

Golf courses are among the biggest users of specially mixed soils. From the mixing site (on the cover) Mogren Bros. moved green mix by the truckloads. Each green of the 18-hole championship course gets a one-foot layer, which can add up to anywhere from 180 to 300 cubic yards. Tees may also be prepared with the same soil. The standard practice of top-dressing greens creates a continuous need for uniform soil mixtures. Several models of soil shredders are available that have been specially designed for this purpose.



*All the Ways  
You Can Use*

# Soil Shredders

**WHAT DOES** your machine do?" John Lindig has been asked at trade shows. And his answer that it shreds and mixes soil has prompted, on a number of occasions, another question: "Why do you want to do that?"

In this oft-repeated dialogue, there is a story of opportunity for the manufacturers of soil mixers and shredders, believes Lindig, director of marketing and sales for Lindig Mfg., St. Paul.

A great deal of technology has been accumulated in plant genetics, in production and application of plant nutrients, and in the development of chemicals to control weeds, insects and disease. But with the exception of a few, the industries that rely on soil resources are "still in infancy," says Lindig, concerning their realization of the importance of soil preparation, composition, and treatment.

If the goal is vegetation perfection, "underneath it all," claims Lindig, "are soil and soil mixes.

"The proper growth and low-cost maintenance of turf and plants must begin with their foundations—the soil. When soil is compacted, improperly mixed (or not mixed at

all), or processed so as to permit particle separation, the result can be poor turf and plant growth. Maintenance costs increase because the plant just doesn't grow right."

There can be more painful results. A new university football field in the Midwest is to be plowed up at the end of the grid season because the playing surface is too hard. Coaches will be playing out the first season there hoping the compacted soil that resulted from improper mixing won't be a mistake measured in terms of broken bones.

And elsewhere the thought of broken bones may cross the minds of golfers who miss critical putts because of a green's poor playing surface.

Use of specially processed soils is widening, and, consequently, brightening the future of at least four manufacturers of extensive lines of soil and mulch shredders and grinders. These companies are the Kemp Shredder Co., 1027 E. 20th St., Erie, Pa. 16512; Lindig Manufacturing Co., 1875 West County Road C, St. Paul, Minn. 55113; Royer Foundry & Machine Co., Kingston, Pa. 18704; and W-W Grinder Corp., 2957 N. Market, Wichita, Kan. 67219.



These companies offer models with capacities of a few cubic feet per hour for the home organic gardener to commercial models of up to 200 cubic yards per hour for construction contractors. Prices ranged from about \$150 to \$24,000.

Buyers use soil processing equipment for their own soil or mulching

projects or to manufacture soil and mulches for sale to others.

#### Who Uses Soil Shredders

Royer, in business for more than 40 years, has found this variety of users: nurseries, landscapers, florists, golf course superintendents and contractors, top soil producers, mush-

room growers, peat producers, cemeteries, educational institutions, composters, excavating contractors, land developers, sewage sludge processors, and groundskeepers.

Lindig also has machines in operation shredding limestone and processing salt cake.

