



Milling foreman Dean Farnham checks seed ready for storage or bagging. Company has 20,000 square feet of drying area embedded with electric heat cables, plus an additional cold slab area, available for seed storage.



Industrial Park building leased by Jacklin Seed Company, permits storage of 5,500 cartons, each containing roughly 1,300 pounds of grass seed. In addition, bulk storage areas for loose seed are also available.

national and international seed sales. Lyle and Owen, assisted by Don, are in charge of ranch management. Don also handles the research and testing program for the company. Doyle is a seed sales representative and works with the company's public relations program. Their saleable seed comes from 3,072 acres which they farm in Washington and Idaho, and from seed grown specifically for the corporation by more than 80 growers on 18,000 acres in the area. The normal 2 million pounds of Merion bluegrass seed processed yearly by the company accounts for approximately 45% of the total U.S. production.

The Jacklin operation centers on four key programs. One is a grower production program. Another important phase of the operation is development, which concerns variety development, plant breeding, and chemical and fertilizer testing. A third is materials handling, which is responsible for efficient handling of the large volume of the company, and the final program is cost accounting. This latter is extremely important, since growers are paid on the basis of production, quality, and finally, the company's sales.

Grower Production Programs Help Maintain Quality

Grower production programs

are geared to guarantee standards of quality and varietal purity. Production can be gleaned from a crop of Kentucky bluegrass for some 8 years. An exception is Geary Kentucky bluegrass which improves with every year of harvest. Doyle Jacklin reports one field which is now producing its 18th crop. Merion fields produce for an average of 6 years. Seed is planted in the spring with the first crop harvest coming in the following year.

After every harvest, producing fields must be burned. Though this is a hazardous practice, it is an absolute management necessity. Burning has a number of advantages. Most important is the physiological shock to the plant, which causes it to produce more seedheads. Without maximum production of seedheads in this area, growers could not stay in business. Burning also kills weed seed, disease organisms, insects, mice and other rodents, plus removing the excess surface material from the previous crop. Jacklin Seed Company is now testing a number of chemical substitutes in an attempt to produce the same shock effect as derived from burning. Over 150 different chemicals and amounts ranging from pesticides and herbicides to fertilizers and hormones are

included in the testing program.

The grass crop is windrowed by use of self-propelled power swathers, then combined. Irrigation is a necessity for production in the Spokane Valley. The Jacklins, on their more than 3000 acres, use 11 wells and 1 ditch pump, which deliver more than 16,000 gallons per minute. That adds up to almost 1 million gallons per hour of irrigation water. Wells in the area are used to tap a moving underground lake with a water level ranging from 50 feet below the surface at

Milling superintendent Ted Dionne, keeps careful records and inventories of each lot of seed which enters warehouse or plant. A complete lab sheet, containing characteristics, is maintained on each.



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WESTERN UNION TELEGRAM

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BRUSHKILLER 155 For use in water borne foliage sprays only. Contains 1 lb. 2,4-D, plus 3/4 lb. 2,4-DP, plus 1 lb. 2,3,6-TBA per gallon as amine salts.

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First name in herbicide research

AMCHEM PRODUCTS, INC., AMBLER, PENNSYLVANIA

Spokane to 300 feet at Coeur d'Alene. Most of Jacklin's wells are hand dug with holes being cribbed at the sides during digging.

Seed delivered to the processing plant is normally 55-60% pure. After removal of the inert material, consisting of leaf straw, seed hulls, and cotton-like substance, the finished seed averages 95-99% pure. To meet market requirements, all seed is blended to pre-calculated grades. In some cases, buyers specify seed with a purity of 85% and 80% viability, in addition to the higher purity lots.

