

Why it pays to specify

SEVIN[®]

carbaryl insecticide

for better

SEVIN is safer to use than many other insecticides because of its relatively low toxicity to humans, animals and fish. People can use the grounds soon after application. Drift is less of a problem with SEVIN insecticide and residues do not build up in the soil or streams.

long-lasting

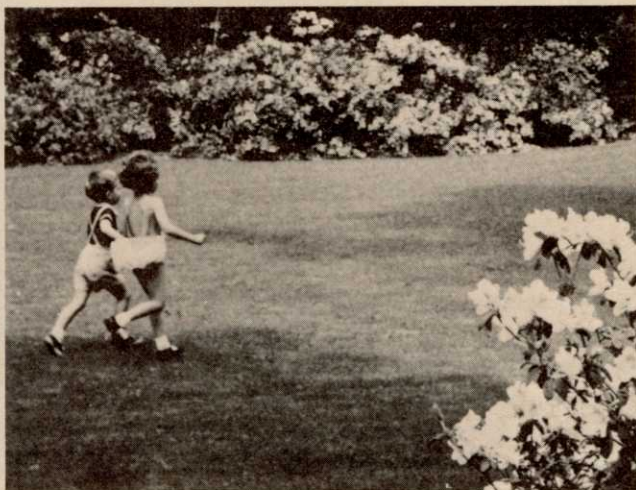
SEVIN provides long-lasting insect control with a minimum number of applications. It works well in cool weather and in heat or bright sun. SEVIN controls 160 different insects, including major pests of lawns, trees, shrubs, flowers, fruits and vegetables. On food plants it can be used close to harvest.

insect control

SEVIN insecticide is ideal for use by the amateur as well as the expert gardener. You can recommend it widely. It pays to stock and sell SEVIN, the safer, better insecticide. Union Carbide Agricultural Products, P.O. Box 1906, Salinas, California 93901.



**THE DISCOVERY
COMPANY**



SEVIN is the registered trade mark of Union Carbide Corporation for carbaryl insecticide.

For More Details Circle (124) on Reply Card

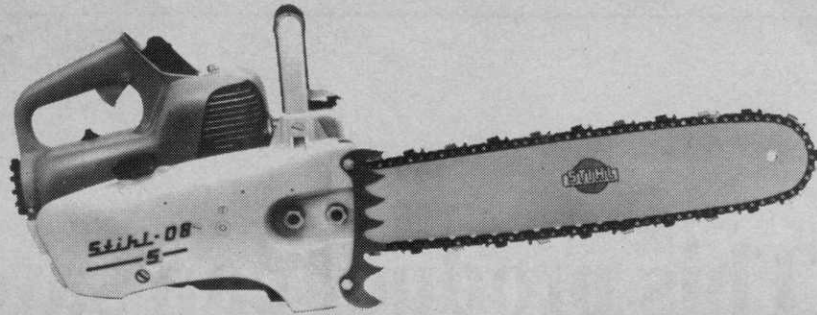


ENVIRONMENTAL JOBS will double by 1980, says a new book. Odom Fanning, a Washington science writer, predicts environmental jobs will increase from 655,990 in 1970 to 1,181,000 by 1980. His book, "Opportunities in Environmental Careers," includes a survey and analysis of five areas of environmental management: ecology, earth sciences, resources and recreation, environmental design including architecture, and environmental protection including public health and pollution control. Published by Vocational Guidance Manuals, the book is \$5.95 available at book stores or by writing VGM, 235 East Forty-fifth St., New York, N.Y. 10017.

AIR POLLUTION costs the nation more than \$500 million each year in damage to crops, forests and ornamental plants, estimates Dr. Axel L. Andersen, Michigan State University plant pathologist. Damage comes from primary pollutants that are directly toxic to plants and secondary pollutants formed by photochemical reactions between sunlight and chemicals released into the air. Major sources of primary pollutants, sulfur dioxide and hydrogen fluoride, are industrial complexes and electrical generating plants that use coal or oil for fuel, he said. The photochemical pollutants that do the worst damage are ozone and peroxyacetyl nitrate. Sources of the chemicals that react with sunlight to produce these oxidants, Dr. Andersen says, include: car and truck exhausts, factories that burn natural gas, fuel oil and coal; and industrial complexes that make nitric acid, sulfuric acid (chamber process only), paint, roofing, rubber, soap and some nylon products.

