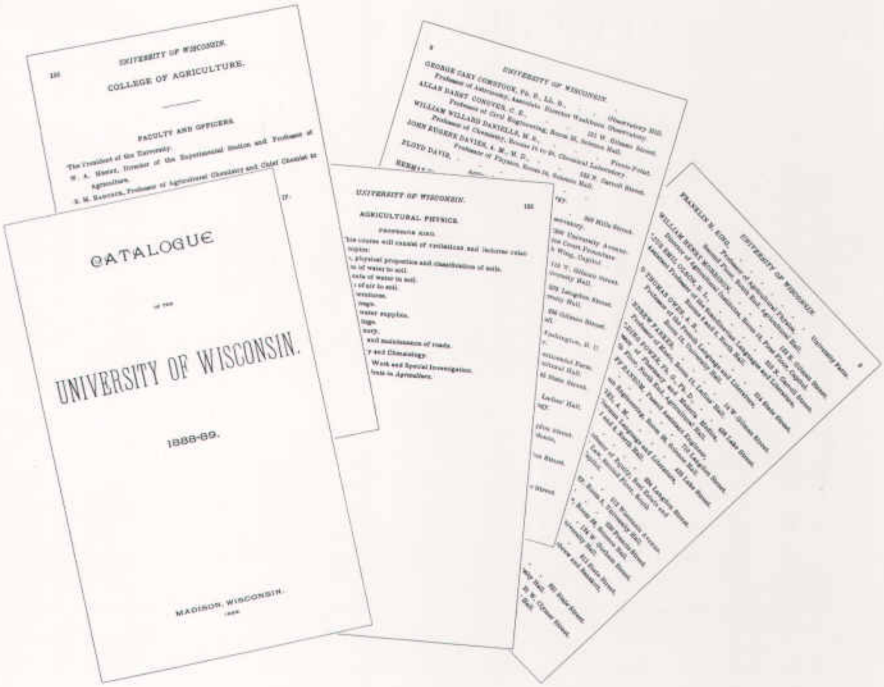
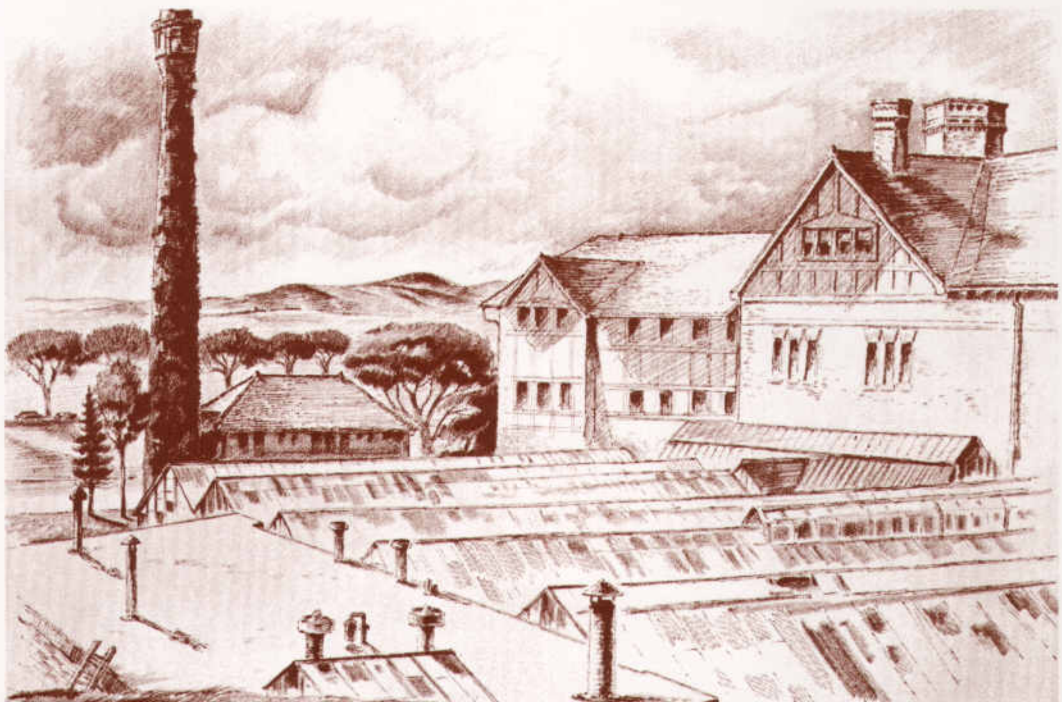
A Brief History of The Department of Soil Science University of Wisconsin-Madison

by Dr. James R. Love
Department of Soil Science
University of Wisconsin-Madison

The Department of Soil Science, as we know it today, has had a long and varied history. It had its beginning in the 1888-89 school year when W. A. Henry, the first dean in the newly established College of Agriculture, hired F. H. King to be Professor of Agricultural Physics (see U.W. Catalogue 1888-89 giving faculty and course work — notice classes taught by King that year). Courses were held in Agricultural Hall, now called South Hall, and together with Bascom and North Hall (the oldest, built in 1850) constitute the three oldest buildings on the campus today. Agriculture (South) Hall also served as a dormitory for the students, as well as housing for the faculty and their families. Studies were also conducted on the University farm, 195 acres of land purchased in 1866, much of which now surrounds Washburn Observatory and the present day Ag campus. Mr. W. W. Daniels was the first professor of Agriculture and Chemistry hired in what was then the Department of Agriculture in Letters and Science. He established a fruit tree orchard (some trees still remain) on the north slope of Observatory Hill and pastured the farm's dairy herd on the west slope. Daniels resigned his position in agriculture when Henry was hired as Professor of Agriculture in 1880.

