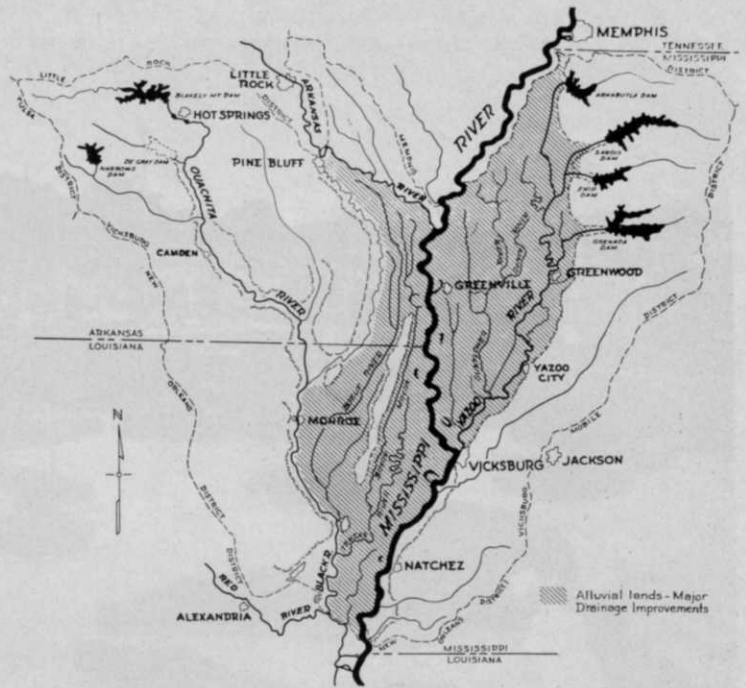


Channels



U.S. ARMY ENGINEER DISTRICT, VICKSBURG

FLOOD CONTROL on the Mississippi River is no longer a sandbag operation where levees and stopgap methods are used only in emergencies.

Today, army engineers believe they have developed a system which will control the super-flood, the kind such as the 1927 disaster that comes along every 100 years or so. They are using a combination of holding areas, floodways, canals, levees, and emergency backwater areas. The general idea is to be able to move a heavy volume of water when flooding occurs.

A major phase of this control program is keeping the floodways and canals open. Mechanical methods have become dated. Switch willows which choke water outlets cannot be kept back by clearing with handtools along the 2000-mile system. After cutting, switch willows capture debris and silt and in as little as 5 years can clog channels and practically choke off the outlet. Further, hand cutting costs today are prohibitive.

By contrast, herbicides will do the job. A spray boat can cover 6 miles of riverbank in a day,

and within a few hours brush and trees will be dying. "Am-mate" X weed and brush killer is now being used to kill woody growth, and control the plant down through the root system to prevent regrowth. Big plus is that this chemical kills the willows, yet permits stabilizing grasses which reduce erosion to thrive.

Corps Responsibility

The Army Corps of Engineers is charged with responsibility for a flood control program. Following Congressional authorization in 1928, the Corps developed a Waterways Experiment Station at Vicksburg, Miss. Many programs and methods have been developed through the years, but none has had to withstand the onslaught of flood waters as great as the flood of 1927. At that time, 28,000 square miles of land was inundated and more than 700,000 persons in a 9-state area made homeless. An esti-

mated 300,000 head of livestock was lost and 313 persons lost their lives.

Speaking of this disaster, John W. Anderson, technical liaison Corps officer at the Vicksburg office, says this 1927 flood was the once-in-a-hundred years event. Planning and construction today, he says, is aimed at controlling a superflood which might occur only once in 500 years.

The Corps has developed a hydraulic scale model of the Mississippi basin. It serves as a design aid in planning new levees, floodways and general control measures. The Vicksburg district office will serve as an intelligence command post during any coming emergency.

Should a new major flood occur, trouble is expected first at Cairo, Ill., where the Ohio and Mississippi rivers join. On the model can be seen the floodway across the river at New Madrid, Mo., where much of the flow



Scale model of Mississippi River and its tributaries shows visitors at the Waterways Experiment Station how the flood control operation works.

would be diverted to a holding pool. This pool site exists between the old river levee and a new protective rise constructed 5 miles inland.

