

# Elon College Combines RENOVATION With CHEMIGATION

For nearly a century Elon College, a small private liberal arts college in Burlington, NC, had maintained its campus landscape like most other colleges, through its physical plant department. A growing enrollment and ongoing construction of dormitories and classrooms were putting a strain on the maintenance staff and condition of the 300-acre campus.

College President Dr. Fred Young knew that just as students and faculty are inspired by certain subjects, so are the individuals on any maintenance staff. He asked Robert Poindexter, vice president of administrative services, to find an inspired landscape specialist to bring new life to the campus landscape and sports fields.

For 20 years, Lewis Simpson had developed a reputation in Burlington as a landscape contractor who did a thorough job. When the college wanted to landscape around new buildings, Simpson frequently got the job. He immersed himself in any project, whether it was a flower bed at a local bank or a school baseball field. He knew the problems involved in growing turf in the transition zone, and in Burlington in particular.

President Young set progressive goals for the campus landscape, including renovation of the college's 25-acre sports complex. Tall fescue planted into the hard clay soil rarely survived more than a single season. The typical result was severe infestation of both grassy and broadleaf weeds. The irrigation system, pump station, and reservoir would become clogged with algae during the summer when the turf needed water most. Fall rains turned the heat and drought stressed fields into mud.

Simpson knew the college was the focal point of the community. He was tired of competing with a rash of new "mow and go" contractors. The first time Poindexter approached him about working for the college, Simpson rejected the idea immediately. But the more he learned about the college's plans, the more involved he became. He wasn't playing hard-to-get. He just knew that if he wasn't working for him-



The Tifway bermudagrass athletic fields are cut three times each week with a triplex reel mower.

self, he wanted to work for someone progressive, someone who would support his ideas and encourage use of new techniques.

In a surprise move, Poindexter offered Simpson the chance to run the campus landscape staff separate from the physical plant department. But there was also a problem with equipment. He would need tractors, pulverizers, rakes, and better mowers. This hurdle was also removed with a commitment to leasing and buying the necessary equipment. Finally, Simpson said yes.

In April 1986, Simpson undertook the assignment of renovating the entire sports complex. The site consisted of three practice football fields, one soccer field, and a baseball stadium. Many people in the community use the track around the soccer field. Each year the college hosts local youth soccer and baseball camps. These fields had the greatest exposure in the community. President Young wanted these facilities to make a good impression.

Most turfgrass managers at private colleges dream about making their sports fields look and play like professional fields. Simpson was determined to get as close as possible by using basic fundamentals of renovation and a sound cultural practice program.

To learn a few of the special techniques used by professional teams, he attended a Mantek Opti-Gro seminar given by Dr. Ed Kajihiro in Atlanta. Kajihiro helped Simpson relate his experience as a landscape contractor to sports fields. He emphasized the interaction of soil texture, irrigation, drainage, turfgrass selection, nutrition, and various soil conditioners.

Two or three professional head groundskeepers speak at each seminar. They go into the fine points of mowing, aeration, topdressing, overseeding, and staff management. They also share their experiences with pregame preparation, postgame repairs, and special events.

Simpson came back from Atlanta armed

*continued on page 22*

with a complete game plan for meeting the president's goals to present to Poindexter. His years as a contractor had taught him how to justify necessary investments for long-term improvements. Since the landscape budget was separate from the physical plant's for the first time, Poindexter could clearly see the benefits of Simpson's request.

All the work was to be performed with campus staff, except for part of the installation of a new irrigation system and pump station. The soccer and football practice fields had previously been irrigated with a single row of heads down the middle. As a result the center of the fields was too wet and the sides were too dry.

For the soccer field, Toro 640 heads were installed around the perimeter. A third row of heads was added for the center of the football practice fields to provide better con-

**The track surrounds the main soccer field. All irrigation heads are located off the field. Since many Burlington residents use the track, the soccer field is maintained to present a good image for the college.**

trol of soil moisture between the hash marks. Smaller heads were used in the infield of the baseball stadium to regulate the amount of moisture for both the turf and the skinned area. Valves and an automatic controller were installed to break the 60 plus heads into zones.