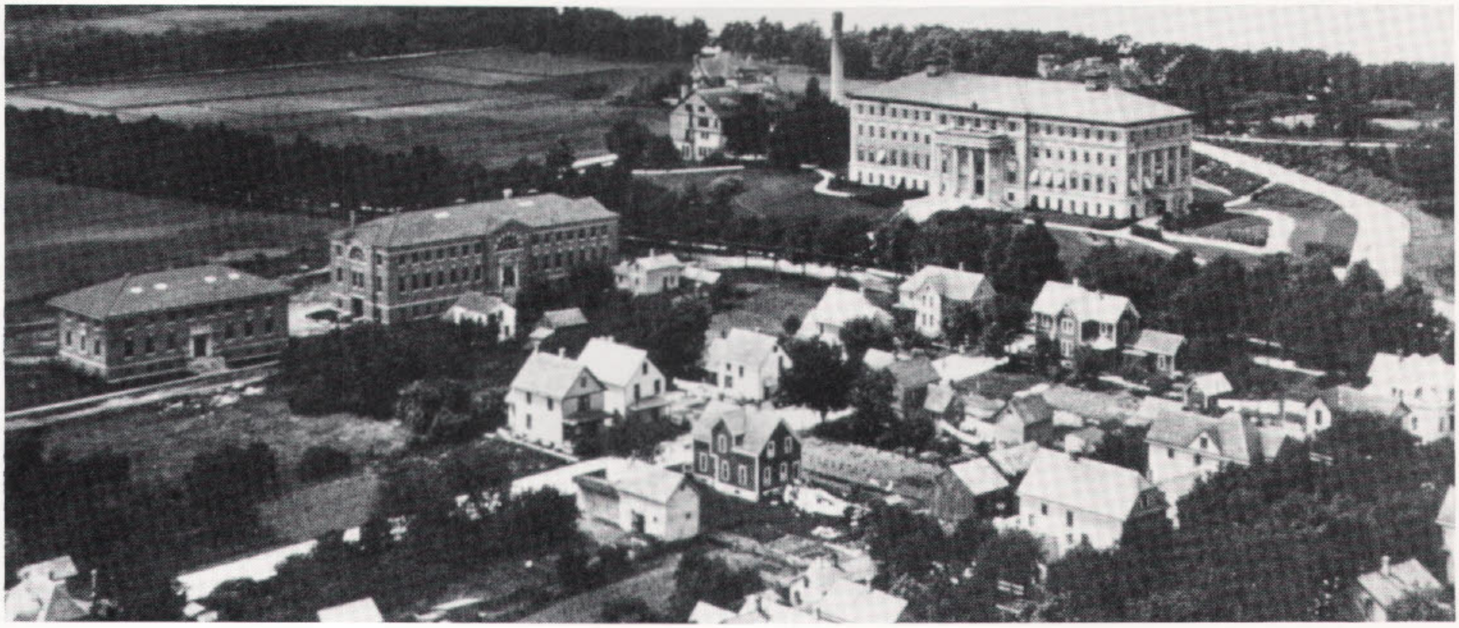


Increasing enrollments in the early years created the need for improved instruction and research facilities and in 1894-96, a building to house Horticulture and Agricultural Physics was constructed. The original name of the building, etched in stone, can still be seen over the main entrance off Observatory Drive. The building has since been renamed King Hall



A sketch of the Soils Building on the UW—Madison Campus. The sketch, one in a series of sketches of the campus, was done by Professor Byron Jorns. Jorns, a professor of agricultural journalism, was also an accomplished artist and notable among his work were the murals depicting rural Wisconsin in the First Wisconsin Bank Building on the Capitol Square.

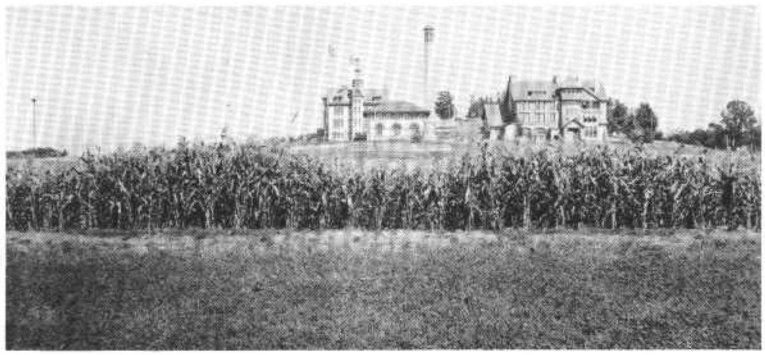
UW Campus today and yesterday.