Holding areas are located further downstream. These are actually lakes left behind when the engineers eliminated 170 miles of horseshoe bends from the river and provided it with a more straight, deeper, and generally more efficient channel.

Tributary Streams Vital

Besides the Mississippi itself, tributary streams are a vital part of the overall control system. The lower basin of the Yazoo River is planned to serve as an emergency backwater area. During earlier floods, this area between Memphis, Tenn., and Vicksburg often became a 65-mile wide lake. Anderson has reason to believe that with the present control plans which include 4 dams, that this area may be the most trouble-free spot along the entire river, should a major flood emergency occur.

Engineers and others who are expert in the field believe the climax of any flood on the lower Mississippi will come below the Delta. They propose to split the flow into 3 channel areas in moving the heavy volume of water into the Gulf of Mexico. Estimated volume is expected to be almost 3 million cubic feet per second, which is more than 10 times the average flow at Niagara Falls.

Delta Seems Secure

The question, of course, is how well will the defenses work during a major flood. Corps officials say that installations built prior to the floods of 1937, 1945, and 1952 proved adequate, but they have not had to withstand the so-called superflood as yet. One problem which engineers foresee is the hazard to new urban areas which have been building up more and more in the flood plains of rivers and streams. This trend points to big flood losses in areas which are not

included in federal or state programs for flood control.

Security of the Delta area hinges on towering levees and a full-scale effort to provide the flood plain with an efficient rainfall runoff system. Key to accelerated runoff is control of the fast-growing vegetation which without control quickly chokes off canals, streams and ditches which drain more than a million acres in the area. This is the assignment being handled by a regular schedule of spraying with an herbicide.

The 2000-mile drainage network is sprayed by teams working from a barge, via boat, and on foot. Assistant operations chief W. W. Gray reports that the Yazoo basin was once largely overgrown with switch willows which for practical purposes eliminated stream flow. Gray now uses a barge for spraying the main riverbanks, treating up to 6 miles daily. Boats are used on small streams and foot crews in further inaccessible areas.

Pelucia Creek is an example of mechanical clearing and regrowth, pointed out by Gray to show the futility of doing the job without benefit of weed and brush killers. Gray states that this area was cleared with machetes and axes some 12 years ago and now is so overgrown and filled with silt that even a canoe could not operate.

Formerly, Gray continues, gangs of 50 men or more literally hacked their way through swampy stands of willow and cottonwood. Work was slow, hazardous, and expensive. Once vegetation was cut, willows sprouted from the stumps and roots. Stumps and regrowth then captured islands of debris and silt. Within a few years the outlet system disappeared. This led the Corps of Engineers to turn to chemical control.

The Corps has been using DuPont's "Ammate" X because it gives the kill needed, yet does not create toxicity problems for

men applying it or to fish and wildlife. Neither are windborne vapors a problem to farm crops which are a major economic factor of this area.

Water Spray Common

This particular chemical is nonflammable, dissolves easily in water, and may be sprayed in either a water solution or in an oil-water emulsion. Or it may be applied in crystalline form to stumps or notched trees. Normally, for riverbank spraying, the Corps uses it in the form of a water spray.

Gray, who supervises the riverbank crew operations mixes "Ammate" in large quantities. For each 100-gallon batch, a 60-pound bag of herbicide is poured into a deck-mounted, 500-gallon tank and mixed with water which is drawn directly from the river. A quart of DuPont surfactant WK is usually added to ensure complete wetting of foliage. Pumps which produce nozzle pressures up to 800 psi permit boat teams to spray 30- to 40-foot wide bands of vegetation along the stream bank.

Cost for initial clearance, where full-grown trees and brush must be thoroughly wet down for control, averages \$400 per mile, or about \$100 per acre. This compares with mechanical clearing costs which are 2½ times greater or about \$250 per acre. Maintenance after the initial clearing runs \$135 per mile, or about \$30 to \$35 per acre per year.

Most of these costs are based on spraying from barges or boats. Where these cannot operate, such as on the BoBo Bayou operation last year, a tractor-drawn tank rig is used alongside the stream. Roadway or path for the tank rig in this instance was opened up by a bulldozer. "Gunmen" carrying spray hoses from the tank then penetrated to the stream bank on foot and sprayed vegetation.

