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 Rohm and Haas Co., Independence Mall West, Philadelphia, Pa. 19105
 Rolatape, Inc., 1301 Olympic Blvd., Santa Monica, Calif.
 Root-Lowell Corp., 322 W. Main St., Lowell, Mich. 49331
 Rosco Manufacturing Co., 3118 Snelling Ave., Minneapolis, Minn.
 Roseman Mower Corp., 2300 W. Lake Ave., Glenview, Ill. 60025
 Roussel Corp., 155 E. 44 St., New York, N.Y.
Rowco Mfg. Co., Inc., 48 Emerald St., Keene, N.H. 03431
 Roxy-Bonner, Inc., 2000 Pioneer Rd., Huntingdon Valley, Pa. 19006
 Royer Foundry & Machine Co., 158 Pringle St., Kingston, Pa. 18704
 Rudd Manufacturing, Inc., P.O. Box 537, Ripon, Calif. 95366
Ryan Equipment Co., 2055 White Bear Ave., St. Paul, Minn. 55109

S

Safety Test & Equipment Co., Inc. P.O. Box 898, Shelby, N.C.
 Schneider Metal Mfg. Co., 1805 S. 55 Ave., Chicago, Ill.
 Scott Aviation Corp., 255 Erie St., Lancaster, N.Y.
 The O. M. Scott & Sons Co., 160 Main St., Marysville, Ohio
 Sewerage Commission of Milwaukee, P.O. Box 2079, Milwaukee, Wis.
 Shell Chemical Co., Agricultural Chem., Div., 100 W. 51 St., New York, N.Y.
 Shepard Chemical Industries, Inc., 595 Madison Ave., New York, N.Y.
 The Sherwin-Williams Co., 101 Prospect Ave., Cleveland, Ohio
 Side-O-Matic Unloader Corp., P.O. Box 429, York, Pa.
 Signal Oil & Gas Co., Houston Div., P.O. Box 5008, Houston, Texas
 Sikorsky Aviation Div., United Aircraft Corp., Stratford, Conn.
 Silver Creek Precision Corp., 282 Central Ave., Silver Creek, N.Y.
 Simplicity Mfg. Co., Inc., Spring St., Port Washington, Wis. 53074
 Skil Corp., 5033 Elston Ave., Chicago, Ill.
 Skyworker Div., Transair Co., Inc., P.O. Box 360, Delaware, Ohio
 D. B. Smith & Co., 414 Main St., Utica, N.Y.
 Seymour Smith & Son, Inc., 900 Main St., Oakville, Conn. 06779
 Smith-Douglas Div., Borden Chemical Co., 5100 E. Virginia Beach Blvd., Norfolk, Va.
 Snow Aeronautical Corp., P.O. Box 516, Olney, Texas
 Sodmaster, 3456 N. Washington Ave., Minneapolis, Minn. 55412
 Sohio Chemical Co., P.O. Box 628, Lima, Ohio
 Solo Industries, Inc., 5100 Chestnut Ave., Newport News, Va. 23605
South Dakota Kentucky Bluegrass Assn., P.O. Box 823, Huron, So. Dak. 57350
 Southern Mill Creek Products, Inc., P.O. Box 1096, Tampa, Fla. 33601
 Southwest Potash Div., American Metal Climax, Inc., 1270 Ave. of the Americas, New York, N.Y. 10020
 Speedex Tractor Co., 367 N. Freedom St., Ravenna, Ohio
 Spraying Systems Co., 3201 Randolph St., Bellwood, Ill. 60104
Stanford Seed Co., P.O. Box 230, Plymouth Meeting, Pa. 19462

Stauffer Chemical Co., Fertilizer Div., 636 California St., San Francisco, Calif.
 Stauffer Chemical Co., Agricultural Chemical Div., 380 Madison Ave., New York, N.Y. 10017
 Wm. Steinen Mfg. Co., 29 E. Halsey Rd., Parsippany, N. J. 07054
 Stepan Chemical Co., Edens & Winnetka, Northfield, Ill. 60093
 Stihl American, Inc., 194 Greenwood Ave., Midland Park, N.J.
 Stone Conveyor Co., Inc., Main St., Honeoye, N.Y. 14471
Stull Chemical Co., P.O. Box 6386, San Antonio, Tex. 78209
 Sudbury Laboratory, Box 2471 Sudbury, Mass. 01776
 Summers Fertilizers, Inc., Kapco Div., P.O. Box 487, Somerset, Pa. 15501
 Sun Industry, Inc., 12418 W. Rosemary, New Berlin, Wis.
 The Sun-Mastr Corp., 603 S. Kansas Ave., Olathe, Kansas
 Sunyhill Research & Mfg. Co., Imperial, Pa.

