

300 pounds per acre rate has worked the best. He uses a Viking verticut seeder, set 1/2 inch deep with rollers to press the soil back down after seeding. He also cross seeds in three directions to get an even stand. Traffic is redirected on the course until the grass is established by marking off areas for cart travel or requiring golfers to walk from permanent paths to the ball. He has had no problem with disease in his ryegrass program and has not used insecticide or herbicide on the course to date.

Greens fall in the same disease-free category. Arrowsmith's crews hand mow the greens at 3/16 inch five times a week. They use a triplex mower with vertical mowing heads once a week to control thatch and give the greens a good brushing. Traps are all about 7 feet from the green which keeps sand off the greens and allows mowing from any direction. There are two acres of Penncross greens on the course and Arrowsmith has discovered the roots reach 16 to 18 inches deep with most greens showing a 12-inch root system.

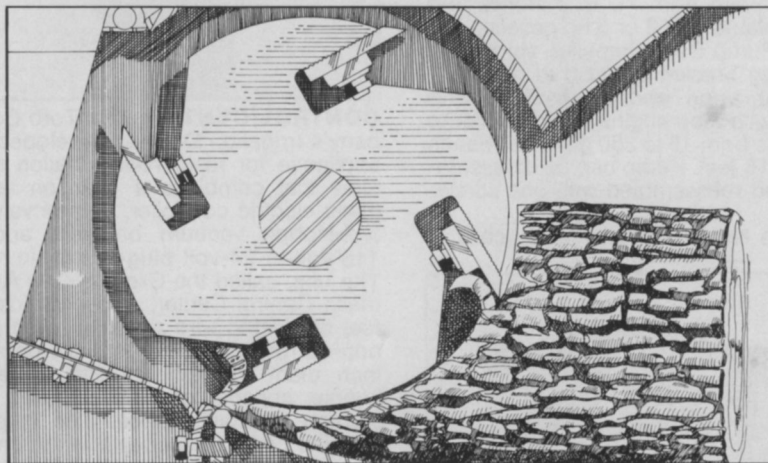
The maintenance area of the course is a picture of good organization. Planning is evident at every step of the program. Arrowsmith's maintenance budget is an astounding \$307,000, but his 19-man crew maintains not only the course but, also, the landscaped slopes, a dazzling array of flower beds, an Olympic size pool, practice fairways, a driving range, and a large clubhouse putting green. There are about 400 acres in the Big Canyon grounds and about 200 acres are maintained by Arrowsmith's crew. There are twelve men assigned to the course maintenance and seven men working in other club areas. "There is not a man on the crew who would not sit down in a mudhole if it were necessary, to get a job done," Arrowsmith said. He is proud of his entire crew and feels his program of training good men who want to get into the golf course superintendent business is responsible for a top maintenance crew. He hires men on the basis of a two-year training program and each man agrees to that time stipulation when he accepts work with Arrowsmith. A California Poly Tech graduate, Arrowsmith majored in landscape architecture and park administration.

The Big Canyon course drains about 1,000 acres. While it is well tiled, with elaborate and costly drainage system installed, the winter rains are sometimes too much for the drainage system. Fairway wash is sometimes a problem, but the grass waterways have held up quite well without excessive wash.

Big Canyon Country Club is a spectacular example of salvaging

unusable ground and making it an attractive recreation and home site area. The beautiful luxury homes bordering the canyon walls add to the setting and the greenness of the entire development is a great contrast to the nearby barren canyons. Water, turfgrass and trees, wonderfully groomed and maintained, have graphically illustrated how man can make an environment. □

