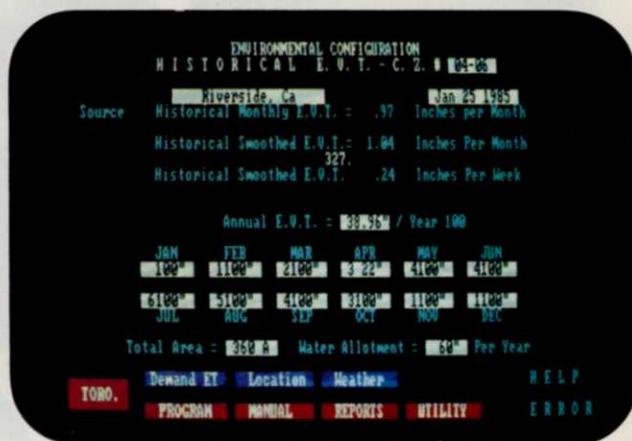


TWO TYPICAL SCREEN DISPLAYS



This screen quickly displays complete irrigation program for one full day, for each of 14 days in the system.



Such essential data as evapotranspiration rates for your specific area can be called up to help set proper program.



NETWORK 8000 SATELLITE CONTROLLER

Solid-state satellite may be centrally programmed or provide stand-alone capability.



Matching the Network 8000 central for advanced and innovative design is Toro's new satellite/stand-alone solid state controller. It is a 32-station unit, with each station capable of operating three Toro electric valve-in-head solenoids.

As with the central, this new satellite offers two-way communication. It receives, stores and sends all commands generated by central. At the same time, it up-loads to the central such key factors as satellite status, changes made in station timing at the satellite, and failure sensing.

Each station is capable of minute and hour timing, from 1 minute to 4 hours and 15 minutes per station, in one-minute intervals.

Toro's new Network 8000 Satellite also provides water-budgeting capability, with percentage increase/decrease from 1% to 900%.

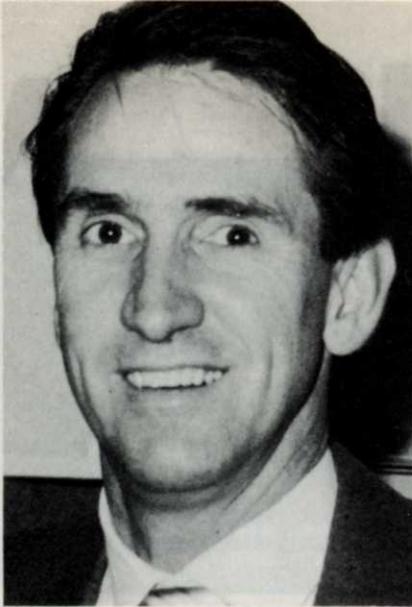
The combination of the equally amazing new satellite and central controller makes Network 8000 your first step into the 21st Century, with payoff now in terms of better turfgrass at lower costs.

The Toro Company, Irrigation Division
Dept. WTT-586, P.O. Box 489, Riverside, CA 92502

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Excellence in Irrigation®



Irri-Trol's Chuck Hoover says computerized irrigation systems will be the norm in the future.



Ron Zwiebel of Green Care, calls irrigation installation a "very viable add-on service."

TROUBLE-SHOOTING VALVE MALFUNCTIONS

Valve malfunctions are probably the number one cause of headaches and stress among contractors who install sprinklers for a living.

"There's nothing more aggravating than digging a valve out of the ground to figure out why it won't open, why it won't close or why it weeps," say irrigation service reps.

In an effort to alleviate some of those problems and show professionals what to look for when a valve won't function properly, here is a list of the most common problems and their remedies.

Valve won't open

1) First, make sure the water is turned on.

2) See if electricity is reaching the coil. If not, there may be a problem with the controller or breaks in the electrical line. Check for this with a voltmeter across the two field wires.

3) If the coil is receiving current, remove it and see if the plunger moves into the housing of the coil. If not, replace the coil.