Extensive Research Program Important In Operation

Varietal development, plant breeding, and testing constitutes an extensive research program. More than 80 varieties are always being grown in the evaluation plots. Besides testing their own producing varieties, the Jacklins do evaluation and testing work for a number of companies and experiment stations. They are extremely impressed with a new variety which they have just put on the market, 0217 brand Fylking Kentucky bluegrass. This variety, originally from Sweden, has been tested extensively by golf courses, home owners, and university research stations throughout the United States, four Canadian provinces, and several foreign countries. Test results for ten years have proven 0217/Fylking's resistance to a complete assortment of troublesome lawn diseases, including leaf spot and stripe smut. Spreading by means of underground stems or rhizomes, 0217/Fylking can take severe punishment and withstand close mowing even under drought conditions. Fylking's low growing carpet of green withstands close mowing because of the short distance between the crown and first leaf sheaf, and can be mowed less because of a slow vertical growth. Jacklins believes it has a great future as a lawn and specialty grass in this country.

Materials handling receives particular attention in this oper-



Burning harvested fields is an annual practice. Though hazardous and requiring a permit, it is a necessity to provide the physiological shock needed to insure maximum seedhead production for the following crop. The Jacklins use a crew with two firetrucks and three portable spray units to guard against a fire getting out of control. Perimeter of the field is watered, then fired.

ation. Any efficiency which can be effected will pay dividends because of the large volume handled. All seed, from combine to market bag, is handled in pasteboard cartons. This move has proved a boon to the operation. Seed goes from combine to cartons which can carry up to 1,500 lbs. of processed seed each. These are handled by fork lifts and hauled on specially designed truck beds which can be unloaded hydraulically. Jacklins, together with a Portland engineering firm, designed the sliding, hydraulic truckbed unit which has become standard in the company. Seed is stored at some 5 warehouses, the largest being an Industrial Park warehouse near State Line, Wash., where 5,500 cartons are normally held in storage. One warehouse is large enough that growers can unload bulk trailer loads in a loose state. Normal supply at this single warehouse is 6½ million pounds of bluegrass seed.

Each grower's seed is weighed and tested on delivery. Each lot of seed is inventoried separately, processed separately, and stored as a separate lot until final blending and bagging. In this way, growers have a check on their own seed and are paid accordingly. Final payment is

based on the cost accounting system of the company. Growers gain when sales are high and the market is strong. They thus have a vital interest in production and delivery of a quality product.

Arden Jacklin is known nationally for his work with the International Crop Improvement Association. He has served as president of the Washington State Crop Improvement Association, and on numerous committees throughout the years. He is currently a member of the ICIA's National Variety Certification Review committee. One goal of the ICIA is to establish a national authority for standards which will serve to guarantee the genetic purity of any variety being offered to the market.

The Jacklins are pioneers in the field of seed production and processing, and believe that the future of the grass seed industry depends on a supply of seed which satisfies a more and more demanding market. Today, quality seed from proven varieties must produce turf which is resistant to disease and tolerates abuse while maintaining the luxurious appearance of a natural growing carpet.

What is there to weed control besides just killing weeds?

Maybe the area to be treated is already weed-free. Or maybe it's infested with established weeds. Perhaps the weeds are annuals. Or deep-rooted perennials that ordinarily are more difficult to control.

Could be the area is large. Or small. It may be easily accessible. Or it might be difficult to reach, either with sprays or big equipment.

These, as well as moisture availability and soil type, are just some of the conditions you have to consider before selecting a herbicide.

But whatever the weed problem, you'll find the right answer in one of the five Geigy industrial herbicides. Why? With them, you can solve just about any weed problem you might encounter.

What's more, each Geigy industrial herbicide delivers long-lasting residual control with once-a-year application. So they're most economical, too.

Geigy herbicides are easy to handle and apply. They require no special protective clothing or devices and can be applied through most application equipment.

For spraying, you can use Atrazine 80W or Simazine 80W wettable powders, or Pramitol® 25E emulsifiable solution. Where spraying is impractical, you can apply dry Pramitol® 5P or Atratol™ 8P pellets, by hand or mechanical means.

Find out more on how these Geigy industrial herbicides can solve practically all your weed problems . . . effectively and economically.

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CREATORS OF CHEMICALS FOR MODERN AGRICULTURE

Project Trees

60,000 for 50,000 Modestans

By MARIETTA GUNN

MODESTO'S park department operates as a division of this California city's Park and Recreation Department.