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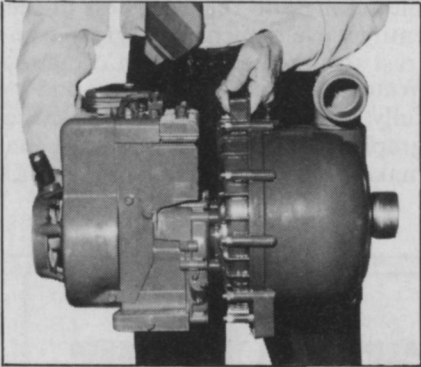
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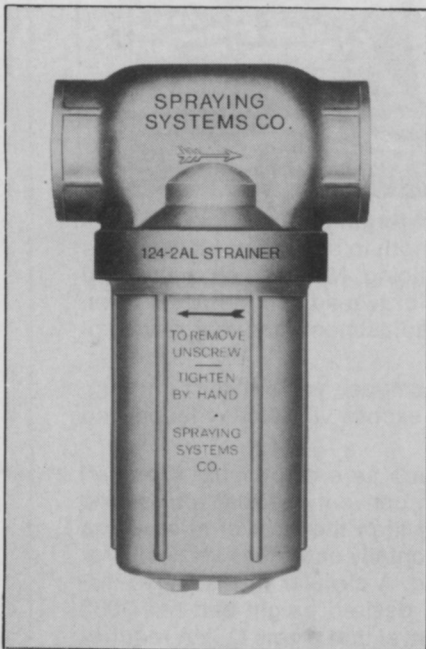
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# New Products



**CENTRIFUGAL PUMP:** Orly Manufacturing Co., Inc. announces a new series of self-priming centrifugal pumps molded of glass reinforced thermoplastic polyester. These portable pumps range in size from 1½ to 3 inches and are available with 3 or 5 hp gasoline engines. Pump Body, Impeller, volute and mounting bracket are said to resist impact, abrasion and corrosion. Pump weight with 3 hp engine is 32 lbs. Pump operates from 15 to 250 gpm with heads up to 115 feet. Pump can be disassembled and reassembled with one screwdriver.

Circle No. 702 on the reply card.



**STRAINERS:** Two new line strainers from Spraying Systems Co. feature a "threaded" bowl for quick removal and cleaning of internal mesh screen. Bowl can be rotated by hand for removal and replacement, with lugs on bottom of bowl to assist in operation. The 124-2 Line Strainers are supplied with 2 inch NPT(F) connections. 124-2½ Line Strainer has 2½ inch NPT(F) connections. Strainer heads are available in aluminum and cast iron with stainless steel screens. Bowls are made of glass-

reinforced nylon. Strainers are designed for operating pressures up to 150 psi at 100 degrees F.

Circle No. 703 on the reply card.



**CONTROL CENTER:** The Toro Company's Irrigation Div. has developed an appliance for residential irrigation systems that combines a 4-station automatic electric controller, control valves, anti-siphon vacuum breakers and a 115-volt-to-24-volt plug-in transformer. The unit, called the Greenkeeper Automatic Control Center, also contains 50 feet of electric wire and is housed in a non-corrosive console that sits on a 5-inch diam. pedestal of PVC. Greenkeeper console can be removed for storage or maintenance. Cap is provided to cover the pedestal when unit is removed. Console has a locking cover. Timing mechanism for Greenkeeper features a 2-day programmer dial with 0-30 minute timing for each station.

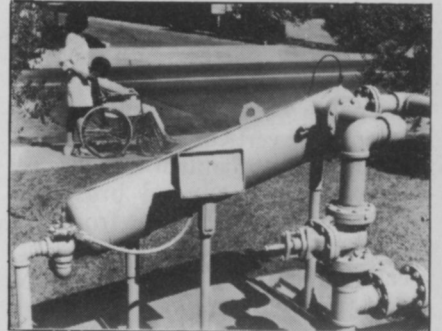
Circle No. 704 on the reply card.



**CONTROL VALVE:** Rain Bird has introduced a new line of glass reinforced nylon remote control valves. Valves are available for either electric or hydraulic

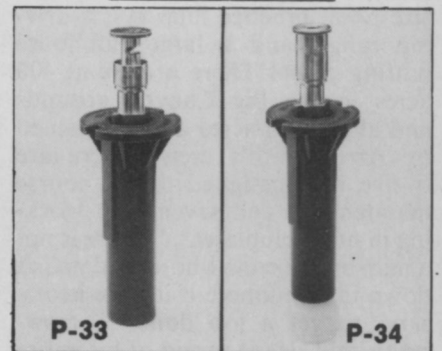
actuation. Constructed of glass-filled nylon, valve can be used in any type of water and provides corrosion resistance. Valves incorporate the following features: low wattage "snap-on" solenoid, patented Grit Filter protection, top removal of internal parts and self-cleaning inlet orifice. Valve can be adapted in field for use either as angle or globe type valve, depending on installation piping requirements.

