



or



# GO MECHANICAL!



Here's a mechanical sod harvesting machine that is setting the standards for the sod industry! The reason? Years of commercial field performance has proven its ability to handle all types of turf, to do it quickly, efficiently and at a low cost!

An important feature is the choice the grower has as to harvesting sod in rolls or slabs. The rolling and slabbing unit is interchangeable, and can be changed quickly and easily.

The NUNES Sod Harvester and 3 men can lift, roll or slab and palletize up to 1200 sq. yds. of sod per hour. The harvester travels alongside, never on top of the turf, during harvesting. The machine is adaptable to all regions taking into consideration terrain, soil and sod conditions. Operator has clear visibility of all operations at all times, field grading of sod is done on the move, field conditions are easily and quickly adjusted for, while in operation, with hydraulic controls.

The NUNES Sod Harvester is the solution for growers looking for a proven way to quickly and economically harvest sod. If you can cut turf with any standard sod cutter . . . our machine can pick up and harvest it!



Patent Applied For

For more information please contact:

**THE JOHN NUNES MECHANICAL HARVESTING CO.**  
2006 Loquot Ave., Patterson, California 95363, Phone (209) 892-8776

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# WEEDS TREES and TURF<sup>®</sup>

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*The Cover*

Trained crew keeps loading time at a minimum for ROWCO, Inc., San Antonio, Tex., a contract applicator now operating in 11 states. On the cover are three key personnel of the company, all pilots. Left to right, they are: Luther Daniel, Sheldon Kosharek, and Jim Shaw, Frank Cady (see story beginning on page 6) is president of the company.



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## Leave the Nursery Business to Us, Uncle

Nurserymen would consider Uncle Sam a much nicer "in-law" if he weren't a competitor. In fact, if he would increase his support of the nursery business through more research, he could become a favorite in a hurry.

This sentiment was expressed recently by Robert F. Lederer, executive vice-president of the American Association of Nurserymen. He testified Apr. 1 before a House subcommittee to urge that Congress discontinue appropriations for the Clarke-McNary Section 4 funds for tree planting.

The crux of the problem is that these funds are used to grow seedlings. Then large stocks are sold at a fraction of the going rate for commercial nursery stock. Example: On Mar. 12, Uncle Sam, through the General Services Administration, offered 2.3 million four-year-old Eastern Red Cedars and 150,000 two-year-old, twice-planted Rocky Mountain Junipers. Price: \$35 per 1,000.

Commercial nurserymen were offering products similar to the Eastern Red Cedar at \$130 per 1,000 for 9-12-inch seedlings; \$250 per 1,000 for 12-15-inch. The standard rate for Rocky Mountain Junipers is \$250 per 1,000.

At that price difference, it's tough for a fellow to make a living, pay Uncle taxes—and still like him.

We'd appreciate, said Lederer, that Congress consider diverting the more than \$300,000 that finds its way into large-scale production of nursery stock to research. Specifically, Lederer requested that it go to research toward controlling forest and tree pests and use of trees to improve the urban-suburban environment.

*At the least, please don't sell nursery stock at those low prices.*

"We know that forests and trees improve the human environment . . . act as natural air conditioners . . . enrich the oxygen supply and reduce carbon dioxide content of the air . . . muffle the cacophony of noises in the urban environment," he said.

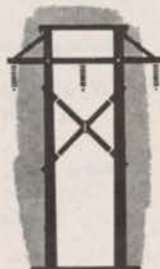
"We do not know which tree species are best for these purposes; which ones will best withstand the adverse conditions of soil, water, and atmosphere in the urban environment."

We'd appreciate, he concluded, your using that money instead to help us find out these answers.

Mr. Lederer's request on behalf of 1,700 commercial nurseries seems reasonable in order for Uncle Sam to be regarded as a government "for the people" . . . including those who are in the nursery business.

# June

## WEED & BRUSH CONTROL PLANNER



### Timing Is Everything

June is the best time of year for basal spraying. Trees have used up most of the food reserves in their roots in order to shoot leaves.

At no other time of year will they be more susceptible to the basal spraying technique. This year get effective, long-lasting kill on those resistant species of brush with the basal spray technique . . . and the proper chemical from Amchem.

### Use Enough Chemical

Chemicals are not as expensive as people. Sending a crew out without having them use enough chemical can mean another spraying, and resultant higher labor costs. How much to use? Apply enough chemical to wet thoroughly the basal portion of the tree until the solution puddles around the root collar.