T

Tarrant Mfg. Co., 27-29 Jumel Pl., Saratoga Springs, N.Y.
 Tecumseh Products Co., 900 North St., Grafton, Wis. 53024
 Telsco Industries, P.O. Box 18205, Dallas, Tex.
 Tenneco Oil Co., P.O. Box 18, Houston, Tex.
 Tennessee Corp., Ind. Chemicals Div., 55 Marietta St., N.W., Atlanta, Ga. 30301
 Thompson Equipment Co., N. Washington St., Starkville, Miss.
 Thompson-Hayward Chemical Co., P.O. Box 2383, Kansas City, Kans. 66110
 The Thompson Manufacturing Co., 2251 E. 7 St., Los Angeles, Calif.
 Thor Power Tool Co., 175 N. State St., Aurora, Ill. 60507
 Thuron Sprayer Mfg. Co., 12200 Denton Dr., Dallas, Tex. 75234
 Toro Manufacturing Corp., 8111 Lyndale Ave. S., Minneapolis, Minn. 55420
 Tote Systems Div., Hoover Ball and Bearing Co., 656 S. 7th, Beatrice, Nebr.
 Tradewinds, Inc., P.O. Box 1191, Tacoma, Wash. 98401
 Trailevator Div., Magline Inc., Mercer St., Pinconning, Mich.
 Tree-Ject Co., 1309 Grove Ave., Waycross, Ga. 31501
 Triumph Machinery Co., Willow Grove St., Hackettstown, N.J. 07840
 Troy Blanket Mills, 132 W. 34 St., New York, N.Y.
 Tryco Mfg. Co., Inc., P.O. Box 1277, Decatur, Ill. 62525
 TUCO Products Co., Div. of Upjohn Co., 7171 Portage Rd., Kalamazoo, Mich. 49002
 Tyler Corp., E. Highway #12, Benson, Minn.

U

U.S. Borax & Chemical Corp., 3075 Wilshire Blvd., Los Angeles, Calif. 90005
 U.S. Industrial Chemicals Co., 99 Park Ave., New York, N.Y.
 Union Carbide Corp., Agricultural Products, 270 Park Ave., New York, N.Y. 10017

Uniroyal Chemical, Div. of Uniroyal, Inc., Elm Street Naugatuck, Conn. 06770

Universal Metal Products Div., Leigh Products, Inc. 460 Main St., Saranac, Mich. 48881
 Universal Motor Co., 1552 Harrison St., Oshkosh, Wis.
 Utility Chemical Co., 145 Peel St., Paterson, N.J. 07524

V

The Vandermolen Co., 378 Mountain Ave., N. Caldwell, N.J. 07006
 Vaughan's Seed Co., Chimney Rock Rd., Bound Brook, N.J.
 Velsicol Chemical Corp., 341 E. Ohio St., Chicago, Ill. 60611
 Verde Lawn, Inc., P.O. Box 11157, Tucson, Ariz. 85706
 Vermeer Manufacturing Co., P.O. Box 190, Pella, Iowa 50219
 Viking Mfg. Co., P.O. Box 68, Manhattan, Kans. 66502
 Viking Pump Co., 4th & Shutte Sts., Cedar Falls, Iowa
 Vineland Laboratories, Inc., 2285 E. Landis Ave., Vineland, N.J. 08360
 Vulcan Materials Co., P.O. Box 545 Wichita, Kans. 67203