and is the second oldest building on the Ag campus (Hiram Smith Hall finished in 1882 is the oldest)./1 King, a pioneer soil physicist, was called to Washington to head the Division of Soil Management, Bureau of Soils, U.S.D.A. in 1901 and A. R. Whitson, who had been appointed to the college staff in 1899, took over his duties. In 1905, when the department name was changed from Agricultural Physics to Soils, Profess Whitson became its first chairman, and since it was the first Department of Soils in the nation, he also has the distinction of being the first educator with the title of Professor of Soils. It should be emphasized that this was more than just a name change. For example, the Department of Agricultural Engineering was created to do much of the mechanical and engineering work done in Agricultural Physics. In fact, E. R. Jones who assisted King was named its first chairman. The remaining role was more Soils than Ag Physics — Whitsen and King

1/It may be of interest to note that King Hall was constructed at a cost of $37,000 and 90 years later when it was completely remodeled (1983-84), the cost was slightly over 2 million dollars. See photo showing Hiram Smith Hall to the right, the old heating plant (now the Bulletin Office for the college) in the foreground and King Hall to the left behind it. Notice the windmills, used by King in some of his early studies in mechanics. Another photo shows Professor King with his class, circa 1900. Notice the seats for the students along the right side.

F. H. King and machinery class (behind King Hall).



King Hall is to the left and rear of chimney.

were doing fertility work by 1900. In 1915-16 an annex to King Hall was built that was eventually to become known as the Soils Building.

Among the first students to enroll in the newly established Department of Soils was a young farm boy from Independence, Wisconsin. Following his graduation in 1909, Emil Truog was offered the position of Research Assistant in the Soils Department by Professor Whitson. This was to mark the beginning of a 45 year career for Prof. Truog in the College of Agriculture. At his retirement in 1954, it was reported that the hundred or more Ph.D.'s earned under his supervision set a record at the University of Wisconsin.

One of the graduate students whom Truog supervised was O. J. Noer (1924-26) under a fellowship grant from the Milwaukee Sewerage Commission to study Activated Sludge: Its Production, Composition and Value as a Fertilizer.[2] The product, later known as Milorganite, proved so successful that O. J. spent the rest of his professional career as sales manager and chief agronomist for the Milwaukee Metropolitan Sewerage District. Upon his retirement, the O. J. Noer Research Foundation was established in 1959 by friends and associates in the turfgrass industry. In the first 25 years of its existence, the Foundation has generated $240,000 for turfgrass research grants in colleges across the country. This is a living tribute to the memory of the man and indirectly to Prof. Truog whom O. J. credited with the original suggestion that "Milorganite might find a good market on golf courses."[3]

Since Whitson, there have been seven other department chairmen. They are: E. Truog (1941-54), O. J. Attoe (1954-59), L. E. Engelbert (1959-69), R. J. Muckenhirn (1969-71), G. Chesters (1971-72) who resigned to become Director of Water Resources Center, L. M. Walsh (1972-79) who was appointed Dean of the College of Agricultural and Life Sciences, D. R. Keeney (1979-84) and C. B. Tanner who assumed the Chair in 1984. It is of interest to note that Dr. Tanner, a world-renowned soil physicist in his own right, will be chairman when the department marks the 100th Anniversary of F. H. King's appointment as the first Professor of Agricultural Physics (Soil Science) in the U.S.

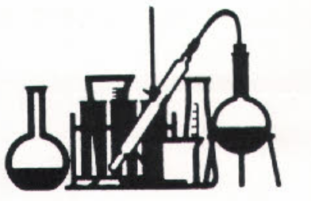
The Department of Soil Science has program responsibilities in undergraduate and graduate instruction, research, extension and public service. It also has a strong commitment to international agriculture. In undergraduate teaching, the department offers four options: Business and Industry, Natural Resources, Production and Technology and Natural Sciences. Students are able to select from six specialty areas: Agribusiness and Sales, Soil Resources and Land Use Analyses, Soil and Water Conservation, Turf and Grounds Management and Crop Production.

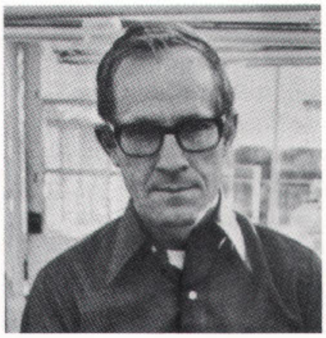
The graduate curriculum in Soil Science is divided into the following areas: soil biochemistry and microbiology; soil chemistry and mineralogy; soil fertility and plant nutrition; soil physics; soil genesis, classification and morphology; soil and water conservation; soil resource inventory and land use planning; and forest soils.