THE SPRUCE BUDWORM, Ontario's most serious insect pest in 1970, is expected to cause even more widespread damage to balsam and spruce in 1971, warns the Canadian Forestry Service. Predictions are based upon a recent survey of hatched egg clusters. The infestation affects some 1.5 million acres in the Ottawa Valley and 5.3 million acres in northeastern Ontario.

A CARRIER SAFETY REGULATIONS REVISION in the Motor Carrier Safety Regulations has been delayed by the American Association of Nurserymen and 14 other agriculturally oriented associations. The revision would have eliminated the agricultural exemption from the regulations for drivers of trucks under 10,000 pounds in interstate commerce. It was scheduled to go into effect Jan. 1, but has been postponed until June 30 to allow protest testimony. By eliminating the agricultural exemption, every farmer who drives a truck would have to comply with federal safety regulations which state: A driver must be 21 years old, trained and experienced, have no serious violation record during the past three years, passed a road test on the use of a truck, have successfully completed a written examination on federal safety regulations, and successfully completed a physical examination which must be repeated every two years.



STIHL 08S

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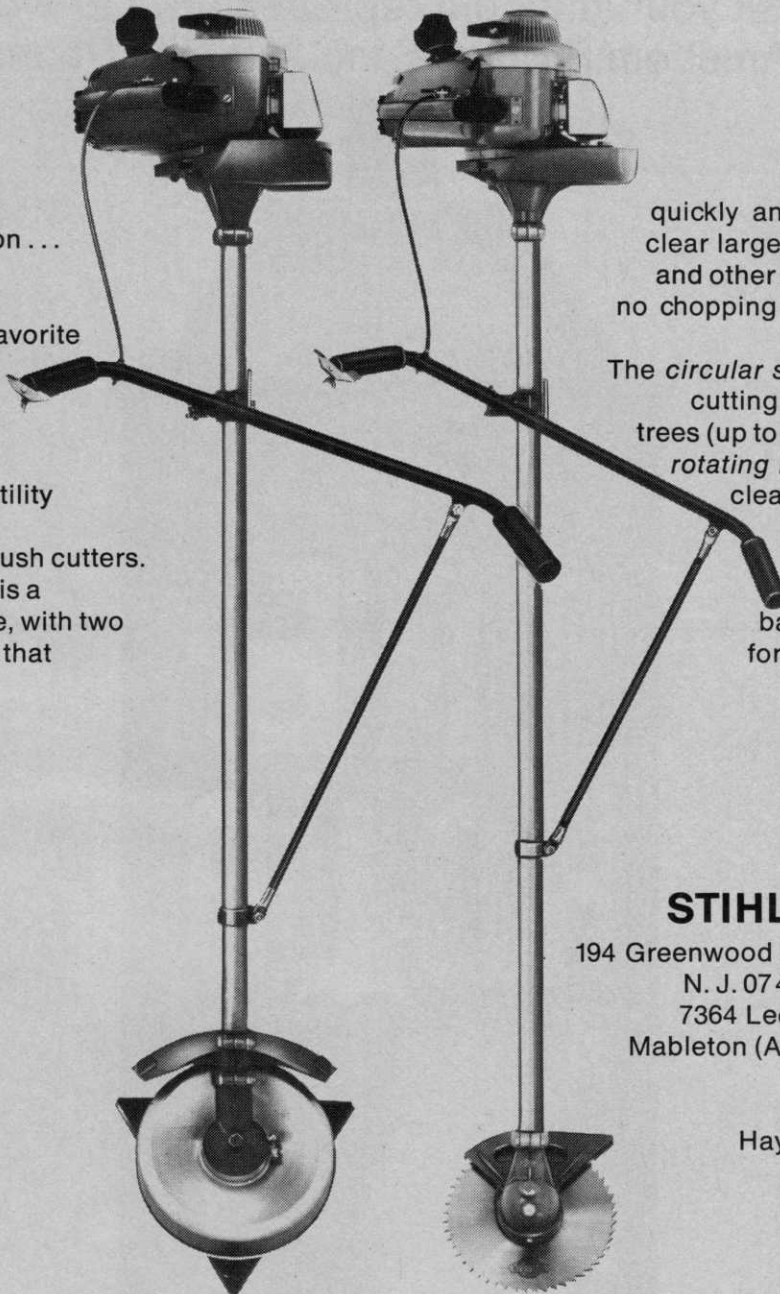
The trio pictured here all have one thing in common... the famous STIHL-08S powerhead.