W-X-Y-Z

Waco Lickity Log Splitter Div., Piqua Engineering, Inc., 234 1st St., Piqua, Ohio
 R. M. Wade & Co., 1919 N.W. Thurman St., Portland, Oreg. 97209
 Walker Mfg. Co., Fowler, Kans. 67844
 Walsh Manufacturing Co., 1200 Fisher St., Charles City, Ia. 50616
 "Water-In" Inc., P.O. Box 421, Altadena, Calif.
 Waukesha Motor Co., W. St. Paul Ave., Waukesha, Wis.
 Waverly Petroleum Products Co., 3018 Market St., Phila., Pa.
 Wayne Manufacturing Co., 1201 E. Lexington St., Pomona, Calif.
 H. N. Webster Mfg., P.O. Box 623, Sebring, Fla.
 West Point Products Corp., West Point Pike, West Point, Pa.
 Western Peat Co., 5800 Monroe St., Sylvania, Ohio
 Weyerhaeuser Co., Tacoma Bldg., Tacoma, Wash.
 The Whitaker Manufacturing Co., 5719 W. 65 St., Chicago, Ill. 60638
Whitney Seed, Div., W. R. Grace & Co., P.O. Box 250, Buffalo, N.Y. 14240
 Wichita Equipment Co., Inc., P.O. Box 1329, Wichita Falls, Tex.
 Wilbur-Ellis Co., 970 S. Goodrich Blvd., Los Angeles, Calif.
 Willson Products Div., Ray-O-Vac Co., 2nd & Washington Aves., Reading, Pa.
 Andrew Wilson, Inc., Baltusrol Way, Springfield, N.J.
 Wood Treating Chemicals Co., 5137 Southwest Ave., St. Louis, Mo. 63110
 Wright Saw Div., Thomas Industries, 207 E. Broadway, Louisville, Ky.
 W-W Grinder Corp., 2957 N. Market, Wichita, Kans.
 Wyandotte Chemicals Corp., 1532 Biddle Ave., Wyandotte, Mich. 48192
 Yazoo Mfg. Co., Inc., P.O. Box 4207, Jackson, Miss. 39216
 York Modern Corp., Mill & Watson St., Unadilla, N.Y. 13849
 Zonolite Div., W. R. Grace & Co., 135 S. LaSalle St., Chicago, Ill. 60654

**WEEDS
TREES
and TURF** 1967 **Article Index**

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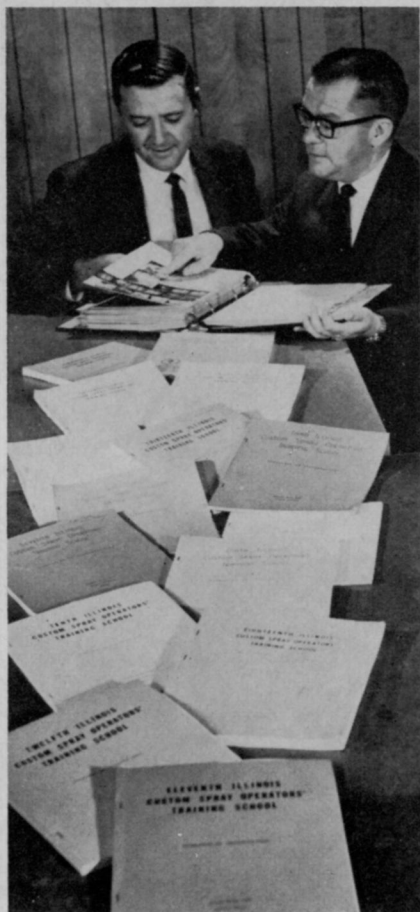
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"Haven't we done this before?" University of Illinois entomologist H. B. "Pete" Petty, right, and agronomist Fred Slife, left, review programs from the last 19 Custom Spray Operators' Training Schools as they complete plans for the 20th. The school will be January 24-25 at the University of Illinois Illini Union, Urbana. Petty and Slife are the only two participants in this year's program who have been on all 19 of the past programs. They will present awards to five individuals who have attended all 20 spray schools.

Illinois Spray School To Be Held Jan. 24-25

The 20th Illinois Custom Spray Operators' Training School will feature the newest research and the latest predictions for 1968.

Chairman H. B. "Pete" Petty, University of Illinois and Natural History Survey entomologists, says the January 24-25 meeting will feature entomologists, agronomists, plant pathologists, and agricultural engineers from the U. of I., other universities and the U. S. Department of Agriculture.

The opening session will start at 9:50 a.m. in the Illini Union in Urbana with a brief review of the 1968 herbicide, insecticide and fungicide recommendations.

Weed Society of America Annual Is Feb. 5-8

Research weed control scientists from the entire Western Hemisphere will meet Feb. 5-8 at New Orleans, La., for the 1968 annual meeting of the Weed Society of America. Headquarters during the meeting will be the Jung Hotel. Registration begins at noon on Monday, Feb. 5, with the final formal session ending at noon, Feb. 8.