The Department of Soil Science has long maintained a strong research and extension program in crop production and has nationally recognized land and water resource programs in non-point pollution; land use; soil-water relationships of plants and microorganisms; disposal and utilization of rural, urban and industrial wastes (from livestock, sewage and wastewater sludges, whey and fly ash); determination of the mineral, organic and elemental composition of soils and wastes; fate and impact of agricultural chemicals (fertilizers and pesticides) in soils and surface waters; and water use as related to movement of nutrients through irrigated soils. A continuing commitment by the department to international agricultural development provides the opportunity for each staff member to contribute to the college's efforts to meet the food and fiber requirements of the world.

[2] Title of Part 1 of O. J.'s Ph.D. Thesis published in Jour. of the Amer. Soc. of Agron., Vol. 18, No. 11, Nov. 1926.

[3] From Charlie Wilson's excellent article on O. J. in Sept. 1984 issue of the Grass Roots.





Soil Testing and Plant Analysis

By Dr. Emmett E. Schulte

The only reliable way of knowing how much lime and fertilizer are needed for turf is to have the soil tested. Soil tests can also determine whether too much lime or fertilizer has been applied. Excessive lime or fertilizer is not only wasteful, but may also result in reduced turf vigor.

Plant analysis is useful in diagnosing soil fertility problems. Analysis of plant tissue tells what nutrients the plant found to be available in the soil. It integrates the combined effects of soil fertility, soil permeability, root distribution, climatic conditions and other factors influencing nutrient uptake by turfgrass. A combination of soil and plant analysis gives more information than either one alone.

What Do Soil Tests Measure?

Soils contain large amounts of most plant nutrients, but only a small fraction is available to plants during the course of a growing season. The objective of soil testing is to extract an amount of the nutrient that is proportional to what the plant finds to be available in the soil. A typical soil, for example, may contain 2.5% potassium or the equivalent of 50,000 lbs. of potassium per acre to the depth of tillage (six to seven inches), but the same soil will contain only about 200 pounds per acre of "available" potassium.

The first step in developing a soil test is to find an extracting solution that extracts the "available" form(s) of the nutrient to be tested. This is usually done by a combination of greenhouse and laboratory research. Assay plants are grown in a number of different kinds of soil under controlled greenhouse conditions. Nutrients other than the one being studied are supplied as needed. Uptake of the element in question by the plant is measured to determine the amount found to be available to the plant in each soil. Samples of the uncropped soils are extracted with various extractants, and the amounts to the element extracted are "correlated" with the amount taken up by the assay crop. The best extractant is studied further to determine the optimum extraction time and other soil testing conditions.

Once a suitable extracting method has been developed for the element being studied, the soil test must be calibrated under field conditions. Until that is done, the results of the new soil tests are simply numbers with little relevance. Field calibration involves a determination of the yield or growth increase that is obtained at different soil test values when the nutrient studied is added to the soil. Other field experiments determine how much of the nutrient must be supplied for optimum growth or quality and methods of fertilizer placement for maximum eficiency. It is important that soil tests be calibrated for the soils of the area for which recommendations are made.

History of Soil Testing

Early soil chemists measured the total amounts of nutrients present in the soil. Unfortunately, there was very little correlation between total nutrients and plant available nutrients. This was the situation in 1840 when Justus von Liebig, father of soil chemistry, was prominent. In 1850, Thomas Way in England measured "exchangeable" cations, and modifications of his test are in use today. Later (1894), Dyer extracted phosphorus and potassium with citric acid as soil chemists attempted to duplicate the dissolving power of plant roots.

Modern soil testing began with the work of Bray (Ill., 1929), Truog (Wis., 1930), Morgan (Conn., 1935) and Spurway (Mich., 1938) who used extracting solutions designed to reproduce the solvent action of root exudates. Refinements in these early methods, notably by Bray and Kurtz, (1945), Mehlich (1953) and Olsen (1954) have led to many of the methods still in use today.

Current research in soil testing methodology involves attempts to measure both the actively available forms of nutrients and the reserve supplies that become available more slowly. Some research is being conducted to find extractants that can measure available forms of several nutrients simultaneously.

Advances in instrumentation have led to improvement in soil testing accuracy. Prior to the 1960's, soil test kits were in vogue. Almost every county in the state, many vocational agriculture in-

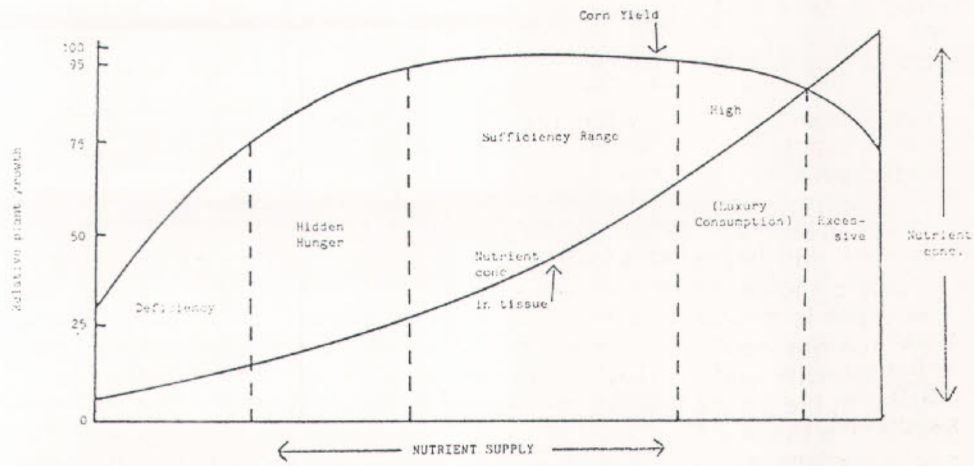


Fig. 1. Relationship between nutrient supply, plant growth and nutrient concentration in ear leaf tissue. (Adapted from Brown, 1970).

