

35th

ANNIVERSARY

Product research and the quest for better, more efficient tools and control products never ends, as these company histories will show.

Welcome to "Looking Back." It's our 35th Anniversary retrospective of green industry product developments that have made the work you do far more safer, productive and efficient.

Anyone who's been in the industry since 1962 or thereabouts could tell you how much products have changed, and how many have come and gone down the pike to ultimate acclaim, or total oblivion.

Today's mowers, aerators, dethatchers, and all kinds of other turf cutting machines are so much better than they used to be thanks to lightweight metals, improved engine and fuel science, and safety mecha-

LOOKING BACK

nisms. And let's not forget product design. (Nothing wrong with wanting it to look good, too!)

Chemical science has also taken a series of small and giant steps, as agricultural management principles were applied and adapted to turf and ornamental care.

We thank the companies who were able to provide us with these brief glances back to the green industry of the 60s, and forward to what may be yet to come. Thanks to AgrEvo; Bunton; John Deere; Encore; Jacobsen; Kubota and O.M. Scotts for their help with this section.

And certainly, LANDSCAPE MANAGEMENT wants to thank these companies, and many more, for their advertising support through the years. We wish them all continued success in their respective green industry businesses.

-The editors

[TIMELINE]



Chemical turf market evolves from ag to golf

Golf course superintendents use products that had their origins in agricultural or industrial markets.

By DON MASKE,
AgrEvo Environmental Co.

W

hen I first started working on golf courses as a high school student in the late 1950s, many of the chemical products used on golf course turf were the same products used in the agricultural and industrial markets. Companies were selling mostly mercury and lead-based products like Calo-Clor and lead arsenic, and the most widely used insecticide was chlordane.

At that time, agricultural chemical company representatives spent some limited time in what was called the "golf course market". There was no lawn care market segment. Most of the golf course superintendents were not college trained, though some where. In the late 1950s and early 1960s, turf programs were established at the various universities—Penn State, Michigan State and the University of Massachusetts to name a few.

I received my turf degree from Penn State in 1965, worked as an assistant at the Philadelphia Country Club, and then went into the service.

From links to sales

Upon discharge, I became golf course superintendent at Cold Spring Country Club on

Long Island and then was hired in 1969 as a Midwest sales representative for TUCO, Division of the Upjohn Company. They produced one of the first products marketed specifically for turf usage—Acti-dione, an antibiotic fungicide (now off the market).

TUCO also was one of the first companies to have sales reps who made end-user calls in the golf course market.

But the golf course business

wouldn't support a separate sales force, so I also sold products for the tobacco and fruit and vegetable mar-

kets, covering several states from my Chicago base.

DuPont, with Bob Miller, and Mallinckrodt, with Stan Fredericksen, were two major chemical firms active in the golf course market at that time.

Eventually, the turf markets grew and major manufacturers formed their own turf product groups, to concentrate on the golf course market, lawn care industry and roadside vegetation management.

2,4-D was all we had

In the early years, weed control was limited to 2,4-D or dicamba for dandelions on golf course fairways. Superintendents used little or no preemergence crabgrass material. I can remember digging out crabgrass plants by hand from fairways at Olympia Fields in Chicago, where I worked during college.

In 1964, there was a huge Pythium outbreak in the Chicago area.

The only thing to use at that time was hydrated lime in an attempt to dry out the surface moisture. Because so many superintendent jobs were at stake, the Chicago District Golf Association held an

educational meeting to make club members aware of the seriousness of the problem. We didn't have Banol fungicide or any of the other modern products that now control Pythium.

Acti-dione for spots

One of the first affordable disease programs on fairways



Maske:
golf course aesthetics today far ahead of early '60s.

was the Acti-dione program that came out in the late 1960s. Back then, dollar spot and leaf spot were considered the most damaging disease problems, and Acti-dione controlled both. But brown patch could not be controlled economically and there was nothing that could be used for Pythium. The early products were mostly contact materials that would last only seven days. Now, we're using long-lasting materials, so we make fewer applications and the amount of total product used is much less.

Back when I first got into the business, most of the formulations were wettable powders and emulsifiable concentrates. Products came in paper bags or steel drums. Now formulations and packaging tend to be more user-friendly, in the form of dry flowables or water-dispersible granulars. Companies sell products in water-soluble packages or closed systems, limiting worker exposure. Use rates of newer products are much lower than they were in the 1960s and 1970s. For instance, for vegetation management we see herbicides used in tank mixes at rates as low as half an ounce per acre.

Lightweight equipment

One of the biggest changes I've seen in the golf course industry has been the shift from heavy, tractor-driven or pulled mowing equipment to the use of lightweight mowing equipment on fairways. Weakened turf often resulted from mechanical damage caused by this heavy equipment, allowing invasion from the ever-opportunistic *Poa annua*. In the last decade or so there has been a tremendous shift from predominantly *Poa annua* or *Poa/bentgrass* fairways to mostly bentgrass fairways on northern courses. I feel this is due largely to improved management programs which include lightweight equipment, clipping collection, better irrigation practices, and broader-spectrum chemical spray programs.

Pick up the clippings

In my early days if someone had told me they were going to collect clippings on 30-40 acres of fairways, I would have thought that ridiculous. But now superintendents do this routinely. This accomplishes several things: removes some *Poa* seed, reduces heat buildup from clippings, which tends to stress turf, and eliminates a possible source of disease buildup. In addition, superintendents have reduced nitrogen usage, so that clipping production is minimized, and the grass is not as succulent.