### What to Use in June

To get those hard-to-kill species of brush that resist conventional 2,4-D and 2,4,5-T formulations, use Brushkiller 170. It attacks brush with a double punch: through the bark and through the soil and into the roots. **Tip:** Where volatility is a problem near cropland, use Emulsamine® Brush Killer. It does not volatilize. Emulsamine Brush Killer is as safe as an amine and as effective as an ester. Both chemicals can be mixed with water or oil and both do the job. **Tip:** Use the basal spray technique to clean up regrowth in areas sprayed 2 years ago.

First name in herbicide research



See your Amchem representative for an individualized, month by month prescription for your weed control problems.

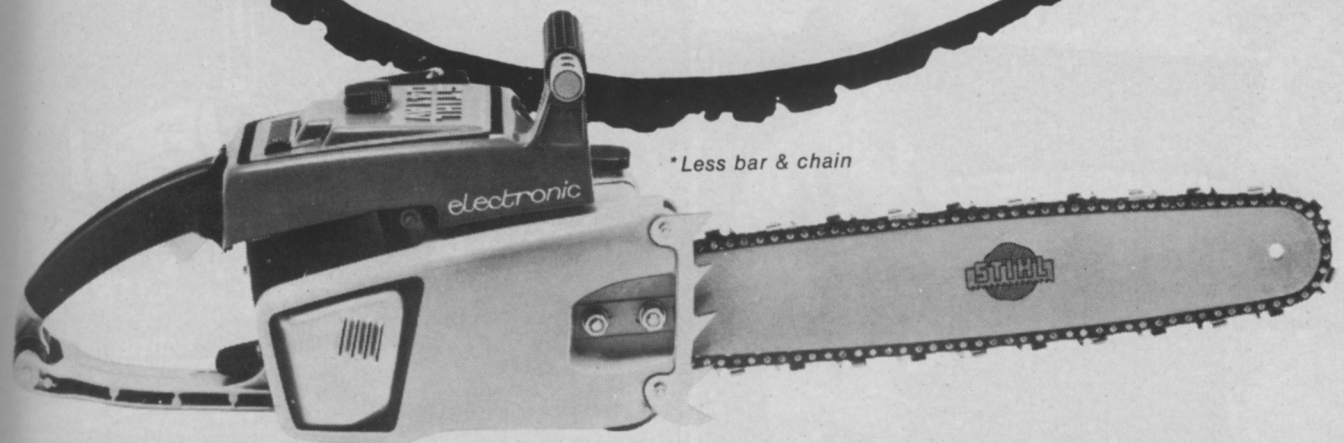
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# STIHL 041 AV *electronic*

In keeping with our policy of offering the most advanced and most dependable in chain saws — we have incorporated solid state ignition into the STIHL 041 AV Electronic Saw. Other than eliminating the need for points and providing a molded circuit that is impervious to moisture, dirt, and temperature extremes — this model offers big horsepower output coupled with a light 12½\* pound weight and the fabulous new vibration absorbing AV handle.

**first and only lightweight chain saw  
with built-in shock absorbers  
plus solid state ignition**



\* Less bar & chain

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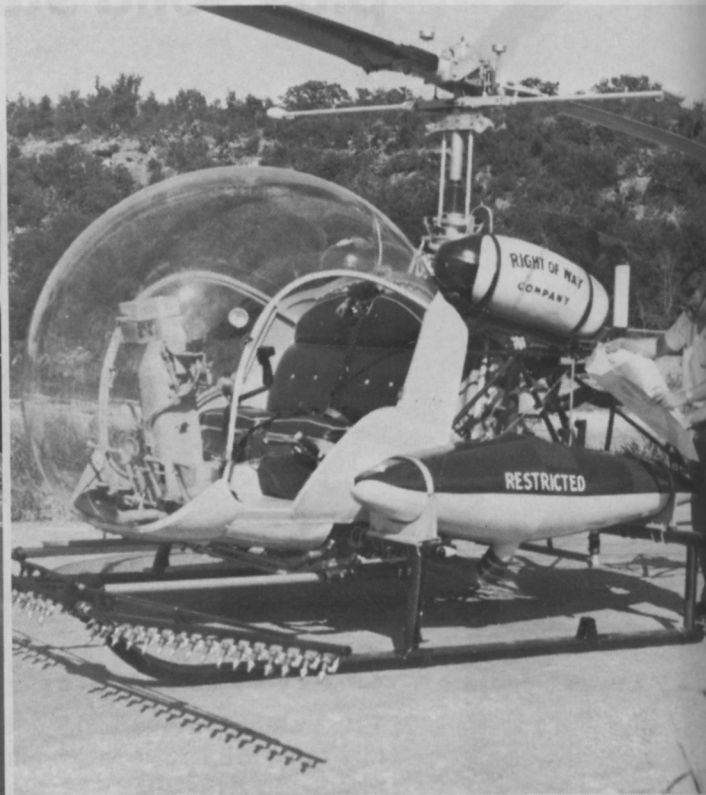
**I**NVERT emulsions are being used more and more to place herbicides on target. The problems of drift are being solved as new equipment, thickeners, and invert formulations become more readily available in the market.