Consistently one of the favorite saws of farmers, orchard and nursery men, utility crews and pulpwood cutters — the STIHL-08S has also proven its versatility as the power unit behind our high performance brush cutters. The STIHL Brush Cutter is a gasoline powered scythe, with two interchangeable blades, that

quickly and effortlessly lets you clear large areas of brush, weeds and other growth. No bending... no chopping... and no muscular fatigue!

The *circular saw blade* is perfect for cutting underbrush and young trees (up to 6" in diameter) and the *rotating knife* is the greatest for clearing matted shrubbery, weeds, tall grass and even seaweed.

A trio, which in balance, design and performance are unmatched!



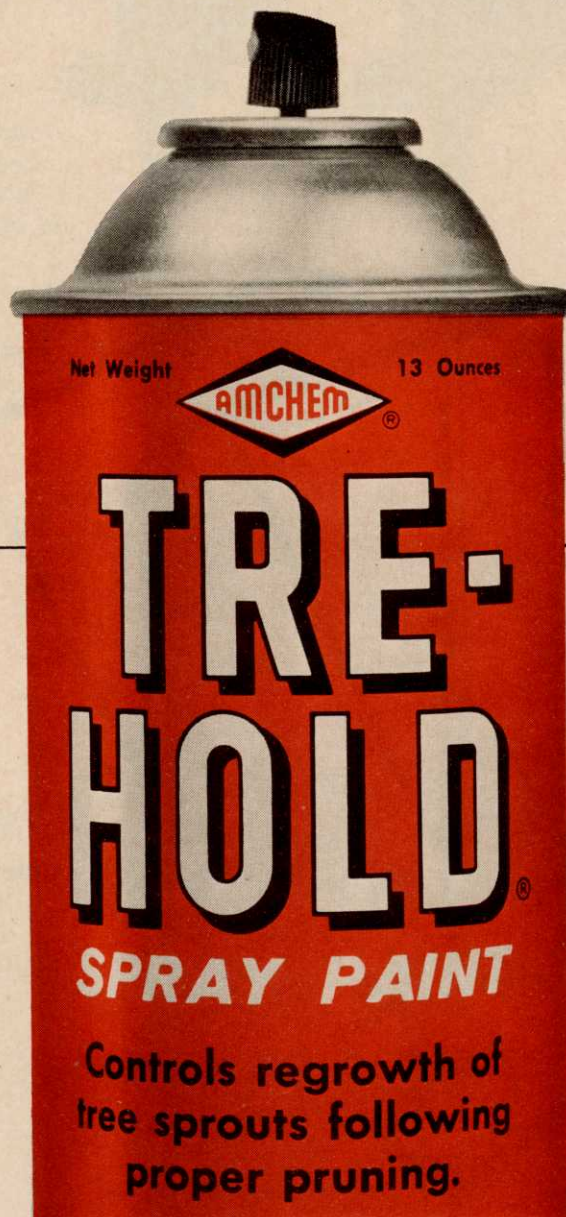
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Fargo Multi-Sprayer Kills Roadside Weeds . . . Minimizes Chemical Drift

Here's the ideal unit for control of weeds along roads and highways and in other public areas—the Fargo Multi-Sprayer. It's a conventional sprayer, using a single 500-gallon tank. It mixes and applies invert emulsions for drift control and also applies conventional sprays.

The basic unit is a skid-mounted heavy gauge aluminum tank, with pump, engine, agitator drive system, outlets and controls. Additional equipment, which may be added as needed, includes: Turret gun, seat and guard rail . . . Side nozzle boom . . . Rear boom . . . Trailer . . . Fifty feet of 1-inch hose reel, and gun, for patch spraying . . . Front boom for side spraying . . . Ten feet of suction hose and strainer . . . Barrel rack.

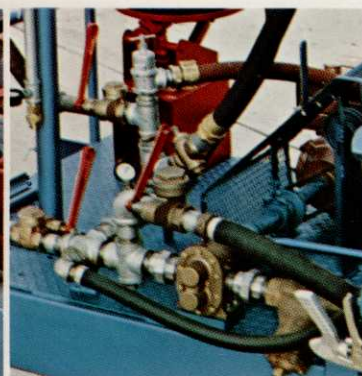
The versatile Fargo Multi-Sprayer utilizes a mechanical agitator with sweep reel for thick chemicals. A jet-pipe disperser speeds up thickening of invert emulsions.