Golf course appearance was much different then. Watch the *Golf Channel's* highlights of past tournaments and notice the mowing patterns, grooming and other conditions. With the popularity of Arnold Palmer, the public began watching golf on television, and the country club members began demanding better conditions.

Courses look better

Recently I saw footage from the 1964 U.S. Open at the Congressional Country Club in Bethesda, MD. The course was groomed much differently from when the Open was played there again this year. New equipment and methods allow shorter mowing heights, contouring and striping. Aesthetically, there's no comparison.

Mergers, acquisitions and consolidations have reduced the number of players in the turf product marketplace. Since I began working for TUCO, the company has merged and reorganized several times—changing into NOR-AM Chemical Company and now to AgrEvo Environmental Health. Today the registration process is more difficult, and it's more costly to bring a product to market. More money is required to defend registrations, diverting funds from new product research.

—Don Maske began with the TUCO division of The Upjohn Company in 1969. He now covers the Midwest for AgrEvo Environmental Health, Wilmington, DE.

1962:

"Weeds & Turf" debuts as the first magazine to cover the professional turf care industry. ALCA forms to serve the professional landscape contractor. Dan Dorfman's Lawn-A-Mat lawn care company on Long Island is one year old and starts offering franchises.

Millard C.

Dailey's

Liqui-Green

lawn care

program gains

increasing

homeowner

acceptance.

James Beard fin-

ishes first year of

15-year teaching stint at Michigan

State University.



1964:

John Deere's 110 model tractor

introduced nationwide after successful pilot project to dealers east of the Mississippi.



FERTILIZERS GROW: heavy grades to polymers

Turfgrass nutrition has gone from agricultural products to sulfur-coated ureas to polymer coats.

by EUGENE
MAYER/The Scotts
Company



Fertilizer is widely used by people growing any type of plant material, including turfgrasses and orna-

mentals. Like other items we frequently come in contact with, it's often taken for granted. Fertilizer users recognize the various types such as soluble, ag grade, organic, blended, homogeneous, and slow release. Slow- or controlled-released types indicate technologies such as methylene urea, ureaform, IBDU, SCU, and, recently, polymer-coated.

Few products to use in 1960

Do we remember (possibly a few do) or do we understand that there was a time when the fertilizers that we take for granted today were not available for us to manage plant growth and health? Time marches quite rapidly, but as recently as 35 years go many of the fertilizer technologies we routinely use were only just becoming commercialized or were not even on the drawing boards. In the early 1960s and before, the most readily available forms were agricultural-grade heavyweight fertilizers that were of poor physical quality and, with the slightest

misapplication, prone to burn and even kill the plant. The only safe and slow-release fertilizers were the natural organics such as manures, animal by-products, and grain meals.

These generally were difficult to handle, had a strong, unpleasant odor, were not easily accessible, and did not deliver good value for the consumer.

As other technologies have been invented or improved over the past few years, so have fertilizer technologies. Ureaform and methylene ureas were first manufactured for commercial use in the late 1950s and early 1960s. This itself brought on a revolution in fertilizer technology for the homeowner as well as the professional. It provided for lightweight fertilizer plus controlled or slow release, which would provide spoon speeding and predictable response rate to the plant.

Methylene urea arrives

One of the most memorable experiences of my younger years was working in Scotts' fertilizer plant when the first bag of homogeneous, lightweight, high-analysis methylene urea turfgrass fertilizer was produced on a commercial scale. There was only one prod-

uct, and this served the homeowner as well as the professional. Today there are many choices based on plant needs, both for the homeowner and the professional user.

Easier as tech improves

Other slow-release fertilizer types were soon to follow. IBDU was released in the mid 1960s, as was the first polymer-coated fertilizer, Osmocote. The sulfur-coated ureas started to surface on a commercial scale in the late 1970s and early 1980s. The polymer-coated fertilizers were at a standstill until the early 1990s, when new polymer coatings were developed that were more acceptable for turfgrass growth. These are now widely used in the turfgrass and ornamental industry.

What is in store for the 21st Century? New and better technology, I am sure, for research on plant nutrition and improved fertilizer efficiency continues at a feverish pace by industry, government agencies and universities. This builds on what has transpired over history and the last 35 years.

—Eugene Mayer is manager, training & technical support, The Scotts Company.

How tiny Beatrice, Neb., became a big player in the commercial turf mower marketplace.

By W. H. "DICK" TEGTMEIER

After high school I didn't have the financial ability to go to college and, therefore, at the age of 17 ventured into the construction field for four years. At the time I moved to and settled in Beatrice, Nebraska, in 1960, where I was able to find a position in the Engineering Department at Dempster Industry.

In 1966 I was employed with F.D. Kees and continued working there for 17 years. In 1976 I drew up their first entry into the commercial mower market on a contract basis. They have now merged with Yazoo Mfg. Co.

Due to personal reasons and opportunities I co-

'Mower city' U.S.A.

founded Exmark Manufacturing in 1982. I again developed a line of commercial equipment. Exmark grew to approximately \$50 million sales in 1997 and sold to Toro in 1997.

In 1988 I saw an open door or I felt an opportunity to start another company in the commercial mowing market and started Encore Manufacturing Company. Next spring we will celebrate our 10th anniversary. So now we at Encore are the only privately held lawnmower company in Beatrice, NE.