Research and trials are now

being carried out using the new "Hyvar" X-P bromacil brush killer, also made by DuPont. Pellets of this herbicide are applied at the base of trees and after being carried into the soil by rain, attack the root system. This is a slower process than spraying, but it can prove helpful where men and equipment

cannot effectively operate.

Value of the entire operation will become readily apparent in the event of a major or super type flood. Should this happen, chemical control of streambank vegetation may prove to be the factor which made protection possible for homes in the flood plains area.

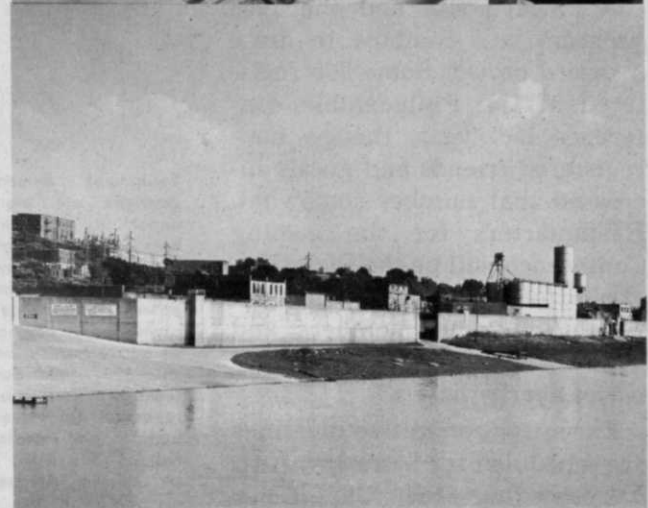
Flood gate and pumping plant at Yazoo City remove collection of interior drainage.



Barge from which 500-gal. batches of chemical-water mixture are sprayed can cover 6 miles a day.



Flood wall protects an industrial area and railroad yard in Vicksburg against flooding.





Buffet luncheons are traditional with ISTC members. This scene at Fairmount Park last year will be repeated for the 1968 Conference at Morton Arboretum, Lisle, Ill.

Pick-Congress Hotel Site of 44th ISTC

International Shade Tree Conference members are meeting at Chicago early next month. Election year and the accompanying demand for political convention space in the windy city, forced ISTC'ers to set their Conference dates ahead to Aug. 4-9.

The switch in dates seems to have had little effect on progress of the ISTC program which promises to be one of the outstanding events for the group in recent years. Executive Director L. C. "Chad" Chadwick believes the Chicago site and the 1968 program will combine to draw a record crowd. Some 795 registered at the Philadelphia conference last year, though non-registered friends and guests increased that number somewhat. Headquarters for the coming Conference will be the Pick-Congress Hotel on North Michigan Avenue, though members and guests will be staying at a number of nearby hotels.

Executive committee meetings are scheduled for Saturday, Aug. 3, preceding the Conference

which officially opens with registration beginning at 9:00 a.m., Sunday, Aug. 4.

Formal Opening Aug. 5

International President Freeman L. Parr, Hicksville, N. Y., will formally open the 44th ISTC at 9:00 a.m., Monday, Aug. 5. The Honorable Richard J. Daley, mayor of Chicago, will welcome guests to the city. First formal subject of the Conference will

Equipment demonstrations are more important to members every year. Rising costs of hand labor and manpower shortages place more emphasis on mechanization. This 1967 field day scene promises to be repeated in even bigger and better fashion this Aug. 7 at Morton Arboretum.



be "Gaining an Appreciation of Trees" by Professor Clarence E. Lewis, Michigan State University, East Lansing, Mich. He will be followed by a discussion of new and coming fertilizers by Hartl Lucks, Smith-Douglas Div., The Borden Co. Also on this first morning program will be the tree planting ceremony at Grant Park at 11:30 a.m.

