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PATENT APPLIED FOR



NU nes Slab Sod Harvester . . .

lifts, cuts, and conveys slabbed sod to loading platform. Handlers can load directly on to pallet as tractor moves.

- With a NU nes Sod Harvester and three men you can lift, cut, roll and palletize up to 1200 square yards of sod per hour.
- The harvester, developed at Cal-Turf Farms in California, is designed to handle any length of rolled or slabbed sod.
- Field grading of sod is done by the tractor operator, who has clear visibility at all times.
- Hydraulic controls permit quick and easy adjustment for all conditions.
- The sod harvester travels alongside, never on the turf, during harvesting and can pick up and roll sod at any time your tractor can operate in your field.
- Sod can be cut with any type of sod cutter. The long ribbons can then be lifted and cut to any desired length from 24" to 90", size depending on thickness of sod.
- Loaded pallets can be spotted for later field removal and be clear of the next harvest run. If direct truck loading is desired, a conveyor extension is available.
- The basic power train is a Ford LLG-2110 wheel tractor. The sod harvester can travel at speeds up to 17 MPH for quick transportation between plots.
- The efficiency of this all-mechanical operation has been proven on Cal-Turf Farms in Patterson, California, and it can solve the problem of quick and economical harvesting of sod for all turf farmers.

For more information please contact:

THE JOHN NUNES MECHANICAL HARVESTING CO.

2006 Loquot Avenue, Patterson, California 95363, Phone (209) 892-6311



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The Cover

Weed control by helicopter has become practical for large segments of the vegetation control industry. This month

WEEDS TREES AND TURF magazine features the experience of a pioneer helicopter sprayman, William J. Perdue, Lake Wales, Fla., and his ideas of how the industry can make the best use of this type of aerial application. The cover picture features Perdue spraying a drainage ditch infested with aquatic weeds, most in this instance being water hyacinths. Perdue's story begins on page 6.

Non-leaching Treflan® Disappears from Soil

Extensive studies have indicated that the herbicide Treflan® does not accumulate in the soil with repeated annual applications, reported S. J. Parka of Eli Lilly and Co., Indianapolis.

The disappearance of Treflan from the soil cannot be attributed to any single factor, says Parka; microbial and chemical degradation, volatility and photo decomposition all seem to contribute.

Data on the use of Treflan during the past five years involving 26 crops covering over 23 million acres has substantiated the recommendation that the chemical be incorporated immediately after application to a depth of 2 to 3 inches.

Treflan will not interfere with the seed germination of those crops for which it is cleared for use, Parka assures.

WEEDS TREES and TURF

September 1968
Volume 7, No. 9

FORMERLY WEEDS AND TURF

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Special To Sod Producers

Instant lawns are becoming commonplace. Sod installations are now a standard practice among many builders. In short the business, though it varies at times, is booming.

Yet the same cannot be said for the membership drive of the American Sod Producers Association. Membership still remains at about 100.

In light of the excellent national field day staged July 30 at Shamrock Turf Nurseries near Hanna, Ind., this lack of membership is a disgrace. Well over 400 growers and equipment suppliers attended this field day. They came from all parts of the country. Demonstrations bordered on the spectacular. Every grower—whether a member or not—was made welcome.

We believe that the dollars you as a grower are being asked to spend on membership will prove to be among the shrewdest expenditures of money you make. The leadership of the ASPA, despite the lack of support by many growers, staged their second successful annual field day. They were able to attract equipment makers and suppliers—and growers to see machinery in action.

No association can function without majority backing of the persons who make up the industry. In the case of ASPA, these persons are you who produce sod.

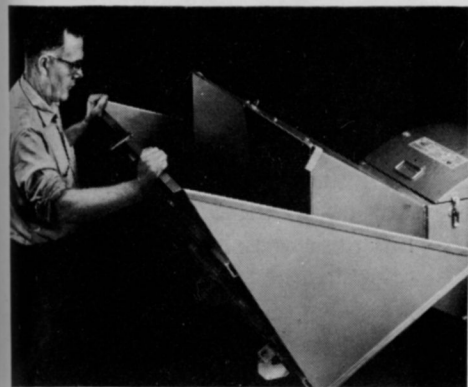
As observers, we believe that support by way of the membership fee can offer excellent returns to you as an individual grower. Tips on markets, pricing methods, cultural practices, blends, new varieties, research, equipment, costs of operation, labor, and other timely factors which affect the business are but a few of the association benefits. The opportunity to get together with other growers at field days and the winter annual meeting is worth the price of your membership fee.

We hope you as an independent sod grower will join your association. The industry needs you and your individual support as much as it needs your membership fee. Write Executive Secretary George Hammond today for details, or send your \$50 check to him at 71 East State Street, Columbus, Ohio 43215.

