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For 45 years, the Rain Bird Brains have feathered the contractor's nest with everything he needs.

From trickle irrigation to automatic sprinkler systems. From pipe to fittings — even complete service facilities.

And plenty of sound advice.

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prayer, give your local Rain Bird distributor a call.

He'll show you why, since 1933, the best solution to your irrigation and sprinkling problems has just been a matter of using our heads.

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Weed-eating fish cleans lakes.



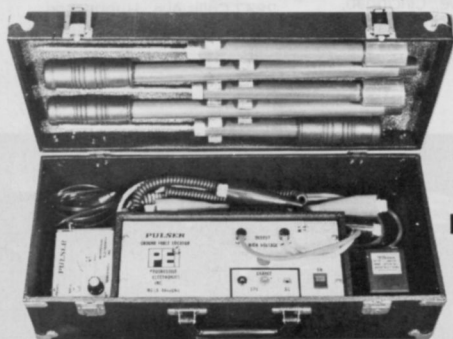
For 2,000 years, the Amur has been used to keep lakes and ponds clear of choking weeds and smothering algae. It's the only fish in the world which lives exclusively on weeds, grass and algae. Tested in America for over 12 years, the Amur has proven successful in golf course ponds, reservoirs and small lakes. And at far less cost than expensive repeated chemical applications. For details, call or write Bill Whiting, general manager, (501) 942-2515.

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FAULT
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High Resistance Ground Faults are no problem for "The Pulser."

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Groundcovers from page 70

European wild ginger (*Asarum europaeum*) grows to a height of 6 inches. This plant is adapted to moist soils high in organic matter in deep shade. The leathery, kidney-shaped foliage is an attractive, glossy, deep green. Protect from drying winter and summer winds. A highly recommended groundcover where adapted. Hardy throughout the area if proper environmental conditions are provided.

Japanese spurge (*Pachysandra terminalis*) spreads slowly to form a mat 6-8 inches tall. Spurge does best in moist acidic soils in full shade under Norway Maples. Well-drained soils high in organic matter should be provided. Prune back plants before growth begins in spring. A variegated cultivar 'Silver Edge' is available. Additional winter protection is required for the variegated types. The plant is hardy where planted in an appropriate site, although winter mulch is required in western and northwest parts of the central plains.

Stonecrop (*Sedum* species) spread slowly to form a mat or a clump-form 3-15 inches high. Low growing (mat types) may winter burn in exposed places. Cold hardy throughout the central plains. It has abundant flowering and requires little care. Where low maintenance is desired, sedums are choice groundcover. *Sedum acre* — mat former with yellow flowers. *S. sexangulare* — less vigorous than *S. acre*, but otherwise similar. *S. spurium* 'Dragon's blood' grows 4 inches tall with dark red flowers in early summer.

Establishment and Maintenance

To establish a groundcover prepare the site as follows: first remove all sod. Then till to a depth of six to 10 inches. If possible improve soil structure and thus drainage by the addition of soil amendments, such as coarse sawdust, ground corn cobs, rotted manure, pine needles, shredded hardwood bark, shredded tree leaves, compost or other readily available and inexpensive amendment. One-third of the mix should be organic matter. To obtain this mix, apply a 2-3" layer of the amendment to the soil surface. Incorporate to a six-inch depth. Don't "pocket-modify" a soil, i.e., modify planting hole; either modify the entire ground-cover area or don't modify.

Where economically feasible fumigate the soil to eliminate weed seed, soil insects, and disease organisms. Check with your local county extension office for the recommended soil fumigants for your area.

Take a soil test to determine pH and the present phosphorus and potassium levels. Based on these tests, appropriate recommendations will be made for your site and groundcover. The amount of nitrogen required will depend on the specific ground-cover grown, soil type and site characteristics, but normally 4-5 pounds of 5-10-5 fertilizer per 100 square feet is recommended.

Spacing of plants depends on desired or available capital for purchasing plants and growth rate of specific groundcovers used. As expected, the closer the spacing the sooner the ground is totally covered. Once this occurs weed control is generally unnecessary.

Continues on page 74



FAIRWAY PHANTOM

Now you see it, now you don't. Suddenly it's gone... like a phantom. It's a Ditch Witch Modularmatic vehicle with vibratory plow, a rig that installs golf course irrigation systems without digging trenches.

It handles the job so quickly that it doesn't even have to stop course play.