The positive impact to the Beatrice, NE, community (a community with approximately 13,000 residents) is significant as approximately \$70 million dollars worth of mowers have been shipped collectively from the three companies.

The first eight years of Encore our average growth was 22 percent annually. However, we showed a 49 percent growth this past fiscal that ended June 30, 1997.

—Dick Tegtmeier is founder and president of Encore Manufacturing, Inc.

1965:

The Lawn Institute, directed by Dr. Robert Schery, is 10 years old.

1966:

O.J. Noer, respected golf course consultant, and one of the developers of Milorganite fertilizer, dies at 76. ("If the greens turn yellow and the chairman is sore, what is the remedy? Ask O.J. Noer.") Michigan State offers 18-month course in Turf Management. ALCA moves headquarters from Berkeley, CA, to Washington D.C.

1967:

California boasts 665 golf courses, up from 234 just a decade earlier. American Sod Producers Association forms. Anthony Giordano and Robert Magda begin franchising Lawn Doctor, founded several years earlier in Wickatunck, NJ. About 2,200 people attend 37th annual GCSSA Turfgrass Conference and Show in Kansas City, MO.

Mowers get lighter, faster and more efficient as the years go by. Next step: plug in to efficient electrics.

For Jacobsen's and Bunton's take on equipment technology over the years, we have excerpts from interviews with Tony Saiia, vice president of customer service and technical support for the Jacobsen Division of Textron, Golf Course Equipment; and Joe Santangelo, Bunton's senior regional service manager. Jacobsen purchased Bunton in September of 1996.

turf damage."

Q. *How were fairways mowed 30 years ago?*

Saiia: "When I joined Jacobsen in 1971, the predominant method for cutting fairways was with gang mowers, pull-type mowers, and ground-driven mowers like the Jacobsen F-10 turf tractor. Everything was mechanical. There were no hydraulically driven lightweight fairway mowers like there are today. All greens were mowed by hand with



Tony Saiia: looks forward to electric drive technology.

Q. *Has cutting height and quality always been important?*

Saiia: "If you look at turf practices 30 years ago, a quar-

Mowers: lighter, more productive, better cuts

Q. *Tony, what has happened in the golf course equipment industry over the past 30 years?*

Saiia: "The entire industry has been evolving to meet changing demands in turf equipment and developments in turf practices. Key drivers in this have been the push toward higher productivity and the need to improve the life and reliability of the equipment.

"There have also been changes to make the equipment fit better with turf. Mowers have become lighter to prevent turf damage. Environmental concerns have also grown to affect the turf equipment market—including emissions from engines, noise pollution, the potential for equipment leaks, and anything that could cause

walk-behinds. Then Jacobsen introduced the first riding triplex greens mower, the Greens King, in 1969. We also later introduced the first diesel-powered Greens King. That wasn't as easy as it sounds because everyone was concerned with the amount of weight on the greens.

"Diesels were notorious for being very heavy. We could solve the weight problem on the gas-powered Greens King with large tires and lightweight components. With the diesel models, we had to pioneer the use of new lightweight, compact diesel engines."

ter-inch was a typical cutting height, even on greens. And maybe three-quarters of an inch on fairways. The demand for lower cutting heights on greens and fairways came from the golfer. If you want faster green speeds and a more manicured look on fairways, you need to cut lower.

"Mowing equipment had to meet that demand. And turf maintenance practices had to change, along with the development of aeration and vertical mowing equipment.

"The Jacobsen Turf Groomer is an example of an innovation that helps deliver



faster green speeds while providing relief for shorter and shorter cutting heights. The idea for the Turf Groomer came from the industry--from a superintendent who saw the need. We partnered with him to bring the product to market in 1987."

Q. How have walk-behind mowers changed in 30 years?

Sailia: "Now they have the capability to cut lower, to utilize attachments like brushes and the Turf Groomer, and they're quieter. Years ago, golf courses tended to be out in the middle of nowhere. Now they're part of housing communities. Mowers had better be quiet because they're running at 6 a.m. near someone's bedroom.

"This suggests the next logical step--the electric power triplex mower. It's one reason we developed and introduced the Greens King Electric this year. It answers the needs for a greens mower that's quiet, productive, and delivers a fine quality cut."

"Productivity will continue to be the driver, as well as the need for a better quality of cut.

Q. Joe, how has commercial landscaping equipment changed in the 12 years you've been with Bunton?

Santangelo: "Back then we were proud to sell a 52-inch walk-behind with an 11-hp engine. It did an excellent job and no one complained about it. Now, 11-hp isn't enough for a 36-inch mower. The industry is in a horsepower race now.

"There have also been changes in what we ask our mowers to do now. Ground speed, quality of cut, and mulching capability are much more important to the landscaper. All of these require a machine that has more horsepower.

"Productivity and quality depend on operator comfort. Bunton has gotten better at designing and building equipment.

Componentry is one factor. We went to overhead-valve engines, which are much more efficient in terms of ecology. They also put out more power per pound of engine. The torque curves are better, different types of hydraulic drive units are now available, and bearings are getting better."

Q. How have commercial riding mowers developed?

Santangelo: "Riding mowers have definitely gone through transitions. Fourteen years ago there were maybe three zero-turn riders in the industry and a number of out-front, rear-steered mowers. And there were still some tractor types.