Circle No. 705 on the reply card.



**SEPARATOR:** Laval Separator Corp. is introducing a new low-profile unit. Capable of removing 98% of +200 mesh sand and grit with a maximum of 10 psi pressure drop, the separator is available in flow rates from 3 to 4100 gpm. The low profile unit may be particularly desirable in municipal water systems, golf courses, parks and other sprinkler irrigation projects where aesthetics are of importance. A totally redesigned purge control for all model laval Separators has also been introduced which allows solids disposal to be fully automated.

Circle No. 706 on the reply card.



**POPUP SPRINKLER:** Weathermatic Div., Telsco Industries, has introduced two new polycarbonate plastic sprinklers for lawn and turf irrigation. The P-34 "Lawnmaster" has full 2-inch pop-up action and integral nylon adjustable riser. Left-hand riser threads keep pipe connections tight when raising or lowering body. Full 1¾ inch riser adjustment eliminates problems with long-stemmed grasses and turf build-up. P-33 "SuperPop" also has 2-inch pop-up action. All working parts of both sprinklers are finished to close tolerances.

Circle No. 707 on the reply card.

# Classifieds

When answering ads where box number only is given, please address as follows: Box number, c/o Weeds Trees and Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

Rates: All classifications 50¢ per word. Box number, \$1. All classified ads must be received by Publisher the 10th of the month preceding publication date and be accompanied by cash or money order covering full payment.

## FOR SALE

**8ARPS stump cutter teeth**, top quality and best price in U.S.A., D. J. Andrews, Inc., 17 Silver St., Rochester, New York 14611. Call 716 235-1230.

## USED EQUIPMENT

**SOD HARVESTER** — mounted on John Deere 20-20 diesel Iowa boon unloader mounted on trailer, pallets Rodgers sweeper with motor, Ryan Sod cutter 18-inch, army half track, Brillion 10 ft. seeder. Eckert's Turf Nursery, 4633 Curtice Rd., Mason, Michigan 48854. Phone 517 676-2173.

**1972 FLECO 26"** tree shear, \$4500.00. Jim Green, Ohio Chipper & Equipment Company, Div. of Osborne Brothers Tree Service, Mentor, Ohio 216 951-4355.

**1 — 1972 FORD LT600 with Prentice FBC 20** foot boom with 210 by-pass grapple, 16 foot dump bed with 5 foot sides. Truck and Concrete Equipment Company, 1244 Home Avenue, Akron, Ohio 44310. Phone 216 633-8230.

**1970 ASPLUNCH 12 inch chipper** 4 cylinder, like new, asking \$2,600. 1974 series 1000 tractor mounted Levco stump grinder, used only 20 hours, \$3,900. Edwards Tree and Leasing. Phone 216 967-6750.

**STUMP grinder log splitters**, chippers, sprayers, bucket trucks, all reconditioned; let us know your needs, Essco, 5620 Old Sunrise Highway, Masspequa, New York 11758. Phone 516 799-7619.

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**FOR SALE: 2 used aerial baskets** — 50 ft. working height, 2 Asplundh brush chippers. Bean sprayer, 35 G.P.M. Vermeer stump cutter 1560. Parkway Tree Service, Milwaukee, Wisconsin. Phone 414 257-1555.

**LAWN OR TREE SPRAYER**, 570 gallon fiberglass tank, Piston pump, 250 feet on hose reel, fits in pickup. Phone 219 485-2377.

**LOY CHIPPER 1971 Vermeer 671**, 650 hours, like new, make offer. Bob Calloway, 36 Hwy. East, Chillicothe, Mo. 64601. Phone 816 646-9713.

