

Mow fairway smooth quicker than ever

New International 2444 tractor with matched gang mowers

Specifically matched for manicuring large expanses of turf at minimum expense—new International 2444 tractor and lift-type gang mowers.

A true turf tractor, the new 2444 is a quiet-running, 47 hp husky. A compact low-profile rig with a short wheelbase, 8½' turning radius and full-time hydrostatic power steering. High-flotation tires protect your finest grounds. Wide stance gives you extra sidehill safety. Includes differential lock and constant running PTO for sprayers, other gear.

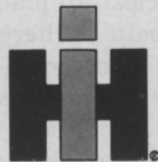
You mow quicker, neater than ever with a 5-gang mower. A reel ahead of each rear wheel cuts the grass before the tire. With three trailing gangs, you cut an 11' swath. That's three times faster than a 3-reel, self-propelled combination to lower your time and labor expense.

Exclusive rear drive behind the reels allows the reels to overhang curbs up to six inches without dropoff. This eliminates expensive hand trimming. The five-gang, 11-foot mower reduces to three gangs and a 7-foot cut for tight quarters. Attach or remove mower from the 2444 tractor inside of 10 minutes. You can pick up, transport and drop the mowers with fingertip hydraulic hitch control.

Choose 7' or 11' mowers. Select laminated, puncture-proof tire drive with 1" to 3½" cutting heights—or hollow roller drive with ¾" to 2½" cutting heights. See your dealer for details on the worth-more features of a 2444 mowing combination. Financing is almost as flexible as you want to make it.

INDUSTRIAL EQUIPMENT

Wheel and crawler tractors • loaders • backhoes
dozers • forklifts • mowers • special duty tools



International is a registered trademark of International Harvester Company, Chicago 60611.

For More Details Circle (107) on Reply Card



National Arborist Association Class I safety award was presented to Hackett C. Wilson, right, Wilson Tree Company, Shelby, N. C., at the recent NAA summer meeting at Chicago. Making the presentation to Wilson is Kenneth P. Soergel, Gibsonia, Pa., president of NAA.

Proper Weed Control Aids Shelterbelt Tree Growth

Trees in windbreaks and shelterbelts often die within their first years of growth unless weeds are controlled, says Marvin Smith, extension forester at the University of Minnesota.

Simazine can be used effectively if the shelterbelt is clean-cultivated and the chemical applied on the cultivated ground. However, Smith cautions, it is not recommended for use on any species of poplar (cottonwood) or willow trees or for trees under three years of age. Also, simazine should not be used more than once a year, according to Smith.

Another herbicide, amizine, effectively cleans up plantations and shelterbelts where trees have become overgrown with annual weeds and grasses. Mow tall weeds as closely to the ground line as possible and remove them. Then spray the re-

growth with amizine when four to five inches tall.

As amizine can damage foliage of conifers and hardwoods, it should be sprayed directly on the weeds.

For more information, write for a copy of Forestry Fact Sheet No. 6, Bulletin Room, University of Minnesota, St. Paul, Minn. 55101.

Water Loss in Plants Studied in California

University of California at Davis researchers, hopeful of improving the internal water status of plants during adverse weather conditions, are experimenting with anti-transpirants (materials that prevent plants from losing too much water).

Limited UC experimentation has led researchers to speculate that using anti-transpirants are

beneficial to ornamentals in the following ways: (1) reduction of plant growth of nursery stock while held in nursery (2) prevention of wilting during transport and replanting (3) reduction of irrigation needs and watering traffic hazards, increase of range of useable plant species and reduction of pruning needs in highway landscaping (4) extension of shipping and display life of cut flowers (5) growth decrease that reduces pruning and maintenance costs of establishing plants; increase of plant varieties within parks plus better and longer-lasting blooms.

Foreign Tree Species Studied at Clemson U

Foresters at South Carolina's Clemson University are probing the question of whether or not desirable foreign tree species can grow in their state. Several hundred species have been planted in the university's arboretum for study and evaluation.

