Poor Root System Softens Turfgrass for the Big Kill

This was the lesson of 1962 . . . Winterkill, disease, etc. took the usual toll but shallow roots struck the hardest blow of all, according to this observer

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"When spring transition is bad there was something wrong with the Bermudagrass the previous fall." This favorite saying by astute Southern supts. has wide application north of the Mason-Dixon line. A harsh winter creates few problems if the grass is put to bed in a healthy state.

Those in the North Central states who were hit hardest by so called winterkill this spring will concur. Although desiccation, ice injury and various disease complexes may have hit the final blow, it was the body softening punishment of a shallow root system that was the real culprit.

As a great practioner in the art of hindsight, it is easy for me to trace the injury by reflecting back to the fall of 1961. The Chicago area was very wet. This was especially true on the south side tapering off as one headed north toward Milwaukee. Winterkill followed the same pattern being very severe on the south side and almost non-existent farther north.

No Frost in Ground

As a result of the very wet fall, root systems were shallow to non-existent. Mowers were blamed for scalping. The blame actually should have been placed on the puffy turf caused by shallow roots. Because of the wet weather supts. were unable to get in a thorough aeration, and for the first time in the memory of man these badly injured areas went through a complete winter with no frost in the ground. The snow came early and left late. Nature failed to cooperate with its usual alternate freezing and thawing to alleviate compaction.

The result of all of these factors was an increase in annual bluegrass and an unprecedented knotweed problem in late summer and fall of 1962.

Obviously, we can't aerify in the middle of a rainstorm, and there will be years when the grass will not be deeply rooted in the fall for reasons beyond our control. These are the years to watch out for because extra precautionary steps must be taken to bring the grass through the winter. A graphic example of this relates to one of Ted Woehrle's greens at Beverly CC on Chicago's south side. As an experiment, Ted removed most of the snow from half of the green in January. This half came through free of injury while the other half was so bad it had to be reseeded. Ex-Minnesotan Roy Nelson also removed snow and ice from Ravisloe's greens and they came through the winter in good shape.

Drainage Situation

A bad winter, like a wet season, is infallible in bringing out poorly drained areas. Spring of 1962 can be credited with an assist in getting badly needed drainage programs started at clubs from Memphis to Montreal. We are surprised at how few clubs have the necessary power equipment to clean out tile lines. Clarence Wolfram at Maple Lane in Detroit has been doing this for years. It lessens winter injury and permits earlier play. This means more money in the till for public fee operations and happier private club golfers.

Courses that were poor this spring are also taking a second look at certain management practices that might have weakened the grass. Four years ago one of our Midwestern clubs carried on an arsenical

experiment on two greens. One received 24 lbs. arsenate of lead and the other got 17 lbs. calcium arsenate per 1000 square feet.

Kill Too Effective

Both arsenicals were applied on the same day in the fall with no visible injury to the grass. The folowing spring both greens were dead — the bent as well as the Poa had been killed. Two fall's ago a Chicago club sprayed its irrigated fairways with a strong solution of 2,4-D and 2,4,5-T to control clover. The clover kill was nearly perfect, but by the following spring the Poa annua and bent had been severely weakened. Seedhead formation on the bluegrass was profuse and fertilizer failed to produce desired color and growth. When hot weather hit, several fairways failed completely and had to be renovated. Proof was present in the one fairway that had not been sprayed. It contained some clover, but growth and fertilizer response was normal and seedhead formation was not excessive.

Obviously, then, spring is the safest time to use 2,4-D and related materials on irrigated bent fairways. However, some even worry about the wisdom of using it then. Several Canadian courses have been using a material called Compitox. It does an excellent job in controlling clover with relatively light injury to bent. At one Ontario course, members complained more about the summer bare spots than they had about the clover that was removed so beautifully this spring. Indeed, this new club had a gigantic clover problem the previous year, but golfers' memories are notoriously short. O. J. Noer prevailed on a neighboring course to grow grass and the clover would take care of itself. The extra fertilizer did the trick to the golfers' satisfaction.

An Interesting Plant

Clover is an interesting plant even though golfers hate it. Through a unique arrangement with certain types of bacteria in the soil it fixes atmospheric nitrogen. If grass were able to do this there would be a great many fertilizer manufacturers in some other line of business. Despite this ability, clover is really poor competition for actively growing grass. Most of the nitrogen fixed by clover bacteria in a poor clover year is utilized by grass the following year. This crowds the clover until the grass runs out of nitrogen when the cycle is repeated.

Clover can also become a problem in both dry and wet years. Its tap root forages deeply for moisture in a dry year so growth remains active after grass has gone dormant from a lack of moisture. Wet years weaken grass more noticeably than clover because of this same depth of rooting difference. In addition, a wet year or copious irrigation eliminates water as a growth factor and intensifies the grasses' need for more nitrogen.

