

as to break in a green crew every spring. Experienced *water men* paid handsome dividends this year.

It is encouraging to see the number of clubs which are discontinuing the

practice of changing the green committee chairman every year.

The level of golf-course maintenance is being raised each year. Adequate compensation for excellent supervision still lags behind.

SECOND ANNUAL NATIONAL TURF FIELD DAY

The USGA Green Section and the Bureau of Plant Industry, Soils and Agricultural Engineering, Division of Forage Crops and Diseases, co-operated in holding their second annual National Turf Field Day at Beltsville, Md., on October 19.

Dr. Salter, Chief of the Bureau; and Dr. Myers, Head of Forage Crops, welcomed the group and both stressed the importance of turf work as a vital part of agricultural research. They cited the long co-operation of the Bureau and the USGA Green Section. Dr. Grau, Director of the USGA Green Section, was general chairman and conducted the group to the various experiments and demonstrations.

Alta Fescue Lawn

Alta fescue lawn seeded September, 1947; it was explained that Alta fescue is not the perfect turf grass, but it has proven itself for large lawns, roadsides, athletic fields, airports and other turf areas where close-knit turf and fine texture are not of paramount importance. It is generally used in combination with other grasses and has largely replaced redtop and ryegrass because it is not so competitive to the other grasses. It is a good cool-season companion to Japanese lawngrass. It is very deep-rooted and drought tolerant.

Methods of planting zoysia and Bermudagrass were demonstrated. They included plug planting, sprig planting, strip-sod planting and seedling planting. Al Radko demonstrated how to start with one ounce of zoysia seed in the greenhouse in November and end up with enough seedling plants to plant five acres in the spring by setting the seedling plants on 2-foot centers. One of the methods demonstrated was the use of the mole-drain which cuts narrow fur-

rows in established turf, permitting the sprigs and plants to be set easily, after which they are rolled down with the wheel of the tractor. In this way established turf may be replanted without any interruption of the use of the area.

Dr. Grau pointed out that this is an expensive method, but it is exactly equivalent to the annual area planting of tobacco fields. Turf and tobacco both are high value crops. With turf, this method of planting is done only once and then you can expect permanence, especially with zoysia and Bermuda. He further stated that improvements in planting methods will come about as the result of the thinking and planning of turf superintendents. The crowd was then shown demonstrations of plantings of Bermuda and zoysia made during the past two years on established lawns on the Plant Industry Station. In each case the plantings have been successful and permanent.

Ureaform Fertilizer

Walter Armiger explained ureaform fertilizer trials on the Alta fescue lawn and brought out a number of pertinent points with respect to this material. The ureaform is a combination of urea and formaldehyde, which produces a white powder containing 33 per cent nitrogen which is non-burning on turf. It creates a slow, steady growth, and one application may be expected to be sufficient for an entire growing season in this area. Ureaform has been tested sufficiently so that steps are being taken to have it manufactured commercially. At present there is none available on the market.

Dr. W. E. Chappell explained the crabgrass control trials to the group and pointed out the merits of and objections to several of the materials now on the

market. The unfavorable weather this season created a great deal of damage on the bluegrass turf and crabgrass was in abundance everywhere. The crowd learned about as much as to what not to do as to what to do. It was obvious that chemical control of crabgrass represents only one of the tools and that chemical control and biological control are equally important.

It was pointed out that the recently disturbed areas on the Plant Industry Station lawns have been seeded to a mixture of Alta fescue, B-27 bluegrass, and Chewings fescue. The last good rain had been on September 23. Germination and establishment have been good in spite of the low rainfall and the extremely unfavorable soil in which these seeds were planted.

U-3 Draws Praise

After lunch the group assembled on the plots at the Turf Garden. First demonstration was by Eddie Tabor of the West Shore Country Club, Camp Hill, Pa., a representative of the Professional Golfers' Association of America, who demonstrated shotmaking to the crowd on U-3 Bermudagrass turf which had been cut continually for two years with the mowers set at $\frac{1}{2}$ -inch and with no artificial irrigation during those two years. The turf was solid and dense, of a pleasing green color. It was firm, and Tabor's comments praised the turf highly from the standpoint of playing good golf shots.

The next feature was a demonstration as to the effect of football cleats on this type of turf and also on combination of Japanese lawngrass and various cool-season grasses. Major Bohler, Superintendent of Buildings and Grounds of the University of Maryland, gave a short talk on what they wanted in a football turf. He had with him Chet Gierula, tackle on the University of Maryland football team. They condemned heartily the soft, lush, shallow-rooted turf they found on many football fields in the country which skidded out from under the feet of the players when they made a sharp turn. Major Bohler put Chet through his paces, and the group was

delighted to find that the twistings and turnings and fast starts failed to dislodge a single piece of turf. Chet also was delighted in the springiness of the turf and the excellent grip that he got and also the speed of the turf. Without drawing definite conclusions, it would certainly appear that Bermudagrass and Japanese lawngrass will be favored for future plantings on athletic fields wherever they are adapted.