Vanishing Act

It pulls pipe and control wire underground in one simultaneous operation... leaving nothing but a thin slit in fine golf-course turf... and that quickly disappears.

No scars from trenching.

It places pipe as deep as 30 inches and is the fastest way to handle the job in a wide variety of soils.

Choice of HP


Vibratory plow modules are available for R30, R40, R65 and R100 vehicles from 30- to 100-HP-class. Or you can choose a Combo module for R30, R40 or R65 units, and have both vibratory plowing and trenching capabilities in a single unit.

Watch it work

Call your Ditch Witch dealer for a free demonstration. Or contact the Charles Machine Works, Inc., P.O. Box 66, Perry, Oklahoma 73077. TWX 910-830-6580. Call Toll Free (800) 654-6481. Circle 145 on free information card



**DITCH WITCH[®] IS
THE ANSWER!**

Ditch Witch and  are registered trademarks of the Charles Machine Works, Inc.

Weed Control

Controlling weeds in newly planted groundcovers accounts for the high maintenance during the first two to four years. Several approaches to weed control are available. These include hand cultivation, soil sterilization, mulches, and herbicides. Usually a combination of the above methods is used.

If used in sufficient quantities (3-5 inch layer), organic mulches will control or reduce weed infestations and thus reduce hand labor. Unfortunately this amount of mulch and the application of it can be costly. Further, additional amounts of organic matter must be added yearly to maintain an effective layer.

Preemergence herbicides (treflan and dacthal) will reduce weed problems. Read and follow label direction carefully; some groundcovers will not tolerate these herbicides and all of them will be injured by excessive amounts.

Research at the University of Delaware indicates root dipping in activated charcoal will allow use of increased amounts of herbicides and more phytotoxic ones to obtain more effective weed control.

Watering

Maintain adequate soil moisture during establishment. Moisture stress during these initial 2-4

years will slow establishment. After the mat is formed, water to the requirements of the specific groundcover. Regardless of the groundcover grown, allow the water to penetrate deeply, i.e., wet the entire root zone. If feasible, water early in the day to allow foliage to dry before nightfall. Avoid brief, light sprinkling.

Pruning

Initial pruning is done to encourage branching in those groundcovers with basal buds such as vinca (long-trailing, branch types) but not ajuga. Once established minimal pruning is required. Prune to remove dead or unhealthy tissue; maintain desired density and form; keep planting within bounds; and aid in rejuvenating a planting.

Winter Protection

Select groundcovers for your site carefully. Adapted species and cultivars are less likely to suffer winter injury. Soils properly amended and ones that drain well reduce the amount of root and crown rots that predispose groundcovers to winter injury. Use a coarse mulch after the ground freezes to lessen the likelihood of heaving and desiccation. Don't allow salts used to melt ice to contaminate the soil or severe injury to the plants and soil structure will occur. **WTT**

ONE MANhandling

TRAILEVATOR the hydraulic elevating trailer that lifts its own load in seconds...



Trailevator lowers to ground level for fast, 'roll aboard' loading, then lifts its own load to hauling position in seconds. Lowers and lifts without uncoupling from towing vehicle. Saves time, saves money. Four models, two capacities: 3,000 lbs. and 2,000 lbs. Bed sizes up to 5'-10" x 10'.

TILTSTER, the low bed trailer that tilts...

Drop-axle, tilt-type trailer handles loads up to 5,000 lbs. Simple one-man operation. Easy access, tailgate ramp for ground level or low platform loading. Single and tandem wheel models. Bed sizes to 5'-10" x 12'.



MagLine

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New EXCEL HUSTLER 261

Mows a full 60" where most 50" mowers can't go!

A new concept deck design* turns the EXCEL HUSTLER 261 into a 4-way system: for mulching, or discharge to side, to rear, or into optional catcher. Adjustment is no trick at all. Operator can change from one mode to another in the field, without using tools.

The new mid-size 261 is the latest performer to wear the proud EXCEL HUSTLER name. Featuring the proven dual hydro drive, it introduces a whole new generation of innovative features:

- all-new in-line power train
- new quiet power engine
- shorter wheel base
- and the multi-option deck

For groundskeepers who must mow narrow passages, its wide 60" cut with only 3" wider running width may be the finest new feature of all!

