



Steps to save resources

Catalano: Establish irrigation system goals and make a thorough site evaluation.

resources credits 80 percent of its water savings to a properly operating irrigation system.

Catalano says a centralized irrigation system will typically pay for itself in six to 24 months.

"A number of quality computer-based central control irrigation management systems are available," says Catalano, "but the system will only be as good as the set-up. Proper set-up includes a thorough understanding of the site manager's goals and concerns, the abilities of the system being used, and a good field evaluation."

Catalano lists 10 steps to follow when planning and installing an irrigation controller:

1. Determine system goals. Collect

the information needed to determine how much water needs to be dispersed per valve.

the information needed to determine how much water needs to be dispersed per valve.

2. Evaluate the site. Variables include precipitation rates, adjustment factors, drainage patterns, uniformity of application, soil structure and sun exposure.

3. Conduct a hydraulic analysis. After you've determined how much you can run through each valve, determine how many valves can operate at one time. Respond to high- or low-flow conditions caused by mechanical system failures, such as broken risers or stuck valves. "The work is in determining placement of the master valve, what flows are expected, and what the shut-off threshold will be," says Catalano. Sequence events in such a way that you optimize the energy used by the pump station and reduce water waste or damage from pressure surges.

4. Input data to fit the system/quality control. Take the information learned in the first three steps, and look for variables. "These are the triggers we pull to make the system respond the way we want it to," says Catalano. "As these sys-

tems all tend to rely heavily on the data entered, the quality control of the data entered is very important."

5. Sequencing of events (or scheduling). Once you've determined the hydraulic sequence, you then program valves for start and stop times.

6. Simulate operations. Literally a "dry run." Using data, project how the new system is likely to perform.

7. Fine tune, making corrections as needed.

8. Operation. A step-by-step review of the results.

9. Training. a.) to eliminate computer-phobia, which is easily done, thanks to user-friendly technology or after-hours courses; b.) to learn the system, the menus, the software; to know what the system can do. This type of training is usually provided by the manufacturer or distributor. The more you learn, the better you can design the system to respond to certain weather conditions.

10. Monitor and adjust. This is a constant. "Probably the biggest mistake you can make in using central control is thinking the irrigation is now 'taken care of' and you don't have to touch it again," warns Catalano. Adjustments have to be made as needed.

SPRINKLERS

COMPANY	PRODUCT	FEATURES
American Granby Liverpool, N.Y. fax: (800) 729-3299	Harvard Turf-Flo	Ratchet design allows positive 360-degree positioning of riser/nozzle direction after installation without turning the entire pop-up body. Serviceable wiper seal; replaceable basket filler; stainless steel spring for positive retraction.
Hit Products Lindsay, Calif. (209) 562-5975	Various products	Proline pop-up sprinklers with nozzle adapters; Pro-Plug provides flushing of pop-up before nozzle installation; Santoprene wiper seal provides consistent self-flushing performance and minimum flow by.
Hunter Industries San Marcos, Calif. (619) 744-5240	PGP/I-40 sprinkler	PGP: a gear-driven sprinkler for turf and landscape applications. Available as a shrub model, 4-inch pop-up or 12-inch pop-up; 12 interchangeable nozzles; two-year exchange warranty The I-40 is a moderate-to high-capacity sprinkler for parks or other large turf areas. Five interchangeable nozzles; vandal-resistant; five-year exchange warranty.
Rain Bird Glendora, Calif. (818) 963-9311	R-50 series rotors	Now with adjustable bypass, making it simple to adjust water flow into the rotor. Permits fine tuning and allows the rotor to be adjusted for high performance in low pressure applications; full and part circle capability in each unit.
Safe-T-Lawn Miami, Fla. (305) 261-1589	Various products	Spray pop-ups, nozzles, and rotors. Ball Drive Rotor model is a low precipitation rate sprinkler; eliminates backsplash, allowing positioning close to buildings, driveways or streets. Rotates by the controlled drive of a stainless steel ball.
Toro Irrigation Riverside, Calif. (714) 688-9221	Super 700 Series	Shrub, commercial, lawn and hi-pop models, with eight interchangeable nozzles from 1.0 to 9.0 gpm; standard or custom imprinted debris covers.

Athletic fields: why renovate?

Experts from all over the country discuss how to prepare fields for summer play.

■ When spring rolls around many fine turf areas, particularly athletic fields, need renovation.

This is particularly true in 1992 because of extremely dry conditions in many parts of the country last growing season.