Although it is still too early to determine which trees can make it for certain, Clemson has reported favorably on several, including the Cedar of Lebanon, Oriental spruce and Storax—all Turkish species.

Three Zelkovas—Japanese imports that resemble the Dutch elm—planted five years ago are showing no evidence of serious insect or disease problems, according to the foresters. Therefore, when and if the Dutch Elm disease so prevalent in northeastern states spreads to South Carolina, Clemson may be able to suggest this species as a substitute able to withstand the disease.

The foresters report that they expect the various exotics to be helpful in forestry breeding work at the university in the years to come.



Introducing McCulloch's new Power Mac 6. The world's lightest chain saw. It weighs only 6½ pounds.*

Here's a chain saw you can lift easily with your little finger. A saw so light, so compact it's not much bigger than an electric knife. Notice how the "Master Grip" handle is located directly over the center of gravity? That means you can use just one hand to move the Power Mac 6 safely and easily between cuts. The grip is padded for comfort and all controls are grouped underneath just a finger's reach away. Squeeze the trigger and the light-

weight magnesium-aluminum engine delivers more cutting power than most chain saws weighing twice as much. You can cut enough firewood in an hour to last all winter. Zip through an 8-inch log in 6 seconds. Fell trees up to 2 feet in diameter. Use it to clear land, prune limbs, even build small buildings. The Power Mac 6 gives you a lot of saw for your dollar. Get your hands on one at your McCulloch dealer. He's in the Yellow Pages under "saws."

*weight less bar and chain

McCulloch

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Safety award honorable mention certificate awards were made recently by the National Arborist Association at their summer meeting. Left to right are: James Turner, Atlanta, Ga., accepting for Raymond Wright, Wright Tree Service, Roswell, Ga.; Carl Minton, Tree Transplant, Inc., Houston, Texas; Eugene Nyland, Smith Tree Service, Inc., Westlake, O.; Robert Petrie, Riverwood Landscape & Tree Co., Cleveland, O.; Jerry Osborne, Osborne Bros. Complete Tree Service, Mentor, O.; Walter Morrow, Morrow Tree Co., Sewickley, Pa.; Mrs. Kay Jones, Gales' Tree Service, Belleville, Ill.; Bill Lanphear III, Forest City Tree Protection Co., Cleveland, O.; Lew Dinsmore, Dinsmore Tree Service, St. Louis, Mo.; and Bill Rae, Burlington, Mass. accepting for Joseph Brine, Brine's Tree Surgery, Bedford, Mass. The following firms also received Honorable Mention Certificates

but were unable to attend: Austin B. Carroll, Carroll Trees, Sacramento, Calif.; Phil Chambers, Akron, O.; Chester Valley Tree Experts, Pottstown, Pa.; Charter Tree Service, W. Acton, Mass.; Gledhill Nursery, W. Hartford, Conn.; Gaumer Landscape Service, Warren, O.; The Haupt Tree Co., Sheffield, Mass.; Larry Holkenborg, Sandusky, O.; G. Bourne Knowles & Co., S. Dartmouth, Mass.; Dave Larned Tree Service, Cleveland, O.; Landscape Foresters, Ltd., Bronxville, N. Y.; Petrove Bros. Tree Service, St. Louis, Mo.; Parke-Speed Tree Service, Columbus, O.; Pfeifer-Murton Co., Cleveland, O.; Reardon's Tree & Landscape Service, Pembroke, Mass.; Schulhoff Arborist Service, Wheatridge Colo.; Suburban Tree Service, Manchester, Mo.; West Side Tree Service Co., Cleveland, O.

Tractors and Economics To Trade Or Not To Trade

Determining the proper time to trade in your tractor should be based largely on economics, says E. O. Beasley, extension engineering specialist at North Carolina State University.

Beasley recommends that a tractor be replaced when its accumulated average cost per hour of use is at its lowest point. (This can be figured by adding all ownership and operative costs of the tractor and dividing by the total number of hours it has been used.) As it is difficult to determine just when this will happen, he suggests keeping thorough records and doing some figuring ahead.