President of the society is Dr. Richard Behrnes, professor of weed physiology at the University of Minnesota. Dr. Boysie E. Day, chairman of the University of California Department of Horticultural Science at Riverside, is president-elect and chairman of the New Orleans program. Secretary is Dr. Dayton L. Klingman, Crops Research Division, Agricultural Research Service, USDA, Beltsville, Md., and treasurer and business manager is Dr. F. W. Slife, University of Illinois agronomy department. Chairman for local arrangements at the New Orleans event is Dr. J. B. Baker, Louisiana State University department of Botany and Plant Pathology, Baton Rouge.

Weed Control Research To Highlight N.Y. Meeting

New weed control research will again highlight the Annual Northeastern Weed Control Conference, set for Jan. 3-5, at the Hotel Commodore, New York City, N. Y.

President of the group, Dr. John Gallagher, Amchem Products, Inc., Ambler, Pa., reports that 115 scientific papers will be presented during the 22nd annual meeting of the group. Dr. Gallagher says plans are for an attendance ranging up to 800.

Besides research reports, the representatives of industry, government, regulatory agencies, universities, and utilities will discuss current and future weed control problems. Rights-of-way maintenance, industrial site improvement, aquatic weed control problems and related subjects will feature both formal and informal discussions.

The annual conference is one of 4 regional weed conferences staged each year by the group. Details of the January meeting are available from the secretary of the group, Dr. Arthur Bing, Cornell Ornamentals Research Laboratory, Farmingdale, Long Island, N. Y. Dr. Bing can be reached by telephone at 516 CH 9-1540.



Christmas tree disposal problems are being simplified nationwide by use of wood chippers. New York City's Sanitation Department uses Fitchburg Brush Chippers such as the above to reduce trees to chips. Once trees are put through chippers, refuse is hauled to incinerators and burned. City last year required 70 trucks just to deliver trees to chippers. In other areas, chips are used for mulch, and one mid-west city reported it cut disposal costs by one-third by chipping trees. Prior to use of chippers, tree disposal created problems with bulk alone, besides damage to incinerators from tree spikes.

Reprints Available

Survey on Turfgrass Management Training Series

WEEDS TREES AND TURF magazine is making available its series on Turfgrass Management Training which ran earlier this year. This series listed college level training available at 26 colleges and universities across the nation.

A number of universities have requested reprints for use with their own student counseling programs and for use by high school counselors.

If these can be used in your state, contact WTT. Because such information on training can help in informing prospective students about the industry, WTT is making these available at the reprint cost. Cost per thousand for the 10-page reprint will be \$30, plus shipping. Lesser amounts can be ordered at \$5 per hundred, plus postage.

For reprints, write:

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More Powerful Engine Now Being Offered Pilots In Aerial Application Vegetation Control Field



Piper Aircraft Corp. has announced that the Piper Pawnee C agricultural airplane is now being offered with a 260 horsepower Lycoming engine, in addition to the 235 horsepower Lycoming which has been standard on the Pawnee for several years. An optional controllable pitch propeller is also being offered now with the 260 horsepower engine. Details are available from the company at Lock Haven, Pa. 17745.

New Jersey Sod Producers Finance Turf Research Based On Sod Acreage of the Individual Grower



Frank Cacavio, president of the Cultivated Sod Association of New Jersey, Inc., left, presents monetary grant to **Dr. Leland G. Merrill, Jr.**, Dean of the College of Agriculture and Environmental Science, Rutgers—The State University, New Brunswick, New Jersey. The grant was presented by the sod organization to support turfgrass research at Rutgers. Funds for the grant were contributed by the sod producer members of the association on the basis of a sod acreage assessment. The Assessment Fund Committee consisted of Chairman, William Rapp, Rapp Sod Farm, Frank Cacavio, Mercer Sod Farm, Wiley Miner, Princeton Turf Farm, and Dr. Henry W. Indyk, Rutgers University.



Cedrus Deodora, 40 feet in height, was moved by Badger Tree Service, Inc., Phoenix, Ariz., in Operation Green Giant. Arborist W. K. "Bill" Johnson, whose company moved the tree, reports that the "Green Giant" weighed in at 38 tons and required 17 days to move. It was donated to the children of Mesa by a native, Joe Reed, as a living Christmas Tree. Ten months after moving, the tree, which is now located in Mesa's Pioneer Park is thrifty and has grown 6 inches since the 2-block move. Johnson said that a box 12'x12' and 6' in depth was constructed and one board at a time placed in the bottom as the soil was dug from under the tree. During moving, the tree was not cut back. Only a minimum amount of trimming was done. It is the only tree of its type, according to Johnson, in the "Valley of the Sun."