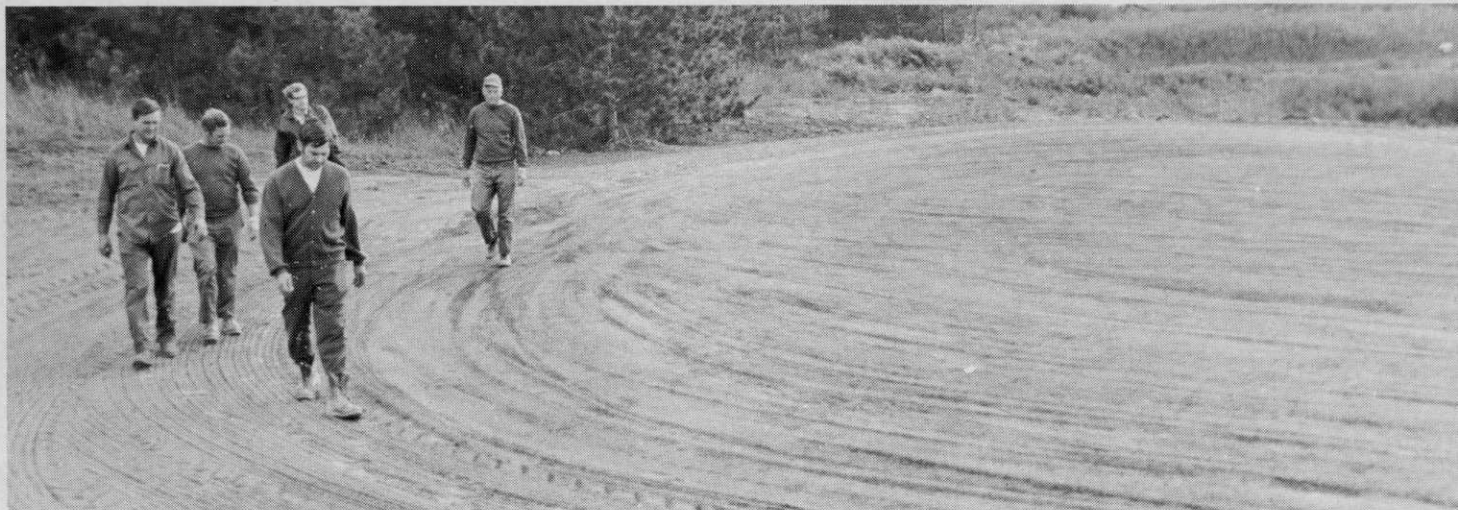
"R. S. Broadstone in Northfield, Ohio, is using one of our models to remove bullets from the soil of a rifle range," reports Lindig.

A shredder isn't a recent innovation. W-W Grinder Corp. has been around since 1910 and Kemp claims the "original compost and soil shredder." Rather, the market is expanding on a widening of uses and on the demand for increasing volumes of processed soil.

#### Uses Are Varied

The more common uses of shredders and soil processors include: to prepare potting and bench soils, soil mixes for container-grown stock; to shred, remove stones and other trash from mushroom casing soils, top soils, and peat; to prepare top dressings for turf areas; to shred and blend compost; to prepare soil mixes for road beds and wayside rest areas and to construct, maintain, and renovate turf areas, running trucks, and various athletic fields; to shred sewage sludge; and to shred partly decomposed organic materials and mix them with soils to improve nutrient content, increase friability and percolation of water through growth materials.

Essentially, explains Lindig, a soil shredder (1) mixes and blends varying types of materials to obtain a soil most beneficial for plant growth



Touring the green after the soil mix has been leveled to the desired grade are Don Herfort (leading) golf course architect; and from the left behind him, Bob Mogren, land-

scape contractor; Rene Belland, golf course construction; John Lindig, director of marketing, Lindig Mfg.; and Jerry Mogren, landscape contractor.

and durability; (2) produces a blend in a homogeneous format that assures no separation during processing or after installation; (3) aerates the mixture by injecting large quantities of air into the soil and trapping it in the mixture (this reduces the chance of compaction, adds to a friable and workable material, and enhances water percolation necessary to distribute the vital plant nutrients); and achieves a uniform mixture minus clods, stones, twigs, roots, and so forth.

Golf courses are perhaps the largest single user of processed soil. Lindig estimates that construction of an average golf course of 18 holes takes 6,000 cubic yards of green mix.

**Examples of Operation Cost**

Mogren Bros. of St. Paul is presently engaged in constructing an 18-hole championship course on 440 acres. The firm, also having extensive sod-production acreage, is using an L-75 model (75 cubic-yard-per-hour capacity) Lindig dual rotor shredder with screener (cover picture).

"Approximate cost of preparing the mixes for the course are about 25¢ per cubic yard," reports Lindig.

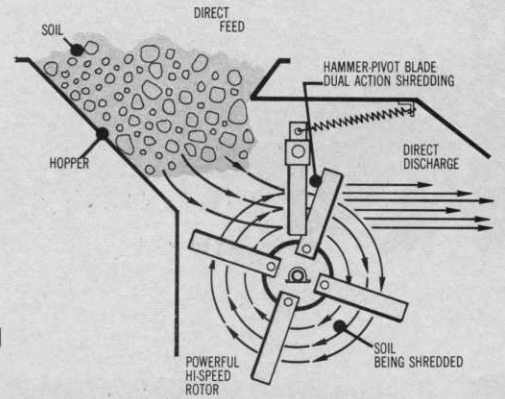
This is exclusive of labor—for which one tractor or front-end loader operator is required.