U-3 Bermudagrass, a USGA Green Section development, is noted for its fine dense texture, its deep-rooting and drought-tolerant qualities, its freedom from disease and insects and its ability to provide near-perfect turf throughout the growing season with the minimum of irrigation. It is highly favored for golf-course tees, athletic fields and other places where heavy wear is common and where rapid recovery and healing is of paramount importance. Japanese lawngrass has all the qualities of U-3 Bermudagrass except the rapid healing. It has one advantage, ability to produce seed. Its final place in the turf picture has not been completely determined, but it appears as if it will be used on many turf areas where low-cost maintenance is required.

One of the more striking demonstrations was the performance of B-27 bluegrass in comparison with commercial bluegrass. The B-27 bluegrass stands out as superior in both spring seedings and fall seedings. B-27 bluegrass has thrived under continual mowing with the mowers set at $\frac{1}{2}$ -inch without supplemental irrigation. It is much more resistant to weed-invasion than commercial bluegrass. It looks as if this new bluegrass will give golf courses and home owners fairway and lawn turf which can be cut closely and still provide good growth. One of the features of B-27 bluegrass is its ability to grow and persist in combination with Bermudagrass and Japanese lawngrass, giving the turf excellent fall, winter and spring color when these summer-growing grasses are dormant and brown. This study of combination of warm-season grasses to resist crabgrass and cool-season grasses to give color to the

turf has been one of the outstanding contributions of the USGA Green Section to turf throughout the crabgrass belt.

During the past several years the USGA Green Section has collected bentgrass selections from all over the country and has tested them at Beltsville under a system of no irrigation, using no fungicides or insecticides and mowing them at 1/4-inch and 1/2-inch. Out of more than 150 strains, only four have survived and prospered sufficiently to warrant further work with them. One comes from Ohio, one from Washington, D. C., one from Atlantic City and one from Virginia. Several selections from Oklahoma show promise. This is the most brutal treatment that can be accorded bentgrasses, which popularly are supposed to require a great deal of attention. These have had the minimum of care and have thrived in spite of it.

Zoysia Breeding

There was a great deal of interest in the zoysia breeding and testing project which is being developed between the USGA Green Section and the Division of Forage Crops and Diseases, Bureau of Plant Industry. Hundreds of new strains of zoysia have been developed through breeding. Many new strains are being tested under various heights of mowing, alone and in combination with various cool-season grasses. In the trials thus far, the top performing cool-season grasses are B-27 bluegrass, Alta fescue and Penn State Chewings fescue.

It was interesting to note that it was difficult to get the crowd away from a demonstration of cutting plugs from Z-52 turf with specially designed plug-cutters fitted to the F. G. Aerifier. It appears that this may be a rapid, low-cost method of taking plugs from a nursery bed and inserting them into fairways in play without interfering in any way with the play.

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*Alfred H. Tull, New York, N. Y.

*Contributed \$100 to Education Fund.

Most of the greenkeepers were surprised to find that U-3 Bermudagrass which invaded the bentgrasses maintained at putting-green height did not materially affect putting quality or appearance.

Many of the visitors went home with 2-inch plugs of Z-52 zoysia in their pockets and a bag of U-3 Bermudagrass under their arms. Since seed of B-27 bluegrass is practically non-existent at the present time, creeping grasses which can be planted vegetatively represent the greatest interest at the present time. It should be pointed out that most of the 1949 production of B-27 bluegrass is being used to plant additional acreage for seed production. Even though seed is not available at the present time steps are being taken to insure ample supplies in the future. A great deal of criticism was voiced because B-27 bluegrass looks so good and yet there is no seed. It must be understood that whenever anything superior is finally proven, there always will be a lag between the demand and the available supply. It is inevitable and unavoidable.

Some of the work which was not shown to the group included a co-operative testing program of the new fescue strains developed by breeding and selection at the Pennsylvania Experiment Station. Another was the testing of some 50 strains of Bermudagrass in bluegrass turf. Studies of nurse grasses and renovation trials made recently received little attention because the turf had not as yet matured. Also there were demonstrations of establishing turf from seed of different zoysiagrasses.

The Third Annual National Turf Field Day will be held on October 16 and 17, 1950. One day will be devoted to the inspection of local golf courses where new grasses and practices are being used under heavy play. One day will be devoted to inspection of the plots at the Beltsville Turf Gardens and discussions of the various points of interest. Another student get-together will be planned, probably for Sunday night, October 15.