The accumulated average cost per hour usually decreases rap-

idly during the first few years and then begins to level out, says Beasley. When the cost per hour gets about as low as it will get, it probably is the time to trade the tractor before major repairs are needed, Beasley says. If the cost per hour of use increases one year, it probably should have been traded the year before.

Costs to be recorded include depreciation, interest on investment, shelter, taxes, insurance and repairs. Fuel, oil and labor costs should not be included in the tractor record but should be charged directly to the various implements with which the tractor is used.

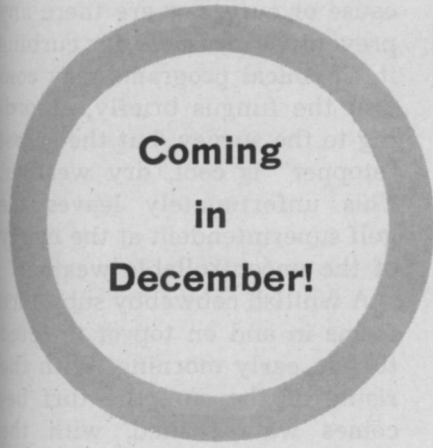
Actual depreciation will be about 38 percent of list price the first year of ownership and 6.5 percent of the remaining value

each year thereafter. Interest, shelter, taxes and insurance will amount to about 10 percent of the remaining value of a tractor each year.

It is not practical to estimate the average number of years a tractor should be kept, according to Beasley, as the "economic life" may vary from 8 to 15 years.

Also to be considered when determining when to trade in your tractor is the fact that an old tractor may not be suitable for new or increased operations that are being planned for the future. The need for greater versatility may make the old tractor obsolete.

"Judgment and experience are indispensable at times when a decision has to be made, but cost records are always helpful," Beasley concludes.



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Meeting Dates



Turf Conference, New York State Federation of Golf Course Superintendents, Nevele Country Club, Ellenville, N. Y., October 8-9.

Turfgrass Management Conference, Florida Turfgrass Association, Ramada Inn, Gainesville, Fla., Oct. 8-10.

Southern California Equipment and Materials Educational Exposition, City Park, Lynwood, Calif., Oct. 16-17.

Central Plains Turfgrass Conference, Central Plains Turfgrass Association, U S G A Green Section and Kansas State Univ., K-State Campus, Manhattan, Kan., Oct. 16-18.

Industrial Weed Control Conference, 3rd Annual, Texas A&M University, Memorial Student Center, College Station, Tex., Oct. 20-22.

Southern Fertilizer Conference, National Plant Food Institute, Mariott Motor Hotel, Atlanta, Ga., Oct. 23-25.

American Society of Agronomy, 1968 Annual National Meeting, Jung and Roosevelt Hotels, New Orleans, La., Nov. 10-15.

National Aerial Applicators Association, Annual Meeting, Dunes Hotel, Las Vegas, Nev., Dec. 1-4.

Illinois Turfgrass Conference, Illinois Turfgrass Foundation, Inc., Building Auditorium, University of Illinois, Urbana, Ill., Dec. 5-6.

Golf Turf Symposium, Wisconsin Golf Course Superintendents of America and Milwaukee Sewage Commission, Pfister Hotel, Milwaukee, Wis., Dec. 11-12.

40th International Turfgrass Conference and Show, Golf Course Superintendents Association of America, Fountainebleau Hotel, Miami Beach, Fla., Jan. 19-24.

American Sod Producers Association Annual Meeting, Fountainebleau Hotel, Miami Beach, Fla., Jan. 22.

Weed Science Society of America Annual Meeting, Caesars Palace, Las Vegas, Nev., Feb. 10-14.

Lawn and Utility Turf Growers Course, Rutgers University, College of Agriculture and Environmental Science Campus, New Brunswick, N.J., Feb. 17-19.

Golf and Fine Turf Growers Course, Rutgers University, College of Agricultural and Environmental Science Campus, New Brunswick, N.J., Feb. 19-21.