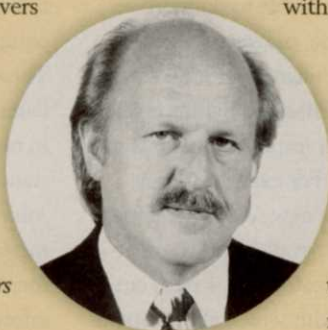
"The zero-turn riders have taken a pretty dominant position in the rider market today, along with large-area walk-behinds. And now we're stepping forward with 31-hp and 72-inch decks."

Q. What changes have you seen in the commercial landscape customer?

Santangelo: "Today, I see much larger landscape companies instead of two guys with a pickup truck and a trailer. I also see more consolidation of companies into larger and larger ones. These are professional organizations. They have corporate office buildings, fleets

of trucks, computers and cell phones. They're sophisticated and they're looking at profit margins and equipment costs.

"These companies demand more of manufacturers, which is why we keep working to develop better, more efficient products."



Santangelo: industry in a race for horsepower.

68:

Benzimidazole fungicides developed. Includes benomyl and thiofanate-methyl, first curative, systemic fungicides, can be used at lower rates. First Ohio Turfgrass Foundation Conference.

1969:

Widespread winterkill of Bermudagrass in Midwest. ChemLawn sales hit \$218,000. Musser International Turfgrass



Foundation is formed, by a group that includes Drs. Al Wilson; Joe Duich; Warren Bidwell; Fred Grau and Eb Steinegger. Joe Vargas named head of Turfgrass Disease Research at Michigan State. Joe Duich writes his doctorate on Merion Kentucky Bluegrass.

Jacobsen "Greens King" triplex greens mower is brought to the golf industry.



35th

ANNIVERSARY

Growing green

The John Deere Co. reports on advancements that have made mowers easier and safer to operate.



Many companies seek to meet or exceed ANSI safety standards in mower design features.

quickly and easily to switch over from one job to another efficiently.

Safety initiatives

Another area of primary concern to manufacturers of commercial grounds care equipment is safety. The American National Safety Institute sets safety standards for equipment manufacturers. These are not federal mandates, but many companies try to meet or even exceed the standards they set. For instance, John Deere includes a safety message in every advertisement, gives operational and safety videos in English and Spanish, uses bilingual decals on equipment, and equips machines with safety shielding. A variety of operator's presence controls are also present.

Manufacturers are challenged to design and build equipment that can be operated safely, at peak performance over its lifetime and is constantly improved to meet the ever-changing demands of the commercial customer.

Over the past 35 years the green industry has grown exponentially. Many changes have occurred with this growth, including the way commercial equipment is both built and used. Productivity, durability and versatility are major points that manufacturers consider when designing new machines.

Commercial mowing professionals are constantly seeking ways to mow larger areas in less time to save money. Manufacturers are doing their part to design machines that are higher in quality, more durable and have very little downtime. Enhanced customer support, which includes better trained technicians and parts services, are also increasingly important to commercial operators.

Generally, commercial equipment is being designed to be more powerful while being fuel-efficient and running quieter. It's also being designed to perform a multitude of jobs in a variety of conditions. Manufacturers are working their hardest to ensure that there's a machine on the market that can meet the challenge,

whether it's higher, thicker turf or moist conditions.

Capacity increase

To be able to do more in less time, mowers are now being designed with wider cutting widths and tighter turning radii for improved maneuverability. For example, John Deere's new wide-area front mower, available in summer 1998, features 11 feet of cutting width which allows operators to groom large open areas in half the time of traditional 72-inch mowers, saving both time and labor costs.

The variety of available attachments has also increased the commercial landscapers' productivity. Most tractors can accommodate attachments such as snow blowers, brooms, blades and tillers as well as side-discharge and/or mulching mower decks. Most of the attachments can be connected

For companies like Kubota Tractor Corporation that distribute "tools of the trade", the green industry has become an important growth segment.

KTC entered the U.S. market 25 years ago, at a time when major tractor manufacturers were in a horsepower race. KTC saw niche opportunities with the small farmer and rancher whose needs required a compact, durable and maneuverable tractor. At that time, under 40-hp tractors accounted for just 10 percent

Compact tractors filled a 'smaller' need



National Future Farmers of America (FFA) officers recently visited Kubota Tractor Corporation headquarters in Torrance, Calif. From left, Mike Heitman, Kubota director of marketing; Rachel Fehring, FFA western regional vice president; Robin Killian, Kubota senior vice president of sales and marketing; and Charlie Jones, FFA southern regional vice president. Kubota Tractor Corporation is a co-sponsor of the National FFA Nursery/Landscape Career Development Event and the Specialty Crop Production Proficiency Program.

of the tractor market. Today, because of the increased use of smaller models within the entire green industry, these compact tractors enjoy sales equaling almost 40 percent of the market.

The discovery of Kubota's trademark orange tractors wasn't by accident, however. Technological breakthroughs, features not available on any other tractors in the world, made people in the green industry take notice of this relative newcomer.

CARB certification

Kubota was the first manufacturer to receive CARB certification on its under 25-hp diesel and gasoline engines.

Kubota's 2- and 4-wheel drive F60 Series front-mount mowers (60" or 72") were developed specifically for the commercial turf maintenance market. Features include state-of-the-art Auto-Assist 4WD with Dual-Acting Overrunning Clutch System for exceptional maneuverability and a single-pedal operated hydrostatic transmission for easy directional changes.