structors and fertilizer dealers all were testing soil with these kits. Soil testing with kits was reliable only when performed by an experienced technician. The soil test kit was replaced with electronic instruments in the 60's.

Computer processing of soil test results was pioneered at the University of Wisconsin by L.M. Walsh, currently Dean of the College of Agricultural and Life Sciences. In 1964, electronic reporting was made available to commercial soil testing labs through Agricultural Records Cooperative (now known as Wis. Dairy Herd Improvement Coop). Approximately 200,000 samples are processed by WDHIC annually in Wisconsin. The results are stored on magnetic tape and summarized by county every four years.

The routine soil test for turfgrass is pH or acidity, buffer pH, organic matter, phosphorus, potassium and soluble salts. The buffer pH is used to calculate the lime requirement of acid soils. The soluble salt test is used to indicate problems due to over-fertilization. Other tests available upon request in Wisconsin are calcium, magnesium, sulfur, boron, zinc, manganese and particle size distribution (percent sand, silt, clay).

Plant Analysis

Plant analysis is the quantitative analysis of the elements in plant tissue. Carbon, hydrogen, and oxygen come from air or water and are not analyzed routinely because they seldom limit plant growth. Chlorine and molybdenum are normally sufficient. Thus, most plant analysis labs analyze plant tissue for nitrogen, phosphorus potassium, calcium, magnesium, sulfur, boron, zinc, copper, manganese and iron. Aluminum and sodium are sometimes included even though they are not essential to plants.

The general relationship between nutrient level and plant growth is shown in Figure 1. When a nutrient is deficient, addition of that nutrient results in increased plant growth and usually an increase in the concentration of the element in the plant. As the level of the deficient nutrient increases, plant growth increases until some other factor limits growth. Further additions of the element will cause the concentration of that element in the plant to rise more rapidly because it is not being diluted by additional dry matter. Eventually, toxicity of that element may occur.

Plant analysis has proven useful in confirming nutrient deficiencies, toxicities or imbalances, identifying "hidden hunger," evaluating fertilizer programs, determining the availability of elements not tested for by other methods, and to study interactions among nutrients.

For most field crops, the portion of the plant sampled and the stage of maturity influence the nutrient composition. These factors are less critical for turfgrass that is mowed regularly. If allowed to grow to maturity or senscence, however, the analyses are difficult to interpret. Unfortunately, there is not much research being conducted on the optimum nutrient composition of different species of turfgrass.

Plant analysis complements soil testing. Sometimes adequate nutrient levels may be present in the soil but, because of other problems such as insect feeding, root damage, too much or too little moisture, or compaction, inadequate amounts of nutrient get into the plant. Plant analysis, along with soil tests, can help pinpoint the problem.

Editor's Note: Dr. Emmett Schulte is a Professor of Soil Science at the University of Wisconsin — Madison. He has a B.S. degree in Chemistry, a M.S. and a Ph.D. in Soil Science and has been a UW—Madison staff member since 1964. His responsibilities include instruction, research and extension work in soil fertility and he currently is also the Director of UWEX Diagnostic Labs. He also spent a number of years overseas as a member of the USAID-University of Wisconsin team at the University of Ife, Nigeria.

GOLFERS BID FOND FAREWELL TO STRUM'S SAND GREENS!

Golfers had their final chance on the weekend of June 8 to play the sand greens of Strum's Viking Skyline Recreation Area golf course, a remnant of yesteryear.

A brand new par-36, nine-hole course with big grass greens has been built around the old golf course. A sand green is the putting surface of a golf hole in which smooth sand takes the place of the closely mowed grass. Sand greens were common in all sections of America in years past. The club held a tournament that began on the nine-hole sand-green course and ended on the grass green course. Over one hundred players participated. The tournament, however, was not the highlight of the weekend celebration. The "drags," pieces of carpet with handles attached to them for smoothing the sand each time they putted, were burned in a ceremony on Saturday night! The golf course originally opened in 1965 and made the switch to grass this year because members were simply tired of the sand. The course is part of a 300 acre recreation area and started with sand greens because of the lower expense associated with maintaining them. However, in recent times the golf course was losing business because of them and faced closing if changing to grass was delayed or avoided.

Sand greens are rapidly disappearing around the country. Except for the novelty of it, playing sand is little fun. The sand is left black and hard by the twice-a-year oiling, and it leaves golfers with a oily residue on hands and shoes.