Borrow Farmer's Idea

To grow clover, the farmer uses lots of lime and plenty of phosphorus and potash. If clover starts to get the upper hand to the extent that he is concerned about bloat in his cattle, he topdresses his pastures with nitrogen to bring on the grass. Successful supts. utilize this knowledge. They use minimum amounts of phosphorus and potash and emphasize nitrogen as a means of keeping clover under control. Herbicides judiciously used also can be helpful. The 2,4-D materials are widely used and highly recommended for Kentucky bluegrass and Bermuda fairways and all rough areas.

On bent fairways we continue to like sodium arsenite. Three or four treatments each fall at 1 to 2 lbs. per acre keeps most weeds and insects in check and may have a further advantage in hardening off the turf for less winter damage. Sodium arsenite will be widely used this fall to clean up the knotweed that came in after the winterkill.

It would have been senseless to treat last spring because control would have resulted in bare ground, crabgrass or something worse.

Reseeding Necessary

Some reseeding will be necessary and seed prices for creeping bent will be high. Another mystery of our time is the failure of some to appreciate the merits of bentgrass for fairways. There is no other grass so ideally suited in the north for playable turf. Condemning its failings is a negative approach in our opinion. Experiment stations should be working around-the-clock to develop fairway strains that can be planted vegetatively. We admire people like Dr. Glen Burton who didn't allow the failure of Bermudagrass to come true to type from seed thwart his improvement program in Georgia.

Burton worked on the theory that people would find a way to plant a truly improved strain of Bermuda and the reader knows the rest. Farmers throughout the south use his coastal Plains Bermuda on pastures, and you could count on one hand the few southern courses that have

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not used at least one of his selections.

Mixtures Are Best

The winter of 1961-62 again showed the superiority of mixtures in overseeding winter greens in the south. The problem still is in obtaining weed-free seed. Poa Trivialis, imported from Denmark, is loaded with mouse ear chickweed and lots of red tag and non certified Seaside bent are showing up with as many as 5,000 yellow cress and shepards purse seeds per pound. Warren Lafkin says that his supplier guarantees that none of these weeds will be present by January 1, 1963. This won't help the South this year, but it is encouraging to note that Lafkin and other conscientious seedsmen are making their wants known and the growers are installing better seed cleaning equipment.

Wasn't All Bad

Possibly one of these days each state will recognize that most of the weeds farmers consider noxious are not important in turf, and that very few turf weeds are now on their noxious weed list.

Fortunately, the weather wasn't all bad in 1962. An early warm spell in May speeded recovery where winter damage was bad. Growing conditions have been excellent since then. Minnesotans can't remember when they have had so much rain and the turf has been green and lush all season. However, grins may turn to groans next spring if they don't get the roots down this fall. Turf was very shallow rooted in Minneapolis in August.

Even Los Angeles had rain this spring. In a period of a few days what normally is a season's rainfall fell there. It really helped to leach the soluble salts from the soil, although Milwaukee Sewerage Commission laboratory tests showed salinity levels were creeping back up this fall. The salt levels are so high on some of the newer courses it looks like they are being built in the Pacific Ocean. The use of marginal land may save money initially but it makes subsequent maintenance very costly. Maybe golf should be redesigned as a 12-hole game. It would certainly speed up play, cut costs, and lots of folks would finally be able to break 100.

Disaster Areas

California's good fortune missed Florida, and parts of Pennsylvania and New York were dry enough to be declared disaster areas. The drought cut down on the use

Bill Milne (1), supt. of the CC of Detroit, and William H. Daniel, Purdue University turf specialist, examine a plug of the new Evansville bent developed at the Lafayette, Ind. school. Photo was taken at Midwest turf field days, held in mid-September.

of fungicides but had the sprinkler manufacturers whistling a happy tune. Incidentally, we are firm advocates of complete watering system wherever there is sufficient water available. Grass can't grow without water even though it is misused at times. But the biggest reason of all is that a course will not play uniformly without water.

No Big Breakthroughs

We are not aware of any major breakthrough in the world of turf in 1962. Most of the machinery improvements were of the Volkswagen or under the hood type. One manufacturer introduced a new power topdressing spreader and others are planning to do the same. One of the prominent fungicide manufacturers claims to have discovered a cure for the spring deadspot that has plagued U-3 and common Bermuda fairways from Kansas City to Philadelphia. Production problems have curtailed its release this fall but it, or something that will work, is eagerly anticipated by supts. in these areas.

One thing certain is nobody has yet devised a substitute for grass. We kind of like it this way. It would be an awful chore to play golf on any other kind of a plant. Without it there would be little to do at the 19th hole, and clubhouses everywhere would cease to lose money in the kitchen because there would be no food to serve were it not for grass.

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