"This cost is computed using the following data: list price of shredder and screener; a northern U.S. climate with about six months use (normally higher than this—thus lowering cost below 25¢); average

servicing costs to unit; fuel; periodic replacement of shredding hammers; and depreciation of unit over a five-year period plus an annual rate of return on investment of 6%.

Royer publishes a pamphlet for golf course superintendents as a guide to using one of its models designed especially for top-dressing

**Lindig  
Earth Processing  
System**

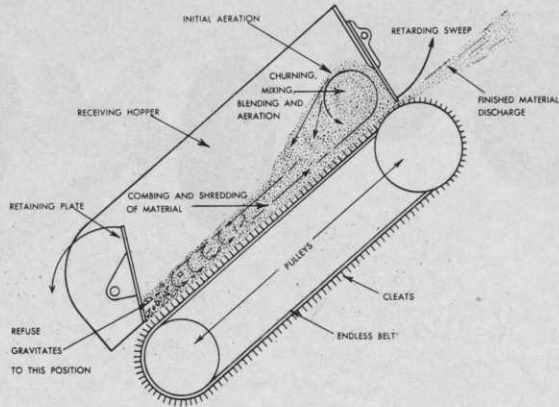


W-W Grinder Corporation offers a shredder that can be powered by a garden tractor with the use of a V-belt pulley. A stabilizer bar is provided which is simply and easily attached to most garden tractors. This Model 5 unit provides up to six yards per hour capacity.

The Royer Paul Bunyan 360T is what its name implies, the biggest of the Royer line with a capacity of 100 cubic yards per hour. Its receiving hopper will handle buckets up to two cubic yards. It can be towed at highway truck speeds.



## Royeration



and renovating greens, and cleaning sand traps.

The Superintendent Shredder (15 cubic yard-per-hour capacity) plus a power screen, states the pamphlet reduces top-dressing costs from \$10 per yard manually to less than \$4 per yard.

An average-size green probably

can be renovated in a single day, the guide says.

One man and Royer's POWER-screen, the guide adds, can keep bunkers free of pine cones, acorns, and other debris—and remove pea gravel to eliminate stony greens caused by trap shots.

Maintenance of a turf nursery is

a growing trend at golf courses to provide sod that is readily available. Soil shredders are extremely valuable by enabling preparation of large volumes of soil mixes on site.

## Steam Aerator Purifies Soil

Lindig has carried its soil processing and treating products a step further by developing a steam aerator and soil treating and planting cart.

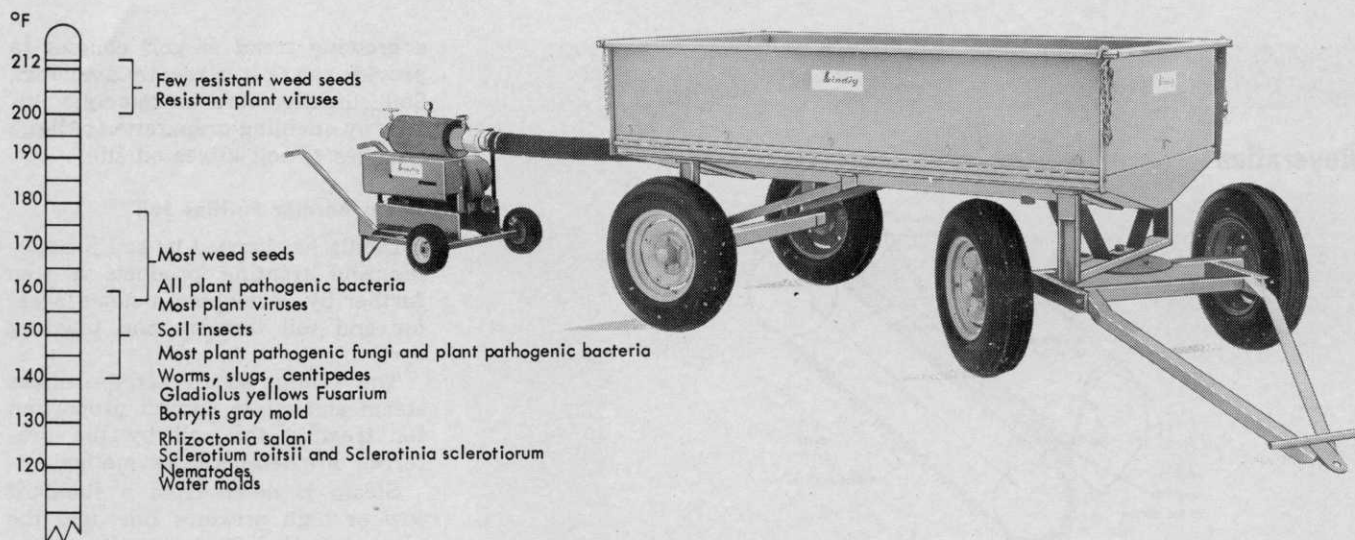
The Lindig steam aerator mixes steam and air in correct proportion for treating the soil by the preferred low-temperature method.