Aerification and Soil Physical Properties

By K. McSweeney and B. Lowery
Department of Soil Science
University of Wisconsin—Madison

Aerification is promoted as a useful practice to improve soil conditions for grass growth on playing surfaces, such as golf greens and football fields, especially where compaction is a problem. Compaction can be an acute problem on playing surfaces that have been developed in natural soils that originally had medium- or fine-textured surfaces. Aerification systems are designed to create large (½" wide x 2½" deep) cylindrical void or pore spaces in the soil surface, either by removal of a "plug" of soil or more traditionally by spiking the soil. Both aerification systems will clearly result in considerable modification of soil physical properties, such as their structure and porosity, which should ideally optimize factors important for grass root growth such as soil water and air movement and storage and soil temperature.

Questions concerning aerification, which are of obvious interest to individuals in turfgrass management, include the following:

- How often and when should we aerify?
- Which aerification system is the most suitable?
- What are the long-term consequences of extensive aerification on the physical condition of the soil and grass growth?
- What alternative management strategies and practices are available or could be developed to improve the physical condition of the soil to promote optimum grass growth?

Answers to these questions will clearly vary for different playing areas and underlying soils and between individuals, but we believe that much of the guesswork and trial and error can be eliminated by the application of established scientific principles and carefully conducted research involving both turfgrass researchers and practitioners. We conducted a pilot study at the Riverside Golf Club, Janesville, Wis. to evaluate the suitability for turfgrass research of various procedures for determining soil physical properties that we have found to be successful in conducting our agronomic research. A brief discussion of some of our findings is presented below.

A turfgrass sampler was used to take soil samples from greens which had been recently aerified with a device that removes cylindrical plugs from the soil surface. These samples were then impregnated or stabilized with an epoxy resin to make them suitable for cutting, grinding and polishing. The purpose of this was to create ultra-thin sections or slices of soil that can be examined in detail under a microscope. Examination of the slices provided direct information about changes in the soil physical condition and root behavior as a result of aerification. Figures 1-3 illustrate at various magnifications some of the findings from the thin sections.

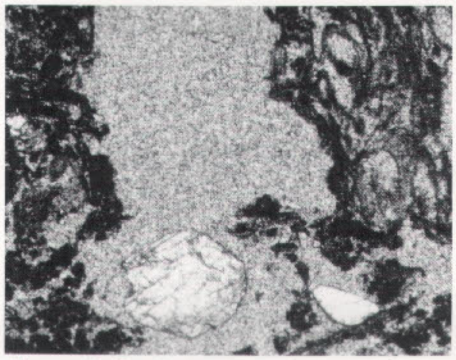


Figure 1. Fresh aeration void (light color, middle of photo) containing a large sand grain that had been topdressed onto the surface and subsequently transported to the bottom of the void. The soil material (dark color, right and left side of photo, surrounding void) shows few signs of compaction as a result of aerification (Magnification x20).

Figure 2. Aeration void filled by sand grains (white) occupies the right side of the photo, running down the middle of the photo is a grass root, and to the left of the root is largely the original soil (magnification x50).

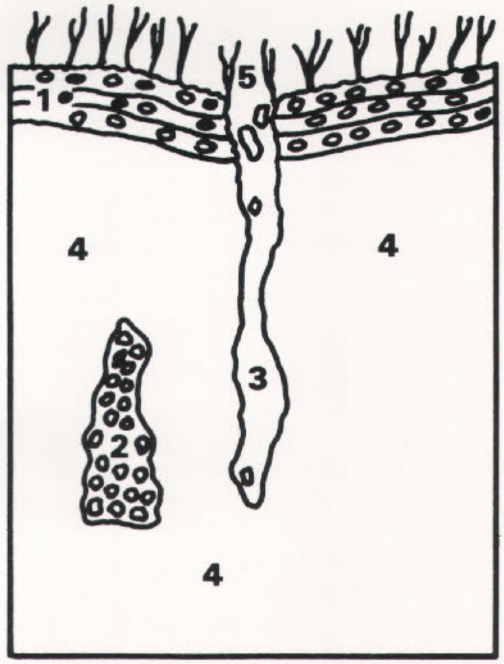


Figure 3. Diagrammatic representation of thin section (full scale) illustrating 1) topdressed surface layer consisting of layers of sand grains and decaying grass root mats; 2) aeration void filled with sand grains and disconnected from surface; 3) fresh aeration void, open to surface but infilling with sand grains; 4) unaerified soil; and 5) characteristic micro-depression surrounding fresh aeration void.

In the samples examined, no appreciable compaction of the void walls was observed. However, soils aerified by spiking (without plug removal) were not examined in the pilot study, but may well produce quite different microenvironments for root growth because this aerification procedure involves soil compression or compaction rather than soil removal to create void spaces.

It was observed that the most extensive root growth occurred along the junction between the voids (filled and unfilled) and the unaerated soil. This observation provides clues for defining and ultimately creating the optimum physical environment for root growth in these soils. It was also observed that many aeration voids were no longer directly connected to the surface and were filled with sand grains which had originally been added to the surface as a topdressing (see Fig. 3). This would suggest that prolonged aerification and topdressing would result in major changes in the soil's physical environment over time and presumably would require appropriate modifications in management practice.