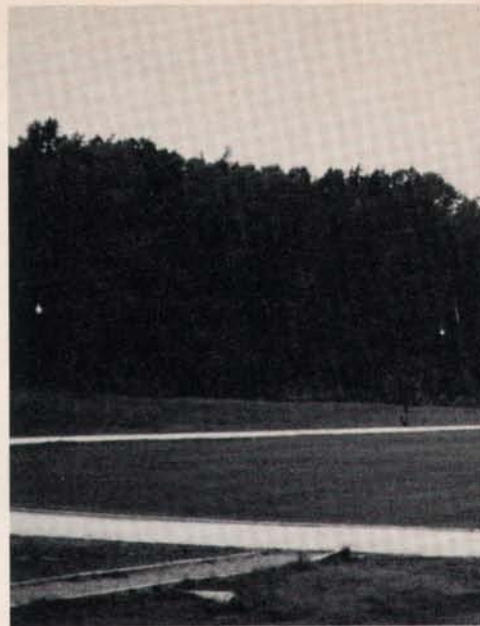
The old pump was scrapped and a new pump house was constructed. The new pump and controller gave Simpson the ability to match the flow rate of the pump to the designed output of the zones. A fertilizer injector pump was added upon the recommendation of Kajihiro.

The big job was rebuilding more than ten acres of turf between the end of spring semester and the beginning of the fall semester. All the fields were seriously compacted and infested with broadleaf and grassy weeds, such as plantain, dandelion, ground ivy, white clover, nutsedge and wild garlic.

Before renovating the fields, a number of things had to be determined. The first was the cause of turf decline and heavy weed infestation. Soil tests carried out by Mantek indicated the primary culprit was poor soil texture aggravated by irrigation coverage. The heavy clay was easily compacted when wet. Compaction decreases soil pore

**Lewis Simpson (left) was a Burlington landscape contractor for 20 years before joining Elon College. He runs the campus landscape department as it were his own business.**

**The baseball stadium (below) receives meticulous care. The infield dirt, edges, and lines are restored weekly. Turf irrigation heads do not spray onto the dirt. Light feeding keeps the bermuda thick and the weeds out.**



space, inhibits aeration and water infiltration, and results in shallow rooting. The tests also revealed the soil was too acid and lacked key nutrients. It was clear the clay soil had to be modified and the pH raised to above 6.5.

Simpson did not want to rebuild five fields. He decided to modify the soil of the baseball stadium and one football practice field with heavy aeration and topdressing. The topsoil of the soccer field and two remaining practice fields would be completely modified by using heavy equipment.

Before disturbing any soil, Simpson applied glyphosate to the sports complex to kill all existing vegetation. He wanted to establish Tifway 419 hybrid bermuda in all heavy wear areas of the campus, beginning with the athletic fields.

After aerifying the baseball stadium and single practice field, the soil cores were removed. A mixture of washed sand and a small amount of peat was spread on the surface and dragged into the core holes.

This also helped smooth the surface of these fields. The task of tilling, amending, and regrading the other three fields was immense. Extra tractors and dump trucks were brought in to pulverize the clay and mix in sand and peat. The pH of the soil was adjusted to 6.8 and two pounds of nitrogen per 1,000 square feet were applied in the form of a 30-5-10 granular fertilizer.

Tifton Turf Farm of Tifton, GA, then sprigged all ten acres of fields with 419. More than 600 bushels per acre of certified sprigs were row planted on six inch centers with a special machine in less than two hours. The sprigging was done in sections to match the irrigation zones. As each section was completed the heads in that zone were turned on.

From the day the fields were planted until the first mowing, a Mantek product called Stimigro was injected into the irrigation water every four days. The liquid 5-20-10 fer-



the spring and more than 2,000 chrysanthemums just for parents' weekend.

