Now's the time to Remember ROUNDUP® herbicide for all kinds of jobs around the customer's lawn. Remember that ROUNDUP controls a broad spectrum of weeds, roots-and-all. With no time wasted on retreatment, you'll have more time for new business.

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Do homework on sites

Consider several important factors before you begin construction of an athletic field, says Stuart Connock, a designer with Resource Planners, which specializes in athletic field construction.

For example, for what type of sport is the field intended? Do you need to meet the specifications of a governing board? How many spectators do you anticipate accommodating? How will the field be accessed for maintenance?

"These are all basic questions that will give you a better approach to the field," says Connock. He also believes you shouldn't underestimate the value of having soil tests done from the playing field and the areas surrounding it. "Testing the topsoil and subsoil is often side-stepped even though it's relatively inexpensive," says Connock.

As far as field design is concerned, it should lie north-to-south to avoid interference from the rising or setting sun. Make sure parking lots don't drain toward the field, that there is plenty of room for spectators and that they have a good view of the game, he adds.

STMA goes south

The Sports Turf Manager's Association will travel to Houston, Texas, for its second annual convention and trade show. The event will be held at the Wyndham Greenspoint Hotel for three days beginning on Jan. 19, 1990.

"We have an exciting program planned," says STMA president Steve Cockerham. "The trade show is expanded, and the outdoor equipment demonstrations continue to be a valuable part of our show."

Persons interested in attending the conference or in exhibiting at the trade show should contact the STMA, c/o R/K Communications Group, 3376 Eastern Ave., Suite 148, Las Vegas, NV, 89109 or call (702) 735-0000.
Give grubs an inch and they'll take a whole yard.

Grubs feed at many levels in a yard, but it's at 1" to 1½" below the surface where they do their real damage. And because grubs are constantly moving from one level in the soil to the next, a single treatment of most insecticides will only get the ones closest to the surface.

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Sometimes a more narrow-minded point-of-view is needed. One which focuses on moving between and around objects. Like playground equipment, planters, tree trunks and shrub beds.

Conditions that call for such artful dodging, also call for special tractors.


In other words, John Deere 300 and 400 Series Tractors.

These liquid-cooled tractors feature power steering and 38-, 46- or 50-inch mower decks (49.7, 57, and 68 inches wide overall) to get you close when close is where you want to be.

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All three are powered by rugged 3-cylinder engines. Gas in the 18-hp 322. Diesel in the 16-hp 332 and 20-hp 430.

Overhead valves, cast-iron liners and pressure lubrication provide the staying power you need when 8-hour days turn into 12-hour mowing marathons.

Differentials have large steel bevel gears for durability and better power delivery.

A 2-range rear axle in the 430 lets you match torque to the job.

For maneuverable liquid-cooled power, narrow your sights on a John Deere 322, 332 or 430 Tractor.

For more facts or the name of your nearest dealer, call 1-800-544-2122. Or write John Deere, Dept. 50, Moline, IL 61265.

Dimensions given are overall mower deck widths. Actual cutting widths are 38, 46 and 50 inches. A 60-inch deck (72.5 inches overall) is also available for the 430 only.

Circle No. 112 on Reader Inquiry Card
"Very short putting greens are like sidewalks," reminds David Fleming. Irrigation cycles must be timed accordingly.

SMART WATER

As irrigation systems near perfection and water use is regulated, 'systems management' takes on greater importance.

By Terry Mclver, associate editor

"You can't just turn on a controller and say 'go ahead and water.'" The words of golf course superintendent Brad Adams reflect what more professionals are learning about irrigation systems: management is everything. In today's world of tight-fisted water restrictions and sprinkling bans, the uniform and conservative use of water is increasingly important.

Bruce Augustin, Ph.D., of Lesco Inc., says water restrictions seem inevitable this year. He's concerned that irrigation systems that were originally intended to supplement Mother Nature have become the entire source of moisture.

"Most homeowners don't do anything drastic (to contribute to conservation)," he says. "As a consequence, they have in-ground systems that are rarely reset or calibrated. Time clocks, for example, will be set to come on every day, rather than perhaps every third day."