Soil thin sections provide a useful means for deciphering, documenting and even predicting changes in soil physical condition and root behavior over time as a result of aerification. However, other measurement techniques are necessary to gain a more complete appreciation of how aerification affects the physical environment of grass roots. At Janesville, we also used a soil penetrometer to measure changes with depth in soil resistance to a directly applied force. This technique was especially useful for detecting zones of compaction at various depths in the soil. Field observations showed a good correlation between reduced root growth and compaction. Compacted zones were detected below the 3" zone of aerification on some greens, which suggests that in some situations occasional subsoiling may be desirable to alleviate the problem. Equipment is available that is designed to loosen compacted subsurface layers while leaving the soil surface largely undisturbed. This equipment has been used in the agronomic setting for pasture renovation and reduced tillage farming.

The Janesville pilot study demonstrated the potential usefulness of both the soil penetrometer and microscopic examination of soil thin sections as techniques for evaluation of aerification. Soil physical properties, such as air and water permeability and particle and pore size distribution not evaluated in the Janesville study, would be essential to provide a more complete appraisal of the soil physical environment. Extensive studies at various locations would be necessary to answer the questions raised earlier in this article, and would not be limited to evaluation of soil physical parameters but would also include a variety of management variables and estimation of plant growth parameters.

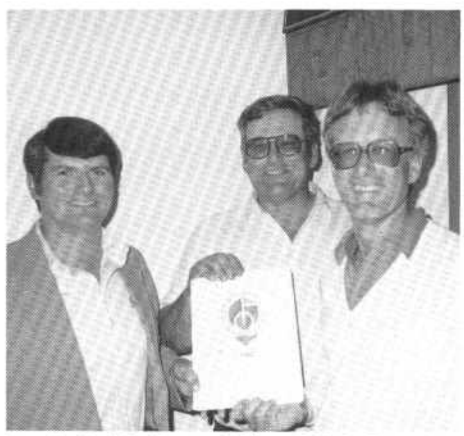
Acknowledgment — The authors wish to thank Dr. James R. Love, Department of Soil Science, University of Wisconsin—Madison and Bruce Schweiger, Superintendent and Bob Markham, Assistant Superintendent of the Riverside Golf Club for their advice and assistance during the course of the pilot study.

Editor's Note: Dr. Birl Lowery is an Assistant Professor in the Department of Soil Science in the University of Wisconsin—Madison. He has a B.S. degree in Agricultural Education from Alcorn State University, an M.S. degree in Agricultural Engineering Technology from Mississippi State University and a Ph.D. in Applied Soil Physics from Oregon State University. Dr. Lowery's research interests include CT effects on soil water and temperature regimes and plant growth, as well as the effect of soil compaction on plant growth.

Dr. Kevin McSweeney is also an Assistant Professor in the Department of Soil Science at the UW—Madison. He has a B.Sc. in Geology and Botany from the University of Sheffield, England, and a M.S. and Ph.D. in Agronomy—Soil Science from the University of Illinois—Urbana. His research interests include soil genesis and morphology with special emphasis on the application of microscopy to the study of soil structure.

LIKE OUR DIRECTORY? GIVE THESE GUYS THE THANKS!

The 1985 WGCSA Directory is probably the best we've ever published. Next time you see Dale Marach, Randy Smith or Roger Bell, give them a "thank you" for the great effort they did in assembling the material, organizing it and getting it printed in first class fashion.



Randy Smith, Roger Bell and Dale Marach.

GCSAA Mid-Year Conference and Show

The Golf Course Superintendents Association of America Mid-Year Turfgrass Conference and Show will be held at the Hoosier Dome in Indianapolis, Ind., Sept. 19-24, 1985.

This new conference represents an extension of GCSAA's education program and will offer extra opportunities for improvement to those in the golf course and turfgrass management profession. It will bring some of the nation's top researchers, educators, golf course superintendents and turfgrass managers together for this unique educational conference.

The conference will feature seven of GCSAA's most popular continuing education seminars, staff technician training courses, a national 'selling and buying' type exhibition trade show, a turfgrass research conference, a golf/turfgrass market research workshop, an outside turfgrass equipment demonstration and a national golf championship to benefit turfgrass research.

"September is an excellent time for manufacturers and distributors of golf course equipment and supplies to demonstrate their products," said GCSAA Persident Eugene D. Baston, CGCS, "as this is the time of the year when golf course managers plan purchases. We believe this mid-year conference will be very beneficial to our members and to our advertisers and distributors," Baston explained.

"GCSAA members have expressed a need for information that will assist them in training their own staffs. With this conference, we will be answering those needs," said Baston.

The staff technician training courses will be 'hands on' instruction by the direct involvement of manufacturers. Courses will be offered in equipment repair and maintenance; irrigation equipment operation, repair and maintenance; pesticide safety and applications; and golf car repair and maintenance.

The trade show will allow companies to offer show discounts and purchases on site and will feature an outdoor equipment demonstration area where superintendents can actually test the latest equipment.