WEEDS TREES AND TURF is the national monthly magazine of urban/industrial vegetation maintenance, including turf management, weed and brush control, and tree care. Readers include "contract applicators," arborists, nurserymen, sod growers, and supervisory personnel with highway departments, railways, utilities, golf courses, and similar areas where vegetation must be enhanced or controlled.

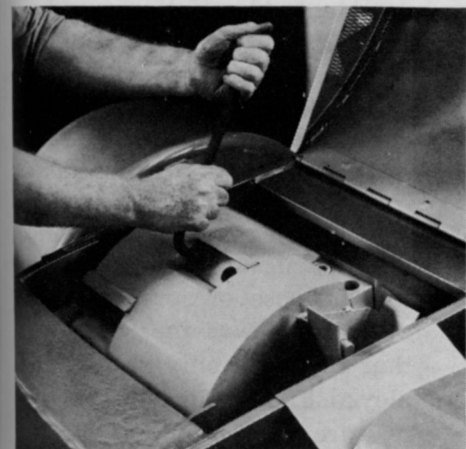


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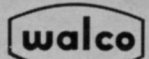
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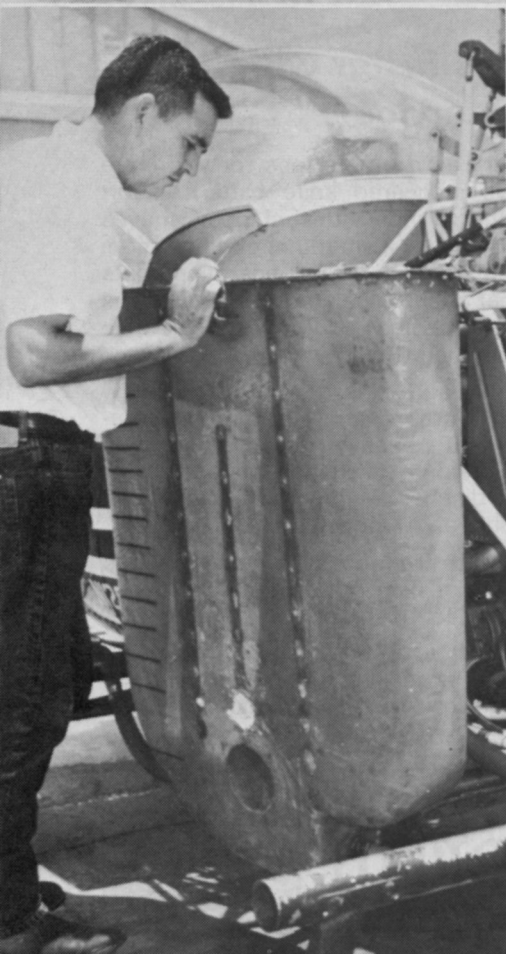
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WALCO AMERICAN CORPORATION



Industry's Stake In Helicopter Spraying



WEEED control by the helicopter sprayman is becoming a vital segment of the industry. This relatively new method of applying herbicides is on the upswing for a number of practical reasons, a major one being the efficiency with which application of chemicals can be made in hard-to-reach areas.

Equipment is being designed especially for the use of this aerial mobile platform, chemicals and drift control agents are formulated especially for its use, and pilots are getting the training and experience needed to make best use of the package.

Putting all the needed pluses together becomes a technical operation, one in which many in the chemical weed control industry have a big stake. Those with a big responsibility in this respect include the customers

who hire custom helicopter applicators, chemical suppliers, equipment manufacturers, pilots, insurance carriers and others—including the citizenry in general. The image of pesticide use hinges to a great degree on how well aerially applied chemicals can be handled, a facet of the business which good helicopter operators keep in mind at all times.

Typical of such pilots who have pioneered helicopter herbicide application is owner-operator William J. Perdue, vice-president, Alco Helicopters, Inc., at Lake Wales, Fla. A navy man during World War II, Perdue joined the army reserves after the war, became an army aviator, and later flew helicopters for the army. He was the first helicopter pilot employed in Florida by a citrus cooperative for the sole purpose of spraying citrus crops. This was in 1961 and at that time the only ship so employed. Today, almost 20 helicopters are owned and operated by

Pat Gray, pilot, left, and Jim Anderson, in charge of nurse truck and tanks, top photo, handle maintenance at hangar. William Perdue, Alco Vice-President, lower photo, checks herbicide level in fiberglass tank.

citrus companies for this type spraying.

Since, Perdue has piloted helicopters for spraying power line rights-of-way, and purchased his own ships and operated his own business, both individually and as a partner. He has broad experience in using herbicides for weed control, particularly on aquatics.