Golf course superintendents are also learning from experience. David Fleming, superintendent at Singing Hills Country Club in El Cajon, Calif., feels that supers sometimes find themselves putting water down in too many long cycles. He has tried to shorten watering cycles to allow for more soak time, taking into consideration the grass's height.

"Very short putting greens are almost like sidewalks, and the water tends to run off very rapidly," Fleming observes. "But for longer turf, you can go to eight or nine minute cycles."

Adams, over at Rancho California Country Club, thinks that most of the golf industry is "pretty much on the same wavelength."

"It's been proven over a number of years," says Adams, "that the more uniformly water can be put down, and the less water that can be put down, you will have a better quality turf and playing surface."

Irrigation system manufacturers second the notion of uniformity and control.

Ken Kline, manager of customer development for Toro Irrigation, believes one of the key factors relative to proper water distribution is managing all the variables.

"Control is one of the key things the industry is working on," says Kline, "and it's one of the things that..."
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Education soaks in

A major element in irrigation systems advancement has nothing to do with valves or pumps or evapotranspiration (ET) rates, at least not directly. More companies and associations now stress education as a key element in irrigation system efficiency.

Toro Irrigation’s Ken Kline says the efforts made by manufacturers and the industry to educate people who are in the business of designing and installing irrigation systems has increased. He cites Toro’s Certified Contractor’s Program and the Irrigation Association’s Certified Designer Program as examples.

“The main purpose of education is to raise the professionalism of the entire industry,” says Kline. “The current efforts are intended to disseminate that information to as many people as possible.”

Many manufacturers’ educational programs come into play locally. “Toro University,” a week-long training session, gives distributors the tools and expertise to conduct training in their local areas.

—Terry McIver

makes this industry so interesting and kind of difficult to be in.”

There’s always plenty of room for improvement, according to Ed Hunter, founder of Hunter Industries, “because uniform application of water is not as simple as you might think.”

Hunter, one of the industry’s irrigation pioneers, believes proper irrigation depends on even distribution at rates the ground can absorb.

“If you apply it too rapidly, or at too high a precipitation rate, the water will run from the high to the low spots, destroying the uniformity,” Hunter notes.

Hunter says sprinkler systems which operate at lower pressure are ideal, because they result in lower energy costs.

Gard Craw of Hunter told LANDSCAPE MANAGEMENT that even before the drought shocked everyone back to reality, the company always believed in products that perform at lower pressure and at low application rates.

“Apply water as uniformly as possible at a rate more in line with soil intake rates so we can minimize waste,” says Craw. “We (the green industry) suffer in times of water shortages, more so than car washes.

“We are of the opinion that you can have computer control, weather stations and moisture sensing devices, but if you don’t carry that through to the most important component part—the sprinkler—all the rest are just bells and whistles. If the sprinkler is not applying water uniformly, what are you going to do as the manager of that system?”

The well designed, installed and managed irrigation system should:

- use that most valuable resource—water—most efficiently;
- be flexible in performance, with a variety of nozzles to adapt to conditions; and
- be able to operate at lower pressure. (Researchers are finding that low pressure means less wear and tear, fewer leaks and breaks, and less energy required to run the system.)

“Every pound of pressure you use over what you actually need represents one percent more energy cost,” says Fleming.

He has brought pumping energy costs at his 54-hole resort down from $140,000 to $74,000 by working on pressure efficiency, pump efficiency and scheduling. “Good equipment allows you to do that.”

Fleming likes the Rain Bird Flo-Manager for ease of pressure control. It manages the flow demand placed on the pumping system while maintaining flow rates throughout the course to be consistent with piping network capacities.

Monitor the situation

Bill Pogue is president of The Irrigation Co. of Riverside, Calif. He believes soil moisture sensors, which have been used mostly by the agricultural segment, will be applied more to golf courses.

“Every year a few more superintendents buy manual sensors at the GCSAA show,” Pogue observes. “Basically, they just look at them twice a week to determine if the soil is too wet or too dry.

“We’re doing some engineering and design work right now to refine an electronic sensor to be hooked into an automatic irrigation system. This will let you control irrigation with soil moisture measurement technology without having to maintain it.”