Dr. Charles Peacock of North Carolina State University recommends renovation where the site isn't acceptable but desired turfgrass nevertheless covers more than 60 percent of the playing field. (If turf cover is less than 60 percent, Peacock says re-establishment—destruction of the old field, complete site preparation and replanting—is a better alternative.)

Other reasons to renovate include:

- excessive thatch (greater than one inch thick)
- poor soil conditions (compaction, rock layers, buried foreign matter, etc.) or
- severe damage by traffic, diseases, insects, etc.

Peacock says to check thatch thickness and root density to determine how much vertical mowing can be done.

"The first step should be an examination of the root system by grabbing a handful of turf and trying to pull it out of the ground," Peacock says. "Sparse or shallow-rooted turf is easily pulled out of the soil. Vertical mowing poorly-rooted turf in a weakened condition is not advised."

Turf wear—According to Dr. Vic Gibeault of the University of California at Riverside, traffic causes soil compaction, soil displacement, turf wear tolerance and turf displacement. Any of these problems is also reason to renovate.

Turf wear, Gibeault says, is a "vertical crushing and horizontal displacement" influenced by turf species, cultural practices, environmental conditions and/or type and intensity of play.

The most wear-tolerant grasses are, says Gibeault (in order):

- 1) zoysiagrass,

- 2) common and hybrid bermuda-grasses,

- 3) turf-type tall fescue, and

- 4) Kentucky bluegrass.

Before renovating, determine which species is best-adapted to your situation.

Renovation—The steps in renovation, Peacock says, are:

- 1) Kill unwanted vegetation with either a selective or a non-selective herbicide.

- 2) Mow those trouble parts of the field as short as possible, taking into considera-

tion the type of grass.

- 3) Verticut to pull up thatch. If thatch is an extreme problem and the existing grass is healthy enough, you may want to verticut a second time at right angles to the first pass.

- 4) Vacuum or rake up the debris, and mow once more to smooth the surface.

- 5) Apply a thin layer of topdressing that is compatible with native soil.

- 6) Reseed or replant.

Drainage problems—Areas with drainage problems can either be re-graded or topdressed.

"When re-grading, establish a crown on the field's long axis and carefully grade to a 1 to 1-1/2 percent slope toward the sidelines" or foul lines, notes a University of

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SAMPLE ATHLETIC FIELD FERTILIZER PROGRAM

For natural soil and modified soil fields where soil tests show minimal* to adequate levels of phosphorus and potassium, or no soil test has been made.

Nitrogen source	Time of application			
	Late spring	Early summer	Late summer	Early fall
Pounds of N-P ₂ O ₅ -K ₂ O per acre applied				
50% or more of the N derived from a slowly available source	60-30-30		100-50-50	
or 25% to 49% of the N derived from a slowly available source	60-30-30		50-25-25	50-25-25
or water soluble N	40-20-20	30-15-15	50-25-25	40-20-20

* Additional P₂O₅ and/or K₂O should be applied where soil test indicates need.

Source: Penn State University



Many athletic fields will require renovation due to last year's drought conditions.

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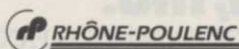


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Minnesota extension pamphlet.

"Heavy topdressing in depressed areas and in the center of the field, with lighter applications along the sidelines, gradually gives the desired surface drainage."

Penn State University says that at least 80 percent of the topdressing sand be between 2.0 and 0.5 mm or between 1.0 and 0.25 mm.

Aerification—If hardness from compaction is a problem, consider aerifying.

"Simple aerifiers can be the best investment you can make," says Chip Toma of the Kansas City Royals. "The jury is still out on pulling cores, but as long as you can get air and water to the rootzone, you'll be doing some good."

Roger Moellendorf of the Green River (Mont.) Parks and Recreation Department, hires one person each summer whose job is strictly aerification. "All our fields get it at

least two times per month," Moellendorf says.

Overseeding—Though best done in late August or early September, you can overseed in early April in cool-season areas.

The Lawn Institute recommends a mixture of 50 to 75 percent Kentucky bluegrass and 25 to 50 percent creeping red fescue at a rate of 4 to 5 lbs./1000 sq. ft.

"Pre-germinate seed to give grass the fastest possible start," writes Dr. Eliot Roberts of the Lawn Institute. "Mix seed with expanded mica such as vermiculite (concrete aggregate grade) at a rate of 2 mica to 1 seed.

"Moisten the mica slightly, and mix in the seed. Then add water until mixture is thoroughly wet. Cover with a plastic tarp and keep moist for 7 to 9 days with temperature held at about 70° F.