Busy Equipment

Alco, Inc., besides Perdue, consists of Consolidated Financial Corporation and Alico Land Development Co. This group owns and operates 3 ships under the management of Perdue. They keep equipment busy by diversifying their spray operations to include citrus, farm land, rights-of-way, pasture, canal, and drainage spraying. This continuous operation, of course, is a prime factor in an efficient helicopter operation.

Perdue's experience as pilot and businessman leads him to point up the industry's need for a responsible spray program. A helicopter with spray equipment plus chemicals, and a pilot who can fly it do not always guarantee weed control. Pilots need training and owners need experience. Customers who hire them need to know that they are capable of doing a responsible job. Liability cases settled both in and out of court prove Perdue's point.

Depending on the damage caused by spraying and the circumstances surrounding a particular case, liability can reach almost any person or company even remotely akin to the operation. Among those who might prove to be accountable are the makers of the spray and/or equipment, formulator of the chemical, owner of the ship, pilot, and finally, the customer who hires the work done.

The customer may be held accountable for resulting damage



Alco helicopter pilot Pat Gray.

for any number of reasons. Among customer responsibilities are care in determining the qualification of the custom sprayer. In many states, the customer or land owner cannot delegate responsibility to others for any damage which may result from use of chemicals. Because careless aerial spraying can result in drift problems (2,4-D drift lawsuits have been instigated on damage more than a dozen miles from the spraying site), it is mandatory that cus-

tomers find themselves in trouble and a liability problem to face.

Perdue points out that experienced spray pilots are in short supply. The future appears brighter because of the many capable pilots being trained by the armed services. However, these pilots, though adept at handling the ship, need comprehensive training in spray techniques and in handling of chemicals. In the opinion of Perdue, too few operators give pilots enough thorough training.

duced they move to the vertical. In any event, they create an undesirable area in which to introduce the herbicide spray. Many operators use the vortices to an advantage to increase swath width when applying insecticides. But herbicides cannot be applied by this method.

Another point is based on the helicopter's ability to reverse its direction. It can make a spray turn in as little as 5 seconds. But if this is done there is the possibility that small particles of spray still suspended from the initial spray run will be kicked by the blast of the main rotors. This leads to complicated drift problems. Here again, Perdue stresses pilot experience and the need to: "Know your pilot. Know his boss."

Inversion

Inversion is another weather condition which exists only locally as a rule. It is seldom noticeable except to a pilot. An inversion, Perdue points out, takes place when the cool evening air spills into low lying areas and causes the warm moist air to be displaced above it. In an inversion, particles of spray are caught up in the warm moist air to be displaced above it (20 to 30 feet above the ground) and can be carried several miles before release. Again, the experienced pilot will recognize the inversion and cease spraying until normal weather prevails.

Safety in application is mandatory as is safety in operation of the helicopter itself. Perdue believes careful maintenance can reduce the hazard in aerial spray work. He states that operational costs are unusually high in Florida because of sand particles. Helicopters in operation for Alco, Inc., are cleaned daily. Epoxy paint is used at intervals, and both ship and accessory equipment are sprayed daily



Spraying herbicides on aquatic weeds to keep canals and drainage ditches open, especially in low lying areas, has proved a job made to order for the helicopter. Above, Perdue sprays hyacinths in drainage canal.

tomers check references before hiring a custom applicator. Perdue's original statement is: "Know your pilot. Know his boss."

Experience Needed

Factors besides experience also account for troublesome spray problems. Because of lack of experience, or lack of judgement, applicators will spray during windy conditions. They may take a chance because they have bid a job too low. In any case, they

As an example of pilot training needed, so that the new pilot can do a successful job and not jeopardize the industry image, Perdue speaks of the need to avoid the vortex. The aerodynamic characteristics of the helicopter's rotor system creates "blade tip vortices." These small tornado-shaped wind tunnels trail aft of the ship's main rotor blade tips. As the forward speed of the helicopter increases, the vortices tend to become more horizontal. When speed is re-

with a formulation of diesel oil and oil.

Perdue believes and practices careful business management. He will not spray nor permit his pilots to operate if there is even a slight chance of drift because of unsatisfactory weather conditions. He frankly admits that success of his and similar operations is based on repeat business. Thus, every job is carefully bid and spraying done as conditions permit. He prefers to bid by job rather than by hour. When handling a job by the hour, there may be pressure from the customer to push the operation when weather is questionable.

Clock Recorder Used

Perdue uses Bell 47 G-5 ships and has for a number of years. He keeps accurate records of running time by using a 36-hour Servis clock recorder. This clock logs loads and time for each load. The clock is also very valuable in providing a check of ground time for loading. Anytime this is excessive, a check of loading procedures is in or-

Perdue looks on as Charles J. Fox, technical representative of Hercules, Charlotte, N. C., makes viscosity test of Vis-ko-Rhap.