## SEEDS

**SOD QUALITY Seeds** Merion, Fylking, Delta, Park, Newport, Nugget, Adelphi, Cheri, Glade and Baron bluegrasses also fine fescues. Manhattan rye grass. Custom mixing available. Michigan State Seed Co., Grand Ledge, Michigan 48837. Phone 517 627-2164.

## HELP WANTED

**DISTRIBUTORS for D. J. Andrews, Inc.** stump cutter teeth, pockets and bolts. Best wholesale and retail price in U.S.A. Add to this exclusive area, local advertising at our expense, etc., and you have our story. D. J. Andrews, Inc., 17 Silver St., Rochester, N.Y. 14611. Call 716 235-1230, or 716 436-1515.

**WANTED — Forester to manage** watershed and supervise landscape construction and maintenance of grounds for 7,000 acre water supply facility in northern New Jersey. Please respond with resume and required salary to: Dean C. Noll, Chief Engineer, North Jersey District Water Supply Commission, Wanaque, N.J. 07465.

**DISTRIBUTORS WANTED** — For Regional Distribution of the Eager Beaver stump remover. Please reply with pertinent specifics. Full Vision, Inc., P.O. Box 647, Newton, Kansas 67114.

**MAN TO WORK AND MANAGE** all phases of tree and spray business in Michigan. Salary open. Please send resume, salary requirements, and any questions to Box 129, Weeds, Trees and Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

## MISCELLANEOUS

**EQUIPMENT SERVICE AND PARTS** — New England and New York State. Authorized servicing of aerial lifts and chippers by factory trained personnel. Specializing in Asplundh and Skyworker. Two convenient locations plus complete road service. Service contracts available. Call C.U.E.S., Inc., 603 889-4071 or 203 634-3146.

**PUGET SOUND TREE SERVICE, INC.**, 1111 No. 98th St., Seattle, Washington 98103, Stump Chipper Teeth and pockets for the Northwest. Phone 206 523-2240.

**STEEP GRADE MOWING specialists.** Earth dams or steep embankments. If it is too steep for ordinary equipment, we can handle it. GLC Corp., P.O. Box 442, Columbus, Indiana 47201. Phone 812 379-2770.

**WATER WELL LOCATING by scientific instrument.** Accurate Water Location, Inc., Route 375, Poughkeepsie, New York. Phone 914 462-0560.

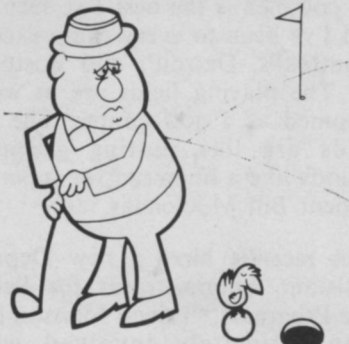
## EDUCATION-BOOKS

**AUTOMATIC IRRIGATION COURSE** Sprinkler heads, remote control valves, controllers, vacuum breakers, precipitation rates, etc. all variations covered. System design, installation, operation, maintenance. Send for free course out-line. Larson Company, P.O. Box 4453, Santa Barbara, Ca. 93103.

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## Trimnings

**Turn about is fair play.** WEEDS TREES AND TURF overheard comments from visiting Japanese horticulturalists that their number one insect pest was the American beetle!

**A little misinformation** upset a Kansas State University professor of ornamental horticulture when he discovered the European Horsechestnut offered under the nut tree category in a widely distributed nursery catalog from Pennsylvania. The listing also contained the statement "covered with large chestnuts in the fall." "The English Horsechestnut is a 'kissing-cousin' of several poisonous American Buckeyes," warns Dr. Ray A. Keen. "Most rural people are aware of the poisonous nature of buckeyes and horsechestnuts, but some urban dwellers may be uninformed." All you Euel Gibbons - types beware.

**A recent** U. S. Forest Service study indicates that trees can add as much as 27 percent of appraised land value. Related studies of half-acre lots show first 6-inch diameter tree adds \$300 per lot to appraised value; 10th tree added \$200; 20th, \$100; and 30th, nothing.

