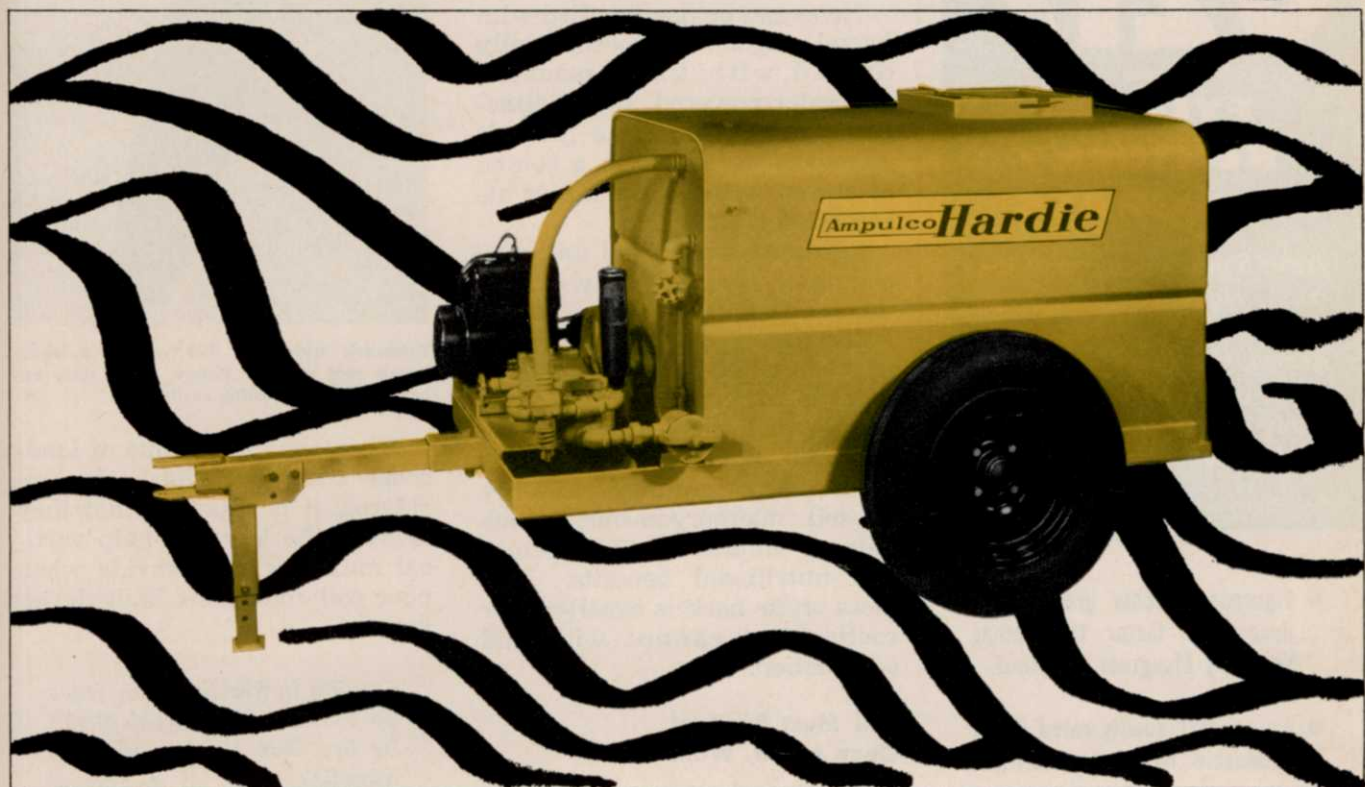


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**New Features... Nine Lives, too!**



### **THE NEW HARDIE HI-PRESSURE SPRAYER**

Here's the sprayer for fairways, shade trees, weeds, lawns & shrubs that makes all others obsolete. New from front to back, top to bottom! Hardie builds it on a rigid frame that won't twist, bend or sag, even when used over rocky terrain. The power plant is new. Gas powered, four cycle, with easy recoil starter. The pump is Hardie's new, fully-enclosed hi-pressure model. You get your choice of 10 or 20 gpm, up to 400 PSI.

The tanks are new... and you choose from 150 to 500 gallon capacities with wood, steel or stainless steel construction. Steel tanks are available with the latest and finest epoxy linings obtainable. All feature options of truck or trailer mountings, hose reels, wide-area booms, and an operator platform—if you need one! Every sprayer comes complete with Hardie's new, extra tough finish, valve manifold and automatic continuous agitation.