Tomorrow's tractors for the green industry will be even more user-friendly, more efficient machines designed to handle bigger jobs with fewer people, all resulting in reduced overall costs by offering more production.

1970:

National Golf Foundation puts cost of building a new, 18-hole golf course at between \$200,000 and \$2 million. U.S. Plant Variety Protection Act. New England tree care firms battle ban on open burning of wood.

1972:

Federal Fungicide, Insecticide, Rodenticide Act (FIFRA) becomes law; it is hoped FIFRA will preempt duplicate local laws. Liqui-Green lawn care begins offering franchises.

1974:

The USGA revises its "Specifications for a Method of Putting Green Construction," originally published in 1960. More revisions appear in 1989



and 1990. First New Jersey Turfgrass Expo replaces annual January conference. ALCA has 400 members, PGMS reports 600, and GCSAA about 3,800 members. Robert Felix named executive director of National Arborist Association.

35th

ANNIVERSARY

Research milestones

*Better turfgrass varieties.
Land grant universities.
Stewardship. Many people
and their ideas have helped
the green industry grow.*

The most significant milestone in the green industry over the past 35 years was the removal of chlorinated hydrocarbon compounds, such as chlordane, as a means of controlling insect and weed pests in turfgrasses.

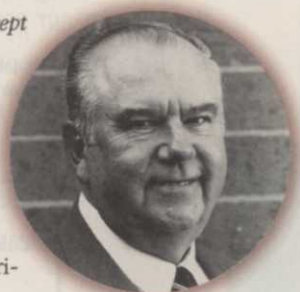
These persistent compounds had a long-term, negative impact on beneficial organisms, which, in turn, exacerbated thatch buildup and development of insects resistant to this class of compounds. Despite their efficacy, the environment is far better for them having been removed.

A second milestone would be the introduction of the concept of IPM, which among other things, created a conservative attitude toward the use of pesticides among turfgrass managers and created opportunities for the exploration and development of natural agents to suppress damage from a broad range of turfgrass pests. There is no question that the principles of IPM are sound, however, the concept must remain flexible to allow for integrating new methods and materials as they are developed.

New compounds

Finally, the recent EPA labeling of compounds such as imidacloprid (Merit) and halofenozide (Mach 2), which have a significantly reduced impact on the environment, and at the same time, have an extended residual activity. Compounds such as these should reduce the frequency with which insecticides need to be applied to control damage from insect pests of turfgrasses.

—Dr. Harry Niemczyk, Emeritus Professor, OARDC/The Ohio State University, Dept. of Entomology, 1997.



Niemczyk: a better environment.

Better turfgrass management

All Across America today, we enjoy the benefits of superior turfgrass management. Home lawns are more attractive, sports fields and golf courses are more playable and roadsides have less erosion.

It hasn't always been this way, and we

have many people to thank for the advancements made in turfgrass culture. But the group most responsible are turf scientists at our land grant universities. No two turf scientists would agree as to which findings have contributed the most to this ad-

ones

vancement, but I believe the following list includes the most significant contributions.

1) USGA specifications for putting green construction. These greens are the best playing surfaces in sports. Transfer of the technology to sports field construction has virtually eliminated muddy football games.

2) Effective and affordable herbicides. Billions of dollars have been spent to find the right compounds to selectively reduce undesirable weeds without harming the turf.

3) Professional lawn care. These companies have the equipment and the know-how to safely fertilize, control weeds and insects and provide other lawn services homeowners need.

4) Slow-release, non-burning nitrogen fertilizers. Especially isobutyldiene diurea and thin layer polymer and sulfur-coated urea. These slow-release products reduce "chemical burn" and reduce the potential for nitrogen loss through leaching and runoff during heavy rain.

5) Better turfgrass cultivars. In the south, Tifton hybrid bermudagrasses revolutionized the golf industry and sports field business. For homelawns in the deep south, Floratam St. Augustinegrass, a chinchbug and virus-resistant cultivar was significant. In cooler regions, turf-type tall fescue cultivars provide homeowners with superior lawns. New perennial ryegrass cultivars for lawns and sports fields in the north and overseeding dormant bermudagrass golf courses and sports

fields in the south offer new options. Heat and drought tolerant seeded cultivars of creeping bentgrass are providing superior putting surfaces on golf greens.

6) Better equipment, especially hydraulically-driven reels on mowers provide better uniformity in turf.

7) Water conservation. Improved technology in sprinkler heads, controllers and variable speed pumping systems.

8) Deep tine, deep drill and water injection aerifiers. These enable turf managers to improve the rootzone of golf greens, athletic fields and other heavily-trafficked turf areas.

9) Systemic fungicides. These help turf managers prevent pythium and give them better control of many other serious diseases of turfgrass.

10) Integrated pest management (IPM). Through better methods of insect identification, mapping and more timely application of low volume, more efficacious insecticides, turf managers can obtain safer and more effective pest control.

11) Information. Through professional publications, conference, seminars, field days, trade shows and Extension turf specialists, our turf managers are the best-informed turf managers in the world.

—Dr. Coleman Ward, professor emeritus,
former turfgrass extension specialist,
Auburn University.