Both mowing deck and engine are mounted on a single floating frame, maintaining constant relationship. Resulting straight line belt drive produces top power efficiency and long belt life. New deck design minimizes scalping.

Dependable Briggs & Stratton 16 hp 4 cycle, twin cylinder engine; service and parts are as close as 25,000 factory trained authorized dealers the world over.

Watch for a field demo or write for free literature and Distributor's name. Call toll-free (800) 835-3260; in Kansas or Canada, call (316) 327-4911 collect. EXCEL HUSTLER turf and groundskeeping equipment is built right by Excel Industries, Inc., Box 727, Hesston, Kansas 67062.

For GSA: GS-07S-03665 For HUD: OAH(CO)m 2635

* patents pending

EXCEL HUSTLER

Turf Equipment

There's a difference!

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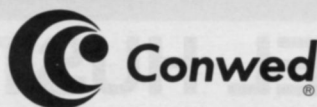
Conwed[®] Hydro Mulch[®] 2000. It's in the bag.



Hydro Mulch[®] 2000 is a ready-mixed tackifier and mulch in one bag. That simplifies storage and helps eliminate loading errors. Application is fast and easy. Hydro Mulch 2000

fibers cut post job maintenance costs and provide protection against costly repairs and redo's. The special tackifier helps hold down the fiber mulch, seed and fertilizer while it protects against wind and water erosion. The fiber mulch holds water and stabilizes temperature variances for fast seed germination and strong plant starts. A temporary green dye permits monitoring of application and gives the job a finished look.

Write for informative brochure. Conwed Corporation, Fibers Division, 332 Minnesota St., P.O. Box 43237, St. Paul, Minnesota 55164. Phone: (612) 221-1190.



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to total
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Agricultural Products Company, Inc., Ambler, PA 19002

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WT&T

PRODUCTS

Brinly-Hardy Company has introduced a new box scraper for tractors with category, "0" or "1" hitch. The scraper may be operated in forward or reverse gear, with the cutting action controlled by the upper link on the 3-point hitch. Both front and rear cutting blades are high carbon steel and may be reversed for wear.

The scraper is available in three or four foot widths and may be purchased with or without the Binly tubular hitch mast. The mast is recommended for tractors up to 35 horsepower and equipped with category "0", "1" or special Japanese category "1" 3-point hitch. An optional scarifier kit is available.

Circle 701 on free information card



The new **OLYMPIC 254** chain saw incorporates design and safety features demanded by professional woodcutters. Electronic ignition and an advanced anti-vibration system head the list of features. Electronic ignition eliminates service of points and condenser and assures longer spark plug life with hotter spark for uniform peak performance.