Most campus turf is mowed with reel gang mowers three times per week. Simpson is treating the many slopes around campus with Embark growth retardant and iron so he can concentrate his efforts on high wear areas with high visibility. All fields are marked weekly and before big games. He uses a compressed-air, walk-behind sprayer for the lines. Every border, whether it's the edge of the basepaths or the perimeter of plant beds, is trimmed weekly.

Elon College President Dr. Fred Young's intuition and progressiveness are paying off. The private college's enrollment increases every year. Simpson's workload continues to grow as more dormitories and classrooms are built. "I don't mean to knock the physical plant department," states Simpson, "but working directly for the vice president has been a great help to me and to this college. Robert Poindexter is the type of boss who understands the special needs of a college landscape." ●

tilizer containing a root stimulant and hormone helped the sprigs establish rapidly. For the first six weeks the fields were irrigated lightly three or more times a day to keep the soil moist. As the frequency was cut back and the cycle times were extended, Simpson started to inject a soil penetrant into the water.

Chemigation was providing a definite advantage during the establishment period. The light rates of nitrogen, ranging from .005 to .01 pounds, are safe in sandy soils that are not adequately buffered. Frequent application with water and a penetrant permits the nitrogen to be distributed evenly in the soil profile at lower depths. Roots soon follow the moisture and nutrients.

The most important benefit of chemigation to Simpson was the ability to control the growth rate. This is important during spring transition, hot summer days, and overseeding. It is most useful during the playing season when fast recovery is crucial.

Kajihiro and Phil Einstein of Mantek put together a yearly chemigation schedule for each field. Experimenting with irrigation rates and timing, they determined that each field was unique. The baseball stadium and soccer field, which are both overseeded in late September with annual ryegrass, have different needs during the fall and winter. The other fields are carefully fed in the fall to reduce the potential for winterkill.

Two years later, Simpson reports that the hybrid bermuda sports complex is one of the leading attractions to students and their parents when they visit the campus. The football coach told the local newspaper that recruiting college athletes has been no problem since the fields were renovated.

Simpson's inspired work has spread to other parts of the campus. All heavily trafficked areas around campus are being converted to hybrid bermuda. He changes the flowers in the college's plant beds three times each year, including daffodils during



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November, 1989 23

## LANDSCAPE & ENVIRONMENTAL RESOURCE COUNCIL FORMS

Representatives of several green industry groups met last winter in Chicago to establish a national, industry-wide coalition, which will be known as the Landscape & Environmental Resource Council.

Groups represented were the American Society of Landscape Architects, American Sod Producers Association, Associated Landscape Contractors of America, International Society of Arboriculture, Irrigation Association, National Arborist Association, and Professional Lawn Care Association of America.

Establishment of the council recently moved a step closer to reality when elected and staff executives of nine green industry associations met and agreed to draft governing documents for the group.

Participating in this second organizational meeting, at which Randy Tischer, American Sod Producers Association president, served as chairman, were the original participants plus the Professional Grounds Maintenance Society and the Lawn Institute. Those present emphasized the continuing need for a unified voice on issues that affect the represented industries, as well as an improved means to cooperate

with each other more fully on joint projects.

Advancing several projects initiated at its first meeting, the Landscape & Environmental Resource Council agreed to undertake an economic profile survey of its member groups. The council also agreed to circulate appropriate publications in development for review and potential endorsement; expand its listing of educational programs and publications; identify legislative and regulatory issues of potential importance to the groups; define environmental benefits provided by all segments of the groups represented; and develop computer-linking specifications and procedures.

At its next meeting, scheduled for March, the council intends to act on a mission statement. Formal guidelines for governing the organization, issue identification, reporting, public relations, and funding will also be developed.

## VETERAN AGRONOMIST PROPOSES STUDY ON QUACKGRASS

Dr. Fred Grau, a former extension turf specialist and turfgrass breeder, believes that a noxious weed can be turned into a

useful tool for managers of low-budget athletic facilities.