HRI Study Reveals Scope of Nursery Industry

The American Association of Nurserymen's Horticultural Research Institute has made available, for the first time, information that measures the economic size and scope of the nursery industry.

A summary of the HRI project—entitled "Scope of the Nursery Industry"—contains data regarding all types of nursery businesses, from wholesale operations to landscape, mail order and garden centers. Figures presented include employment profiles, job classifications, payrolls, production acreage, chemical and equipment uses and business profiles of all types.

The study, for example, reveals that wholesale nursery growers spend over \$13 million annually on fertilizer and pest control chemicals: \$8 million on fertilizers, \$2 million on weed killers, \$2 million on insecticides and \$1 million on fungicides. Preliminary figures of the summary also indicate that retail nursery stock sales during 1966 amounted to over \$1.6 billion.

The entire "Scope" summary may be obtained by sending \$3 to: Horticultural Research Institute, 833 Southern Building, Washington, D. C. 20005. Copies are free to HRI members.

American Golf Courses Stricken with Blight

Pythium Blight—also known as "cottony blight"—is a grass-killing fungus that is causing fairways and greens of golf courses across the nation to be closed for repairs, according to a survey by the Golf Course Superintendents Association of America.

The disease is most aggressive in moisture-saturated atmospheres where temperatures range between 85° F and 95° F,

says GCSAA. It has no known cause or cure, nor are there any preventive measures for curbing it. Chemical programs may contain the fungus briefly, according to the survey, but the surest "stopper" is cool, dry weather. This unfortunately leaves the golf superintendent at the mercy of the uncontrollable weather.

A whitish cobwebby substance forms in and on top of infected turf in early morning. With the rising of the sun, the turf becomes water-soaked, with the darkened fungus giving off a greasy appearance. Later in the day the "web" disappears, and the infected leaves take on a tan to red color. In early infection periods, these spots run in streaks, following the surface drainage patterns of the links.

The most seriously damaged courses, the survey notes, are in the following areas: metropolitan St. Louis and the remainder of the crabgrass belt, ranging from Kansas City to Washington D. C.; the Columbus, Dayton, Cincinnati areas plus the Carolinas; central Illinois and central Indiana.

New Fertilizer Packet Regulated by Weather

Wisconsin's S & D Products, Inc. is now manufacturing the recently developed "Root Contact Paket," a slow-release fertilizer.

Improved plant survival, increased shoot growth and lower replacement costs are among the advantages of using the new packet fertilizer, says its developer, Professor O. J. Attoe, Soils Department, University of Wisconsin.

The packet is a heat-sealed, polyethylene-paper envelope containing specified quantities of water-soluble (16-8-16) fertilizer. Upon planting, the packet is placed unopened next to plant roots. Soil vapor enters micropore "pinholes" in the

packet's sides and slowly dissolves the fertilizer, which escapes in liquid form. The combination of slow release and minimal amounts of fertilizer delivered to a plant at any one time assures that fertilizer burn of root tendrils will not occur, Attoe says.

The packet's activity is largely controlled by the seasons, i.e. it operates through a timing mechanism triggered by vapor pressure in warm soil and halted when the soil is cold. Thus, fertilizer is not released during plants' dormant periods, according to Attoe.

The life of a two-ounce packet is usually about five years, he says. In warmer climates, however, it is reduced to about three.

Recommended for roses, potted plants, deciduous bushes, evergreens, shade and fruit trees, Root Contact Paket may be used in new plantings or with established plants.

For more information, write S & D Products, Inc., 216 S. Minnesota St., Prairie du Chien, Wis. 53821.

MSU Says Lawns Need Air Circulation and Nitrogen

A recent Michigan State University study has indicated that surrounding your lawn with a solid screen of trees and shrubs will increase lawn maintenance problems.

If air movement across a lawn is restricted, the grass may die from high temperatures. This results in a brown, weak turf incapable of resisting injury from insects, drought or disease.