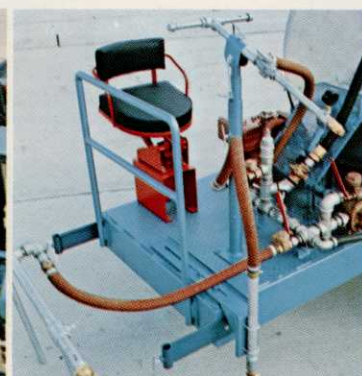
For patch spraying, the Fargo Multi-Sprayer gives operator "spot control" and minimizes chemical drift to protect deciduous trees and other foliage or plant life.



Tank is 45 $\frac{1}{2}$ " in diameter, 6' long, with splash plate, 4 $\frac{1}{2}$ " fill opening, large manhole for easy cleaning, sump trap to provide continued flow to pump regardless of water level. Barrel rack, shown here, is optional.



All controls in easy reach of operator. Large face pressure gauge, range from 0 to 160 pounds, provides absolute accuracy. A 1 $\frac{1}{4}$ " regulating valve handles full flow from supply line.



Adjustable seat, and guard rail, provides operator with maximum comfort and safety at all times. Illustrated here is the turret gun, which—like all other Fargo Multi-Sprayer applicators—is at the operator's finger tips.



For patch spraying, fifty feet of 1-inch hose, hose reel and gun, are optional equipment.

SPECIFICATIONS

TANK, ENGINE, PUMP

500 gallon capacity 45½" diameter x 6' heavy gauge aluminum tank with a splash plate, 4½" fill opening, dust proof fill cap and strainer, quick-opening manhole for easy cleaning, large sump trap that provides continued flow to pump regardless of water level. A mechanical agitator with sweep reel belt drive from pump with belt tightener, manually operated clutch to disengage mechanical agitator, with a jet pipe disperser for invert emulsion formulations, with shut-off valve. Pump powered by direct-drive gear reduction seven horsepower Briggs and Stratton engine with recoil starter. Pump is a 1½" Oberdorfer bronze gear pump with capacities of twenty gallons per minute at fifty pounds pressure at five hundred R.P.M., with 1½" brass line strainer with stainless steel double screen 16 mesh. 1¼" regulating valve with stainless steel cone handles full flow from supply line; positive lock nut holds adjusting screw firmly in place. Large-face pressure gauge range reading 0-160 pounds demands the ultimate in accuracy and stamina. Tank, engine, pump, strainer, regulator and piping is mounted on skid frame, electrically welded and has a heavy engine and pump base plate, special openings in piping unit for attachment accessories.

TURRET GUN, STAND, SEAT AND GUARD RAIL

Uses off-center nozzle for varying the outer edge of the treated strip. Mounted on a pipe base allowing height adjustment as well as allowing the unit to pivot. Variations in wind direction and swath width are met by moving gun nozzle up or down, forward or back and tilt of spray pattern to give maximum coverage along rights-of-way. Padded seat cushion with all steel frame and hydraulic shock absorber featuring selective weight adjustment. Heavy duty guard rail provides additional safety.

CORNER MOUNTED NOZZLE

For general purpose spraying off one side of unit from the roadside shoulder and in conjunction with turret gun. Quick shut-off valve within easy reach of operator. Nozzle support bracket can be adjusted for height and extension from skid of up to 20".

REAR BOOM

Designed for wide rights-of-way. Adjustable height and end nozzles. Quick opening and closing valve within easy reach of operator.

FRONT BUMPER BOOM

Rugged, adjustable boom frame quickly attaches to all bumpers. Boom features 10 nozzles with 20" spacing. Spray pattern extends approximately 17 feet. Quick opening and closing valve within reach of operator seat. Boom has automatic uncoupler and dihedral in action should boom strike an object.

HAND GUN & HOSE

The gun is Spraying System 43-L and 50' of 1" special acid-resisting hose and shut-off valve.

REEL

Hannay heavy duty reel with large internal parts to provide unrestricted flow of liquid. Direct hand crank rewind.