**The April 1975** issue of WEEDS TREES AND TURF featured the L.A. Dodgers' spring training camp in Vero Beach, Fla. We weren't the only ones impressed by the facility's turf condition. Robert Markus, a *Chicago Tribune* sports editor, after touring the majority of the training camps in Florida wrote in his March 19th column: "The Dodgers' training complex is the best I've seen — and I've been to every camp except Montreal's, Detroit's and Boston's . . . The playing fields are as well-groomed as a golf course. The infields are like putting greens." Sounds like a homerun for superintendent Bill Moolenaar.

**EPA recently hired** a new Deputy Assistant Administrator for Pesticide Programs. "Edwin Johnson has been intimately involved with organization, policy and budget issues in EPA's pesticide programs

since the Agency's beginning. His two years of experience as director of pesticide operations and strategic studies make him well prepared for his new post," said EPA boss Russell E. Train. The pesticide program is in the midst of implementing several far-ranging regulations. Standards governing the certification of pesticide applicators and new regulations for the registration and classification of pesticides will increase environmental protection and provide safe, effective products for farmers and other users, said Train.

**It's back to school** for some Massachusetts arborists this summer as they sign up for a course on the recognition and control of common diseases of the shade and ornamental trees of Massachusetts. The course is being offered at the request of the shade tree industry and will be geared primarily to meet the needs of the professional arborist and municipal tree officials. Classes will be held at the University of Mass. in Amherst.

**A new,** 42-page directory of the leading builders of the country's golf courses is now available without

charge from the Golf Course Builders of America (GCBA), an association of major golf course contractors based in Washington, D.C. The directory contains listings and biographies of the association's members, both builders and suppliers, along with a selected number of advertisements. Contractor pictures and biographies identify the members and list their recent golf course construction jobs thereby giving architects, land developers, recreation groups and government recreation officials an opportunity to check the work of the members. The Golf Course Builders of America, located at 725 15th St., N.W., Washington, D.C. 20005, will send the pocket-size directory upon request. GCBA was organized five years ago by a group of middle-Atlantic golf course contractors. The association now has members from coast to coast and recently held its fourth annual meeting and exhibit during the New Orleans convention of the Golf Course Superintendents Association of America. Membership in GCBA is open to qualified golf course contractors if they meet construction experience requirements. Suppliers to the industry are accepted as associate members.



**Country humorist Jerry Clower** has been retained by Ditch Witch to help promote their line of underground construction equipment. Clower made more than 200 appearances during 1974 telling the

stories made famous on his albums. He is a featured performer on the Grand Ole Opry and has made scores of radio and television appearances.

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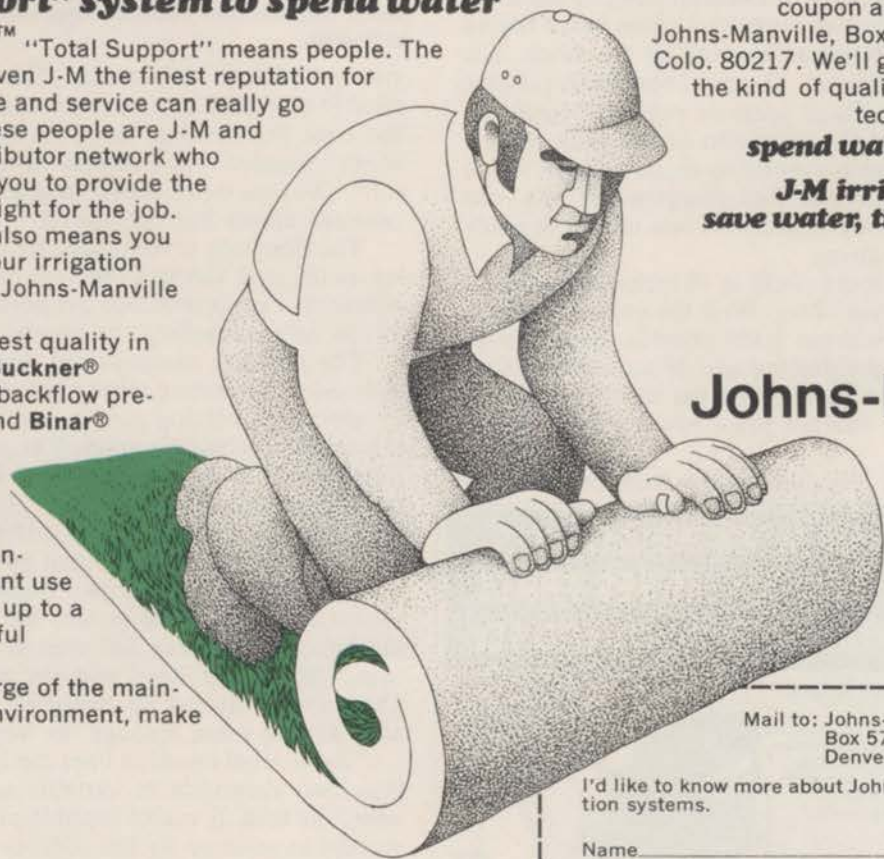
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## Proportional Mixing: A New Sprayer Idea