The weed Grau is talking about is quackgrass, *Agropyron rapens*. "Quackgrass is like tall fescue with rhizomes," he states. "It is drought tolerant, requires minimal fertility, and provides a smooth, solid surface for sports such as soccer and football. Its growing range extends from Canada to Mexico. If we devote our energy to encouraging quackgrass instead of trying to kill it, we might be able to provide a better playing surface at low-budget facilities."

Grau realizes his idea is controversial and requires research. The aggressive grass would have to be contained to avoid spreading into other turf areas. Production of seed would be difficult since it represents a threat to the purity of other seed fields and is difficult to eradicate. "We clean thousands of pounds of quackgrass seed out of other crops during processing," Grau points out. "Some of this is purchased by chemical companies working on herbicide efficacy. The rest is destroyed."

Working with Paul Thomas, superintendent of grounds at Towson State University in Baltimore, MD, Grau hopes to plant test plots of quackgrass this fall on an intramural field. The two will compare the durability of quackgrass to zoysia, common bermuda, and tall fescue.



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# EQUIPMENT PREVIEW

An increasing number of manufacturers are recognizing the special equipment needs of the golf course superintendent and sports turf manager. They are designing and introducing new products for large, high-traffic turf areas. Find out more about these new products by circling the corresponding numbers on the reader service card. You don't have to convert equipment to meet your needs anymore. Manufacturers have already done it for you.

## VEHICLE-TOWED AERATOR



Up to 1.3 acres per hour can be aerated by the GA 60 Fairway Aerator. The vehicle-towed unit has a 60-inch swath with a 2½-x4½-inch coring pattern, at an aerating depth to four inches.

Powered by a 33-hp liquid-cooled engine, the GA 60 is towed behind a Cushman Turf-Truckster vehicle, with a unique rubber-isolated fifth wheel attachment. The fifth wheel hitch is easily removable without tools by pulling one pin and backing off one hand screw.

Standard coring tines for the GA 60 are the new non-plugging, open-back type for Cushman's line of Ryan aerators. Several other tine options are available for the GA 60, from 3/8- to 3/4-inch diameter.

The aerating mechanism features four pairs of tine arms, each protected by a slip clutch. The unit is lowered for operation by the Turf-Truckster hydraulic system, controlled by the operator from the vehicle seat. The aerator engine is started and monitored from the Turf-Truckster seat.

When the tines are lowered, the aerator engine automatically speeds up and the clutch engages to start aeration. Forward aerating speed is regulated by the operator with the vehicle's variable speed governor. When the operator raises the unit, the clutch is automatically disengaged and the aerator engine slows down.

The GA 60 is equipped with high floatation tires, weighs 2,020 lbs., and is seven-

feet-six-inches wide. Height of the unit, in transport position, is 42 inches.

**CUSHMAN RYAN**

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## FOUR-WHEEL DRIVE TRACTOR



Built to take on demanding turf and grounds care assignments, the Super Steiner Model 425 is a four-wheel drive tractor powered by a 24-hp, air-cooled Onan P224 Performer engine. A Kubota D950B diesel, 21.5-hp engine is also available for the machine.

Power steering and articulated frame, combined with a low center of gravity and high flotation tires, provide the Model 425 with exceptional maneuverability. Fully hydrostatic, single-lever control allows the operator to choose infinite forward speeds up to 11 mph, and up to eight mph in reverse. Two-speed transaxles provide a choice of "high" or "low" range.

Front mounted attachments offer a wide range of working tools and all of them attach to the Steiner "Quick Hitch." Attachments include rotary mowers up to 72 inches, triplex reel mower, power angle blade, boom mower, power blower, disc edger, snow blower, rotary broom, aerator, and a sand trap blade.

**STEINER EQUIPMENT, INC.**

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## SELF-PROPELLED SWEEPER



Clean-up work can be performed quickly and efficiently with the Olathe Model 48 Self-Propelled Sweeper. The unit has a 48-inch sweeping width, and can sweep a variety of wet or dry debris.