SUCTION HOSE WITH STRAINER

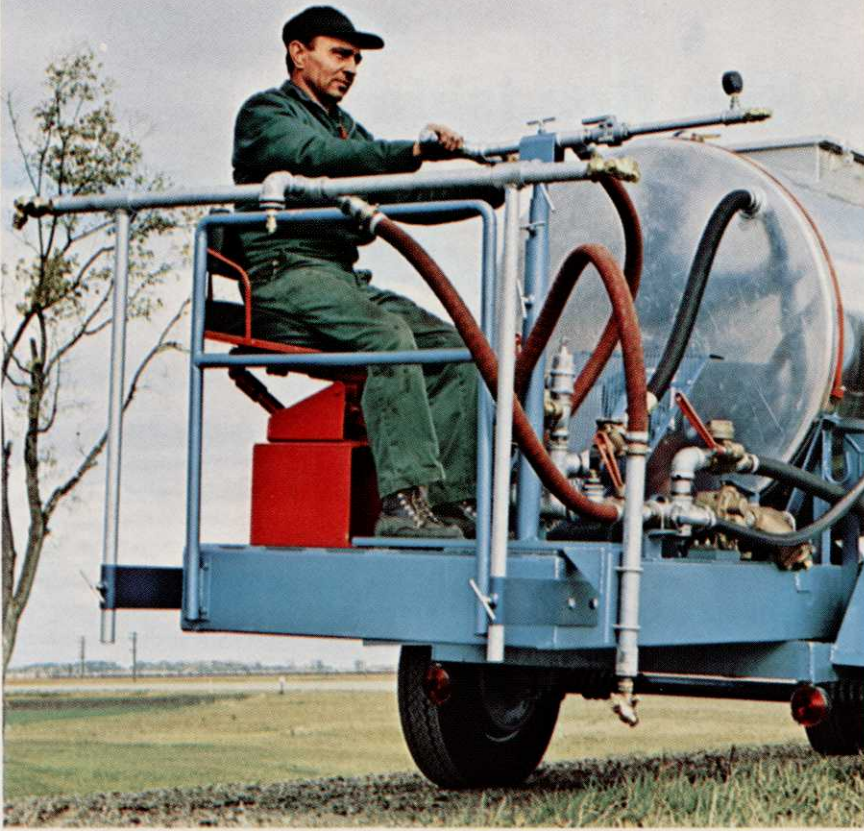
1½" x 10' suction hose for pumping water, chemicals and oils to tank.

TRAILER

Heavy-duty two wheel trailer with electric brakes, ball hitch, jack, safety chain, brake light, tail light and signal lights. Wheels are equipped with 6-ply 700 x 15" tires.

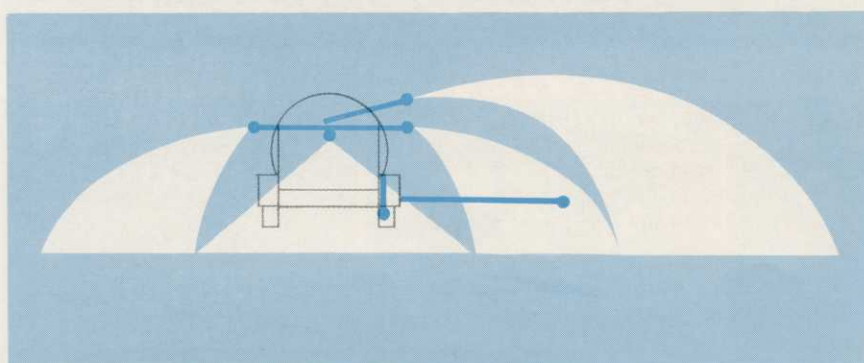
BARREL RACK

For chemical cans, or two 30 gallon drums. Used only with trailer models.



Flexible rear turret gun allows operator to guide spray pattern assuring complete coverage.

The Fargo Multi-Sprayer is ideal for weed control in the median between four-lane highways. Rear boom provides fifty feet of coverage down the center.



Spray pattern with use of rear boom and turret gun.



Dealer Inquiries Invited — Write

FARGO FOUNDRY STEEL & MANUFACTURING COMPANY
92 N. P. AVENUE, FARGO, NORTH DAKOTA

meeting dates

S	M	T	W	T	F	S
	1	2	3	4	5	
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Florida Nurserymen and Growers Association annual convention, Deauville Hotel in Miami Beach. May 13-15.

Southern California Turfgrass Institute at California Polytechnic Institute, Pomona. May 18-19.