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## FYLKING KENTUCKY BLUEGRASS\*

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- Vigorous rhizome growth produces sod faster than other Kentucky bluegrass varieties!
- Overall turf quality rated "best obtainable" by noted authorities!
- Dense turf with deep, rich green color—even under close cutting, summer heat, drought, and hard usage.
- Proven resistance to stripe smut.
- Resistant to Leafspot, Stem rust, Leaf rust, and Fusarium roseum.
- Adapted to close cutting heights commonly used on tees and aprons of greens. Recommended cutting height, 1/2 to 3/4 inch.

For additional information and names of authorized distributors, write Jacklin Seed Co., Inc., Dishman, Wash., 99213.

\*This variety is licensed internationally solely and jointly to Jacklin Seed Co., Inc., Dishman, Wash., and Hogg & Lytle Seeds, Oakwood, Ontario, Canada.

be from 18 to 36 in. or more deep, depending on plant size and possible depth of rooting. Holes should be slanted inwards toward the tree trunk. Do not drill holes within a few feet of large tree trunks, since care must be taken to avoid damage to larger roots.

Holes can be hand drilled with barrel augers, or mechanically drilled with tractor-mounted, generator-powered, or gasoline-powered augers. Some grounds managers use water as a source of power, with threaded pipe attached to a hose.

Fill holes with a soil mix consisting of approximately 60% of the soil at the site, 10% of a partially decomposed humus, 10% peat moss or similar material such as fir bark, and 20% of a long-lasting wood waste.

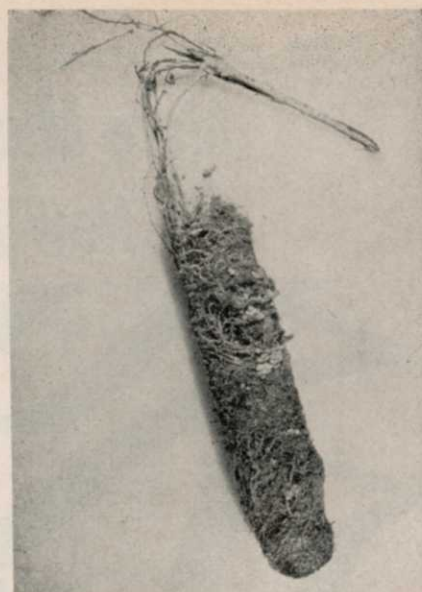
Humus provides conditions favorable to continued activity of soil microorganisms, which help to improve soil structure and nutritional benefits. Peat moss or fir bark is excellent for rooting but cannot withstand compaction.

### Soil Must Be Kept Open to Air, Water

The long-lasting wood waste serves to physically hold the soil open. This permits easier water entry into and through soil and exchange of oxygen and carbon dioxide gases between the atmosphere and soil environment.

It has been suggested that sand or gravel be used to fill the holes. Though it is true that such materials will allow better air and water movement into the soil, the mix suggested here will fulfill the same basic function and also provide a favorable medium for root growth. In such coarse-texture soils as sands and decomposed granite, the soil mix will also add to moisture-holding capacity.

*These holes must be left open to the soil surface.* If they aren't, water movement in the soil may be restricted. Holes must also be within the plant's root area. Roots do not seek favorable air and moisture conditions; they only grow where such an environment exists.



**Dramatic evidence** that vertical mulching boosts root growth. Picture shows roots exhumed from a mulching cavity.

When the great value of landscape trees and shrubs is considered, it is apparent that they deserve the low-cost help vertical mulching can provide when poor soil conditions limit development.

Coming in March: "Can Trees Be Fertilized Economically?" by Drs. Dan Neely and E. B. Himelick. Part of a Special Fertilization Issue.

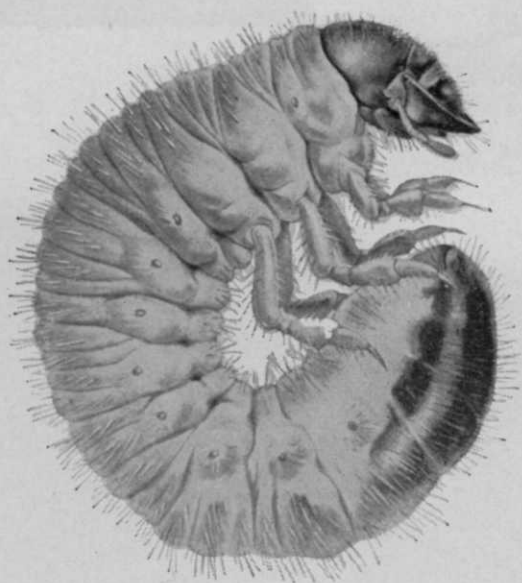
### USDA Tests Show Greater Washoff of 2,4-D Ester

Recent Georgia tests conducted by scientists of the U. S. Department of Agriculture's Agricultural Research Service show that 2,4-D in the ester form is more easily washed from soil than amine formulations.