4) Make sure there is no downstream blockage in the communication port from the top side of the diaphragm into the coil area or from the discharge seat through the cap and body to the downstream of the valve. To check for these problems, remove the coil and inspect the area for debris and remove any particles

with a fine piece of wire.

Valve won't close

1) Make sure nothing is clogging the diaphragm port hindering water from metering to the top. If debris is spotted, flush the port.

2) Make sure the solenoid spring is not missing or debris is not restricting the plunger. To check for this, remove the spring; if the plunger hangs in the housing, flush with water.

3) Check to see if the diaphragm is damaged. If it is ripped or pieces are missing, replace the diaphragm.

4) Check for external body leaks. This may mean a damaged or missing O-ring or loose screws. Check the manual bleed screw. If it is left in the open position, it will allow water to bleed out. To prevent this, tighten the screw. In addition, the flow control knob should be adjusted to allow maximum performance of sprinkler heads.

Valve weeps

1) Check to see if the diaphragm is seated properly on the valve body. Inspect to see if any debris has accumulated, then flush.

2) Check to see if the body seat is damaged. A damaged seat requires body replacement. □

Reprinted with permission from "Toro SpecTalk," August, 1985.

ing water when the plant doesn't need it, thus saving the energy it takes to run irrigation equipment, not to mention the water itself. To that end, sophisticated plant stress monitors are being manufactured.

One major company will soon be marketing a portable monitor that calculates plant stress as an early and accurate means of determining irrigation requirements. It senses temperature, solar radiation, humidity and air temperature readings, runs them through a microprocessor, and provides a digital read-out of irrigation needed.

Fully automatic control systems are also saving water and energy.

"With these, you can input the weather and the controller will calculate evapotranspiration rate and generate times for each zone to be irrigated, based on the product, the nozzle and so on," says Toro's Robins. "It runs on the basis of what the soil and plants demand. It's a very expensive system, but its price will probably come down, in time."

Dr. Bruce Augustin of Lesco Inc. and Dr. Charles Peacock of the University of Florida once did some field tests concerning irrigation. They discovered (and wrote in their newsletter):

"We can grow turf with less water than many people think. By exploiting rainfall as much as possible, we can reduce the amount of irrigation that is applied to turf. Also, by more carefully managing the irrigation, we can reduce nitrogen leaching and get better results from the cheaper, water soluble sources of nitrogen."

Homeowner market

Granted, there will always be a market for irrigation equipment among users of high-maintenance turf like golf course superintendents. But more and more, irrigation suppliers are seeing a boom in the homeowner/residential market.

Homeowners took the a step toward beautiful lawns 15 years ago when the lawn care industry first boomed. Lately, homeowners are going one step farther with the installation of sophisticated underground irrigation.

Lesco, Inc., Rocky River, Ohio, seeing this trend, recently opened an over-the-counter irrigation equipment store. Bob Hobar is its director.

"There is a marketplace in the residential sector. That's the concept our store is based on," Hobar contends.

"If you went in as a landscaper and sold a lot of plants and shrubs and then the homeowner didn't water it, that homeowner would be wasting

