

Experiment Station that phenyl mercury compounds would remove crabgrass from bentgrass turf.

Another milestone was the finding by the New Jersey Agricultural Experiment Station in 1948 that potassium cyanate could successfully eliminate crabgrass in bluegrass turf.

Research is often a slow, painful process. For every success there are a thousand failures. Scientific research is not a series of miracles or brilliant discoveries. It is a gradual development, often the result of years of preliminary investigation. It takes time to test and to prove new ideas.

Unsolved turf problems regarding seeding establishment, *Poa annua* control, sub-surface fertilizer application, grass adapted to close cutting treatment, irrigation practices, and disease resistant grasses abound.

Research is of little value unless the fruits of its discoveries are harvested. The technical developments that I have mentioned above have already found practical use on golf courses. On some courses all are in general use; on others only a few. Financial resources, education, and individual aptitude for progress makes the difference.

THATCH CONTROL

By RALPH E. ENGEL

On many occasions, I have noted that serious thatch problems occur on soils having a low pH. Certainly, management can provide the proper pH through liming. Also, management can alter the nutrient and moisture conditions to some extent.

In earlier years when labor costs were lower, topdressings of soil were used heavily and frequently on the greens. Two years ago, I encountered a course that was still following this practice. These greens had an excellent tight turf that was free of thatch in spite of the fact that the greens had never been raked or cultivated. The absence of thatch on these greens can be explained by the thorough topdressing program that encouraged the organic residues to decompose readily. Apparently, the topdressing material had reduced the frequency of surface drying and enabled the bacteria to decompose organic matter without interruption. Possibly this type of situation illustrates the value of mixing soil and thatch as was suggested by Dr. Starkey. Let us remember this principle, since some of our methods tend to mix thatch and soil.

Topdressing with soil for thatch control has very limited application because of cost. Also, application of topdressing material on established thatch is undesirable because contact cannot be made with the soil. Certainly, we must utilize other methods for controlling thatch on most turf grass areas.

RYE-BERMUDA TRANSITION

By J. R. WATSON, JR.

Where Bermuda and ryegrass is used to maintain green turf throughout the year the two periods of transition are perhaps as critical as any facing the superintendent. The conversion from Bermuda to ryegrass as a rule causes little difficulty. However, a successful transition from rye to Bermuda the following spring will depend to a large extent on the manner in which the fall transition was handled.

The recommended procedure for the fall transition involves certain basic practices. These are:

1. About 4 to 6 weeks prior to seeding ryegrass, aerate the green as deeply as possible.

2. Immediately following aeration apply a complete fertilizer (one that contains nitrogen, phosphorus, and potash). This fertilizer should have a ratio of approximately 2-1-1 with at least one-half of the nitrogen in an organic form and be applied at a rate to supply approximately two lbs. of nitrogen per 1000 sq. ft. It is important that nitrogen be applied early enough in advance of seeding the rye so that the Bermuda will utilize most or all of it. No additional nitrogen should be applied at the time of seeding rye.

3. Following aeration and fertilization, mow at the usual height of cut until shortly before seeding rye.

4. A few days before seeding date, the Bermuda should be cut somewhat closer than normal.

5. Remove any thatch present.

6. Thoroughly scarify the green. This may be accomplished by aerating with the spoons or tines adjusted so that they penetrate only one to one and a half inches followed by spike disking. The object here is to insure contact between the seed and soil. Such will reduce the amount of rye grass otherwise needed to insure a good stand.

7. Seed 10 to 20 lbs. of ryegrass per 1000 sq. ft. The exact amount to use will depend on the personal preference of the superintendent, climatic conditions obtaining, condition of seed bed and whether or not the seed have been treated with a



—United Press Photo

NEW CAST; SAME WALKER CUP ROUTINE

With a 9-3 victory at the Kittansett club, Marion, Mass., the U. S. Walker Cup team ran the Yank victories over the British amateur squads to 13. The British won the Walker Cup once, in 1938 at St. Andrews. The U. S. team, from L to R: Captain Charles R. Yates, Jack Westland, Richard D. Chapman, Harvie Ward, Don Cherry, Sam Urzetta, Kenneth Venturi, Gene Little, R. James Jackson, Charles R. Coe, and Bill Campbell.

fungicide. Re-seeding may be necessary if a good thick uniform coverage is not obtained with the first seeding. Usually an additional 5 to 10 lbs. per 1000 sq ft. will be ample to thicken up the stand.

8. Topdress lightly and roll with a light-weight roller to press the seed into the soil. If the seed bed has been scarified properly, topping may be omitted.

9. Sprinkle lightly often enough to keep seed bed moist until seed germinate. "Damping off," a seedling disease that destroys many seedlings and often necessitates reseedling or excessively heavy seeding rates may be avoided by:

1. Delaying seeding until the average nightly temperature is 70°F or below.
2. Avoiding excessive nitrogen in the seedbed.
3. Treating with Arasan or some similar seed disinfectant.

Where greens are large enough one of the more effective methods of handling the winter grass problem is to seed only one-half of the green to ryegrass. A few clubs that have handled the problem in this manner have been very pleased with the results.

The spring transition — from ryegrass to Bermuda — usually causes more trouble than the fall transition — Bermuda to rye.

In fact, the majority of the troubles on Bermuda greens this past season could be traced directly to poor spring transition. The late cool spring that prolonged the life of the ryegrass and retarded growth of the Bermuda unquestionably contributed to the poor condition of many greens. Weak strains of grass — inherently weak or weakened by improper handling (especially improper fertilization) the preceding fall likewise contributed to poor spring transition.

There are still pros and cons regarding "rapid" vs. "slow" transitions. It would appear that the superintendent's personal judgment should be the ultimate factor in deciding which method to follow. The rapid transition refers to the practice of burning the ryegrass off with a heavy application of soluble nitrogen. The slow method refers to the practice of permitting the rye to pass out gradually. An assist in the form of over-stimulation with soluble nitrogen, closer mowing, aeration and reduced watering will generally aid in a smoother transition with little or no loss of play. The major disadvantage of the rapid method is the loss of play for a week or so following removal of the ryegrass.

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