Tuesday, as always, will be an important day for members. The keynote luncheon is scheduled along with a full day of intensive programming aimed largely at municipal and utility arborists. Hyland R. Johns, vice-president of Asplundh Tree Expert Company, Jenkintown, Pa., who was one of the co-chairmen of last year's ISTC event, will moderate a panel on the relationships between municipal, commercial and utility arborists. On this panel will be William T. Bell, superintendent of street trees at Long Beach, Calif.; James P. Brogan, system forester, Niagara Mohawk Power Corporation, Syracuse, N. Y.; Raymond Bruns, forester, Union Electric Company, St. Louis, Mo.; Joseph A. Dietrich, superintendent of parks and trees, Greenwich, Conn.; Theodore J. Haskell, department of parks and recreation, Lansing, Mich.; Byron T. Johnson, mana-

ger, Bartlett Tree Expert Company, Danberry, Conn.; and Frank J. Wagner, forester, West Pennsylvania Power Company, Greensburg, Pa.

Equipment Demonstrations

Wednesday, Aug. 7, features the annual commercial equipment demonstrations. For many arborists, this is the key event of the entire Conference. This year, exhibitors will operate their equipment at the Morton Arboretum. Buses are scheduled to leave the headquarters hotel at 9:45 a.m. This follows the conclusion of an "Early Bird" breakfast featuring Marion Hall, director of the Morton Arboretum at Lisle, Ill. A buffet luncheon will be served at the Arboretum and buses return to the hotel at 4:00 p.m.

The Board of Governors business session, which is open to members, is set for Thursday morning and will include election of new officers. The annual banquet is also scheduled for Thursday, at 7:30 p.m. Entertainment and dancing follow. Friday,

Aug. 9, is the final wind-up of the Conference and includes an executive committee breakfast and meeting followed by a post convention trip to Great Lakes Naval Station.

Besides the regular program for members, a full program is scheduled for ladies, teen-agers, and youngsters. These programs are varied and include tours of many of Chicago's outstanding historical and cultural centers, with special time slots for shopping.

Detailed information for exhibitors and members is available from Executive Director L. C. Chadwick at 3634 Olen-tangy Blvd., Columbus, O.

National Arborists Meet At Chicago, Aug. 4-8

Headquarters for members of the National Arborists Association summer session will be the Pick-Congress Hotel, Chicago, Ill., Aug. 4-8. Arborists are holding this mid-year meeting in conjunction with the International

Shade Tree Conference annual convention.

Prior to this year, NAA members staged their regular annual meeting at this time. A change made at the past NAA winter meeting calls for each February to be the month for their annual meeting.

Clarke W. Davis, NAA executive-secretary, reports the group's program committee has developed sessions for this mid-year meeting which are closely associated with efficiency of operation and business management.

Of special interest to operating arborists will be a 9:00 a.m. session, Aug. 6, on installing lighting protection systems. Moderator will be Robert Crites, Independent Protection Co., Goshen, Ind. Panel members for this subject will be A. Winslow Dodge, Dodge Associates, Westwood, Mass.; John Z. Duling, Duling Tree Expert Co., Muncie, Ind.; and H. M. Van Wormer, Van Wormer Tree Service, Richmond, Va.

Dr. John A. Weidhaas, Virginia Polytechnic Institute, Blacksburg, Va. will discuss the subject, "Effect of Chemicals on Insect Systems." He will be followed by Dr. Harold Davidson, Michigan State University, East Lansing, Mich., on Davidson's research regarding time studies for large tree moving.

A second subject on tree moving is also scheduled for the afternoon of Aug. 6. This will be a panel centered on how to move large trees by the frozen ball method. Another topic on the same day concerns the cost-profit relation of trees in landscape contracting.

Directors of NAA will meet Sunday, Aug. 4, at 9:00 a.m. The formal mid-year association report will be at 4:00 p.m., Aug. 6, followed by a cocktail party at 6:45 p.m., and the annual NAA dinner at 7:30 p.m. The past-presidents' breakfast is scheduled for Monday, Aug. 5, at 7:30 a.m.



"YOU SURE YOU HAVE THE RIGHT ADDRESS?"

Amchem Solves Brush Killer Shortage

With the war in Vietnam requiring our country's entire supply of 2,4,5-T chemical brush killer to defoliate and kill jungle growth, this year's domestic brush control programs appeared to be in trouble. Even if some of the material were to become available, the domestic market would have to wait for its supply until large industrial needs were met.