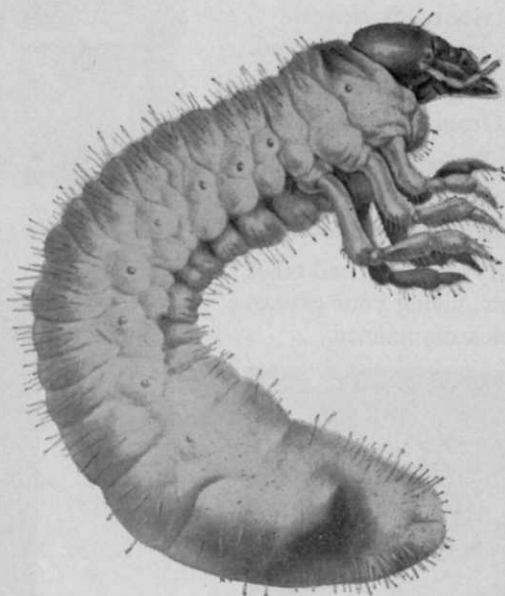
Using simulated rainfall, runoff from test plots was trapped and tested for herbicide content. Results showed that up to 27% of 2,4-D ester was washed off, but only 3% of the amine, indicating a close connection between herbicide form and loss from rainfall.

Lower amine loss was attributed to its much greater water solubility, which enables it to penetrate soil more readily than ester forms. Tests were conducted at experimental plots in Watkinsville, Ga., with cooperation of the Georgia Agricultural Experiment Station.

# Dieldrin stops these root destroyers dead— before they can ruin turf.



White grubs “work” in the soil for 2-3 years—chewing roots, cutting grass off from water and fertilizer in the soil.



Japanese beetle larvae makes grass look sick. Control with dieldrin breaks life cycle, helps keep turf vigorous.

**D**IELDRIN INSECTICIDE controls all species of root-destroying grubs—including Japanese beetle larvae and white grubs (June beetle larvae). Leaves them to rot in the soil—to “feed plants” instead of feeding on them.

Dieldrin gives you long-lasting effectiveness plus a choice of applications. Can be applied any time after the soil warms up.

Dieldrin can be put on in fertilizer, or in granular form. Liquid concentrates and wettable powders are available for spraying or drenching.

Use dieldrin ahead of time to knock out soil insects *before* they can discolor and damage turf. Or use it to stop an infestation.

Control with dieldrin is extremely effective—so thorough that grub-eating moles and rodents

can't find food in the treated area and leave.

Full details for using dieldrin are on the label. For more information write Shell Chemical Company, Agricultural Chemicals Division, 110 West 51st Street, New York, New York 10020.

Always read and follow label directions before using any pesticide.



## dieldrin

A PRODUCT OF SHELL CHEMICAL COMPANY

# International helps take the drudgery out of spring work

Consider just a few of the jobs you could zip through with the new International® 2424 turf tractor:

Building new service roads, driveways, walks and terraces. Spreading gravel.

Planting or moving trees. Knocking out dead trees. Grubbing stumps.

Raking thatch, matted leaves, other debris. Aerating, fertilizing and re-seeding, all in the same operation.

Spraying for early kill of ivy and other broad leaf plants, giving your grasses a chance for quick dominance.



Just a partial list of spring chores, but the 2424 will put you on top of them so fast you'll probably want to schedule other projects — the ones you've been putting off for years.

And this is the same tractor which will keep you ahead of your mowing later on. Quite a combination. 47 hp (43.5 diesel) in a low profile tractor that outmaneuvers every other tractor in the compact class.



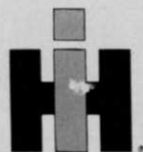
The tightest turning radius ( $8\frac{1}{2}'$ ). The shortest wheel base (70"). Only 51 inches to the top of the hood. And the only tractor in this class with full-time hydrostatic power steering.