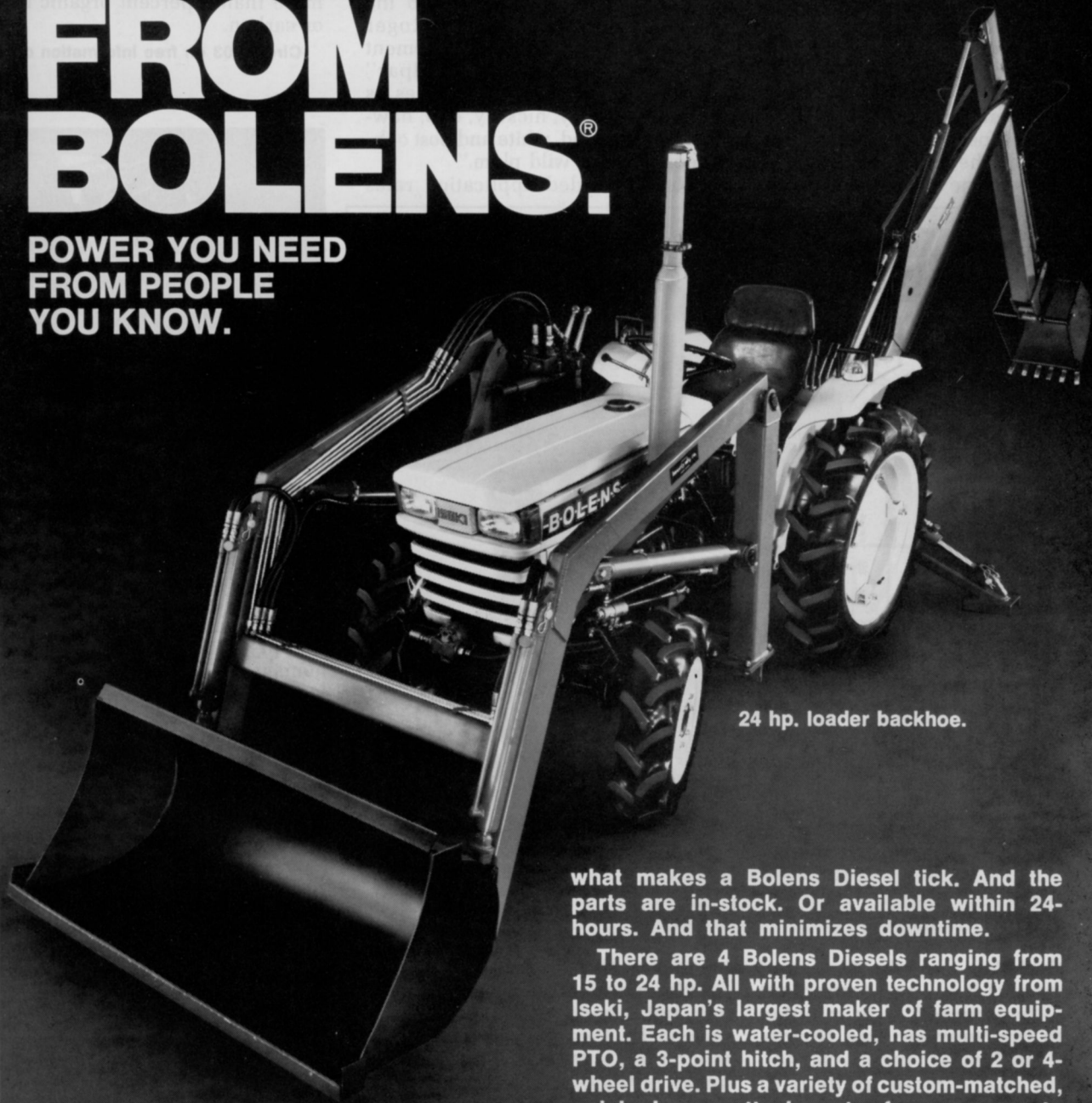
The 254's anti-vibration system effectively isolates engine and chain vibration from the operator by rubber mounts between handles and power head. The effect is a smoother operating unit which lessens operator fatigue and reduces possibility of production cutter's affliction called "white fingers."

The 3.3 cu. in. unit also features a new, quiet muffler which blows exhaust away from operator, protective front and rear hand guards, safety trigger interlock to prevent accidental throttling, and a positive choke lever. Bar and chain lengths up to 24" are available.

Circle 702 on free information card

DIESELS FROM BOLENS.®

**POWER YOU NEED
FROM PEOPLE
YOU KNOW.**



24 hp. loader backhoe.

Match the work that you need done with the right Bolens Diesel, and you'll have a tractor that works when and where you need it.

To get the right Bolens Diesel, see your Bolens dealer. He'll suggest one that has the maneuverability and versatility that you need to get the job done. Day after day. Year after year. And if after all that dependable service something should go wrong, just give him a call. He's been factory-trained so he knows

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what makes a Bolens Diesel tick. And the parts are in-stock. Or available within 24-hours. And that minimizes downtime.

There are 4 Bolens Diesels ranging from 15 to 24 hp. All with proven technology from Iseki, Japan's largest maker of farm equipment. Each is water-cooled, has multi-speed PTO, a 3-point hitch, and a choice of 2 or 4-wheel drive. Plus a variety of custom-matched, quick-change attachments, from mowers to snowthrowers and backhoes to front-end loaders. Or anything in-between.

The Bolens Diesel and the Bolens dealer. Equally capable. Equally dependable. See them today. For the name of the Bolens Diesel dealer nearest you, call 800-447-4700 toll-free anytime (in Illinois, call 800-322-4400). Or write the FMC Corporation, Port Washington, Wisconsin 53074.

FMC

"Velpar" "Gridball", a pelletized brush herbicide, has been approved by the EPA for control of undesirable woody plants in non-cropland areas. It has been labeled for use in Arkansas, Louisiana, the eastern half of Oklahoma and Texas, and all states east of the Mississippi, according to the Du Pont Company.