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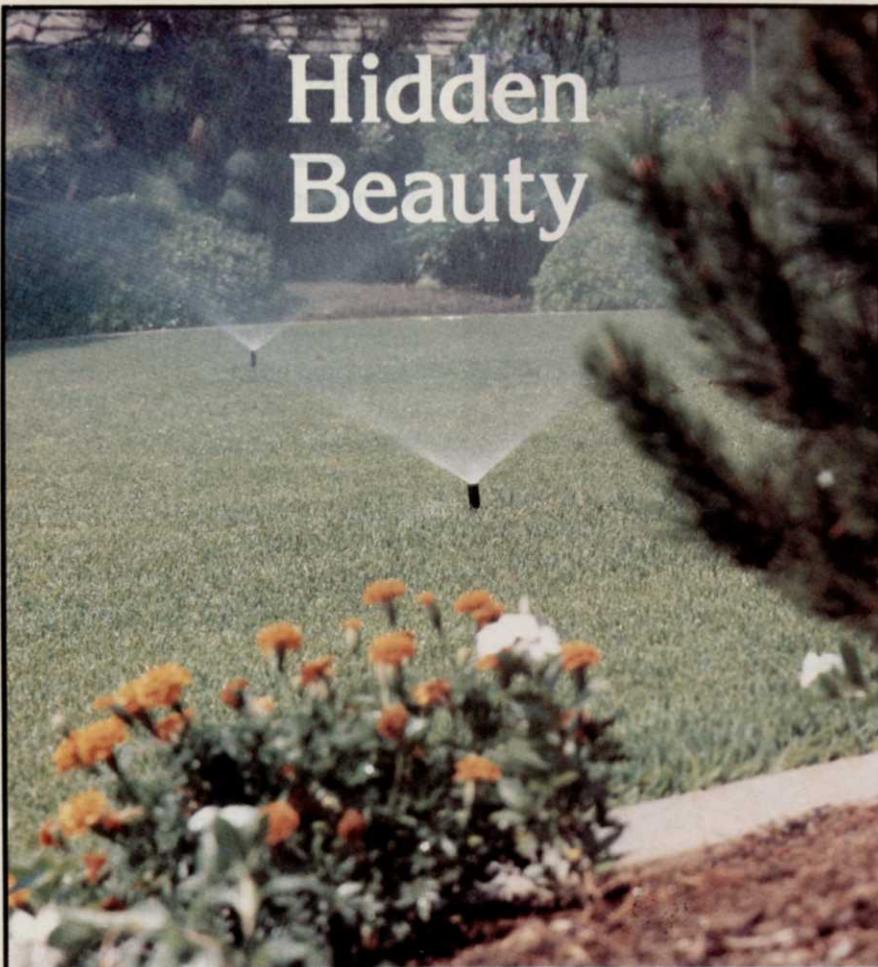


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Because Buckner's plastic pop-up sprinklers hide just below the surface, you can't see the most beautiful aspect of this lovely ornamental landscape. Developed to meet water-saving requirements, Buckner brass or plastic nozzle pop-ups — in 3", 6" and 12" heights — rise to every irrigation situation . . . then disappear completely when not in use.

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IRRIGATION from page 62



The traditional irrigation head.

money. The point is, if a homeowner is spending thousands of dollars on landscapes, why not spend hundreds on irrigation?

"Lots of landscape architects are putting irrigation specifications right into the design now," says Hobar.

'There are inherent evils of throwing water up in the air. Sub-surface is the irrigation system of the future.'

—David Cordillo
Hydro Systems
Warminster, Pa.

In the South, irrigation installation is catching on. Says Ronnie Zwiebel of Green Care, Birmingham, Ala. (a chemical lawn care operation):

"We've added irrigation installation, and as long as we can figure out how to get the system in the ground, we are by all means going to pursue it. It's a very viable add-on service, but you almost have to have two very separate profit centers."

Zwiebel notes that management, equipment, and labor for irrigation operations is completely different than its counterparts in the chemical lawn care industry. But the market is nonetheless a money-maker.

"We have managed as an industry to bring the cost of owning an irrigation system down to where the average homeowner can afford one—rather easily," adds Weather-matic's Cooper. "That represents a tremendous growth market, mainly because of refinements in our industry's own capabilities."

WT&T

How to trim your time.



Model 4000 LP

Model 3000 LP

Model 2500 LP

Think Green Machine

Weeds, grass, brush... even tree branches up to 4 inches thick! No problem for this team of gasoline powered string trimmers/brushcutters/tree pruners from THE GREEN MACHINE®.