A differential lock that feeds power to both rear wheels regardless of traction. No spin-out. No gouging of turf even when you start up from a dead stop on an up-slope. On side hills it holds the nose straight, prevents down-drifting.

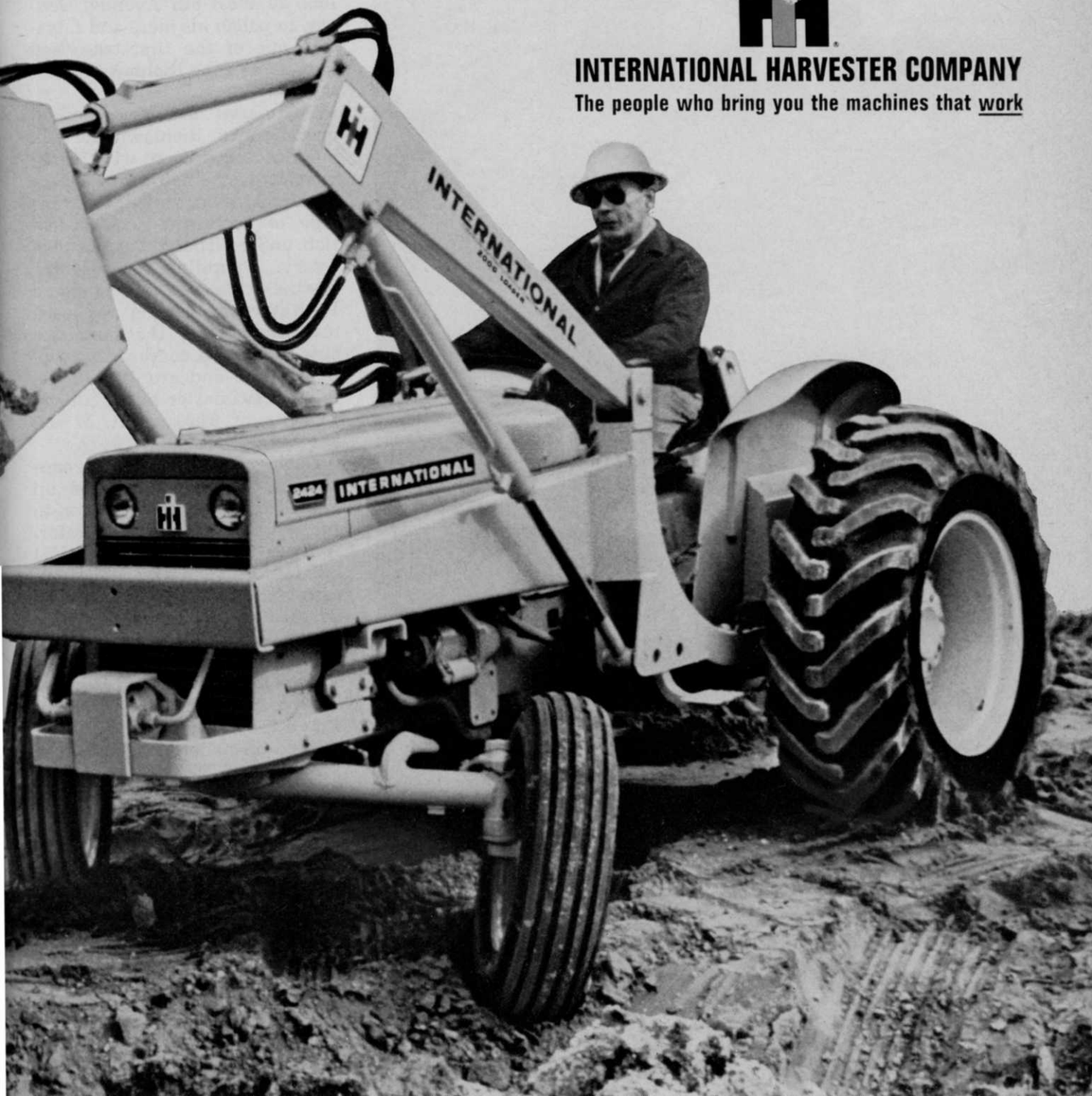
Dual range transmission with 8 forward and 2 reverse speeds (8 and 8 optional for loader work). Live, constant running power take-off. Draft-sensing 3-point hitch. Live hydraulics. Wide, high-flotation tires. And more.