Another MSU tip concerns the addition of nitrogen in developing a more lush lawn. Dr. Paul E. Rieke, MSU soil scientist, suggests guidelines for nitrogen application.

On Merion bluegrass and bentgrass receiving plenty of water, apply 6 to 8 lbs. of actual nitro-

gen annually per 1000 sq. ft. of turf. As no more than 2 lbs. of actual nitrogen should ever be applied at a time, divide this amount among 3 or 4 applications.

Use 8 lbs. of nitrogen annually on heavily watered, sandy soil; on low management turf, use 4 to 6 lbs.

On other Kentucky bluegrass, 3 to 4 lbs. per 1000 sq. ft. should be applied to turf getting lots of water; 2 to 3 lbs. for non-irrigated turf. For red fescues, only 1 to 3 lbs. should be applied per 1000 sq. ft.

MSU studies show that about 40% of your total fertilizer requirement should be applied in April and May, about 20% in June and July, and the remaining 40% in August and September.

The key to good lawn maintenance is getting an early start with fertilizer to help your grass get a jump on any weeds that may be present, says Rieke. It may be necessary to mow more often, making sure clippings are removed to avoid susceptibility to thatching.

If your lawn has come through the winter with a good stand and color, fertilize a little later in the spring, Rieke suggests. This will mean less mowing, less nitrogen, and fewer clippings to remove.

Booklet Illustrates Proper Chain Saw Usage

McCulloch Corporation is now offering a new, revised edition of its pocket-sized booklet, "CHAIN SAW OPERATION." Text and illustrations cover tree felling, bucking, limbing and firewood cutting plus wearing apparel and chain saw maintenance tips.

For a free copy, write the Public Relations Dept., McCulloch Corp., 6101 W. Century Blvd., Los Angeles, Calif. 90045.

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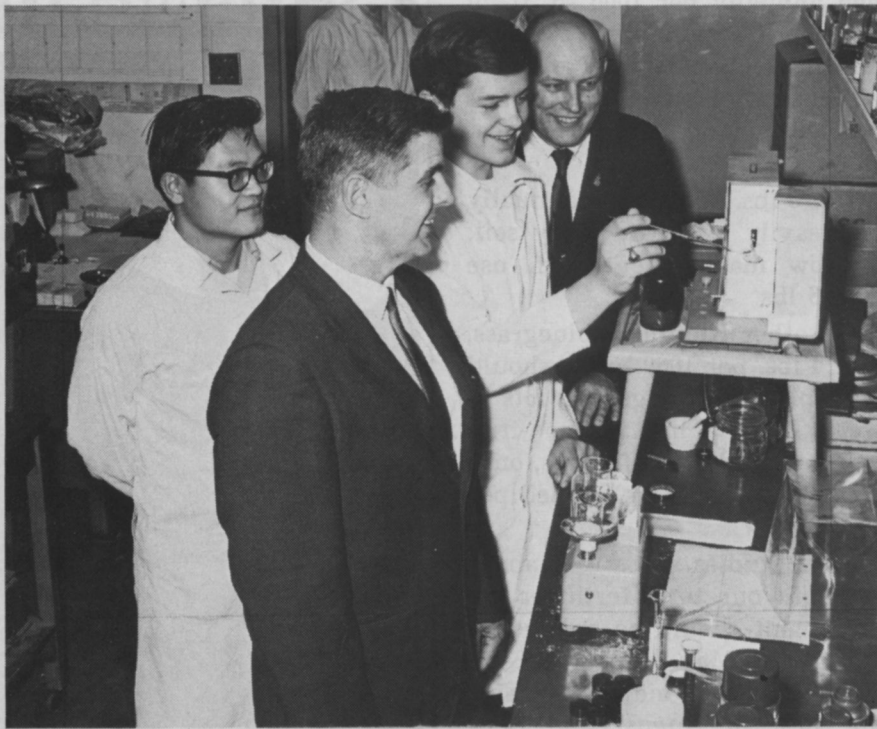
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Bob Hisey, Vo-Ag student at Marysville High, works on his research project in Scotts lab while onlookers Bob Yeh (left), of Taiwan and a Scotts staffer, Superintendent of Schools Leroy Williams (foreground) and Vo-Ag teacher Odell Miller "supervise."