The steel-framed Model 48 is offered with a choice of power plants: a 19.9-hp Onan engine, or an 18-hp Briggs & Stratton engine. Its 1¼-cubic-yard hopper is self-dumping, and activated from the operator's seat. Height adjustment is also controlled from the operator's seat.

Options include truck beds, three-point hitch, aerator, seeder and athletic field conditioner, curb broom, hydraulic door opener, and a Donaldson air cleaner.

**OLATHE MANUFACTURING INC.**

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## SPRAYING BOOM



A new boom for the Hahn Multi-Pro 418 and Maxi-435 features independent electric controls to raise and lower boom extensions by flipping a switch. Without the operator leaving his seat, the boom height can be adjusted to follow the terrain or avoid obstacles.

The new boom will retro-fit all Hahn work vehicles previously produced. For added flexibility, an optional electric carries 150 feet of hose.

**HAHN TURF PRODUCTS**

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# EQUIPMENT PREVIEW

## FAIRWAY AERATOR



Capable of aerating up to 50,000 square feet an hour, the Toro Fairway Aerator has a five-foot coring swath. Coring depth is controlled with adjustment brackets on either side of the unit. The coring unit can be easily adjusted down to five inches in depth, with the two-tine head, and down to three inches with the six-tine head.

All gear drive offers added durability to the aerator. Gears are sealed in cases and run in their own oil baths. A durable main gearbox with pick-off gears allows for match-up to virtually all universal tractors. Two pick-off gears are included to match coring head ratio to the tractor.

A choice of two coring patterns are available for the unit: a five-by-six-inch coring pattern with a depth to five inches, and a three-by-3.5-inch coring pattern with a depth to three inches. In addition, coring head stands are provided so the operator can lock up the coring head for transport, changing tires, or servicing.

**TORO**

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The Easy Liner is a self-propelled machine powered by a three-hp Briggs & Stratton engine. It produces a line which is adjustable from two to five inches wide, and it has two spray nozzles, one for traffic paint and one for water-base paint. Tank capacity is 12 gallons. For operator riding ability, a sulky attachment is available.

Also powered by a three-hp Briggs & Stratton engine, the Stream Liner is a push-type lining machine. Like the Easy Liner, it produces an adjustable line from two to five inches, has a 12-gallon stainless-steel tank, and two spray nozzles.

**SMITHCO**

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## MULTI-USE MAINTENANCE TRACTOR



Built for the ground maintenance professional who has a variety of maintenance jobs, the Bunton 530K Multi-Trac is a heavy-duty multi-purpose tractor. It can handle various mowing, sweeping, and snow removal chores, as well as many other applications.

The 530K is powered by a 52-hp, water-cooled diesel engine. Its transmission has 12 forward speeds to match the speed to the need, from .6 to 18.6 mph, and three reverse speeds. The four-wheel tractor has a front drive axle for superior traction with hydraulically assisted rear steering for ease of operation.

All implements, such as the five- and seven-reel gang mowers, 63-inch sweeper, 150-inch three-gang flail mower, and the 63-inch snow thrower, are front mounted to

maximize operator visibility. The quick connect/disconnect system allows rapid changing of implements without tools.

Features include conveniently located control levers that provide remote adjustment of hydraulically driven implements from the driver's seat. The cutting height of the reel mower can be adjusted from the driver's seat when the reel cutting units are locked in fixed position. With an adjustable valve, the operator can distribute implement weight onto or off of the drive wheels. This hydraulic weight transfer system aids in hill climbing and other high-traction requirements, without the need to raise the cutting units.

**BUNTON CO.**

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## VALVE-IN-HEAD SPRINKLERS



A "family" of valve-in-head sprinklers has been introduced by Buckner. Blending some of the best new technologies with the reliability of the old, the sprinklers combine a cam drive sprinkler and piston valve into a compact package of high-tech plastics, bronze, and stainless steel.