Enter Amchem Products, Inc., Ambler, Pa., to the rescue! A 2,4-DP material proved to be the chemical to solve the shortage problem. Amchem's development of a new product—BRUSH-KILLER 170—will not only serve as a substitute for 2,4,5-T but is destined to become an accepted chemical in its own right, a situation not originally anticipated, says the company.

BRUSHKILLER 170 is to be used for stump, frill, basal, mod-

ified basal or foliage spray in water, oil-water or oil carriers. Available to the local market, it brightens the brush control situation and should prove to be a solid working partner with WEEDONE BRUSHKILLER 32, already on the market.

Both chemicals can be used in a variety of ways at any time of the year to control a large variety of woody plants.

Animal Repellent Offers Long-lasting Results

Repel, a new animal repellent especially effective against rabbits and deer, is now available from Leffingwell Chemical Co.

The long-lasting repellent, safe to use on all plants, does not harm animals because its potency is due to odor and not to toxicity or taste, says Leffingwell.

Diluted with the proper amount of water, Repel may be

applied by power rig or hand sprayer on plants, shrubs or crops. Painted on tree trunks, it helps eliminate girdling, according to the company.

For further information write: Leffingwell Chemical Co., P.O. Box 188, Brea, Calif. 92621.

Brochure on Surfactants and Wetting Agents

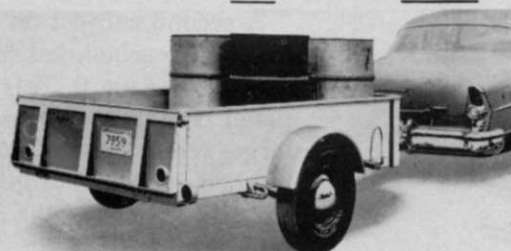
"WATER-IN," Inc. has announced the publication of a new brochure describing the uses and application rates for its wetting agents and surfactants.

The illustrated booklet discusses practical uses not commonly associated with these substances as they apply to soils plus a new "dry" surfactant that eliminates pre-wetting of soils and mulch prior to planting.

A copy of the brochure is yours by contacting "WATER-IN," Inc., P.O. Box 421, Altadena, Calif. 91001.



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Scene from the first ASPA national field day demonstration in July, 1967, at Halmich Sod Nurseries, Lansing, Mich. Action is expected to be repeated this year with more equipment and a bigger percent of the nation's sod producers on hand.

American Sod Producers Association To Stage 2nd Nat'l. Field Day On July 30

"Calling all sod growers!" That's the gist of efforts this month by George B. Hammond, executive-secretary of the American Sod Producers Association. Hammond who lives at Columbus, O., and operates Paint Valley Bluegrass Farm has spent most of the last few weeks lining up exhibitors and making arrangements for the second national field day of the ASPA.

This year a major field demonstration, expected to attract a high percentage of the nation's growers, is being held at Shamrock Turf Nursery, Hanna, Indiana, on July 30.

Growers will see practically every type of sod harvesting and handling equipment on the job. Don Morrill, owner of Shamrock Turf Nursery, and host for the big day, has set aside a sod field for equipment to work. This is an area just beyond a stationary exhibit booth area. All makers of sod producing, harvesting,

maintenance, and handling equipment are expected to exhibit. Most will also demonstrate their equipment.

ASPA's first field day last summer at Lansing, Mich., brought together the greatest array of equipment designed for the sod grower ever seen at any one location. Growers attending were astounded at the variety. This is logical since growers had just organized as a national group and the industry is relatively new. More equipment is expected this second year.

Ben O. Warren, Warren Turf Nurseries, Palos Park, Ill., president of ASPA, stresses that all growers are invited, and urged to attend, regardless of whether or not they are members of the association. No registration fee will be charged and a box lunch will be available at the noon hour.

Two tours of Shamrock Turf Nursery are scheduled for the

morning of July 31, one at 10:00 a.m. and the second at 11:00 a.m. Host Don Morrill will conduct these and growers will see his 200 acres of Merion bluegrass plus a small acreage of the new Fylking which he is growing at this location. Registration will precede these tours and is scheduled to begin at 9:30 a.m. However, late arrivals may register until noon.