You'll just have to get the rest of the story from your IH dealer. Maybe a demonstration? And he'll be glad to talk several different methods of financing. One, two or three years to pay. Deferred payments—up to three a year with no extra charge. Leasing. Leasing with a purchase option. Or *you* suggest something. He wants to make a deal!

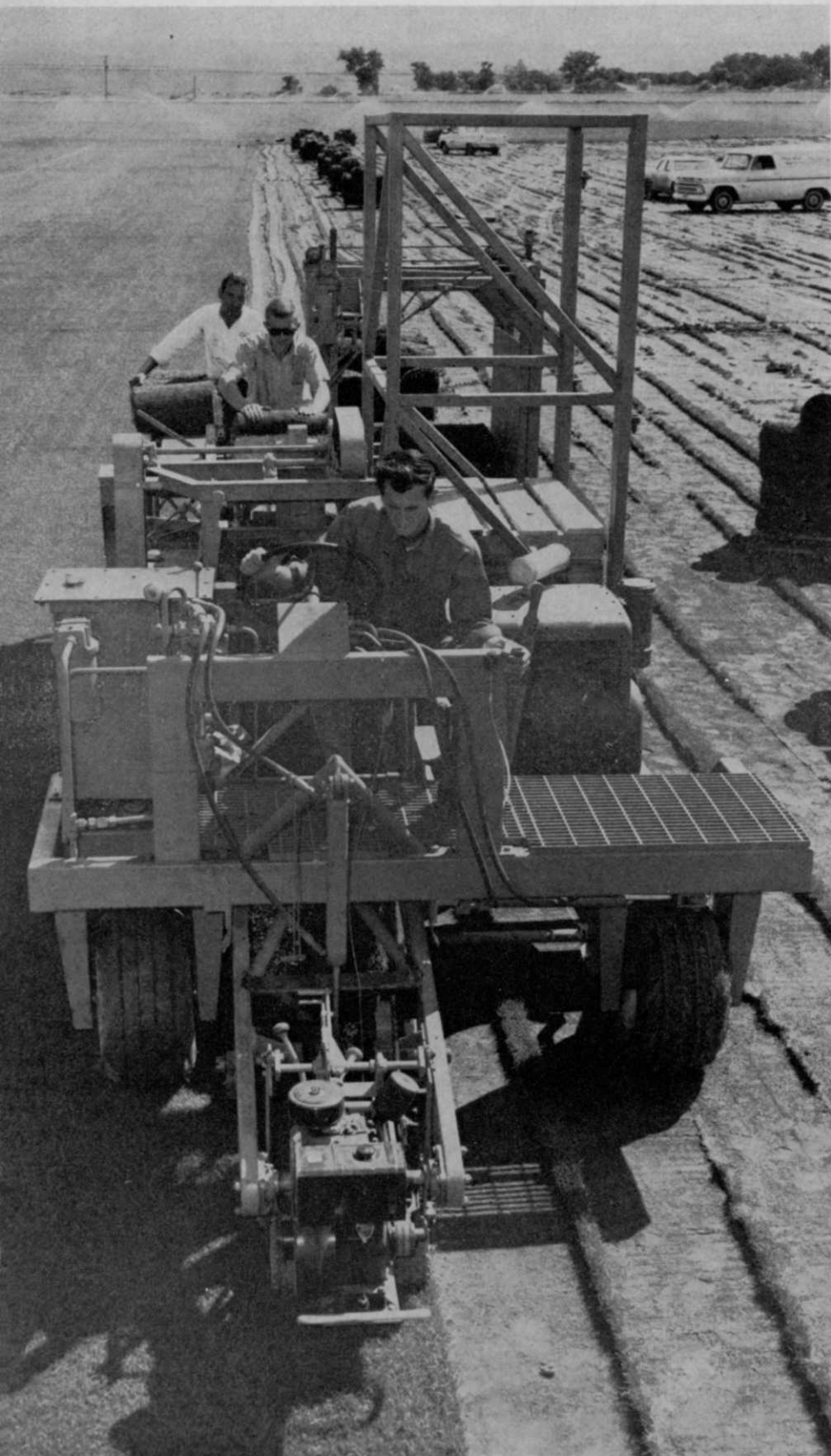


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The people who bring you the machines that work



# Richlawn's "Turfmaster" Eases Sod Harvesting



With 720 acres of mature sod and a contemplated 250 more acres in 1968, Mel Rich, president of Richlawn Turf Farms, Denver, Colo., grew impatient with the conventional harvesting method requiring a small army of men to roll and load the cut sod. After spending some time designing a new cutter, he engaged Bullock Engineering, Inc., 70 West 6th Avenue, Denver, to polish his ideas and fabricate one of the first true "sod harvesters," the Richlawn "Turfmaster."

