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James Smith, Sr. Remembered

The passing of Mr. James Smith, Sr., in May 1980 created a great gap among the pioneers of the turfgrass world. We would like to tell you some interesting things about him and review several items covered in the 1975 winter issue of *Green World*. I will refer to him as "Mr. Smith," as so many of his acquaintnaces called him.

Mr. Smith was born on Christmas Day in Fraserburgh (pronounced Fraserboro), a seacoast town in the north of Scotland. On one occasion when he showed me pictures of the Fraserburgh harbor, I remarked that it looked like rough, cold water. He said, "Aye, but that was where I learned to swim." Having been born in such a location, it is only natural that he would dream of going to sea, especially since his father was a "skipper" (ship's captain). However, his father had a better idea and apprenticed him to become a cooper (coopers made barrels). This broke his heart, but in those days one did not question one's father's decisions.

At the age of 19, after successfully serving his apprenticeship and attempting to obtain a college education by attending night school, he traveled to the United States where he worked to obtain money to return home and further his schooling. He made the money, but never returned to Scotland except for visits. He worked for and, in a few years, became a member of the firm, Richard J. Hamilton Cooperage Co. They were the largest manufacturers of white oak casks used to transport soap-making and other oils such as palm oil, coconut oil, and olive oil from Africa to the U.S.A. However, about 1920-1925 tank steamships replaced oak casks and Mr. Smith's cooperage company was liquidated. But as the cooperage industry was declining, Mr. Smith adjusted quickly by starting both an oil-gasoline company and the turf supply business, which are well-known in New Jersey today.

It was New Jersey's and, in fact, the United States, gain that he decided to stay in this country. His father, mother, three sisters, and three brothers followed him to the "States," as U.S.A. was called in Britain. His sister, Mrs. Janet Mason, resides in Rahway and still retains her delightful Scottish accent. One brother returned to Scotland where he currently lives.

James Smith, Sr., 1888 - 1980

Mr. Smith's love of golf exposed him to the challenges of growing fine turfgrasses. The previous article told how he became a "special" student of Dr. Howard Sprague. This reading and experimenting, along with his keen perception, were key factors in his becoming an authority on turfgrass culture. He ran many laboratory tests on topdressing preparation with his son, Jim, Jr., who was a protege of Dr. Sprague at Rutgers. The tests were designed to determine the required porosity along with the essential ingredients of topdressing for good growth.

The Fertl-Soil topdressing was the first and only major commercial product on the market for many years and it is still widely sold by his son and grandsons in the New Jersey-New York area and nearby states. It is of interest to note that most other competitive topdressing products now on the

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A Scare During June

Jack Martin
Superintendent
Shackamaxon Golf
and Country Club

The spring of 1980 was a slow one for turf, as most of you know. At the Shackamaxon Golf and Country Club, the fairways are always slow to respond during the spring since the topsoil was scraped off and sold some years ago. For this reason, I was not particularly worried as June rolled around. But by the second week of June, the fairways still remained chlorotic and dormant. The fairways at "Shack" are predominantly "poa," and by the second week of June, the only things green and growing were some sparse areas of "bent" and Kentucky bluegrass. By the third week of June, it being so dry, the fairways began to wilt as though it was the middle of summer. Up until the last day of June, we had received only one-hundredth of an inch of rain.

I proceeded to water the fairways heavily every day, but to no avail. I sprayed them with two ounces of straight urea and an ounce of iron sulphate and watered them in—nothing happened.