As a separate division, its work involves tree care work for 31 parks, maintenance of 2 golf courses which involves 200 acres, and the care of 60,000 street and park trees. Current budget for planting, removing, and propagation of trees, according to Superintendent Wm. W. (Bill) Brown is \$155,000 yearly.

Tree crews clear plant growth on rights-of-way, and thin, prune, spray, and fertilize trees and shrubs. Foreman Ray Pifferini whose tree section handles these activities says a tree crew for a typical tree removal day ranges from 7 to 11. Last year they removed 393 trees, and planted a total of 1300 trees. Pifferini says that removal of 16 grown trees constitutes a good day for them. This includes leaving all removal sites clean, including eliminating the stumps.

A typical tree removal day begins with a Sky Ranger aerial bucket mounted on a motorized truck. Operator-controlled buckets carry manual and hydraulic pruners, ropes for guiding fall of trees and limbs, and a self-contained Pioneer chain saw. One or two groundsmen accompany the trimming rig, which keeps well in advance of the rest of the removal crew and equipment by first felling larger trees in open areas. This work pattern allows the trimmer sufficient time to capably accomplish any job where trees may be in close proximity to power lines or residential property requiring extra precautions and extensive pruning.

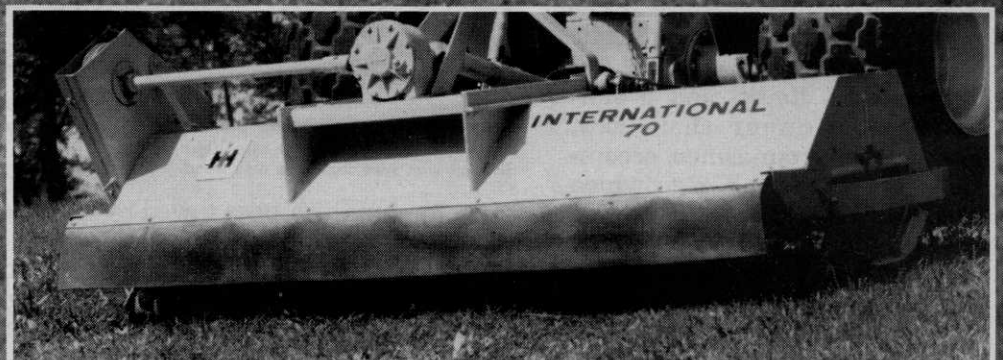


Operator controlled Sky Ranger aerial bucket is maneuvered by trimmer as he drops large limbs with aid of hydraulic pruners, rope, and self-contained chain saw. Tree foreman Ray Pifferini believed that this tree died because of excess water. Removal was delayed until tree division was sure that tree was dead.

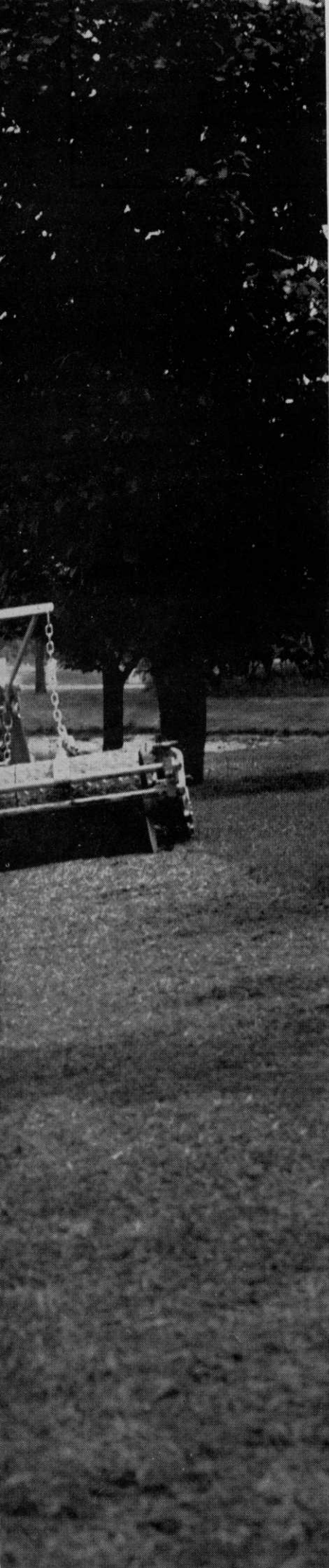
An Asplundh chipper towed by a basket truck follows the trimming trio. While ground crews sort fallen branches and debris, meanwhile feeding the chipper, two men arrive with a 2-ton flatbed truck for loading debris and limbs not fed into the chipper. Large limbs are sawed into manageable size and delivered to designated spots per public re-