Nozzle pressure can be adjusted and measured at each sprinkler by means of a Schraeder valve which is mounted on the sprinkler head. All models offer adjustable speed of rotation for syringing of golf greens.

**BUCKNER, INC.**

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## LINING MACHINES



Two striping machines for use on athletic fields, parking lots, and streets are available from Smithco.

# EQUIPMENT PREVIEW

## COMMERCIAL EDGER



Designed for professional use along driveways, gardens, and other areas, Lesco's four-wheel commercial edger has excellent balance and stability. In addition, its front wheels are adjustable for edging along sidewalks or curbs.

A nine-position lever adjusts edger depth, down to three inches, and engages and dis-

engages the hardened, high-carbon, 9½-inch reversible blade. The edger has full steel deck construction, and is powered by a three-hp, single-cylinder, air-cooled Briggs & Stratton I/C engine with choke and throttle control.

**LESCO, INC.**

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## WET OR DRY SWEEPER

The Turf Vac is a sweeper that operates effectively on turf or pavement, wet or dry. It picks up clippings, leaves, trash, broken glass, sand, cans, and other debris. Both tow-type and self-propelled models are available.

This sweeper removes material from turf and pavement that only a vacuum could remove, and with no disturbance to either one, because all debris removal is by air only.

For extra assurance of damage-free operation, there is an adjustable scoop with rub-



ber apron to prevent turf injury or chipping hard surfaces.

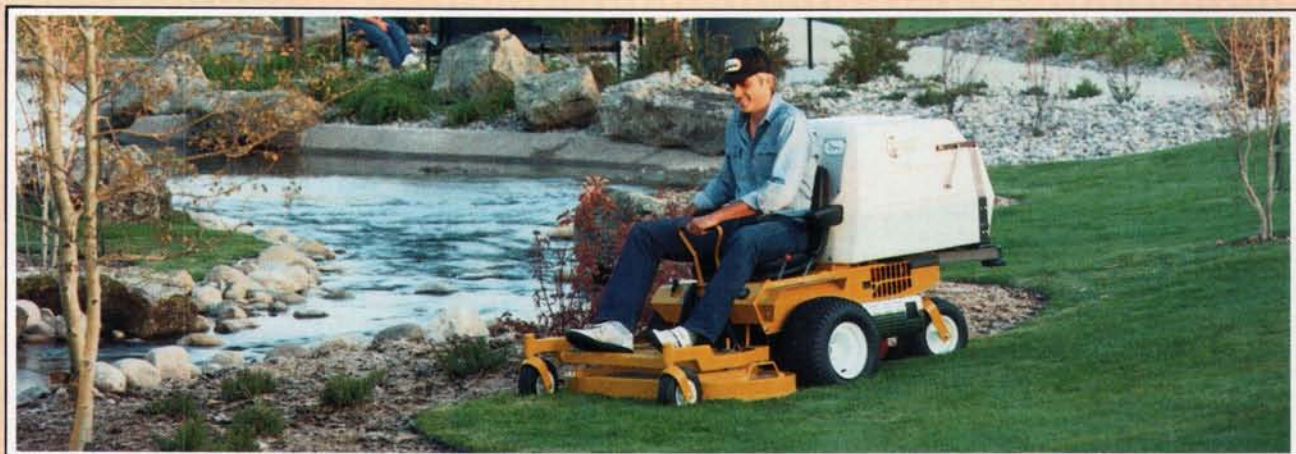
The sweeper features ground dump and hydraulic dump; a hand intake hose (six inches by ten feet available); and a hard surface filter attachment. Multiple sweeping widths range from four to 30 feet. With no brushes to wear out, the Turf Vac keeps maintenance costs low.