I analyzed all my records to see if I had done anything differently to pinpoint the problem. The only thing I could come up with was a Dacthal reaction, but I had used Dacthal for many years with no problems. Finally, I sent soil samples for disease analysis

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Comments and Opinions

A Rough Spring for Bentgrass

Bentgrass had a bad spring in our area. In contrast, annual bluegrass has had no early problems. I feel the trouble with bentgrass began in 1979. We had an abundance of rain and mild weather in late summer and fall that did not permit the seasonal die-back and regrowth of a new population of shoots. For this reason, bentgrass went into the winter with a predominance of old shoots that gave a fluffy and poorly rooted turf. January and February were very dry, open months that caused great concern about desiccation and, possibly, started some of the trouble. In March when green-up began, the turf looked better than we expected. However, in April a number of courses seemed to realize that a sneaky slow die-back had continued. The injury was more prevalent on the higher, exposed areas.

Following all these attacks of *Fusarium* and cold weather, *Rhizoctonia* occurred on bentgrass in late April and early May. Our "friend"—annual bluegrass—escaped these difficulties. All this necessitated more early fertilization and topdressing of bentgrass to encourage recovery of prime playing surface.

If there is a single method of minimizing such future troubles, I believe it is a regrowth of a new population of bentgrass shoots in late summer or fall. The old bentgrass plants that scarcely make it through the summer are a poor prospect for survival from December until the following April. Fertilization, topdressing, and cultivation are techniques that give new growth. If our weather permits, I like to see a renewal of shoots before annual bluegrass germinates in late summer. Also, some of our late fall-early winters are open enough that dormant fertilization will give renewal for better winter survival of desiccation.

If all the early spring troubles of bentgrass were not enough, red leafspot, *Helminthosporium erythrospilum*, occurred in a number of areas in late May and early June. Chlorothalonil (Daconil) fungicide in late April or early May was found most effective at the University of Illinois, as reported in an earlier issue of *Green World*.

These comments do not change the fact that bentgrass is the best grass for greens and many tees and fairways of our area. However, it is subject to turf problems. While another year like this one may not appear soon, try to minimize the chance of these things occurring again.

R.E.E.

Summer with Annual Bluegrass-Bentgrass and Job Security

While the summer of 1980 has been very difficult, saying this is the worst summer on record for annual bluegrass does not seem appropriate to me. Every summer has many days when the line between survival and death of turf is very delicate and thin. At the time of this note (August 18), we have had 28 days with temperatures of 90°F. or higher. This is 10-12 days of severe heat over what we expect most years. The weather and air were quite dry for the hot days of June and July, but turf failure was slight for those who could water adequately. On July 30, when 3 inches of rain occurred generally in the area, trouble started. Since then the weather has been quite warm and humid, causing some severe turf losses. Also, the grass is weaker and has shorter roots at this season, which is a factor. The 1980 season is very different from the troubles of 1979, when the temperature stayed in the 80's and the humidity was high night and day from late July through August (essentially no 90° days). It seems that continuous warm temperatures with high humidity is the killer combination. Turf loss becomes more certain with longer periods of this condition. Serious loss comes quicker with high temperatures of 90-100° F.

In August concern revolves around whether or not to water. If water is not applied, the grass wilts, and if water is applied, the grass gets pythium. No wonder superintendents start talking to themselves in late summer. Hopefully, there will be some additional fungicides for pythium next year.

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Smith

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market have features simulating their product.

Mr. Smith engaged in many areas of endeavor. He sold turfgrass supplies in conjunction with the topdressing business, established landscape athletic field and industrial grounds in conjunction with his turf supply business, owned and ran a heating oil business, served as a bank president and director, and maintained a home grounds landscape garden that was a pleasure for everyone to see. Mr. Smith and his son, Jim, Jr., have had a prominent role in making their local hospital one of the finest.

Mr. Smith developed the first groove cultivation machine for turf which was the forerunner of those on the market today. While he was never able to obtain a patent on this machine, he said he was repaid by personal satisfaction and his use of the machine in landscape work.

Turf education and research were always supported enthusiastically by Mr. Smith. In years prior to the NJTA, he served on the Turfgrass Advisory Committee at Rutgers University. His work with turf was recognized by the New Jersey Golf Course Superintendents, the Golf Course Superintendents of America, and the New Jersey Turfgrass Association, which made him the first member of the New Jersey Turfgrass Hall of Fame.