Turfmaster has now been in operation at Richlawn for six months. Operating with three men, it does a job that used to require 11 men, with the advantage of round-the-clock operation under floodlight when necessary. Operating the machine are the driver and two handlers. With power steering for easy maneuverability, the harvester cuts sod into a continuous strip, 18 in. wide and a uniform 1 in. thick. Turfmaster has a cutting capacity of 8,000 sq. ft. of sod per hour.

During harvesting, the continuous sod strip is picked up and lifted by chain conveyor to the level of the second operator. A Ryan automatic cutoff knives sod into 6-ft. lengths, which are conveyed to the handler, who lets the sod roll itself. He then places the roll on a transverse belt conveyor, which deflects the roll to another conveyor carrying it to the back of the machine, where the second handler stacks the sod on pallets.

Pallets of 35 rolls each are lowered to the ground every three minutes by a rack and gear arrangement. Another worker picks up pallets with a forklift and loads them on waiting trucks. Powered by a 35-hp. Wisconsin air-cooled engine, the self-propelled harvester is capable of continuous cutting at 5 m.p.h., with an operating speed

range of 40 to 100 feet per minute. A power takeoff drives the various harvester components. Transmission provides high and low forward speeds and reverse. Other features include hydraulic braking and low-pressure tires that will support a load of 10,000 lbs.

#### More Harvesters Planned

Only one Turfmaster has been built to date, and this is employed on Richlawn's main farm, conventional cutters being used on the other two farms. All three locations are southeast of Denver in a lowland area offering an average depth of 12 ft. of loamy subsoil.

As its acreage expands, Richlawn plans to build additional machines for use in its own operation. Turfmaster is being manufactured for sale by Bullock Engineering, and is reported to cost in the neighborhood of \$23,000. Further refinements of the cutter now in the planning stage include automatic stacking and a new guidance system.

With Turfmaster in operation, Richlawn Turf Farms has an average-day capacity of 100,000 sq. ft. of cut, loaded, and delivered sod, 70% of which is installed by Richlawn personnel. Rich, who moved from landscape contracting into sod production, now confines his contract work to sod installations. The remaining 30% of Richlawn's production is installed by landscapers and homeowners.

Three grass varieties are grown by this Colorado producer: Kentucky bluegrass, Merion, and Scott's Windsor, 200 acres of which were recently established. When sod is stripped, at an average age of one year, fields are immediately reseeded.

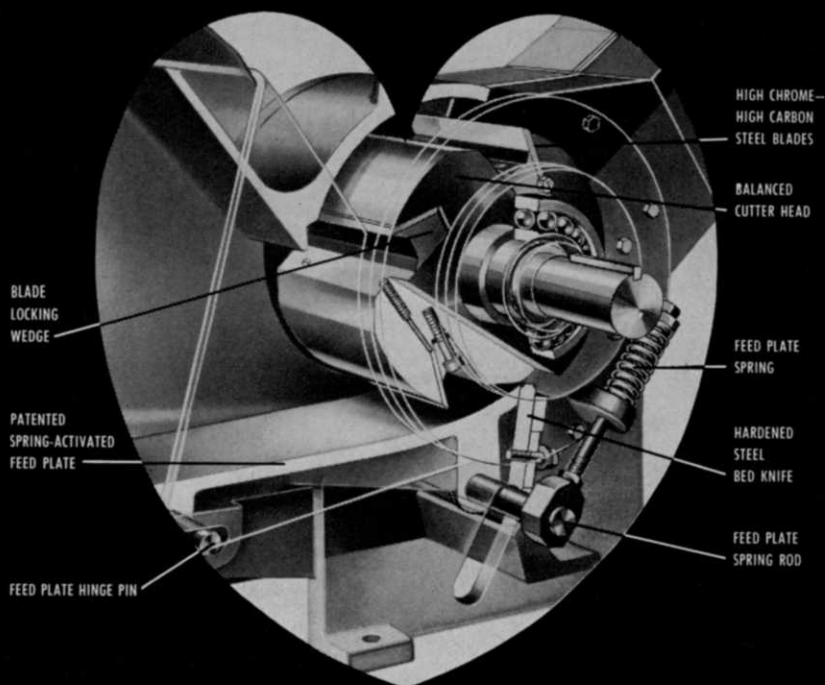
Preparation for initial seeding or for reseeded begins with a five-bottom 14-in. John Deere plow. Ground is then rototilled to a depth of 5 in. with a Howard Rotavator. Pulverized to a fine consistency, fields are leveled with a John Deere 40-20 tractor pulling a 40-ft.-12-ft. blade leveler. Finish grading is done with a 10-ft. Speedco leveler pulled