[TIMELINE]

77:

Senate subcommittee staff report sharply criticizes EPA's efforts to regulate pesticides. Survey says about 5 percent of the 8 million U. S. homes get lawn care. *Lawn Care Industry* begins publication in July.

1979:

O.M. Scott's *Lawn Care* publication turns 50.

Kubota introduces first compact excavator to

U.S. market. PLCAA forms to serve

lawn care operators.



1980:

PGMS begins its Certified Grounds

PGMS Manager peer review program.

ChemLawn sales hit \$100 million.

[TIMELINE]

1984:

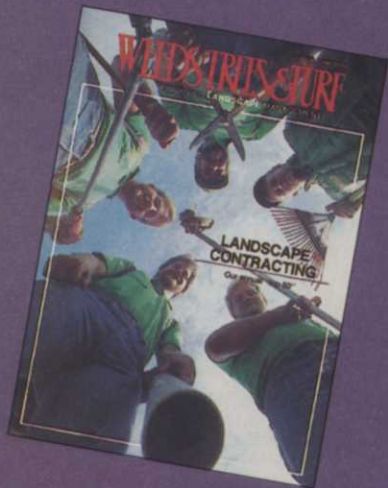


A former lawn care company employee who balanced a murder

defense on chemical intoxication was found guilty in a Massachusetts court. John Deere builds its millionth lawn and garden tractor—an 18 hp, Model 318—on May 1.

1987:

Weeds Trees & Turf turns 25, becomes **LANDSCAPE MANAGEMENT** to reflect larger industry leadership role. EcoLab acquires ChemLawn for \$370 million.



**LANDSCAPE
MANAGEMENT**

Noer's work paved the way

From his beginnings as a graduating soil scientist from the Department of Soil Science, University of Wisconsin, Madison, O.J. Noer went on to become the state soil chemist in 1914, and is credited with helping to establish the first soil testing laboratory in the country.

A consultant before there were consultants

As head of the Milwaukee Sewerage commission Turf Service Bureau from 1926-1960, Noer visited and inspected perhaps 80 percent of the golf courses in North America to advise superintendents on turf maintenance problems.

Noer made many contributions to the diagnosis of turf problems, and wrote and spoke about turf at conferences almost continuously through the period.

The ABC of Turf Culture, his 1928 classic, represents one of the earliest integrated works on the subject.

A friend and advisor to all, O.J. Noer was a man "whose educational backgrounds, broad experience and intimate contact with the everyday problems of those concerned with growing turf qualify him as an outstanding authority in his field.

Noer's name was entered into the Wisconsin State Golf Association's Hall of Fame at the 1985 Wisconsin Golf Turf Symposium. Before and after his death on July 12, 1966, O.J. Noer has been considered a true pioneer in the turfgrass industry.

The O.J. Noer Research Foundation, Inc., was initiated in 1959 by associates and friends of O.J. (Oyvind Juul) Noer, to "honor North America's most widely known, respected and beloved turfgrass agronomist."

Objectives of the foundation are:

- ▶ promote scientific research in turfgrass and related fields
- ▶ train graduate students for conducting said research by offering financial assistance
- ▶ publish research findings for industry
- ▶ receive donations and endorsements

to achieve aforesaid purposes in perpetuity.

For information about the O.J. Noer Research Foundation, Inc., contact the foundation at P.O. Box 1494, Milwaukee, WI 53201-1494.

You can also search the Michigan State University Turfgrass Information Center at: www.lib.msu.edu/tgif/noer.htm

Seeded bermuda an '80s highlight

Improved seed propagated varieties of bermudagrass have been developed during the last decade, as a result of financial support and encouragement from several experiment stations and the USGA.

New varieties

The renewed interest in seeded bermudagrass got much of its spark from the release of Guymon in 1982., and NuMex SAHARA in 1987. These were the first two improved turf-type seed propagated varieties to receive commercial acceptance.

Guyman, although somewhat coarse-textured, is a very cold tolerant variety. NuMex SAHARA is not cold tolerant, but it has improved turf quality with somewhat greater density, shorter stature and darker green summer color than common bermuda.

Three more recent releases—Sultan (FMC-6); Mirage and Jackpot—have performed well in the NTEP trials. They have increased density, finer texture or overall turf quality.

These are exciting and challenging times in the bermudagrass industry. Stay in touch. maybe seeded bermudagrass has a future, back from its beginning 75 years ago.

—Dr. Arden Baltensperger, director of turfgrass research for Seeds West, Inc., and emeritus professor of agronomy at New Mexico State University.

[TIMELINE]

1981:

National Park Service suspends use of herbicide 2,4-D in its 325 parks and recreation areas. Purdue's Dr.

Bill Daniel (shown) leads athletic turf professionals through organizational meeting of Sports Turf Managers Association.



Wisconsin Turfgrass Association forms.

Oscar T. Jacobsen dies, co-founder of Jacobsen Manufacturing Co. in Racine, WI, in 1920. Also credited with developing the first power greens mower in 1924.

1983:

Turf-Seed, Inc. and Pure Seed Testing, Inc. host their first "Field Day" in Oregon's Willamette Valley, home of turfgrass seed production. Event sets a precedent for other seed companies to emulate.

1988:

Diazinon banned from use on golf courses and sod farms. Golf course management industry worth an estimated \$3.54 billion.

More variety in tree care

Tree care is evolving into a multi-faceted industry with increased opportunities in both the commercial and residential markets.