Mr. Smith, like so many Scottish people, had a wonderful way with words. Two comments that I remember are: "Water (turf) most discreetly" and "Changing a soil without knowledge and experience brings many disasters."

Those of us who knew Mr. Smith realized the turfgrass industry owed him much. In my case, he was one of several persons most instrumental in teaching me my early impressions of turf culture. He set high standards for himself. He worked long hours with great enthusiasm. After working from dawn to dark with Mr. Smith, a golf course superintendent was rebuked because he suggested that he would do the remaining work the next morning. Mr. Smith's reply was, "Mahn (man), dinna procrastinate."

Most of all, Mr. Smith taught so many how to live. He enjoyed art, golf, music, flowers, and people along with his work. When his age and health troubled him, he remarked, "I have had my good innings." One of Mr. Smith's favorite pasttimes was reading. It seems fitting to quote his favorite Robert Burns:

'O wad some power the giftie gie us
To see oursel's as ithers see us!
It wad frae monie a blunder free us,
And foolish notion:
What airs in dress an' gait wad lea'e us,
*And ev'n devotion!'"**

Thank you for so many things, Mr. Smith.

• This is from "To a Louse." Robert Burns was inspired to write this about 1785.

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Fall 1980

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Bentgrass

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The grass will come back, but a very unfortunate result of the spring and summer problems will be men losing their jobs. Most of this is very unfair. There are no guarantees against turf failure. A classic case occurred earlier in the Chicago area, where a number of experts seemed to offer many different versions of what happened. If there was no significant agreement among these specialists and no established answers, how can the golf course superintendent be held responsible?

R.E.E.

Scare

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to Dr. Spence Davis at Rutgers.

His conclusion was that PCNB had built up in the Acti Dione RZ that I had been using. Since Spence will go into technical properties of the chemical, soil, and plant relationship, I'll just relate the rest of the story as it happened to me in layman's terms.

As I looked back in my records, I found that I had had a similar problem in 1978—extremely slow yellow fairways during June. At that time, I continued to use urea until they came around, but this year nothing happened. Spence advised me to stop using the RZ for three or four weeks. Fortunately, I had stopped using it on June 9, two weeks before I spoke to Spence. The fairways did not start to move until the week of June 23, also the week that I had two member guest tournaments.

Since that time, the fairways have become progressively better, and at this time (July 24) are as good as they have ever been at this time of year. I might add that during June the fairways remained completely disease free.

During the summer I maintain a weekly spray program on fairways as well as on greens and tees. My fertilizer program consists of approximately 1½ lbs. N/1000 in May via IBDU and 1 lb. N/1000 in the fall. At this time, it is my feeling that more research is needed with PCNB and its effect on retarding growth. This product might be used to hold back growth in the spring, especially the "poa." I prefer to peak the turf as late as possible in the spring and hope for a stronger plant as we enter the stress periods of July and August. This theory has worked for me at Shackamaxon in the past. I plan to continue to use Acti Dione RZ, but at a smaller rate and/or greater intervals.

This year I had sprayed RZ four times during May and June at ½ oz./1000 or a total of 2 oz. on the turf. The Upjohn people are also aware of this problem, and we should be hearing more on this matter in the future.

Comments by Spence Davis: When I received the turf samples from Jack, I could find no primary fungi on the samples which would account for the yellow color and the slowing-up of growth. As is usual in the plant pathology department, after checking a sample, we talked with Jack about his problem, and learned of his four applications of the fungicide which contains PCNB over a relatively short period.

PCNB, also known as Terraclor, is a good chemical which has been in use for a number of years for control of a number of different diseases. It has one drawback—it is a little "hot."

When used for control of club root on cabbage and related plants, it will suppress early growth of the plants with only a single application. Later in the season the treated plants far surpass the untreated in size and they are free from disease. We accept the early suppression in return for disease control.

