a grass depends upon testing large numbers of new strains from any and all sources. As soon as conditions permit, the variety tests in the turf garden should be expanded. The possibilities for improved grasses are great, and to date the surface has only been scratched.

Brown Patch

Large brown patch in 1942 and again in 1943 in Iowa occurred in near epidemic proportions. Much rain and damp weather during the growing season provided near optimum conditions for the development of brown patch. In 1943 there were no fungicide treatments applied on the bent grass plots. The infection was at no time very severe. The lack of severe infection is believed due to the practice of early morning watering. This apparently breaks up the fungus before it can do very much damage. Many practical greenkeepers make a practice of early morning watering or of poling the greens to help control brown patch. Some, though not serious, brown patch infection was noted during the latter part of July and early August on certain strains in the turf garden plots.

Probably the chief fungicide used in Iowa in 1943 was Thiosan. Because of humid conditions which prevailed, brown patch reached near epidemic proportions. It was found necessary to use Thiosan at the rate of two pounds per six thousand square feet to secure satisfactory control. Used at that rate, the control of brown patch was generally satisfactory. Several greenkeepers reported their experience as to time of day for application. According to these reports, Thiosan should be applied early enough in the day to permit a thorough drying of the grass before nightfall. No more water should be used in

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Table I: Summary of Stand and Condition of 10 Strains of Bent Grass Grown in 6 ft. x 6 ft. Plots. Turf Garden—Ames, Iowa. Season—1943. Expressed in Percentage.

Strain	No. Plots	Average Rating of Bent Grass Strains							Summation of season's rating in percentage
		April 22	May 3	May 20	June 10	July 6	Sept. 14	Oct. 4	
C15	6	88.33	90.83	89.66	94.00	93.83	91.00	89.00	91.00
C28	6	80.50	83.33	89.50	96.50	96.83	90.66	93.00	90.00
C36	6	75.00	69.16	76.83	84.50	91.66	95.00	93.33	83.64
C 1	9	95.00	95.00	96.55	99.55	98.44	98.11	97.11	96.90
C17	6	77.50	72.50	84.50	91.33	93.83	95.50	91.16	87.00
C19	6	94.16	97.50	98.83	100.00	100.00	96.33	93.50	97.00
C32	3	88.33	88.33	87.33	95.33	98.00	95.00	89.00	92.50
C27	3	96.00	99.33	98.66	100.00	100.00	92.66	95.33	97.70
Wash.	6	78.33	71.66	82.16	86.00	92.63	96.00	95.50	86.40
Met.	6	71.66	74.16	77.16	87.33	93.16	82.66	76.66	80.40

Table I is a summary of the record for the season of 1943 made on the bent grass plots growing in the turf garden at Ames. The bent grass in each 6 ft. x 6 ft. plot was graded on a percentage bosis as to coverage and condition on the date of each observation. In an effort to avoid bias on the part of the observer, the plots are not labeled.

The group of approximately 50 greenkeepers, most of them from Illinois and Indiana, pose during recess between classes at the sixth annual greenkeepers' short course held at Purdue university, West LaFayette, Ind., February 28-29.

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applying Thiosan than is necessary to secure completed coverage of the green.

New Grasses and Their Usefulness to Iowa

The cost of establishing bent grass on a golf green is considerable, and, when established, greenkeepers and golf clubs hesitate to change to new strains so long as the original plantings are reasonably successful. When the war ends, a number of golf courses in Iowa will doubtless be ready to make many improvements. Those courses which have seeded bent greens can, with little expense, transform those spotty, patterned greens to vegetatively produced, uniform strains of their choosing. Stolonizing a green is a relatively simple matter. Stolons of the desired strains may be purchased, or they may be grown in a nursery of sufficient size to supply the required amount of stolons.

Our tests in the turf garden and on the Iowa State College golf course indicate that two strains are of demonstrated value. These are C19 and C1. Several golf courses have established greens of these grasses and report excellent results.

C1 has been widely enough tested to indicate that it is especially well adapted to public courses. It is relatively resistant to disease, but not immune, grows well and is tough enough to withstand rough usage.

C19 is a finer grained grass with better green color. It is vigorous, hardy and maintains a good surface until late in the season. The general performance of C19 under Iowa conditions indicates that it is a new grass worthy of the serious consideration of those clubs which plan to build new or to resurface old greens.

Any golf course which plans to rebuild greens can well afford to grow a nursery of sufficient size to provide the amount of stolons required. Stolons sprigged into the nursery rows in September will make rows of 30 to 36 inches wide by the next September, and will provide quantities of stolons that can be used to stolonize greens. A nursery may also be planted in the spring with good results.