Rutgers University Turfgrass Research Field Day at 10 a.m. at New Brunswick, N.J. June 8.

Western Chapter of the International Shade Tree Conference annual convention, Del Webb Townhouse, 9th & Market Sts., San Francisco. June 20-23.

American Association of Landscape Architects annual meeting, Portland, Ore. June 20-24.

Grassland '71 fourth annual field day. Eugene, Ore., Municipal Airport. June 23-27.

California Landscape Contractors Association at King's Castle, Lake Tahoe. June 23-27.

Michigan State University Sod Production Field Day at East Lansing, June 29.

Shade Tree Meeting at the Ohio Agricultural Research and Development Center at Wooster. July 7.

American Association of Nurserymen convention, Statler Hilton Hotel, Dallas, Tex. July 17-21.

1971 Midwest Nursery and Landscape Exposition at D. Hill Nursery, Dundee, Ill. July 25-27.

United States Department of Agriculture Turfgrass Field Day, Plant Industry Station, Beltsville, Md., Aug. 4.

47th International Shade Tree Conference at the Queen Elizabeth Hilton Hotel in Montreal, Quebec, Canada. Aug. 8-12.

American Society of Agronomy, Crop Science Society of America and Soil Science Society of America concurrent meetings in New York City, Aug. 15-20.

Penn State Turfgrass Field Day at the Joseph Valentine Turfgrass Research Center, University Park, Pa. Aug. 25-26.

Michigan State Turfgrass Field Day at the Crop Science Field Laboratory in East Lansing. Sept. 9.

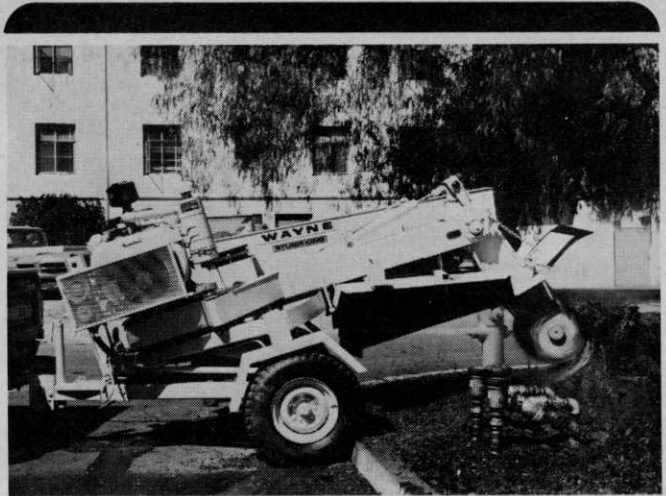
Alabama-Northwest Florida annual turfgrass short course in cooperation with Auburn University, Auburn, Ala. Sept. 9-10.

Florida Turf-Grass Management Conference, Pier 66, Ft. Lauderdale. Sept. 19-22.

Midwest Regional Turf Foundation field day, Purdue University, Lafayette, Ind. Sept. 27.

30th Annual Short Course for Roadside Development, Columbus, Ohio. Oct. 4-8.

Society of Municipal Arborists seventh annual meeting at the Empress Motel, Asbury Park, N.J. Oct. 6-8.



stump eater!

The new WAYNE STUMP KING[®] is here . . . it's a hungry machine! STUMP KING[®] chews up more stumps faster than any other method of stump removal. HIGH PRODUCTIVITY is achieved by quick set-up on the job and unmatched cutting range. Choice of 2 models — 37 HP and 65 HP.



brush eater!

Team up with WAYNE BRUSH CHIPPERS . . . They can solve your brush disposal problems with high speed and economy . . . economy provided by exclusive 6 sided bed knife adding 50% more life than a conventional 4 sided knife. Multiple safety features assure maximum protection for your operating personnel.

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In Vegetation Maintenance

TALE OF TWO CITIES' AIRPORTS



VISUALIZE THE TASK of mowing, spraying and fertilizing the grid iron turf with the Super Bowl in progress.

Now, substitute screaming jet-planes for the yelling linemen. Set the crowd in motion, scurrying from one section of the stadium to another.

Perhaps you can now conceive of the arena in which the grounds crews work at Chicago's O'Hare Field and Houston's Intercontinental Airport.