Following the lunch hour, equipment field demonstrations will be held from 1:30 p.m. until 4:30 p.m. Each manufacturer

*Event: ASPA Field Day
Where: Shamrock Turf Nursery, Hanna, Indiana
When: July 30, 1968
Sponsor: American Sod Producers Association
Host: Don Morrill, Shamrock Turf Nursery*

or distributor will be allotted a time slot for operating equipment. Agronomist William Daniel, Purdue University, will serve as master of ceremonies.

The ASPA Field Day follows, by a day, the Purdue University Summer Turf Day, scheduled for Lafayette, Ind., July 29. For growers who are driving, Hanna, Ind., is located about 80 miles north of Lafayette, Ind., on US Hiway 30 between Plymouth and Valparaiso. Shamrock Turf Nursery is one-half mile north of US Hiway 30 on Indiana Route 39, and 15 miles south of the Indiana toll road, when using the exit for Route 39. For those growers who may be flying private planes, the nearest airport is at South Bend, Ind., some 35 miles north of Hanna. Midway Airport at Chicago, Ill., is approximately 65 miles from Hanna. Motels are available at Plymouth and Valparaiso for overnight visitors. A small motel is also located at Hanna.

Close-up of shielded rotary mower in operation under Green Valley irrigation pipe.



Rotary mower in tilted position showing mounting of the three 18-inch turbo cones.



Special Type Mower For Irrigation Pipe

Green Valley Turf Company, Littleton, Colo., has solved the common problem of mowing under irrigation pipe. Manager of the 400-acre sod farm, J. R. "Rusty" Wilkins, and K. C. Ensor, president, designed a shielded irrigation pipe line mower to supplement the gang mower.

Basically the unit is made up with three 18-inch Jacobson turbo cones. Mounted on a regular tractor it can be used to mow at any time without moving irrigation pipe.

Green Valley irrigates at a rate approaching 2 million gallons daily from wells. Irrigation pipe of 1 1/4" and 2" sizes are used. Wilkins says the system consists of 5500 heads of 1 1/4" size on as many pieces of pipe, and 2500 additional heads of 2" size. Rainbird sprinklers are automatically sequenced by time-control valves.

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Longtime employee Tony Nickerson does most of mowing for Green Valley. Equipment consists of a diesel-powered 7-gang mower with this supplemental custom-built rotary unit.

Room For Both Merion And New Fylking Variety

Fylking Kentucky bluegrass seed is now readily available for the first season since its introduction into this country. According to Doyle Jacklin, Jacklin Seed Co., Inc., it is the first new bluegrass candidate to challenge Merion in 20 years. Jacklin, whose company distributes Fylking, says the grass shouldn't really be considered a "challenger" to Merion, as such, since there is ample room in the field for both Merion and Fylking. Each, Jacklin says, has its own special characteristics.

Fylking originated in Svalof, Sweden, and was tested as 0217[®] in North America. The 0217[®] brand Fylking has proven to be a superior performer throughout the cool season area of America, Southern California, and Mexico.

Most unusual feature of Fylking is ability to withstand close mowing—clipping close enough to be an abuse even for a relatively low variety like Merion. Fylking resists weeds, Jacklin states, better at 1 inch than at 1/2 inch, but it persists

when mowed even so close as a golf green.

Of less interest is the ability of Fylking to withstand diseases that frequently blemish lesser varieties. Widespread testing shows it to be resistant to leaf-spot, stripe smut, and other afflictions that beset many of its widely advertised peers.

Fylking is luxuriantly dense, and of outstanding color, the latter partly because it is so free of disease. Unusual density of the sod is due to an abundance of constantly renewed tillers or side shoots, which make a carpet both resistant to wear and quick to recuperate. Compared to Merion, Fylking is of a slightly finer texture and not quite so stiff underfoot, Jacklin continues. Many experts who have noted Fylking research trials rate its color as second to none.

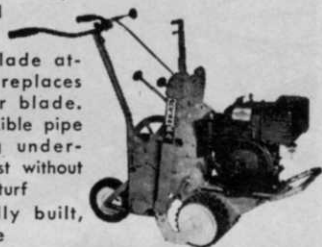
This "junior" queen among fine bluegrasses is becoming generally available this year for the first time, both as sod and as seed. Seed is economical to use because the seeds are large and plump for a bluegrass; and germinate both quickly and abundantly.