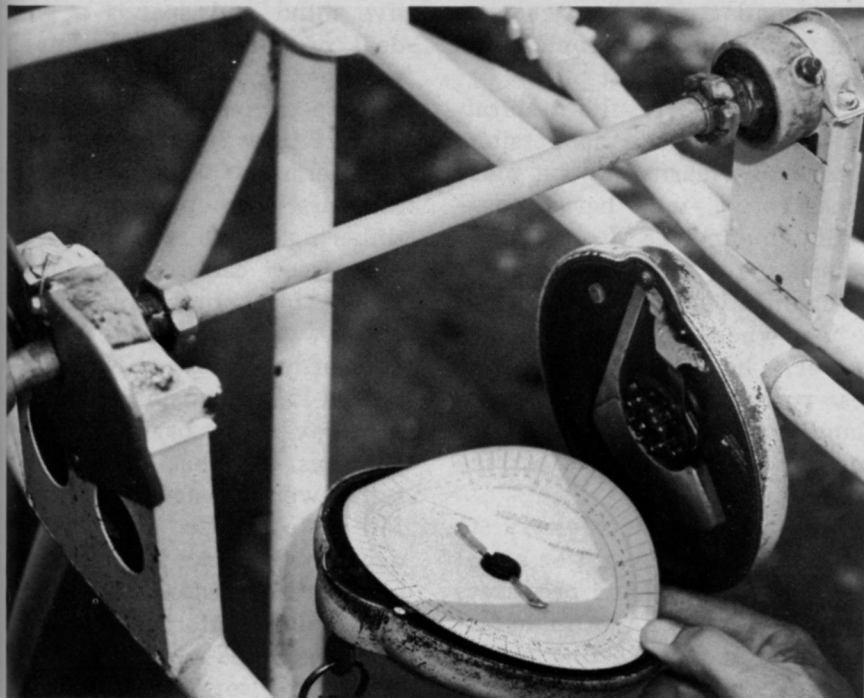


der. No ship is operated with more than 800 hours on the engine, and engines are usually changed at 600 hours. Again, Perdue points out that this is a practical safety factor.

Growth of helicopter spraying for both crop and non-crop weed control, particularly aquatics, has been great during the past decade. Perdue expects the method to grow even more for several reasons. Helicopters can work in more congested areas than can fixed wing aircraft. They can land closer to the spraying site in congested areas where air strips for fixed wing aircraft are not available, thus reducing ferrying time. Also, the helicopter is excellent for precision application and for inspection and survey work prior to spraying. Costs are comparable to other types of spraying when all factors are considered.

With leading manufacturers and formulators of chemicals providing new thickeners and invert emulsions, and more precise spray nozzles and booms, Perdue sees only growth for this phase of the industry. He stresses, however, that responsibility by everyone concerned with this type spray program will continue to be needed to assure growth.

Accurate records of helicopter running time are kept by use of a 36-hour Servis clock recorder. This clock logs loads and time for each load, also furnishes a check of ground time during loading.





Turf Quality

begins at the farm level

SOME people buy Falcons; some buy Thunderbirds. Probably fewer purchase the higher priced automobile than the other, but those who *do* are seeking quality. *And they are willing to pay for it!*

The same principle holds true in the sod industry. At least, according to John Nunes, President, NUNes Turfgrass Nurseries, Patterson, California, and he's aiming for the "Thunderbird" market.

"Anyone can raise sod—anyone can raise hay," Nunes states. "But quality and service has been the basic concept of this nursery since it started. And I feel that in the long run it's the only way to win out."

In striving for quality, Nunes, the first sod producer in Northern California, emphasizes several important practices in his

nursery: deep well irrigation rather than open water to eliminate foreign seeds; soil fumigation; regular mowing, sweeping and vacuuming; electronic moisture control; and test plots.

To check the resultant spiraling costs as much as possible, Nunes has learned to be more conservative in other areas—mainly manpower. He constantly searches for new methods of mechanization.

"Anywhere one can cut manpower," he states, "make one less run across a field, one less handling of sod, less laying and moving of pipe, he has cut the cost of operation."

Mechanizing efficiently to meet their needs might be a real problem for some sod producers as there are few major manufacturers of sod harvesting equipment as such.

But here NUNes Turfgrass Nurseries have an asset. Nunes is well-equipped with an inventive mind and spends a great deal of time tinkering in his welding shop, developing his own specialized equipment.

The NUNes Sod Harvester, now commercially produced right in the nursery, is one result of that tinkering. With the harvester, three men can harvest 100,000 square feet of sod in one day easily, whereas in the earliest days of his operation Nunes employed 15 to 20 unskilled laborers on a day-to-day basis.

Nunes also has developed a self-powered vacuum sweeper for his own use. This sweeper does three times the work of commercial pieces, and requires only one operator. Additionally, he has adapted a pipe mover and a sprinkler setter to fit his nur-