"When most of the seed has started to germinate, mix with a processed sewerage

sludge fertilizer until dry enough to spread. Calibrate the spreader for the proper rate and sow promptly. After seeding, water the field immediately and keep moist."

Fertilization—"Recovery is more rapid if turf is properly fertilized immediately," Peacock notes.

Test the soil to determine fertilizer needs. "In lieu of a soil test," Peacock adds, "a 16-4-8 fertilizer with micro-nutrients is suggested, at a rate which will provide 1 lb. of soluble nitrogen per 1000 sq. ft."

Also, if soil pH needs correcting, lime should be spread and worked into the soil profile during cultivation.

A final tip—Do not use pre-emergence herbicides immediately following re-planting. This may inhibit root formation. "Weeds are better handled with a post-emergent after the first mowing," Peacock concludes.

—Jerry Roche

Don't underestimate worth of hand sprayers

■ It's difficult to imagine professional lawn and landscape service without small compression sprayers. Yet the hand sprayer is often given too little regard by professional users.

It's dumped into the back of service vehicles, sometimes dropped and, every once in a while, inadvertently drop-kicked. Then the user scratches his or her head when the unit leaks. Or when the sprayer hose clogs.

Slowly, that's changing. Appreciation for the compression sprayer grows as the green industry moves to spot/target applications of materials. Pump-up sprayers are well suited for many of these uses.

Gene Short, sales manager for Green Garde/Division of H.D. Hudson Manufacturing in Chicago, offers these suggestions for choosing, and safely using compression sprayers:

- Professional applicators should use professional sprayers. "What's worse than showing up on somebody's lawn with a sprayer in your hands just like the one hanging in the customer's garage?" observes Short.

- Polyethylene is a good material for a lawn/landscape sprayer, says Short. It's lightweight and corrosion resistant. Short prefers stainless steel nozzles, although brass nozzles are dependable and long-lasting too.

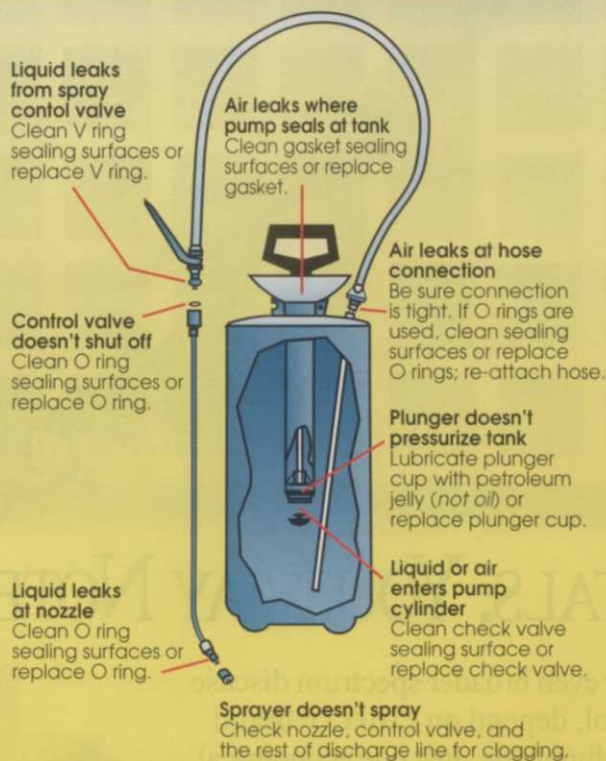
- Look for a sprayer with a removable spray hose. If it becomes clogged, it'll be easier to unclog. The hose should be PVC graded.

- Purchase a sprayer with a funnel top. It's easier to fill without spilling material.

- Wear appropriate safety gear—gloves, boots, goggles—when filling the sprayer, particularly when handling concentrated pesticides.

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SPRAYER MAINTENANCE



PREVENTIVE MAINTENANCE

1. Clean tank and flush out discharge line after every use.
2. Keep inside of tank dry when not using. Store upside down with pump removed.
3. Apply petroleum jelly (not oil) to plunger cup once a year, more often if necessary.
4. Occasionally oil spray control valve, plunger rod, and nozzle threads on cap.

Source: H. D. Hudson Co.

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*Consult your operator's manual for safety instructions when mowing hills.

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Short: professional applicators use professional equipment.

- Pour in the pesticide first when filling the sprayer, then the water. This will help prevent foaming.

- Don't fill sprayers to the top. If you're using a two-gallon sprayer, make only 1-1/2 gallons of material. The unit needs some air to be pumped up properly.