Pogue agrees that poor system maintenance is one of the biggest problems in the irrigation industry.

“Maintenance is critical to efficiency,” he insists. “Water is conserved through proper scheduling, but you’ve got to start with an efficient system.”

Toro Irrigation’s new Soil Moisture Control System is designed to tell the controller when to stop irrigating rather than when to start. A ceramic soil sensor is made to dehydrate at a pre-set tension level close to the soil’s moisture capacity.

Man and machine

“In actual practice, we’ve found that controllers are seldom adjusted because many managers lack the personnel or expertise to re-program them to follow precise changes in plant water use,” says Steve Swener- ton, Toro’s director of sales and customer satisfaction. “In most cases the tendency is to over-irrigate since green industry managers are judged more on plant appearance than water savings.”

As irrigation technology continues to reach new heights of sophistication, the human element will still remain.

“Computers were never intended to replace man entirely,” says Kline. “But computers give us more time to manage. There will always be a need for a manager, someone who is aware of the variables that exist in a landscaping situation. There will always be a need for that input.”

—Terry McIver

Ed Hunter: “Uniform application of water is not as easy as you might think.”
Certain death for the dinosaurs.

The new Jacobsen Tri-King 1684D makes heavy cumbersome 84" mowers things of the past. Jacobsen ushers in a new age in heavy-duty 84" triplex mowing with a truly lightweight, highly maneuverable package. So now you can say goodbye for good to those costly, one-ton monsters the competition turns out.

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A liquid-cooled 16.5 hp diesel provides plenty of power with longer life, simpler maintenance and better fuel economy. Or choose the 1671D, a unique, durable 71" triplex with all the same quality features of the 1684D. Yet smaller reels cleanly cut tricky undulating terrain and those really tight spots.

Don't be saddled with a dinosaur of a triplex when you can have the advanced new 1684D. Ask your Jacobsen distributor for a demonstration today. Attractive lease and finance plans available.

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We're so eager for you to try Ornamec that we're introducing it by giving you the appropriate amount of Aqua-Zorb® Nonionic Surfactant free of extra cost when you buy the Ornamec from your PBI/Gordon distributor.

Where are you going to use your introductory package? Well, here's a list of over 400 ornamentals that are labeled for Ornamec Over-The-Top... and there are 129 additional species and varieties that are labeled for directed application.

Sprayer offer: For details on how you can receive a $100-value SP-1 Back-Pack Sprayer for only $35 when you buy Ornamec, call our Sales Service department.

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**African sunburst standard**

**Ageratum**

**Almond, Flowering**

**Aloe, Barbados**

**Aloe vera**

**Aloe zanzibarica**

**Althea**

**Alysaum**

**Amur River**

**Annual statice**

**Anthony Waterer**

**Ash, Arizona**

**Asparagus, Myres**

**Asparagus, Sprenger**

**Aucuba**

**Aucuba japonica variegata**

**Aurea**

**Australasian bush cherry**

**Bamboo, Golden**

**Banaana, Ethiopia**

**Banksia**

**Barberry, Mentor**

**Bearberry, Red**

**Bellflower**

**Berkman's**

**Bird of paradise**

**(Strelitzia reginae)**

**Bird of paradise, Giant**

**Bottle brush**

**Black Hills**

**Blue Point**

**Blue star creeper**

**Bottlebrush**

**Boxwood, Common**

**Boxwood, Japanese**

**Boxwood, Korean**

**Brown bean**

**Buckthorn, Tallhedge**

**Buffalo**

**Cactus, Barrel**

**Cactus, Cholla**

**Cactus, Hedgehog**

**Cactus, Saguro**

**Caesalpinia, cacaico**

**Camelia**

**Camelia, Sasanqua**

**Candilabra plant**

**Candytuft**

**Canne plumago**

**Cape weed**

**Caricature plant**

**Carissa, tuffei**

**Caro tree**

**Cassia, stinking**

**Cassia, African**

**Cassia, Feathery**

**Century plant**

**Cedar, Red**

**Cherry, Brush**