Steam is taken from a standard low or high pressure line, and the air is supplied from a positive type of blower. Air and steam are forced into the mixing chamber under pressure, where they are blended before being injected from the aerator to the soil treatment cart. The aerator can be used with similar treatment containers, planting bed, bench, and so on.

"When soils are held in a range of 145 to 165 degrees for a period of 30 minutes, most weed seeds, insects, virus, and disease-causing fungi are destroyed," Lindig explains. "Beneficial forms of soil



Kemp Shredder Company offers a variety of smaller mulch and compost shredders ideally suited to the home gardener and for nursery use. Capacities range from three to 12 cubic yards per hour. The units are "created solely to shred, grind or pulverize leaves, weeds, vines, brush trimmings, sticks, stalks, bone, phosphate rock, sledge, sod, soil and manure."



Lindig Mfg. also offers a steam aerator and a soil cart. The aerator provides low-temperature steam sterilization that does not harm beneficial soil pathogens. Steam is injected into the soil cart at a temperature range between

145 and 165 degrees for a period of 30 minutes. As the chart indicates, most plant-damaging micro-organisms, insects, viruses and weeds can be destroyed. The aerator and cart come in two sizes.

pathogens are not destroyed, and soil nitrates are not leached out.

"The aerated steam system provides the user with a positive method of obtaining and controlling the temperatures that are required for treatment of various soil mixes. The soil is well aerated, not toxic, free of added moisture . . . the net

result is that recontamination possibilities are lessened, and stronger and better plants are produced in less time and at lower cost."

Lindig, the newest of the four shredder manufacturers, began operations in a dairy barn shortly before the U.S. entered WW II. After the war, expansion of the family

business was steady.

When the plant was moved to its present location about 15 years ago, some friends questioned the wisdom of the move "to the country."

"When we asked for telephone service, all that was available was a party line with a construction firm and a nursery," said John. The Lin-

## Meeting Dates

Dates for this column need to reach the editor's desk by the 10th of the month preceding the date of publication.

**North Dakota Nurserymen's Association, Annual Convention and Trade Show, Fargo, N.D., Nov. 7-8.**

**National Fertilizer Solutions Association, National Convention and Equipment Exhibition, Cincinnati Convention Center, Cincinnati, Ohio, Nov. 9-13.**

**Ohio Turfgrass Conference and Show, Sheraton-Cleveland Hotel, Cleveland, Ohio, Dec. 1-3.**

**Oklahoma Turfgrass Research Foundation, Inc., Conference and Show, Oklahoma State University Student Union, Stillwater, Okla., Dec. 3-5.**

**National Aerial Applicators Association, Third Annual Conference, Roosevelt Hotel, New Orleans, La., Dec. 7-10.**

**Louisiana Turfgrass Conference at the Ira Nelson Horticulture Center, University of Southwestern Louisiana, Lafayette, Dec. 9-10.**

**24th Annual North Central Weed Control Conference, Sioux Falls, S.D., Dec. 9-11.**

**22nd Annual Helicopter Association of America convention at the Stardust Hotel, Las Vegas, Nev., Jan. 11-14.**

**4th Annual Park Symposium, New Jersey Recreation and Park Association, Lewis M. Herrmann Labor Education Center, Rutgers University, New Brunswick, N.J. 10 a.m. Jan. 14.**