King-sized "heating pad" installed at Lambeau Field, home of the World Champion Green Bay Packers, will keep turf soft and frost-free during late season games. Checking the installation are left to right, Elmer Cloud, installer, Sal Soscia, application engineer for General Electric Company's wiring device department which supplied the cable, and George Halas, General Electric sales engineer. The cable, 14 miles long, covers 73,000 square feet of the Packers' playing field. Power required to "heat" the turf is equivalent to that needed to light 7,800 100-watt bulbs. Halas is an occasional scout for both football leagues and a nephew of George "Papa Bear" Halas, owner and coach of the Chicago Bears.

Meeting Dates



Northeastern Weed Control Conference, Hotel Commodore, New York, N. Y., Jan. 3-5.

Tennessee Turfgrass Association Annual Conference, Andrew Jackson Hotel, Nashville, Tenn., Jan. 8-9.

Western Agricultural Chemicals Association, Northwest Conference, Hilton Hotel, Portland, Ore., Jan. 9-12.

Southern Weed Conference, 21st Meeting, Deauville Hotel, Miami Beach, Fla., Jan. 16-18.

Agricultural Nitrogen Institute, Annual Convention and Trade Show, Marriott Motor Hotel, Atlanta, Ga., Jan. 16-18.

Associated Landscape Contractors of America, Annual Meeting, Conference Center, Williamsburg, Va., Jan. 21-24.

California Weed Conference, 20th Annual, El Rancho Hotel, Sacramento, Calif., Jan. 22-24.

Virginia Turfgrass Conference, Virginia Turfgrass Council and V.P.I., Golden Triangle Motel, Norfolk, Va., Jan. 23-24.

California Weed Conference, El Rancho Hotel, Sacramento, Calif., Jan. 22-24.

California Agricultural Aircraft Association, Annual Meeting, Sahara Tahoe Hotel, Lake Tahoe, Calif., Jan. 24-27.

Arizona Aerial Applicators Association, Annual Meeting, Francisco Grande, Casa Grande, Ariz., Feb. 1-2.

Weed Society of America, 1968 Meeting, Jung Hotel, New Orleans, La., Feb. 5-8.

Annual Agricultural Chemical Conference, Oklahoma State University, Student Union, O.S.U., Stillwater, Okla., Feb. 14-15.

American Sod Producers Association, First Annual Meeting, In conjunction with Golf Course Superintendents Assn. Convention, San Francisco Hilton Hotel, San Francisco, Calif., Feb. 18-23.

Western Society of Weed Science, formerly Western Weed Control Conference, Owyhee Hotel, Boise, Idaho, Mar. 19-21.

Michigan Turfgrass Conference, Annual Meeting, Kellogg Center, Michigan State University, East Lansing, Mich., Mar. 20-21.

Mulches Improve New Turf Stands

By
W. R. THOMPSON, JR.
Agronomist, American Potash Institute
and
HIRAM D. PALMERTREE
Agronomist, Mississippi Cooperative
Extension Service

STANDS of nearly all plantings of fine turf can be improved through the use of mulches. Mulching of newly planted areas will reduce erosion, conserve moisture and temper sharp temperature changes.

Grasses established from seed, such as common bermudagrass, tall fescue, bluegrass, creeping red fescue, and bahiagrass, are easily adapted to mulching techniques.

Turfgrasses such as improved turf—bermudagrasses, zoysias, St. Augustine, and centipede—which must be planted vegetatively using sprigs or stolons, are now being successfully established by stolonizing (broadcasting chopped stolons or sprigs) and then mulching with various mulches. Through the use of specialized machines, sprigs and manufactured mulches can be applied in a one-step operation.

Regardless of the grass planted or method used, prepare a good, firm seedbed. A good seedbed is essential for a successful lawn and eliminates several problems which might develop in lawns. Always plant an adapted variety of turfgrass and use enough seed or plant material to obtain complete and uniform coverage.

When small grain straw is used as a mulch, the lawn should be planted, rolled, and then mulched with straw at a rate equal to 2 to 3 tons of straw per acre.

The availability of small grain straw is dependent upon the season, and straw is objectionable in home lawns because of



Conwed Hydro Mulch is being applied in this instance to a typical slope by hydraulic method. Seed, mulch and fertilizer are mixed, then applied on soil at distances up to 100 ft.

the weed and small grain seeds which come in with the baled straw.