The pellets are distributed in a random grid pattern. As rainfall dissolves them, the herbicide is moved into the root zone and is absorbed by

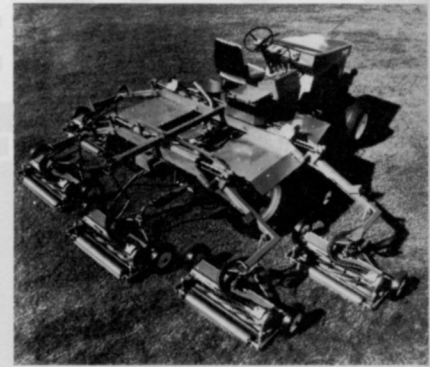
the woody plants during periods of active growth.

"Initial symptoms of herbicidal activity generally appear in three to four weeks after sufficient rainfall has carried the herbicide into the root zone," according to Roger Rohrbough, product development manager for Du Pont. "Velpar" "Gridball" controls such species as dogwood, cherry, hickory, elm, hawthorn, maple, red, white and post oak, sweet gum and wild plum."

Recommended application rates

range from 10 to 40 pounds per acre with higher rates being recommended for hard-to-kill species, for fine-textured soils such as clay and clay loam, and for soils containing more than 5 percent organic matter or carbon.

Circle 703 on free information card



The Toro Company has introduced the HTM-175, a diesel-powered, seven-gang all-hydraulic reel mower. The ability of the HTM-175 to produce a superior quality of cut consistently under a wide range of conditions is due primarily to the unique design of the reel units, according to Dennis Brown, marketing manager. Each weighs 110 pounds less than Toro's wheel-driven gang mower units. They also feature a coupling system that keeps the units in balance and enables them to follow precisely the contour of the turf.

The prime mower of the HTM-175 is a Perkins 4-cylinder 236 c.i. diesel with high flotation tires to reduce compaction and tire marking. The tractor has power steering, four-speed transmission, full instrumentation and an adjustable foam-filled contour seat with backrest.

The HTM-175 will mow swaths from 31 inches to 14 feet, 7 inches with a height of cut from $\frac{3}{8}$ of an inch to 2½ inches. It can mow up to nine acres per hour at recommended speeds up to 6 m.p.h.; for transport, the unit can travel up to 20 m.p.h.

Six hand controls at the driver's side simplify mowing operations. Reels 1, 2 and 3 operate together from a single control. Reels 4 through 7 operate individually. The reel units can be raised and lowered in any sequence and pulled up to 8 feet in width to clear tight places with no units ahead of the driver to obscure front view.

Quick height-of-cut adjustment streamlines mowing schedules by

Continues on page 82



Yes! You can dig it . . . and transport it . . . and transplant it — by yourself — in minutes with the Vermeer Tree Spade. It's the fastest, most efficient, most economical method of transplanting or packaging trees and shrubs in existence today. Out-lasts, out-performs and out-maneuvers a whole crew of laborers. And, the best part? It's a one-man operation. Saves you thousands of dollars annually

because the Vermeer Tree Spade operates on a tankful of gas, not a handful of expensive paychecks. Five easy-to-operate machines. Available in trailer, tractor or truck-mounted models. Each equipped with hydraulically controlled steel "spades" that handle the entire job quickly and gently. So you can dig it . . . with trees up to 8" in diameter. Ask your Vermeer dealer for a demonstration today.



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Hydro-seed with Cellin Fiber Mulch

Economical, weed-free beauty and erosion control

CELLIN FIBER MULCH

A product of Cellin Manufacturing, one of the nation's largest producers of cellulose fiber products. It is available from New England to the Gulf states.

PROTECTS THE SOIL

Cellin fiber mulch creates absorbent "mini-umbrellas" to protect the ground against rain. This allows the rain water to seep into the soil slowly, preventing erosion.

NO WEEDS IN CELLIN

Cellin fiber mulch is a re-cycled product which contains no weed seeds. Spray in one operation with no possibility of introducing aggressive growing cereal to compete with your spec. seeds.

PROTECTS SEEDLINGS

Cellin fiber mulch provides a thermal barrier that minimizes variances in ground temperatures. This helps assure germination.

GREEN, BIO-DEGRADABLE

The water-soluble dye in Cellin mulch gives the hydroseeder a visible gauge for metering the ground being sprayed. The color gives an attractive, temporary green appearance to the ground. The mulch fibers gradually decompose as the grass firmly takes root.

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LORTON, VIRGINIA 22019
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