The coaches are Ray Humbarnd at O'Hare and L. Pat Collins at Houston. Easily, they can match grid coaches, manpower and equipment frustrations and "front office" idiosyncrasies. There is one glaring difference in the game outcome. Humbarnd and Collins have no choice but to win — and continue to win. Otherwise, lots of people could get hurt, or killed.

That's why, says Humbarnd, "our primary interest is safety, and at Chicago we have one of the biggest and safest airports in the world."

Both men are responsible for more than vegetation. They must see that runways are kept clean and are well marked and to varying degrees they are responsible for handling the trash from the maze of airport buildings and grounds. But the care and

control of vegetation can be more critical in providing a safe place for planes to take off and land. Aesthetic considerations, while secondary, can become extremely sensitive.

12 Tips on Management

Humbarnd and Collins probably have faced all — and solved most — of the problems airport grounds managers can experience. From discussions of their year-round operations, this advice emerges:

- Pay particular attention to employee morale. Hiring a trained man is practically impossible, therefore it is essential that once you've trained a new employee you make every effort to keep him — and keep him happy.

"I consider my staff as one big family," said Collins. And employees respond: "He's the kind of man you want to work for. You just don't find a problem he can't help you with."

- Use inclement weather to add depth and breadth to employee training. Formalize training even to the extent of using such aids as lectures, films and examinations.

- Provide the employee with the opportunity to advance within grade, recognizing him for his achievement with more pay. Have certain employees groomed for supervisory roles.

- Set up a clearly understood chain of command. Even with superior radio communications, times will occur when staff members must get work moving or make decisions for the superintendent.

- Determine which turf areas are sensitive, aesthetically or otherwise, from the viewpoint of the public (or the boss), and plan grooming accordingly.

- Anticipate problems, and plan far ahead. Order materials from three to six weeks before expected use date. Budget a year ahead, and carefully justify new expenditures.

- Get to know those persons who handle and approve your requests for materials. In an emergency, the sluggish administrative gears may be greased with a phone call. When your back is really to the wall, the door may be opened to hand-carry the request.

- Try a variety of products. They may not work equally well for your particular problem. "I've used herbicides where the results were so disappointing I could have done a better job spraying diesel oil," said Humbarnd.

"Every herbicide is best suited for something," added Collins. "Know what that use is."

- Experiment to determine which materials work best for you.





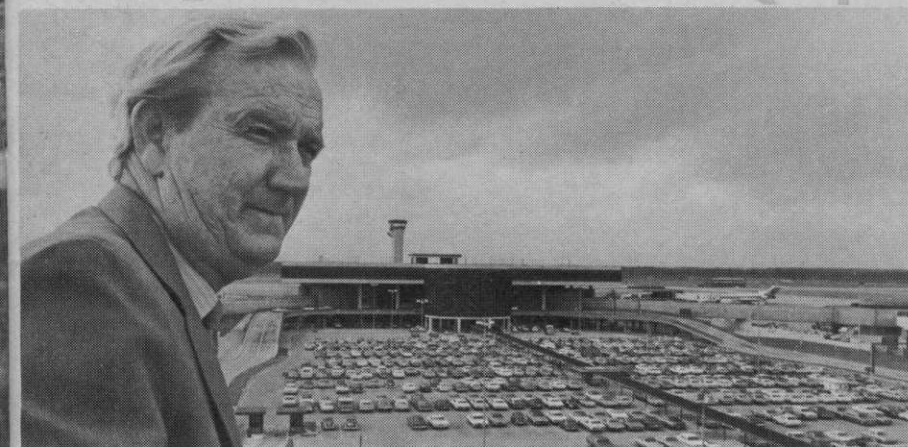
Airfield and grounds superintendent Ray Humbard at Chicago.

● O'HARE FIELD

Humbard is putting out a five-acre plot this year combining weed killer with grass growth retardant. Collins hopes to get some crownvetch established along drainage ditchbanks, believing the legume will cut maintenance costs up to 70% once it is established.

● Though products and materials are usually purchased by bid, careful attention to writing specifications can get you the brand of equip-

● HOUSTON
INTERCONTINENTAL



ment or material you want.

● Keep in touch with related city vegetation care programs, watching for the opportunity to do a favor or get one done. Humbard is getting landfill material from the city forestry department that's tickled pink to find a disposal site for trees killed by Dutch Elm Disease.