IT IS INTERESTING that there has been very little effort devoted in the past 10 to 15 years to the development of pressure compensated spray equipment. One gets the impression that everyone has been so busy trying to refine existing spray outfits that very little attention has been directed to new and different concepts in chemical spraying.

But this is not true. Soaring chemical costs, increased-threat of short supplies and operator safety have prompted a few people to look upon proportional mixing with renewed interest.

John Behey is one. As president of Eastside Spraying Service, Kirkland, Washington, he has been working on his own spray rig design for nearly 15 years. And the "brains" of his unit is a pressure compensator.

"My first real reason for attempting to design this outfit was safety," said Behey. "The original concept would eliminate the need to handle chemicals and improve the accuracy of mixing and applying."

Behey's safety features eliminates flushing out the tank containing unused pesticide mixtures. Because the tank contains nothing but fresh water, there is no corrosive action in the tank by the residue.

In early 1974, Behey built a prototype unit using commonly available parts. A Delavan pump is mounted on the front bumper and connected to the truck engine with a 90 degree Ohio gear box and an air clutch. The spray pump is an 800 psi, 55 gpm John Bean positive displacement unit with its pressure regulator removed. This unit is presently in operation on his tank truck.

An improved unit is now being manufactured which incorporates the original five components into one mechanical unit. Behey expects the new unit to be ready for market in late spring.

The single unit spray outfit is 18 inches wide, 24 inches high and 52 inches long. With the engine it weighs 1,800 pounds and without 1,100 pounds. Behey, with the help of Weyer engineering and Manufacturing Co., Enumclaw, Wash., has designed the unit to adapt to most existing rigs. Market price has not been determined.

"The beauty of this outfit is the chemical handling

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John Behey demonstrates his 1974 prototype sprayer at last year's International Pesticide Applicators Association meeting in Seattle.

system," Behey points out. "The chemicals are supplied in recyclable five gallon containers and attached to the hose line leading from the truck tank by a "dry break" coupler. The operator never touches the chemical." The cans come sealed from the formulator and are returned empty but still sealed.

The flow rate is controlled by volume. As the water leaves the tank through the hose line, the chemical is injected at a predetermined proportion and the two are mixed before reaching the nozzle.

The pressure compensated pump operates only on demand so no mixing takes place unless the spray gun is in operation. Mixing can be controlled within plus or minus one percent accuracy. The variable displacement pump operates only as needed, so the spray nozzle controls the entire operation.

The pump can inject two different chemicals at the same time or the operator can switch from one to the other, since it is actually two pumps in one. The entire system shuts down the instant the nozzle is closed and the only mixed spray left over is that in the hose between the nozzle head and the proportioning pump. This can be flushed by removing the concentrate can and running water through the hose for a few seconds.

"Additional injection lines can be added to mix more than two chemicals in variable amounts at the same time," he said. It is also capable of pumping a wettable powder in solution by the addition of a small agitator.

There is no waste or spillage with Behey's system. The tank life is extended because nothing but water touches its walls. And with increased federal regulations on operator safety and chemical handling, Behey feels this type sprayer may be the system of the future. □

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