Model 2500 LP

- 1.25 HP, 22.5cc L-PAT engine, favorable power-to-weight ratio
- Weighs 12 lbs., but is no lightweight in getting the job done
- 4" Tap-For-Cord™ head - optional blades

Model 3000 LP

- 1.4 HP, 25.4cc L-PAT engine
- For almost a decade has set the standard for professional landscaping
- Features all-position carburetor with re-circulating primer system
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Model 4000 LP

Model 4500 LP (not shown)

- 2.2 HP, 41.5cc engine
- For specialized day-after-day trimming/brushcutting/tree pruning
- Equipped with harness, hip pad and wide handlebars
- Swivel driveshaft for hillside brushcutting and pruning
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The Churchill Downs' clubhouse garden on Derby Day in 1985.

THE MAIN EVENT

Landscaping at Churchill Downs in Louisville, Ky., is year-round for one of sport's great days: the Kentucky Derby.

by Ken Kuhajda, managing editor

It almost doesn't seem fair: 365 days of preparation for two minutes in May.

Everybody knows about the two minutes in May, but few know about the 365 days of preparation that makes the day one of the greatest in sport.

The famed Kentucky Derby, held the first Saturday in May, is the *piece de resistance* for the men who landscape and maintain the 147 acres at Churchill Downs in Louisville.

It's only one day in a three-month racing season but it's special, in that it gives employees great satisfaction.

The "Main Event," 112 years



1985 Kentucky Derby winner Spend-A-Buck with jockey Angel Cordero. Surprisingly, Spend-A-Buck did not run in either the Preakness or the Belmont, the two later legs of horse racing's Triple Crown.

young, is watched by 130,000 people in person, and another 80 million or so on television. ABC television bills the day as the greatest in sport.

How many landscape workers have their work viewed by such a throng? Churchill Downs' workers don't need a pep talk to get them ready for Derby Day, a time when the twin spires atop the grandstand seem all the more impressive.

Providing the guidance are plant superintendent Raymond "Butch" Lehr and greenhouse manager Don Lord. Lehr supervises 24 landscape employees while Lord oversees a crew of eight greenhouse workers.

The 32 year-round workers manicure fine turf, the dirt track, a new \$3.2 million turf track, annuals, trees, and shrubs. They also perform general maintenance chores such as upkeep on the 47 barns where some 1,350 horses reside.

By early May, Churchill Downs is colored regally, its turf the lush spring green, its annuals a maze of hues, the sky above usually popsicle blue.

It's ready for the 45,000 people who crowd the grandstand and the

What is so rare as a day in May? Especially with no leaf spot.



Leaf spot. It's a spoiler. Give it half a chance and it'll go after your grass.

To protect the beauty and playability of your turf from leaf spot, get new [®]DYRENE 4 Turf fungicide.

Now available as a flowable, it is not only easier and cleaner to use, but much more economical, too. For control of leaf spot, DYRENE 4 can be applied at *half the rate* of DYRENE wettable powder, yet will provide *twice the residual*.

DYRENE has always been an essential part of any complete program of disease control. Now, it's economical, too. Always read the label before use.



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Get 4-wheel traction, 4-wheel steering,
with Jacobsen's versatile G-4x4 Tractor.

Only Jacobsen's G-4x4 Tractor combines four-wheel drive, four-wheel steering, a wide stance and a low center of gravity. With plenty of power for a wide range of task-oriented implements. Power, where you need it... when you need it.

PTO's front and rear, each with a three-point hitch, make changing implements quick and easy. Attach rotary or flail mower, rotary brush, snow blower or snowblade to the front hitch.

Then, raise or lower any one of them, hydraulically, from inside the cab. Fixed 3-point rear hitch and tow bar accommodate towed gang mowers, aerators, blowers, seeders, spreaders and sweepers.