**Above:** View of Windsor sod field. Richlawn recently established 200 acres of the new turfgrass. **Right:** Mel Rich (left), Richlawn head, and Jim Jones, farm manager, examine Windsor's root structure. **Below:** Forklift truck picks up pallets of sod lowered by Richlawn's Turfmaster. **Opposite page:** Bird's-eye view of the Rich-developed sod harvester.



# No Other Chipper Has ALL These FITCHBURG FEATURES



♥ Look inside a Fitchburg Chipper—note its heart—the spring-activated feed plate. No other chipper has this patented feature that adjusts to the size of the wood up to the machine's rated capacity. Chipping is smoother, quieter, faster, permitting the chipping of larger size wood without the need for extra power or the cost of extra fuel.

The spring-activated feed plate also makes a fly wheel unnecessary. No waiting for the fly wheel to speed up—less worries about safety, bearing troubles—and clutch strain. We invite you to compare the ease, economy and efficiency of operation of a Fitchburg Chipper with any other chipper on the market.

## Also Compare These Other Fitchburg Features...



its rugged construction—safety stop switch—large hinged waist-high feed apron—solenoid switch\*—and patented, quick opening two-way chute.\*

Investigate before you buy. Remember, Fitchburg's many exclusive features. For brochure, write Dept. WTT-126.

\*Optional equipment.

## FITCHBURG ENGINEERING CORPORATION

FITCHBURG, MASSACHUSETTS

by a tractor with tandem tires.

### Water Lines Apply Turf Food

High-quality grass seed is planted with a 10-ft. Brillion seeder, and from here management techniques take over. Turf is fed to maturity, with most fertilizers applied through Richlawn's 90 miles of irrigation pipe.

In early spring, and preferably on top of the last snow, an application of dry fertilizer is applied at 200 lbs. per acre. This feeding is a blend of sulphate, nitrate, phosphate, and potash. All other feedings are liquid 10-10-5 or Uran, with ¼ lb. actual N applied per 1,000 sq. ft. at regular intervals of three to four weeks.

According to Mel Rich, applying fertilizers through the sprinkler system gives the best results with less equipment, better coverage, and—most important—less tracking. Richlawn's main irrigation lines are permanent.

Only lateral lines are movable; these are connected and laid out at time of seeding and are spaced at 80-ft. intervals. Laterals stay in place, applying needed water and fertilizers, until harvest. Automatic timers are used throughout. Richlawn's new self-draining Wade Rain system uses 2½- and 3-in. Febco valves, which are buried beneath frost level. Watering has ceased to be a problem, even when freezing temperatures prevail at night, according to the sod producer.

The farm's irrigation water is drawn from 60- to 80-ft.-deep wells, which offer an abundant supply. Asked about their weed problems, Mel Rich said "we have very few weed problems due to preventive maintenance such as mowing, fertilizing, and thatching. A thick, healthy turf will discourage most weeds." First item on his list, regular mowing, is done every four days with a Jacobsen 7-gang F10 diesel tractor mower.

Among prime locations in Colorado and neighboring states that have installed Richlawn-grown sod is the Air Force Academy, where 126,000 sq. ft. of Kentucky bluegrass were placed over heat grids in this country's premier installation of warmed turf.



**ORTHO talks sense:**



**There's a better way to kick weeds off your property.**

**Namely, ORTHO® Paraquat.**

**A herbicide that dries up weeds that clutter up roadsides, fence lines, storage yards. All non-crop areas.**

**ORTHO Paraquat is sure death for many broad-leaved weeds and grasses. Everything from crabgrass to chickweed. Bluegrass to you-name-it.**