- Keep your face away from openings or valves when pumping up your sprayer.

- Use either a pressure regulator or a pressure gauge on your compression sprayers when possible. Either accessory gives the user more control over pressure. Pressure and nozzle selection, for the most part, determine flow rate and spray pattern.

- If in doubt, calibrate. A properly calibrated sprayer allows the most efficient and effective applications.

- Keep an extra service kit on hand for each sprayer you use. Keep it in the glove box of your service vehicle. It only takes about 10 minutes to repair a sprayer, even in the field.

- Use a soft brush and soapy water to clean your sprayer periodically.

The heart of Short's message: buy a quality unit. Use and maintain it properly, and it will last many, many years.

"If you go out and buy a new sprayer every year for \$25 or \$30, you're spending a whole lot more money than if you went out and bought one good sprayer that will last for five or 10 years," he says.

—Ron Hall

Calibrating a hand sprayer

■ Here's an accepted way to calibrate a single-nozzle hand sprayer.

Find a walking rate that is comfortable for you. Hold the nozzle tip at a distance above the surface to be sprayed that is both comfortable and within the recommended range of the nozzle, generally about 18 inches. (You might want to tie one end of an 18-inch piece of string to the nozzle and a small weight to the other end.)

Step 1: Measure an area 10 by 25 feet (250 sq. ft.) for the test area.

Step 2: Fill the sprayer to a level that's easily recognized. Be sure there's enough water in the tank to cover the test area.

Step 3: Pump the sprayer up to a sufficient pressure that provides an optimum spray pattern.

Step 4: Spray the pre-measured area. Walk at a constant rate and hold the nozzle tip at the same height over the entire test area. (Do not move the wand back and forth. Hold it in one position.)

Step 5: Refill the tank to the original water level. Note the exact amount of liquid needed to refill the tank. That amount is the volume per 250 sq. ft.

Step 6: Depending on label recommendations; 1) multiply the volume for

250 sq. ft. by 4 to get the volume per 1000 sq. ft., or 2) multiply the volume for 250 sq. ft. by 175 to get the volume per acre.

Step 7: Check the label for restrictions on minimum volume applied per 1000 sq. ft. or per acre. Frequently, pesticide labels explicitly state that the pesticide must be applied with a given number of gallons of water. If the sprayer delivers more water per area than needed, walk at faster rate or change to a nozzle tip with a smaller orifice. If the sprayer delivers less water than needed, walk at a slower rate or change to a nozzle tip with a larger orifice. In either case, repeat Steps 2 through 6.

Step 8: Determine the amount of pesticide needed for each gallon of spray and the amount needed per tankful. Add this amount to the spray tank and then fill with water. Begin application.

Step 9: Frequently stop and pump up your sprayer to insure uniform discharge.

This information was supplied by the Pesticide Applicator Training Office at Purdue University, West Lafayette, Ind.

—R.H.

Recruiting, hiring, tricks of the trade

'If you've got people, you can do just about anything,' says an expert on personnel.

■ What does a bad employee "cost" your business? \$10,000? \$30,000? \$100,000?

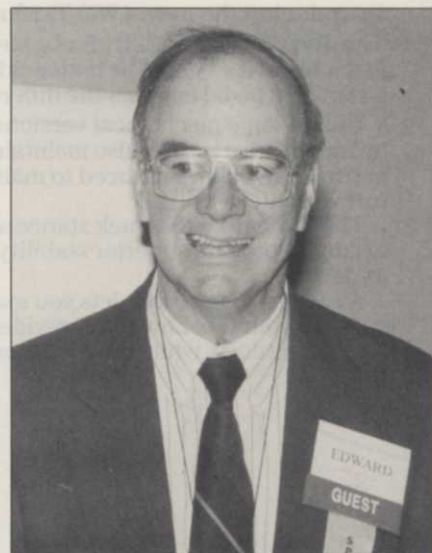
Edward Ryan of MPR Inc., Chicago, Ill., claims a bad employee costs a business three times his or her annual salary. These costs include salary, benefits, recruitment,

training, loss of productivity, loss of company morale, loss of business, his or her manager's time and energy, and damaged equipment.

"The rule of thumb should be: hire slowly, fire quickly. We more often do it the other way around," Ryan contends.

The most important element of the equation is to take your time and hire the right people. "The Japanese gather information on their employee prospects for 150 hours before hiring them," Ryan points out. "That's a courtship. It's a marriage.

"We have to spend more time up front.



Edward Ryan: start a talent file.