Collins has an active "farming program" on portions of 1,750 acres of airfield grounds. He plants coastal bermudagrass and prairie hay, which is cut, baled, and sold to the city zoo.

● Watch for the opportunity to take advantage of federal assistance programs. Collins hopes to get 50 men this summer through the federal Manpower Development Training program. Though the men, under 21, aren't trained to handle power equipment, Collins will provide rakes and axes and use them to clear brush, or for similar jobs that can be done with hand labor. The federal government has indicated it may share the wage costs.

Airports Alike and Different

Houston and O'Hare airports exhibit both striking similarities and contrasts in description and operations. Both airports cover in excess of 7,000 acres. O'Hare, long established but constantly expanding, has

450 acres in turf. Houston, just opened in 1969, has a much bigger percentage of land undeveloped. Collins is pursuing a goal of maintaining 619 acres to "golf course perfection." An additional 575 acres gets reduced fertilizer and herbicide treatment; another 1,760 acres is maintained only at widths of 200 to 300 feet from roadway shoulders.

Geographic location dictates difference in vegetation, equipment, manpower and materials. O'Hare is a "bluegrass" airport; Houston is a bermudagrass terminal. O'Hare has six to eight men who mow the entire acreage three or four times a year, then stand ready to remove snow from runways the rest of the year. Houston, with a total of 42 employees, mows year around except for a few weeks in January and February.

O'Hare spends about \$20,000 for herbicides and \$20,000 for turf equipment and supplies; Houston's annual budget is about \$50,000 for fertilizers and \$35,000 for herbicides. Principal differences in expenditures are climate and growing season and that O'Hare's program is one of maintaining and rebuilding, whereas Houston's is building turf on areas that were once "neck high" in weeds.

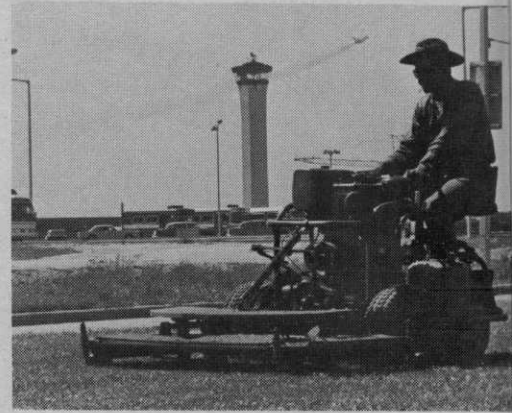
Field drainage, public use areas, weed control around landing and takeoff installations, and perimeter fence weed control are common headaches.

Both airports are turning to herbicides to keep drainage ditches unplugged from excessive weed growth. Humbard said the network of ditches, costing millions to build, can deteriorate to the point of needing redredging. Such a task might cost close to \$90,000, when the ditches, he estimates, could be effectively cleaned with herbicides at less than \$5,000. A program begun in 1969 called for using Dow General Weed Killer and Tordon 10K pellets.

Houston has 18 miles of drainage ditches, some situated between the 105-acre, closely manicured boulevard approach to the airport and others through rugged terrain of less developed sections.

For herbicide application, "we control drift with Foamwet," said Collins. "We found that with foam we know we're getting coverage because we can see it. We never use over 60 psi and we have a nozzle for each type of application. It's extremely important to have the head shaped properly for the ditch bank to get uniform coverage."

For Johnsongrass and Dallisgrass control in turf, Collins uses Foamicide 1300, containing MSMA. Rada-



Airport turf care requires nearly every size, style and type of mowing vehicle, from the 25-ft. rotaries at Chicago (page 18), the 7-gang reels (above) and big flails (lower right) at Houston to the small riding mowers (upper right) and push mowers (lower left) at Chicago.

Cuts twice as fast as most lawn tractors, hugs the ground for hillside safety



NATIONAL 68-inch Triplex

Mows a 68-inch swath at speeds up to 4 miles per hour, a half acre in 15 minutes.

It's a turf-professional type mower, with three powered, free-floating reels that follow ground contour. It shears grass cleanly; doesn't leave unsightly "tip burn" as rotaries often do.

Reduces trimming time because the reels reach out over curbs, up to obstructions and in other hard-to-cut places.

Built to last—with Timken bearings, automotive-type transmission and a lip on the cutter bar to take years of wear.

Do your lawn job in about half the time and do it better with the all-mower mower, the National Triplex.

Other models from 25 to 84-inch cut.

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