Take the high-speed Ryan
Route to beautiful turf...

**Cut it...Roll it...
Core it...Rake it...
with
specialized power
equipment**

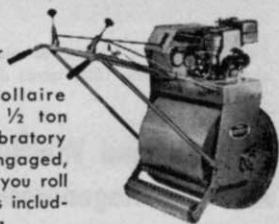
RYAN JR SOD CUTTER

- Cuts over 11 sq. yds. of sod per min.
- Mole blade attachment replaces sod cutter blade. Installs flexible pipe or tubing underground fast without disturbing turf
- Ruggedly built, easy to use



RYAN ROLLAIRE

- Handy back-and-forth power rolling
- Vibrating Rollaire provides over 1/2 ton compaction. Vibratory action can be engaged, disengaged as you roll
- Has many uses including blacktopping



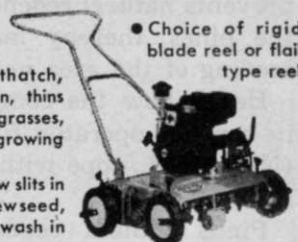
RYAN MOTORAIRE

- Self-propelled coring aerator
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- Promotes deeper root growth—builds thicker, healthier turf



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- Removes thatch, controls grain, thins running stem grasses, cuts out low growing weeds
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This Bell 47G-4 helicopter aids unsuccessful pine regeneration by distributing specially treated seeds over some 1500 acres of New Zealand forest-area.

New Zealand Whirly-birds Aid Pine Regeneration

In the space of 2 days each year, a single helicopter does a reseeded job that would require the efforts of 750 men, according to officials of N. Z. Forest Products, Ltd., New Zealand.

Each spring (September in New Zealand), a huge bird population feasts on pine cone seeds from 1500 acres of trees that were felled the preceding winter. This seed destruction prevents natural regeneration of the pines, thereby making reseeded of the area necessary.

Here's how the company and its contract operator, Helicopters (N. Z.) Ltd., cope with the situation.

Pinus radiata seeds treated with Arasan 425, which irritates membranes in birds' nostrils and eyes, are sown via helicopter over the 1500-acre area each spring. Two pounds of the bird-

repellent seeds are distributed per acre at a rate of 8 acres a minute.

Taking only 10 hours of actual operating time, company officials say this is a fast and effective method of insuring an abundant growth of seedlings for forests of the future, much to the dismay of the seed-loving birds.

GE and URI Join Forces in Turf Heating Studies

Other professional football teams may follow the example of the Green Bay Packers in heating their playing fields with electric cable, predict researchers from both the University of Rhode Island and General Electric.

URI turf researchers have been studying soil heating in cooperation with GE, the company that wired the Green Bay field,

since 1965. Their new experimental area at the URI's College of Agriculture is a large 30'x75' turf section wired to test the performance of 3 types of cable, each made of different insulating material and each carrying different wattage.

Other questions for which GE and the URI's agronomy dept. are seeking answers include the effects of different temperatures on turf in terms of diseases and physiological functions and the results of using various kinds of tarpaulins on heated turf.

Both URI turf researchers and GE engineers believe that heated turf has endless possibilities for extending through Christmas the season for many kinds of recreational playing fields.

New Jersey Promotes Certified Seed Program

A limited lawn seed certification program is being promoted in New Jersey. A quantity of a blend of 40% each of Kentucky and Merion bluegrasses, and 20% creeping red fescue is being packaged and distributed under the state's seed certification tag. Rutgers University College of Agriculture has approved the blend and certification is by the state's Department of Agriculture.

Blending is being done by a North Jersey seedsman who is cooperating in the program. He is using seed from Oregon and South Dakota to make up the blend, which is packaged and retailed in 2-pound units. The New Jersey Department of Agriculture analyzes each lot and requires that each 2-pound package carry a serial number issued by the Department.

About 100,000 pounds of seed is expected to be marketed for home owners in the area this season. This should be enough to seed the equivalent of 1250 acres of lawn area. Seed is being distributed largely through 2 major food chains in the state.