Vo-Ag Students Earn While They Learn

Since 1964 Scotts Research, Marysville, Ohio, has been giving promising high schoolers the opportunity to try their hand at turf research. The teenagers — all Vo-Ag students at Marysville High — work half a day at Scotts, attend school a half day.

Seven students have completed or are presently working on the Agri-Business program, which helps the students gain a better understanding of scientific research and acquaints them with the functions and opportunities in agricultural business.

Vo-Ag teacher Odell Miller directs the Agri-Business program at the high school; researcher Eugene Mayer organizes the work assignments for the students at Scotts.

As an example of the work done by students, Robert Hisey works in herbicide development, studying bensulide for preemergence crabgrass control (prevents crabgrass seeds from germinating; whereas many

other crabgrass preventers kill the seedling crabgrass after being absorbed through the tiny roots).

Studies such as this give the agribusiness student a keen understanding of scientific research.

Pesticide Demand Grows with Consumer Incomes

Farmers use a lot of pesticides, says the U.S. Department of Agriculture, but so do other people.

According to USDA statistics, farmers purchase about 40 percent of all pesticides sold annually; about 20 percent are shipped abroad, and the remainder, a whopping 40 percent, are sold to non-farm outlets for use around the home and garden, business and industrial sites, highway and utility right-of-ways and recreational areas.

Although use of insecticides is likely to continue upward, it will do so at a slower rate than that of herbicides, USDA reports. Because modern herbicides have a more recent history of technological development and acceptance,

the use of herbicides continues to expand dramatically.

In contrast, demand for insecticides responds more to growth of population and consumer income than to discovery of new material and changing technologies. For example, some arsenicals—still effective today—have been used since before the turn of the century. The use of newly developed systemic insecticides will probably increase, says USDA, but this is likely to be offset by a decline in the use of other insecticides.

New Fylking Puts Hex on Artificial Grasses

A new rival to artificial lawn carpeting is the perennial Kentucky bluegrass named Fylking. Possessing the advantages of artificial grass, it also offers the fresh, hygienic cover that only a living sod can provide.

Overcoming several deficiencies of fine lawngrasses, Fylking thrives at a close mowing height of an inch or less and resists diseases such as leafspot and stripe smut. Therefore, it not only adapts to baseball fields and golf course tees and fairways, but it retains its healthy, unblemished color from early spring until late autumn. Not even drought can harm this sturdy grass.

Indeed, Fylking seems to put a hex on artificial grass that is neither self-renewing nor as healthful as a select bluegrass.

Voracious Snail May Help Control Fresh-Water Weeds

A large, weed-eating snail may help solve some weed problems in fresh-water ponds, lakes and streams, according to the U. S. Department of Agriculture.

Researchers at the University of Miami, Fla., under government contract, will determine the physiological and environmental factors that influence re-

production of the snail *Marisa cornuarietis*.

A hardy snail, *Marisa* eats the eggs of other disease-carrying snails but carries no disease of man itself.

The Florida research is designed to develop techniques for the mass rearing of the snails and to determine means of shipping them economically to weed-infested ponds and lakes. Various types of *Marisa* will be collected from Florida, Puerto Rico, the Caribbean and South America, the most promising of which will be selected for the task of helping clear water weeds.

Grace & Co. Publishes 1968 Product Guide

W. R. Grace & Co. has recently published a 112-page edition of its Product Guide as an aid to those wishing to purchase their products or services. For a copy write their Information Services, PR Div., 3 Hanover Square, New York, N.Y. 10004.