quest or taken to the sanitary fill site for burial and eventual decomposure. Main sections of large trunks are placed on the flatbed by a Hyster fork lift, while a Vermeer stump digger eradicates the three or four inches of stump left protruding above ground. One operator tows the Vermeer via pickup while the fork lift is self-propelled to

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70 Flail mower. Knife action throws debris straight to the ground, not out. Rubber safety curtain won't rip, rot or shred. You get the aggressive cutting action of a rotary with the safety and fine trim quality of a reel mower.



Mow fairway smooth quicker than ever

New International 2444 tractor with matched gang mowers

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

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

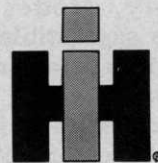
You mow quicker, neater than ever with a 5-gang mower. A reel ahead of each rear wheel cuts the grass before the tire. With three trailing gangs, you cut an 11' swath. That's three times faster than a 3-reel, self-propelled combination to lower your time and labor expense.

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

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

INDUSTRIAL EQUIPMENT

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



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Large trunk sections are positioned by Hyster forklift and sawed to size before loading on flatbed truck for removal. All removal sites are left clean by tree crew.

the removal site by one operator.

Chips Used In Modesto Park Areas

Chips are generally distributed in city parks for mulching. Acid or oily chips are spread on road bed entries to the municipal fill site. The fill site is located on undeveloped city property already proposed as part of the city park system. Debris is emptied into 15-foot trenches, impacted by tractor, filled and levelled.

Most prevalent tree and shrub problems plaguing the Modesto area are elm beetle, elm scale, ash scale, and red headed caterpillar. According to the tree foreman Pifferini, anthracnose has been responsible for eliminating many sycamores. Unusually prolonged, damp springs the past 2 years have created ideal conditions for the fungus. Pifferini says the department hesitates to spray profusely in consideration of residents. Rather, they use arsenic lead during dry summer months when rains will not cause wash-off. Surrounded by orchards and general agricultural activity, Modesto city plantings are susceptible to the same infestations attacking commercial grower's crops. Rural orchards were highly infested with several types of mites and persistent leaf rollers this year.

Unless the city is seriously endangered by invasion of such rural infestation, the department delays spraying street and park trees, but does recommend spray mixtures for residential gardens. They offer assistance in preparation and application.

Ten years ago a Modesto Master Tree Plan was inaugurated to assist in prevention of massive or rapid spread of infesta-

tion and disease. They alternate tree varieties in selective areas. These are designated by a city map on the wall of Pifferini's office. Specific trees are identified by colored plastic strips arranged in logical sections for both present and future controlled planting. Listed in the plan are varied types of Ash, Locust, and Liquidamber. Other species included in the scheme are Pistachio, Elm, Maple, Walnut, Hackberry, Purple Plum, and Zelkova. Seven varieties of Locust have been tested and planted in this area and the department presently favors the Shade Master Honey Locust to any of the formerly used types. High on the list of disease and insect-free trees in the area is Ginkgo. Considerable numbers of Ginkgo are scattered throughout Modesto and are foolproof for the area, according to Superintendent Brown. Albizzias in Modesto parks are disease and insect resistant, but do not lend themselves well to street plantings because of messy bloom and leaf drop.