The turfgrass research portion of this mid-year conference will gather more than 20 of the nation's leading scientists presenting updates on all major turfgrass research being funded with GCSAA's support. Papers on other research will also be presented.

The GCSAA is making plans to present 7 of their most popular continuing education seminars. Seminar topics should include: Advanced Computer Applications; Negotiating; Golf Course Design Principles; Business Communication & Asertiveness Techniques; Personal and Managerial Productivity; Basic Turfgrass Botany and Physiology; Advanced Irrigation Systems Management.

A one-day golf championship will be played with the proceeds going to further turfgrass research. Many affiliated golf course superintendent associations hold similar golf championships, but this will be the first national golf championship specifically to benefit turfgrass research.

"We hope this mid-year conference, and the central location, will allow companies and courses to send more of their employees and staffs to participate in the hands-on training being offered," Baston said.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THE LOMBARDI "The legend lives and the opposition is Cancer"

By Mark Kienert

Perhaps no other name in the history of the sporting world is as symbolic of the best of what a product has to offer as does the name Lombardi toward teamwork success in the National Football League. It is with this same approach towards teamwork success that organizes Wisconsin's largest single-day Celebrity-Amateur golf tournament.

The Vincent T. Lombardi Memorial Golf Classic was established in 1971 about one year after the famed Green Bay Packer coach died of Colon Cancer. It was the idea of Don Tendick Sr., who was chairman of the golf committee of the North Hills Country Club and others to hold a golf tournament to raise money for Cancer research. That first Classic raised $20,000 for cancer research and was donated to Georgetown University and the American Cancer Society. Realizing the potential of the classic, the Lombardi Board of Directors in 1972 established the Vincent T. Lombardi Colon Cancer Clinic at the Medical College of Wisconsin. To date, $757,052 has been donated to the Lombardi Cancer Clinic. This money is used as seed money to initiate pilot projects, which if promising in their results, qualify the project for more extensive government and private grants.

Today the Lombardi Cancer Clinic addresses the second and third most frequent forms of Cancer. Colo-rectal cancer is second only to lung cancer in frequency claiming 114,000 new cases last year and 53,000 deaths last year according to the American Cancer Society figures. Breast cancer follows closely with an estimated 109,000 new cases and 36,000 deaths last year. 2,306 patients from around the Midwest took advantage of the clinic in 1984, which is unique because it offers the diagnostic services of its professional staff free of charge. Through its patient care and research work, the classic and clinic increases the lifetime survival chances of Cancer victims by providing convenient access to early detection screening programs and the most techniques in Cancer management. Early detection screening is crucial for optimal management of Cancer.

My youth was shaped by the Sunday Gladiators who wore the "green and the gold." Growing up in Waupaca and starting my career as a caddy at the Waupaca Country Club, opened doors for me to cross paths with the famed Packer coach. It was at the NEWGA 2-man best ball tournament held at the Stevens Point Country Club, Circa 1968, that I was brought in to caddy for our own members playing in this tournament. That day our foursome played one group in front of the coach. I remember best his downhill putt on the old 16 or 17th. It was a two-tiered, severely sloped green. The pin was cut on the lower level close to the break of the two. The coaches ball was above the hole at about ten feet. A member of our group had that same putt and missed leaving himself with a longer putt coming back. The Coach stood over his ball. His face was a picture of intensity as he eyed the break of the putt. With one clean movement the ball was stroked toward the hole and "Wham," was drained for a birdie. Why that ball never picked up speed or deviated from line is a mystery to me, but I'll bet it knew that if it didn't go in, Hell would be paid for on the next tee shot.

I remember after the round waiting by the old clubhouse when I looked up to see this man coming towards me looking out at me from behind those sunglasses that probably hide many a stare that turned even the strongest of veteran ball players into Jell-o. This was one face that even Foster Grant couldn't hid the expression he chose to wear. It was then with heart racing and desert-like throat that I weakly squeaked out a "Hell-Hell-o CoCoCoach Lombardi." That warm broad smile registered on his face and a resounding "Hell-o Son," filled the air. I just stood there in awestruck honor. At the age of fourteen he was my first seen-in-person celebrity.

Actual preparation for the tournament starts as soon as the last one ends. Our part of the grooming operation starts as soon as we get enough of our summer help back from school to start sand trap edging operations. Actual golf course preparation varies little from day to day. It just becomes more intensive. All management tools are used to get the course to peak on that one Saturday in June.

You get the feeling something big is about to happen about one week before the event when delivery of two 30 yard trash dumpsters are parked in front of our doors. Next, the delivery of eighty brand new Buicks complete with Michigan plates arrive plugging up our already "too small" parking lot. These are the courtesy cars used by the celebrities and participants. The big top tent is erected on Wednesday and is barely finished for Friday night's activities. This tent is surrounded by three smaller tents that each serve a particular purpose. This is the first time I have ever seen a big top with chandeliers. This tent holds a mainstage, dance floor and enough table space to seat and serve 500 people.

Karen Kienert and daughters Cara and Cassie with Bart Starr.