As times change, businesses change. The tree care business is no exception. From the 1960s when brush chippers were a luxury to the 1990s where an emphasis on technical know-how has leveled the playing field, tree care has evolved into a multi-faceted industry.

Gradual growth

In the 1960s, residential tree care was a relatively easy sell for the upscale market. Most companies could maintain a solid base of regular customers and benefited greatly from high retention rates. Regular pruning, spraying, fertilizing and removal provided enough work for the burgeoning market. And the growing popularity of moving large trees to a landscape for immediate effect—as opposed to planting saplings—kept crews occupied during the off season.

Growth was gradual. Over the years, demographic changes have increased residential tree care opportunities. By adding services like landscape development and lawn care, many tree care companies have taken advantage of the growing number of families with two working parents, more disposable income and a desire for a better looking landscape.

In the '60s, dry tree food was the product of choice.

Commercial market expands

This desire for a more appealing landscape also has affected the commercial market.

In the 1960s, tree care companies mostly limited commercial work to basic services. Over time, as commercial properties recognized the importance of a well-maintained



By adding services, like landscape development and lawn care, tree care companies have taken advantage of the growing number of families with two working parents.

landscape for attracting business and high quality employees, many tree care companies have widened their service offerings to earn a position in this lucrative market.

By adding mowing, floral and shrub maintenance, snow plowing and other services, tree care companies have more to offer a market that is consolidating.

Technology has gradually improved to make tree care more efficient. Power saws, once weighing 100 pounds and requiring two workers, have lightened to 15 pounds. Reduced noise levels make them safer, and increased reliability adds practicality.

Brush chippers have become a necessity. Cranes make large tree moving and tree removal much more efficient.

New fertilizer technology

In the 1960s, crew members fertilized trees with dry tree food. They drilled holes in the ground and poured in the material. Progressive advancements in research and development have improved fertilization techniques and today, subsurface liquid injection is a common practice for tree fertilization. Improved materials make plants much less susceptible to leaching, providing longer lasting benefits.

While only a select few tree care companies offered a structured technical training program in the 1960s, time has evened the platform. Technical know-how and work quality have steadily improved across the board since the '60s to the point where competition once hardly a factor, has increased dramatically.

Safety always vital

Safe work practices, always an important part of the business, have evolved from a common sense approach to a sophisticated format. Departments dedicated to safety, instructional videos, weekly meetings and improved gear have helped improve employee well-being. The industry remains dedicated to an accident-free

workplace, both for employee well-being as well as cost-of-claims control.

As the industry moves forward, training and development and increased investment are key elements for growth.

Customers desire and respect high quality service and reliability. Companies with knowledgeable employees and superior customer relations can differentiate themselves from competitors.

—The Davey Tree Expert Company

Davey: service for the century

Jack Joy recently retired as chairman of the board of The Davey Tree Expert Company. Joy began his career in the tree care industry in 1946 as a field employee for the company.

In a 1969 interview with *Weeds, Trees & Turf*, Joy, then vp in charge of sales, noted that "practically, every man working in the field has gone through our school, or else works directly under a man who has."

He described "a Davey man" as being a consulting arborist first and salesman second. This focus on technical expertise has served the company well.

The Davey Tree Expert Company, Kent, Ohio, (incorporated by John Davey in 1909) approaches 2000 committed to providing the most scientifically based, safest and practical tree care services possible. For the past several decades Davey has also provided extensive lawn/landscape services (along with commercial and residential tree services) in selected markets nationwide.

1990:

April is first national "Lawn Care Month." *Lawn Care Industry* magazine survey finds industry serves 10 million. PLCAA "Grasscycling" campaign picks up on Dr. Bill Knoop's 10-year old "Don't Bag It" program for recycling lawn waste. ServiceMaster joins with Waste Management, Inc. Ann McClure named PLCAA executive director. Turfgrass expert Dr. Fred Grau dies in December at age 88. ServiceMaster buys Waste Management's TruGreen.



1991:

PLCAA representatives appear before a Senate panel investigating pesticide notification regulations. Allen James named executive director of RISE, a new organization. U.S. Supreme Court rules that local governments can enact pesticide laws in case *Mortior vs. Town of Casey, WI*.

1992:

ServiceMaster acquires ChemLawn and merges it with TruGreen.

35th

ANNIVERSARY

Industry grows through sense and science

TURFGRASS BENEFITS A CONSTANT OVER THE YEARS

- ▶ *Roadside turf areas provide a stabilized zone for emergency stopping for vehicles that lose control or are in trouble. —Beard 1973*
- ▶ *Working with plants has helped people hospitalized for severe depression, so this type of activity can be of use in combatting everyday blues. —McDonald 1976*
- ▶ *Grasses, as well as other ornamentals, reduce undesirable noise levels by 20-30 percent. —Robey 1977*
- ▶ *Grasses trap much of estimated 12 million tons of dust and dirt released annually into the atmosphere. —Daniel and Freeborg 1979*
- ▶ *Plants absorb gaseous pollutants [toxic emissions] from vehicles, such as carbon dioxide, into their leaves and assimilate them so they help clean the air. —Turgeon 1985*
- ▶ *On a block of eight average houses, front lawns have the cooling effect of about 70 tons of air conditioning. The average home-size central air unit has a three- to four-ton capacity. —Baker 1987*
- ▶ *High quality turf will buffer loss of nutrients in runoff water or in the leachate. —Roberts 1987*
- ▶ *Thick lawns are found to limit pesticide runoff. —Watschke et al 1988*

Improved plant and turfgrass varieties and a better understanding of the Green Industry's duty to society have led to industry growth.

by DR. ELIOT C. ROBERTS

There have been many major advances in the green industry since WEEDS, TREES & TURF magazine began publishing in 1962.