Bidrin and Metasystox R Used In Treatment Program

During spring months the department follows a regular regi-

Operator removes last traces of stump in residential area with Vermeer stump machine. In this particular instance, stump is from large sycamore tree which was victim of anthracnose.



men of systemic injection to relieve trees of damage from sucking insects. Bidrin, heretofore used in bulk form, is now available only in capsule form. It can be applied only once with equally successful results. In bulk form, Bidrin was formerly injected into a small drilled hole in each tree via a repeating veterinarian syringe, the hole plugged with sealing compound, and the tree washed. Present procedure consists of inserting a 2½ inch long, ⅛ inch diameter aluminum feeder tube into live wood. Introduction and compression of the capsule is followed by washing of tree after removal of tube and empty capsule. This method provides prolonged protection via distribution of the chemical in both leaves and wood. Bidrin, available only to qualified, licensed users, is not as readily nor inexpensively attainable as in former years. Bidrin's high potency content has occasioned more rigid agricultural control laws, therefore the department is now using Metasystox R.

Metasystox R solution must be used 3 times to equal the effectiveness of one Bidrin capsule injection. Superintendent Brown says that Bidrin at \$40 per gallon in bulk form has risen in cost to \$400 for the same amount in capsule form. During 1966, Brown says, the city treated 1000 trees at a cost of \$600. Expenditure now for treating an equivalent number of trees has skyrocketed to \$5,895 for an equal amount of chemical application. Modesto, he says, is forced to abide by agricultural controls. Therefore, they now use lesser solutions applied more often. However in particular instances, the more expensive and powerful Bidrin is the only solution for saving a valuable tree and is used.

Park Division equipment is replaced on practically the same level as in any other industry. When annual repair bills exceed purchase price of new equipment, the division finds it advisable to replace rather than continue expending funds on aged equipment. Mowers cur-

rently used include 1 Worthington, 2 Jacobsen, 16 21-inch Toro rotaries, and 16 edgers. Pioneer chain saws are used exclusively with an average of 4 per year purchased. A ratio of one small mower to every 4 is replaced on an annual basis. The department uses a LoBlo for windrowing and clearing of golf courses and tennis courts, and this fall

is purchasing a new Rake-O-Vac. For wide expanses and Aer-O-Mist is indispensable for windrowing and/or bunching fall leaves from outer park perimeters to the center for pickup and removal. Employing the Aer-O-Mist in adjustable position also aids in detaching the few remaining leaves clinging to nearly barren branches.

Youths Cannot Be Used On Hazardous Jobs

A federal order restricting youths under 16 years of age from performing hazardous jobs became effective January 1. Issued by Secretary of Labor W. Willard Wirtz, the order lists 16 specific agricultural activities. Because some are common to the vegetation care industry, they are being listed for readers. They do not affect youngsters employed by their parents.

The 16 occupations forbidden to minors below the age of 16 are as follows:

1) Handling or applying anhydrous ammonia, organic arsenic herbicides, organic phosphate pesticides, halogenated hydrocarbon pesticides, or heavy-metal fungicides, including cleaning or decontaminating equipment used in application or mixing of such chemicals.

2) Handling or using a blasting agent. For the purpose of this subparagraph, the term "blasting agent" shall include explosives such as, but not limited to, dynamite, black powder, sensitized ammonium nitrate, blasting caps, and primer cord.

3) Serving as flagman for aircraft.

4) Working as driver of a truck or automobile on a public road or highway, or driver of a bus.

5) Operating, driving, or riding on a tractor (track or wheel) over 20-belt horsepower, or attaching or detaching an implement or power-take-off unit to or from such tractor while the motor is running.

6) Operating or riding on a stall occupied by a dairy bull, self-unloading bunk feeder

wagon, a self-unloading bunk feeder trailer, a self-unloading forage box wagon, a self-unloading forage box trailer, a self-unloading auger wagon, or a self-unloading auger trailer.

7) Operating or riding on a dump wagon, hoist wagon, fork lift, rotary tiller (except walking type), or power-driven earth-moving equipment or power-driven trenching equipment.

8) Operating or unclogging a power-driven combine, field baler, hay conditioner, corn picker, forage harvester, or vegetable harvester.

9) Operating, feeding, or unclogging any of the following machines when power-driven: Stationary baler, thresher, huller, feed grinder, chopper, silo filler, or crop dryer.

10) Feeding materials into or unclogging a roughage blower or auger conveyor.

11) Operating a power-driven posthole digger or power-driven driver.

12) Operating, adjusting, or cleaning a power-driven saw.