**What else is so good about Paraquat?**



Ugly Customer

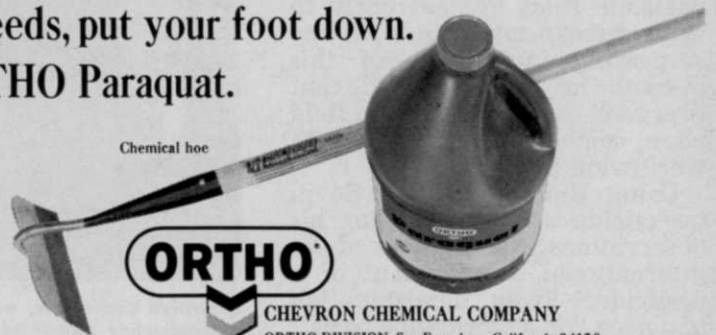
**It's a liquid, contact herbicide. Non-arsenical, too. Follow label directions. Apply it with an ordinary sprayer. (Don't worry about corrosion.) It goes into the plants, disrupts their photosynthesis and kills them. Fast. A real "chemical hoe."**

**Just a little withers up lots of weeds. 1 or 2 quarts in 50 to 100 gallons of water clears an acre. Use it with ORTHO X77 Spreader and get maximum weed control.**



A little goes a long way

**Soil deactivates Paraquat, resulting in a minimum soil residue problem. If they're springing up like weeds, put your foot down. With ORTHO Paraquat.**



Chemical hoe

**ORTHO**

CHEVRON CHEMICAL COMPANY

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*When Writing to Advertisers Please Mention WEEDS TREES AND TURF*

# Effective Communications, Promotion Needed by Weed Control Industry, Ilnicki Tells Jan. NEWCC

"The public relations problems of a few years ago have awakened researchers in the weed control field to the need for more effective communications and promotion," Dr. Richard Ilnicki, 1966 president of the Northeastern Weed Control Conference, related in his opening remarks to the 21st annual meeting of Northeast weedmen, at New York City's Commodore Hotel, January 4 to 6.

Ilnicki, weed specialist from Rutgers University, New Brunswick, N.J., observed that the industry is doing a good job promoting public relations within its own ranks. "But are these promotions getting out to the public?" he asked. The problem is that many pesticide critics are unable to differentiate between specific chemicals. They are unaware of the contributions of herbicides to agriculture and enhancement of the environment, and of the many new developments in weed control.

To promote the image of agriculture in general, and weed control in particular, industry needs to tell the public more about these new developments. Emphasis should also be placed on the role of agricultural chemicals in other areas, such as recreational and forest lands, Ilnicki suggested.

## An International Look At the Pesticide Picture

Tackling another aspect of the outlook for pesticides, Dr. E. R. Marshall, of Union Carbide International, advised that 60% of pesticide sales are currently in the overseas market. With the surpassing importance of this market, he recommended that everyone in the pesticide field have some perspective of the worldwide picture.

Using Union Carbide's Sevin insecticide as the basis for his observations, Marshall traced the international development of a pesticide. From determination of a need "on a worldwide basis," development moves into the research phase with the search for a product to meet the need. Potential products are evaluated



Dr. B. R. Wilson, Rutgers entomologist, defined the challenge to the Land Grant System as a call for relevant research, teaching excellence, and response to public needs.



Dr. Ernie Marshall, of Union Carbide International, discussed the world pesticide picture. Here he tries out some "protective" clothing used to promote Carbide's Sevin in Egypt.

with the international market in mind, for insect and weed pests are different overseas.

Finally, considerable planning and coordination of development, production, and marketing are required. Overseas sales and promotion has to be set up. It all amounts to an enormous expenditure of time and money before the product is on the market. To Marshall, one of the chief problems ahead lies in finding ways to reduce this continually growing expenditure.

Another problem for producers is the expanding influence of international agencies over foreign pesticide acceptance. U. S. manufacturers need to do a better job of overseas selling, particularly before these influential agencies. This is most true of herbicides, Marshall said, because the benefits of chemical weed controls are little known and emphasized in comparison with other pesticide uses.

Reviewing the American Land Grant System, Dr. B. R. Wilson,



Executive Committee, which planned and directed NEWCC's 21st annual meeting, is shown at a coordinating conference. Seated (left to right) are Dr. Arthur Bing, secretary-treasurer; Dr. Gideon D. Hill, past president and awards chairman; Dr. Richard D. Ilnicki, conference president for '66; and Dr. John E. Gallagher, vice president and '67 president. Standing (left to right) are Dr. Chiko Haramaki, research coordinating chairman; Dr. William V. Welker, program chairman; Kenneth P. Dorschner, sustaining membership chairman; and Dr. Homer M. LeBaron, public relations chairman.