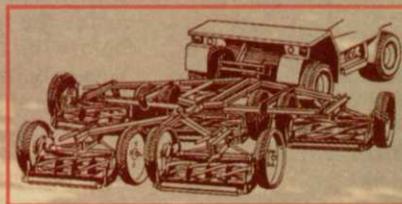
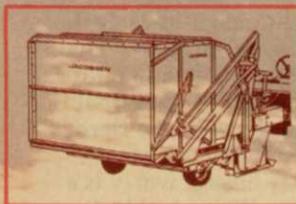
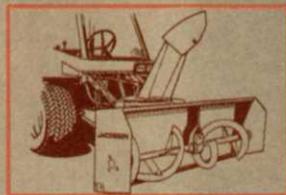
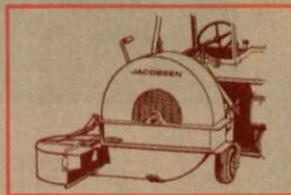
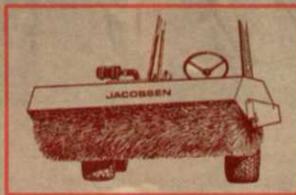
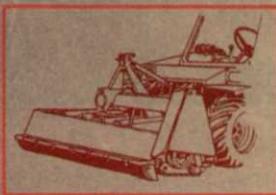
Powered front axle with rigid-link steering and differential lock, plus the powered swing-type rear axle, take rough terrain in stride. And the 24-hp, 3-cylinder, water-cooled diesel engine provides the power you need

when the going gets tough. Yet, the G-4x4 Tractor's true-track steering and Softrac tires tread softly on turf.

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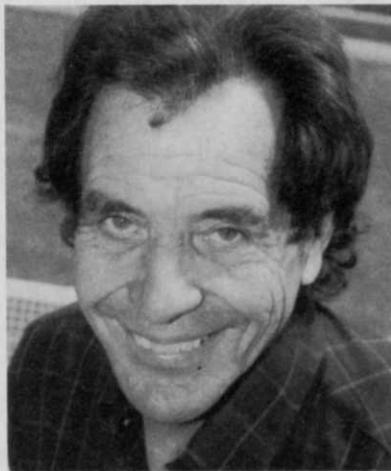
LANDSCAPE PROFILE



Workers install the irrigation system for the turf track in August 1985.

The track measures $7\frac{1}{8}$ -miles and should be ready for racing in early 1987.

Right, Don Lord, manager of the greenhouse. Far right, Don Lord's pride, the Churchill Downs' greenhouse, where some 60,000 annuals are nurtured for planting.



90,000 fans in the infield who form one of the nation's largest parties.

60,000 annuals

Lord and his crew are busier than usual in the spring preparing for Open Day, the Saturday prior to the Derby. That's officially the beginning of the "Spring Meetings," or spring racing season that lasts until the end of June.

By late April, 60,000 annuals—begonias, marigolds, geraniums, petunias, dusty millers—are in full bloom in the many gardens in and around the oval. Everything is nurtured in the Churchill Downs greenhouse.

The 15,000 tulip bulbs that were planted the previous fall are sometimes in bloom for Derby Day, sometimes not.

In 1985, a warm April left

Churchill Downs tulip-less for the Derby. The tulips came up early and lasted the traditional 7-to-21 days before the blossoms dropped. That was only the second time in Lord's 35 years at Churchill Downs that the tulips failed to show for the Derby.

Lord is used to the unpredictability. "My biggest worry is a freeze or a frost. We've had bad freezes here in April that have really hurt us. They say our last freeze can come anytime through May 10 but I've found that if it doesn't come by the third week of April, we'll be all right," he says, a definite Louisville twang in his voice.

That's the way he's learned his job. "I've educated myself. I've always had an instinct for it," he says. The Louisville native doesn't have a horticulture degree. He works at Churchill Downs because his

father, the late Herbert, got his son a job there when the boy was 17. Thirty-five years later, Don Lord is still there. There's a lot of tradition at Churchill Downs.

Roots to 1875

That tradition dates to 1874 when Colonel M. Lewis Clark organized the Louisville Jockey Club and directed construction of a thoroughbred race track on land purchased from John and Henry Churchill.

On May 17, 1875, Aristides won the first Kentucky Derby in front of 10,000 spectators.

Since that time, 112 Derbys have been run, each one seemingly a greater spectacle than its predecessor.

That success has meant adequate funding for Churchill Downs, and