13) Felling, bucking, skidding, loading, or unloading timber with the butt diameter of more than six inches.

14) Working from a ladder or scaffold at a height over 20 feet.

15) Working inside a gas-tight type fruit enclosure, gas-tight type grain enclosure or gas-tight type forage enclosure, or inside a silo when a top unloading device is in operating position.

16) Working in a yard, pen, or stall occupied by a dairy bull, boar, or stud horse.



Dr. C. E. Minarik, Fort Detrick, Frederick, Md., discusses herbicide use in Viet Nam.



Frank McFarland, Kerr-McGee Chemical Co., Baltimore, Md., left, and Dr. Arthur Bing, Cornell Ornamentals Research Laboratory, Farmingdale, N.Y., and secretary-treasurer of NWCC, discuss weed control problems during the conference.

Broad Range of New Research Reviewed At 22nd Northeast Weed Control Conference

Weed control costs are about the same as five years ago for the Western Maryland Railway Company. In fact, according to R. R. Gunderson, chief engineer, right-of-way weed control costs have climbed only about 25% since the Company started a chemical weed control program 15 years ago.

This 25% increase for cost of herbicides and application, reported at the Northeastern Weed Control Conference at New York

City last month, compares with basic labor rates which have jumped 100% during the same period.

Current weed control costs on the company's 850 miles of right-of-way range from \$20 to \$150 per mile. Costs vary because some yard areas require bare ground control, track elevations run from sea level to more than 4000 feet, and a variety of weed problems exists.

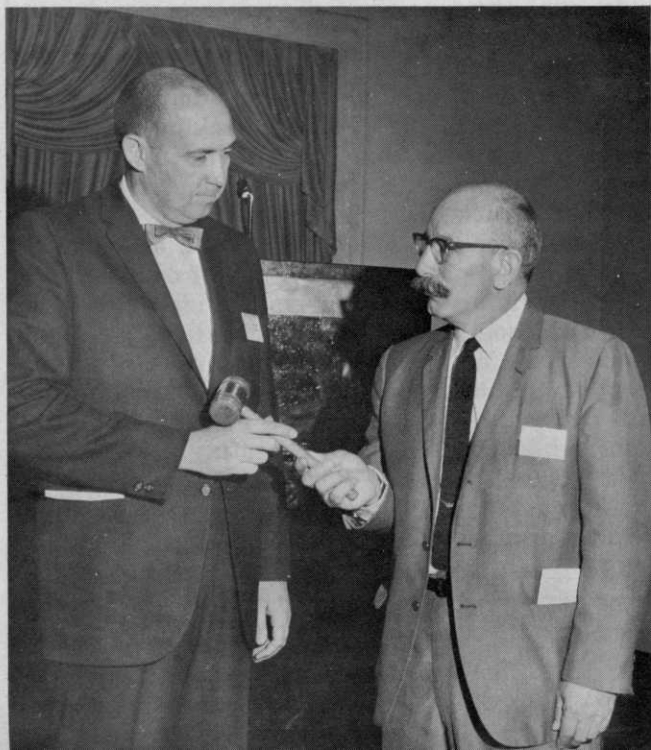
Gunderson said that prior to

1951 when the chemical weed control program was started, the Company used about 900 men several times yearly on clearing work. Today, labor costs prohibit such use of manpower. Further, men to do the job are not available.

Discussing Western Maryland Railway's experience with herbicides, Gunderson said that despite the variability of weed species, his Company has had excellent weed control of grasses and broadleaf types with water or oil soluble formulations and bromacil as the principal ingredient. The formulation, he said, also usually included herbicidal oils, other contact weed killer and 2,4-D.

Weed Control Is Two-Week Operation

The Railway's program, according to Gunderson, is to begin applying herbicides in early June. Two weeks are needed to do the job. Contact weed killers give quick knock-down, 2,4-D provides systemic effect, and bromacil gives residual control. With this application, the Company can forget about vegetation control until the following



President for 1968, Dr. John A. Meade, department of Soils and Crops, Rutgers University, New Brunswick, N.J., left, receives gavel from outgoing NWCC president John Gallagher, Amchem Products, Inc., Ambler, Pa.