And what fantastic change it has been!

My start was at the University of Massachusetts in 1954. In the years that followed, I have seen six key breakthroughs that have been responsible, in a major way, for the advancement of the Green Industry we know today.

Maturation within the industry

Growing pains can often be uncomfortable. Some of these pains have involved moving on from individual trade secrets to the increasing availability of information of a technical, business and scientific nature to practitioners. Trade journals, such as LANDSCAPE MANAGEMENT and trade associations, like The Lawn Institute, and professional organizations such as the Golf Course Superintendents Association have extended commercial and university-generated scientific and business knowledge to the landscape industry across the board.

Among the most exciting achievements has been the sound concepts for safe use of pesticides on ornamental plants.

Continued stewardship

This must continue on into the next century, with emphasis on responsible use of all chemicals. Responsible Industry for a Sound Environment (RISE), along with The Lawn Institute, have through the years provided leadership for this type of public education. A misinformed public is easily intimidated by a wide range of environmental activists.

A second example might include the "Don't Bag It" program developed in Texas by Dr. Bill Knoop. This concept swept the country because of the sound nature of returning grass clippings to the soil, and the need for the Green Industry to be more concerned about dwindling space in sanitary landfills. This concern is a good indication of maturity.

Ornamental plant improvement

We lived in a different world immediately following World War II. Turfgrass improvement continues to this day as new cultivars join those released by Drs. Jess DeFrance and Dick Skogley of Rhode Island, Professor Bert Musser and Dr. Joe Duich of Pennsylvania State University, Dr. Reed Funk of Rutgers, Dr. Glen Burton of Georgia, and others.

Foliage plants, flowers and woody plant material have also been improved in ways that made possible their better use in the enhancement of the environment.

This advancement must continue into the 21st Century for the Green Industry to meet future challenges.

Soil biology

As a soil chemist by training, the biochemistry of soil systems has been of spe-

'Blades of Grass' was Eliot and Beverly Roberts' whimsical look at benefits of turfgrass, published by The Lawn Institute.



cial interest to me from the start. The root zone, although out of sight, is of basic or fundamental importance to the growth of all plants. The closer plants are crowded together in the landscape, the more this system is placed under stress. Interrelationships between macro- and microorganisms influence plant health and persistence. Soil organic matter as the raw material for humus formation has an important function in the rootzone. And the whole field of growth regulation as influenced by small amounts of bioactivators within the tissue is related to the mineral and organic nutrition of the plant. These advances have opened up prospects for improved ornamental plant cultural practices.

Plant ecology

We hear more and more about the importance of the relationship between plant and animal ecology and the environment. A clear understanding of the principles is required. In the latter instance, "it's the dose that makes the poison." In the former instance, it's the nature of competition between grasses and other herbaceous plants with trees, shrubs and weeds. Many politically correct concepts are based on bad science and false teaching. The underlying basis for ecology—that is, competition—is sound. Advances in the understanding of this have been and will continue to be essential in the further maturing of the Green Industry.

Stress physiology

We've all experienced the relative ease of production and culture of ornamental

plants under ideal conditions. But, more often than not, these give way to too much heat or too much cold, or too wet or too dry, or unreasonable use requirements in the landscape. Professor Lawrence Dickinson, who founded the first school for turf managers back in 1927, lectured on limits of tolerance. That is, limits before stress would cause the plant to be intolerant of existing conditions, and perhaps, even perish. Research has provided data on how much or how little the physiology of the plant can adjust to bring about continued vigorous growth. Dr. James Beard has become an authority and spokesman in this area.

These areas of specialization have provided what I feel were key building blocks needed for the green industry to grow during my 10 years with The Lawn Institute.

These in no way, however, have diminished the importance of product development, testing and competitive evaluation. New concepts in landscape maintenance tools and equipment, in irrigation design and water conservation, pest control and plant fertilization have been of great benefit to Green Industry practitioners during the past 35 years. It's difficult to picture the progress we've made to this point without the help of such pioneers as O.J. Noer, Fred Grau, Tom Mascaro, Jim Watson, Bob Moore and many more.

—Dr. Eliot Roberts served as executive director of The Lawn Institute. He and his wife Beverly run Rosehall Associates, a Green Industry consulting service, from their farm in Sparta, Tenn.

—Dr. Eliot Roberts served as executive director of The Lawn Institute. He and his wife Beverly run Rosehall Associates, a Green Industry consulting service, from their farm in Sparta, Tenn.

1994:

World Cup soccer games played on real grass inside the Pontiac (MI) Silverdome.

1996:

TruGreen/ChemLawn buys Barefoot Grass.

97:

Jacobsen Green King Electric greens mower debuts. New bents from Tee-2-Green tolerant of lowest cuts.

Tom Mascaro (shown), inventor of turf aerator, dies at 81. Ciba, Sandoz form Novartis. B.J. Johnson, Univ. of Georgia, retires.

First fungicide to control all four major classes of fungi marketed by Zeneca as Heritage.