The same chemical gives excellent control of some of the damping-off and cutting-rot diseases of ornamental plants, but we recognize that repeated applications may result in some root injury.

Our Rutgers recommendations, based upon research by Dr. Phil Halisky, do call for up to three applications of PCNB at 10- to 14-day intervals in the spring for control of leaf spot. Perhaps the four applications by Jack in early summer resulted in just too much buildup of the material with resultant retardation of turf growth.

I know that Acti-dione RZ is a good material for control of some of the turf diseases, but perhaps more research should be done to determine if continued use over a relatively short period of time could be the cause of problems such as those experienced by Jack Martin. Glad your turf now looks good, Jack!

ABSTRACT

Thatch Influence on Mobility and Transformation of Nitrogen Carriers Applied to Turf

K.E. Nelson, A.J. Turgeon, and J.R. Street

Agron. J. 72: 487-492

The purpose of these investigations was to determine the influence of a thatch layer on the vertical mobility and transformation of soluble and slowly soluble nitrogen (N) carriers following application.

We measured N leaching, retention, and volatilization, using cores of thatch and Flanagan silt loam (Aquic Argiudoll) soil extracted from field-grown turf of Kentucky bluegrass (*Poa pratensis L.*). Urea was selected as the soluble N carrier, and isobutylidene diurea (IBDU) was the slowly soluble N carrier. Application of urea resulted in 2.5 times as much N leaching and correspondingly lower N retention in thatch than in soil. Where IBDU was used as the N source, leaching from the thatch was reduced from 81 to 5 percent of the applied N, and leaching from the soil was reduced from 32 to 23 percent compared with urea-treated cores. In the volatilization studies, 39 percent of the applied N from urea was lost as ammonia from thatch cores compared with only 5 percent from the soil cores. Where IBDU was the N source, little N volatilization (4 percent from thatch, 2 percent from soil) occurred. In conclusion, where a substantial thatch layer exists, and turfgrass rooting is largely confined to the thatch layer, use of a slowly soluble N carrier might be preferable to soluble urea for reducing N losses due to leaching and volatilization. Effective measures for controlling the thatch may result in greater efficiencies in the use of fertilizer N by the turfgrass community.

Editor's Comments: This study with its precise controls shows thatch affects the behavior of nitrogen applied to turf. The projection that con-

trolling thatch may result in greater efficiencies in the use of fertilizer N by the turfgrass community is a good reason for maintaining minimal thatch. There is no cause to disagree with the proposal that slowly soluble N carrier might be preferable to urea for reducing losses due to leaching and volatilization, but it is conceivable that slow-release N that stays nearer the surface could increase surface rooting and thatch.

Tolerance of Two Grass Species to Copper-Treated Irrigation Water

D.N. Riemer and H.W. Motto
J. Aquat. Plant Manage. 18:3-6 (1980)

A field study and a greenhouse study were conducted to determine whether the copper content of treated water is likely to be toxic to irrigated bentgrass and annual bluegrass on greens and fairways. The copper levels from copper sulfate were far in excess of the amount that would be present in water treated at the recommended rate. The studies showed an adequate safety margin between the copper levels to which grasses might be exposed and the toxicity level. Grasses were more tolerant of copper in the soil at pH 6.5 than at pH 4.8.

Editor's Comment: Results of this study show turf growers need not fear turf injury from several waterings with pond water containing copper sulfate at the recommended rate. This does not make continuous long-term use advisable nor does it condone overdosage. Since copper stays in the soil, never apply unnecessary amounts. In spite of the safety of a given treatment, avoid irrigation with treated water for 2 or 3 days, if possible, to allow the copper to precipitate to the bottom of the pond rather than be pumped onto a green.