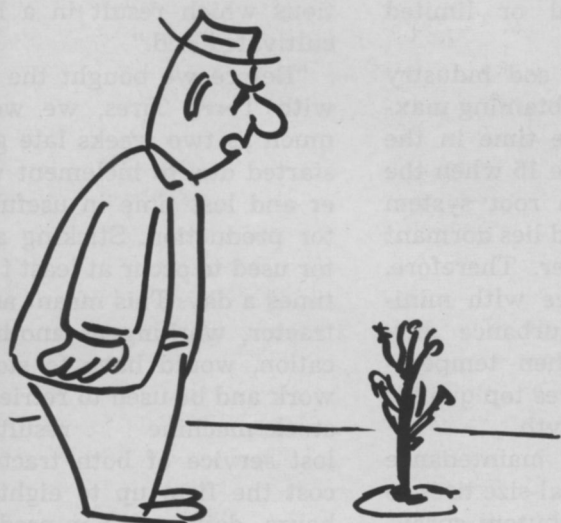
New polyethylene-lined burlap bag is examined by, left to right: Gordon Jones, Hubbard Seed and Supply Co., Hubbard, Ore., Frank Buck, certified grower of Highlight Chewings fescue, Woodburn, Ore., and Dick Bailey, W. R. Grace and Co., Rudy-Patrick Seed Div., Halsey, Ore. Bag has polyethylene inner liner which maintains viability of seed by slowing rate of moisture change.

Packed in Poly Bags New Chewings Fescue

Highlight — the first certified Chewings fescue available in the United States — is now moving into trade channels, according to Dick Bailey, Halsey, Ore., the man in charge of seed production for W. R. Grace & Co., Rudy-Patrick Seed Division.

A Dutch variety that has been in the development stage for over 15 years, Highlight is a disease-resistant, winter-hardy variety that maintains a dark-green color, says Bailey.

The new fescue performs well in either mixtures or alone, in sunshine or shade, according to Bailey. A long-lived perennial, Highlight has erect growth habits and forms a dense sod in a wide range of soil conditions.



"HURRY UP AND GROW. I'D LIKE TO SEE YOU GROW UP IN MY LIFE. TIME, NOT YOURS."



SOD INDUSTRY SECTION

Using the low-slung JD300 turf tractor with terra tires, Harold Gunn has eliminated wet weather ground problems. Result is better quality, fast growing sod plus savings in labor.

High Flotation Tires Solve Problems At New Jersey Blue Grass Lawn Farms

Wet weather and soggy ground conditions have always plagued turf growers during the critical growth period between March 15 and June 15. Harold Gunn, co-owner of Blue Grass Lawn Farms, Vincentown, New Jersey, has solved these problems. In doing so he's growing a better quality, faster-growing sod; saving 12,000 yards of sod a year; saving eight man-hours of labor a day; fertilizing 60 more acres a day; mowing 53 acres a day more; and upped spraying production by eight acres a day. How? Gunn is using a combination of low-slung John Deere Model JD300 Turf Tractor and nearly four-foot-wide (44x41:00-16A) Goodyear Terra Tires which give greater flotation, permitting work during weather

and ground conditions that heretofore stopped or limited production.

Common in the sod industry is the problem of obtaining maximum maintenance time in the 90 days before June 15 when the seed is building a root system and plant body. Sod lies dormant during hot weather. Therefore, proper maintenance with minimum ground disturbance during the spring when temperatures are low insures top quality sod and faster growth.

"Using heavier maintenance tractors with normal-size tires to pull fertilizer distributors, sprayers, and mowers usually results in lost time," says Gunn. "Tractors bog down or can't work at all because of wet-weather ground conditions. Added to

this, normal tires cause indentations which result in a loss of cultivated sod."

"Before we bought the JD300 with Terra Tires, we were as much as two weeks late getting started due to inclement weather and lost time in useful tractor production. Sticking a tractor used to occur at least three times a day. This meant another tractor, working at another location, would have to stop its work and be used to retrieve the stuck machine . . . resulting in lost service of both tractors. It cost the firm up to eight man-hours daily of non-productive time to retrieve disabled equipment. During a season that amounted to over 12,000 yards of sod."

Gunn tried to solve the prob-