**22nd California Weed Conference at the Grand Hotel, Anaheim, Calif., Jan. 19, 20, 21.**

**Associated Landscape Contractors of America, Statler-Hilton, Orlando, Fla., Jan. 19-23.**

**Annual Virginia Turfgrass Conference, Sheraton Motor Inn, Fredericksburg, Va., Jan. 27-28.**

**40th Annual Michigan Turfgrass Conference at the Kellogg Center of Michigan State University, East Lansing, Jan. 27-28.**

**Weed Science Society of America annual meeting, Queen Elizabeth Hotel, Montreal, Quebec, Canada, Feb. 3-5.**

**National Arborist Association annual convention, Del Webb's Towne House, Phoenix, Ariz., Feb. 13-19.**



This W-W Grinder heavy-duty Model 4-EV features a detachable elevator. It has a 36x52-inch hopper, loads up to truck heights of 7½ feet and has a 20-cubic-yard-per-hour capacity. It is powered by a 9 hp @ 3200 rpm Briggs & Stratton engine.



dig plant, expanded several times, now is in the midst of a huge industrial park.

As the company neared its 30th anniversary, the Lindigs decided to try to find the first machine sold. Records indicated the small shredder went to a nursery in the area.

"I visited the nursery hoping at

best to reclaim the rusted remains discarded somewhere on the grounds," Lindig said. Instead, the owner took him out back to where the unit was still on the job.

Lindig Mfg. gave the nursery a new shredder, then renovated the first machine to display it in the lobby of its new office addition.

#### BOOK REVIEW

**THE CARE AND FEEDING OF TREES** by Richard C. Murphy and William E. Meyer, \$5.95, Crown Publishers, Inc., 419 Park Avenue South, New York, N. Y. 10016.

Smaller tree companies and nurseries that do not have a formal training program will find this book is valuable as a basic text for the new and untrained employee.

The book actually is directed to homeowners, but content is comprehensive enough to carry the reader a long way toward becoming a knowledgeable treeman. Experienced tree specialists will find the 60 pages of charts a good reference. Included are charts on standards for nursery grown trees, tree sizes by maturity, rate of growth, bearing ages of fruit trees, diagnosis and prevention of common insect and disease problems, and others. Some 30 pages are devoted to tree identification, including a

four-page, full-color leaf chart for 55 varieties of U. S. trees.

Chapters deal with the value and makeup of trees, landscaping hints, planting, pruning, cabling, cavity repair, soil characteristics, fertilization, and pest and disease control.

Most chapters end with a "do and don't" review and a list of safety tips.

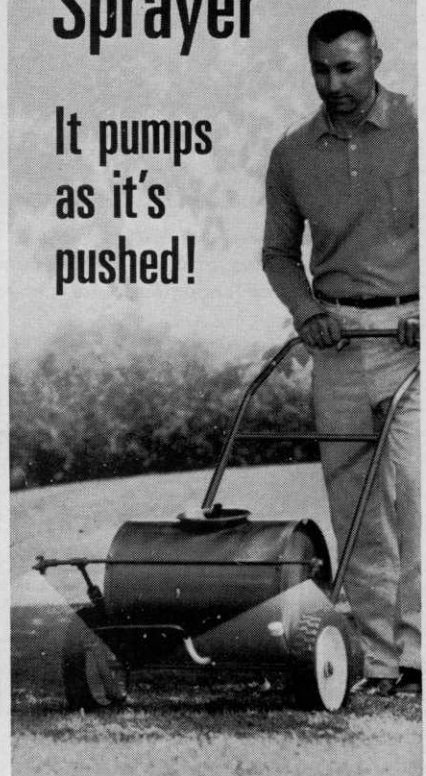
Richard Murphy is a tree-care specialist, having begun his experience as a boy working in the nursery his father managed. He studied at the F. A. Bartlett School of Tree Surgery and gained practical experience as a tree surgeon, landscaper and operator of his own tree-care business.

William Meyer, a journalist and currently director of public relations for the Community Corporation, has helped to present the book in language that laymen can understand. Meyer met Murphy 12 years ago as a homeowner with "tree problems" who had sought the advice of an expert.

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