Turfgrass Wear Tolerance

P.M. Canaway
Journal of Sports Turf Research Institute 54: 7-14 (1980)

Six different turf species were sodded (Trial I) or seeded (Trial II) in September. Wear tests were made the following spring. The following table shows that: 1. annual bluegrass on the sodded turf had 20 percent more cover after 32 wear passes than Kentucky bluegrass (*Poa pratensis*), the nearest competitor; 2. after 70 passes, annual bluegrass showed 57 percent more cover than *Poa pratensis*, the nearest competitor; 3. on a seeded turf it showed 12 percent more cover after 20 passes than the nearest competitor, timothy, *Phleum pratense*; and 4. it showed 69 percent more cover after 40 passes on the seeded turf than the nearest competitor, perennial ryegrass (*Lolium perenne*).

Editor's Comment: Good wear tolerance of annual bluegrass was reported in a research paper by Shildrick in the 1977 spring issue of *Green World*. While the wear tolerance reported by Canaway in this paper is not a surprise, it is worthy of note because it reinforces our appreciation of annual bluegrass as a wear-tolerant species. This fits what we see repeatedly—annual bluegrass becomes dominant with a close cut, high moisture, and heavy traffic. Possibly, it is not correct to call annual bluegrass a bad weed in climates where killing weather in the summer or winter occur infrequently. In fairness to Kentucky bluegrass, remember that it is not often at its best in the British Isles.

Mean wear tolerance (percentage ground cover remaining) for six turfgrass species in the two trials (%)

	Trial I		Trial II	
Species	**After 1 month's wear (32 passes)**	**After 2 months' wear (70 passes)**	**After 1 month's wear (20 passes)**	**After 2 months' wear (40 passes)**
Poa annua	95.4a	72.3a	76.1a	75.1a
Lolium perenne	74.8a	36.2c	62.4b	44.5b
Poa Pratensis	79.7b	46.0b	54.6c	39.1c
Phleum pratense	70.2b	20.5b	67.8b	38.0c
Festuca rubra	33.8c	6.8e	26.6d	5.7d
Agrostis tenuis	20.8d	1.7f	29.7d	4.4d

Phosphorus Influx and Growth Characteristics of Corn Roots as Influenced by Phosphorus Supply

I. Anghinoni and S.A. Barber
Agron. J. 72:685-688 (1980)

The objective of this research was to determine the relation between plant phosophorus (P) status and the portion of the corn roots supplied with P on plant P influx and root growth and morphology. Two solution culture experiments were conducted in controlled climate facilities. Phosphorus influx was measured on 18-day-old corn plants that had been starved for P for 1 to 6 days. Splitroot experiments were used to measure the effect of P distribution on root growth and P uptake. Starving the plant for P reduced P concentration in the shoot and root and this resulted in a 55 percent increase in the maximum P influx, Imax. Supplying P to only part of the root system also resulted in a lower plant P concentration and higher Imax by the roots in P solution. When less than 50 percent of the roots were supplied with P, root growth rate in the P solution was 25 percent greater than in the minus P solution. Phosphorus uptake was correlated with root surface exposed in P (R^2 - 0.88).

Editor's Comment: This study suggests that placing phosphorus at the surface of a phosphorus-deficient

soil may not always enable the plant to attain maximum development. It seems that working a phosphorus fertilizer into deficient soils during seedbed preparation is the logical technique rather than leaving it on the surface.

Correction

In the last issue of *Green World*, the label, "Pinched Crossed Walls," for the illustration on Rhizoctonia was inadvertently reversed. Sorry for the mistake!

Dr. Nickii O'Neill, USDA-Beltsville, reports isolation of *H. Rexilaria 'Poa'* as the causal agent of "metling out." This disease exhibits no leaf symptoms, but rather causes a general turf blighting with 85° F. temperatures.

Another Use for Turfgrass—Skiing

Europe is reported to have 15 grass ski slopes in operation. Ontario claimed 7 in 1979. Can you imagine the ski committee complaining that the turf is too slick or sticky? Gary Crothers, wherever you are, this sounds like a natural venture for you.