Several manufactured mulches are available for mulching newly planted lawns. Manufactured mulches are packaged mulches and are commercially available any season of the year.

If a manufactured mulch is used, two procedures are possible. First, the same procedure as with straw mulch can be followed, or second, the hydro-planting technique can be employed. With this technique the seedbed is prepared and the seeds or sprigs and manufactured mulch is applied in a single operation with special hydroplanting equipment.

One of the most popular mulches for home lawn areas is the wood-cellulose fiber mulch. This material consists of ground wood fibers, which are dyed a green color for ease of application and aesthetic value during the establishment period. These

materials are usually applied on home lawns or fine turf areas at a rate of 2,000 pounds per acre. Wood fiber mulches are applied in a water slurry or by hydro-mulching techniques. As mentioned previously, seeds, fertilizer, and sprigs or stolons may be applied with the mulch in a one-step operation. This mulch usually loses its green color in direct sunlight after a week, but it does temper the microclimate so that the seedlings benefit from the mulch. This is also an excellent mulch for stolonized or sprigged lawns.

Another available mulch is chopped excelsior. This consists of shredded wood, chopped in lengths of about eight inches. This material can be applied either by hand or with conventional straw mulch spreading equipment. Chopped excelsior mulch can be applied with or without asphalt, but in residential areas the asphalt is usually objectionable. Excelsior at the rate of 2 tons per acre will give



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good erosion control and conserve moisture on the newly seeded or sprigged lawns. However, on areas where frequent mowing in early establishment phases is desired, excelsior would be objectionable because the mulch would be scattered over the area by the action of the mower.

Water Soluble Latex Mulch For Home Lawns

Another manufactured mulch that can be used on home lawns is water soluble latex mulch. This mulch has to be applied with similar techniques as the wood fiber mulch. Upon evaporation of the water, a thin film of rubber which reduces soil erosion is left on the surface, but some seedling germination can be retarded by the latex and resinous mulches.

Several mulches are manufactured for use on critical areas. Examples of critical areas are ditches, fills, cuts, or exceptionally steep slopes which would not be sufficiently protected by ordinary mulches. One

of the most popular mulches for lawn critical areas is jute-net, which is a netting of woven jute twine. Jute-net is packaged in blanket type rolls and is held in place on the surface by wire staples. Grasses can be seeded or sprigged prior to application of the mulch. Another critical area mulch is woven paper. This is manufactured by several companies and will protect the soil from erosion for a period of one season while the grass is being established.

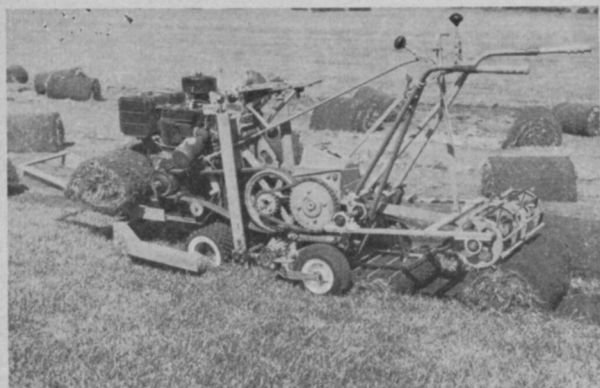
A more recent mulch now on the market is fiberglass. Fiberglass strands are applied with special equipment utilizing compressed air. A rate of 12 pounds of fiberglass per 100 square yards is recommended. The material is good for prevention of erosion, but it could possibly be objectionable if the lawn required close mowing during early establishment periods. This mulch does not deteriorate but becomes covered by soil and vegetation after about one season.

While mulches have several

advantages, there are some disadvantages. The use of straw mulch can increase or create weed problems. Manufactured mulches can increase costs and proper application of these mulches may be difficult due to the requirement of special equipment. Excess applications of any mulch can retard growth and reduce stands.

Regardless of the mulching technique or mulch used, lawn establishment will not be successful unless all necessary steps and good management are followed. These steps of good management would include proper fertilizing, mowing, and the controlling of turfgrass pests.

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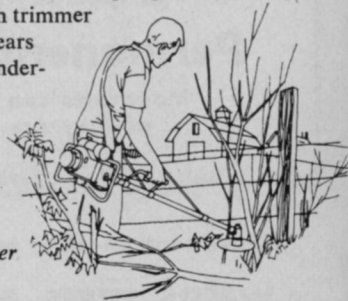
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