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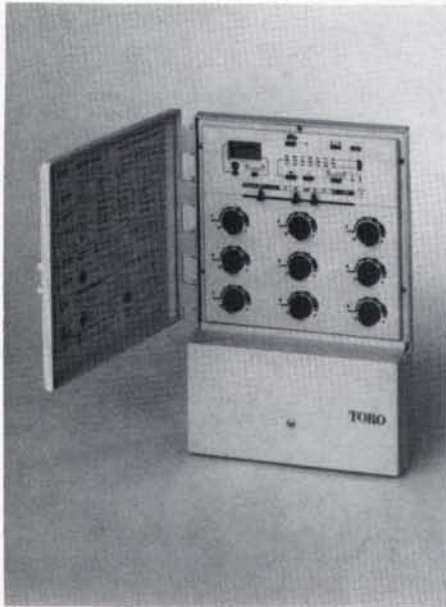


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# EQUIPMENT PREVIEW

## USER-FRIENDLY CONTROLLERS



Vision I controllers are precision-engineered, yet simple to operate. Settings appear in the easy-to-read LCD as they're being made, eliminating guesswork. The LCD also lets the user know which station is operating, and how much time remains. The entire program can be read at a glance. In case of a power outage, the program is saved with a battery back-up.

When the the forecast calls for rain, or when the operator needs to interrupt the watering cycle for any reason, the unit's unique Watering Delay allows the user to turn off the system temporarily for one to four days. A blinking light designates how many "delay" days remain, and restart is automatic.

Vision I controllers are available in six-, nine-, and 12-station models. They offer internal or 14-day programming, three watering start times, and one- to 90-minute, or ten-minute to nine-hour, station run times.

**THE TORO COMPANY – IRRIGATION DIVISION**

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## WALK-BEHIND SPRAYER

Manufactured by Wheel Spray Corp., the WS-490 Greens Wheelie is a liquid chemical spreader with a unique ground-driven pumping system. This model features large, easy-to-push pneumatic-type rubber tires and a thick-walled ten-gallon tank with a wide mouth lid for easy filling and cleaning.



The spreader is used to apply liquid fertilizers, herbicides, fungicides, insecticides, and growth regulators. Its twin wheel pumps spray a six-foot-wide fan of solution, with an overlap at the center, at a rate of 1,000 square feet per gallon.

Chemical applications are relatively unchanged by the speed at which the sprayer is pushed. The faster it is pushed, the faster it pumps. When the operator stops, the sprayer stops pumping. The operator controls the shut-off valves from the handle grips whenever spray nozzles are used independently.

**WHEEL SPRAY CORP.**

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## FIELD STENCILS



Newstripe, Inc., has expanded its capability to design and manufacture stencils for marking athletic fields and other turf areas.

Standard applications include logos, numbers and letters. Newstripe has also introduced six-foot-high stencils which produce highly-visible block-style letters for the entire alphabet.

All Newstripe stencils are cut from 1/8-inch thick PolyTough, a durable plastic material to which paint will not stick.

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## TRENCHER



Trenches six to 12 inches wide can be dug to a depth of 63 inches with the Ditch Witch Model 3500 all-hydraulic trencher. The Model 3500 also has a 64-inch-wide, four-way (six-way optional) backfill blade, designed to roll, rather than push, spoil into a trench for easy, efficient backfilling.

Powered by a 35-hp, Deutz F3L 1011 air-cooled engine, the Model 3500 trencher has a direct hydraulic digging chain drive, four-wheel drive powertrain with infinitely variable speed control, and a large-capacity hydraulic oil cooler featuring an oil shuttle valve to maximize power at the digging chain. For fast, clean oil changes, the 3500 features an easy-access remote engine oil drain.

For added versatility, the 3500 can be equipped with a Ditch Witch A222 front-mounted, five-foot utility backhoe. It can also be equipped with a Ditch Witch dual-positioning digging attachment for offset or center-line trenching, as well as a Roto Witch hydraulic boring unit.

Controls for the trencher are color-coded and shaped to indicate their function. Ground speed is controlled by a foot throttle.

**THE CHARLES MACHINE WORKS, INC.**

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