A veteran rights-of-way helicopter sprayman, Frank Cady, San Antonio, Tex., has been in this business since 1954. As the former manager of air operations for Stull Chemical Company, he was instrumental in the helicopter adaptation of the Stull bifluid system. Cady, now president and owner of ROWCO, Inc., (Right-of-Way Company), was among the first in the nation to use the helicopter for power line brush control spraying. Even today, this type operation accounts for 99 percent of his contracts for herbicide application.

Chief advantage of the invert emulsion for Cady is help in targeting herbicides from the helicopter 75 feet above ground to a right-of-way below, and at the same time controlling drift. The invert emulsion is based on water-in-oil. In short, the oil (a ratio of one part of oil to up to 14 parts of water) surrounds the water droplet. This helps eliminate evaporation and aids the droplet in holding its shape and size during the flight from spray boom to weed surface. Also, the controlled

Right-of-Way Spray Control

# Invert Emulsions Help Target Herbicides



Frank Cady, left, and Richard E. Fields, manager of field development and research for Velsicol Chemical Corporation, Chicago, discuss the use of Banvel on Bundick Lake. In the picture at right Cady discusses the spray plan with pilot Jim Shaw.

droplet size serves to overcome drift caused by wind.

First use of the present-day Stull bifluid system was made by helicopter in 1959. Shortly thereafter, the same system was applied to ground equipment and with certain refinements has become common for both types of pesticide application.

Neutral spray adjuvants (Stull Bivert Formulations) are used to produce the "invert" emulsions in combination with a variety of water soluble, oil soluble, or conventional emulsifiable herbicides which are on the market. With the spray adjuvants, it is possible to apply more than one herbicide at the same time or in the same formulation.

### New Invert Installation

ROWCO, Inc., uses a relatively new invert installation. This consists of a mixing device in the suction side of the sprayer pump. Discharge of the pump proceeds through existing equipment. An additional storage tank to hold the oil phase of the emulsion is only about one-tenth the size of the regular spray tank. Only this small size oil holding reservoir is needed since mixing ratios average one part oil to nine parts water by volume.

Chief purpose for development of the system was to control pesticide drift. But in actual use, another big plus has been reduction in evaporation losses during spraying. Droplets tend to hold form during spraying, which results in an even spray pattern and droplet distribution.

Cady operates in 11 states, primarily spraying herbicides for utilities. His major contracts last year were with Louisiana Power and Light, Kentucky Power Company, Central Louisiana Electric Company, and a number of REA co-ops in Illinois and West Virginia.

The ROWCO helicopter crew normally consists of a pilot and two ground crewmen. Some crews may contain more than one pilot. Cady operates on the theory that careful pesticide application requires intense concentration. Normally, a pilot is spelled after 1½ to two hours of flying time. Cady points out that helicopter spraying is a broader business than just flying. A spray pilot, he states, must know both brush and chemical. Further, he believes

**Bundick Lake, about 2000 acres, is being sprayed for aquatic weeds. In this type of project, Cady blocks off the lake and assigns a block to each pilot.**







Invert emulsion enables ROWCO pilots to target herbicides on water or right-of-way from up to 75 feet in the air and still control pesticide drift.

that three to four years of experience is needed under careful direction before a pilot can be expected to effectively manage both ship and spray program.

### Pilot Training

In his own case, one of the three pilots who work for him was commercially trained. Cady, himself,

trained two of the men. All are FFA certified and have passed the necessary examinations for pesticide application in the states which have such requirements. For example, Mississippi, Arkansas, Louisiana, and Texas, where ROWCO has contracts, require pilots to pass a written examination. Further, the aircraft must pass a regular inspection.

Cady uses Bell 47-G helicopters and changes engines every 600 hours. With the exception of changing engines, all maintenance is handled by Cady and his crew. His is an FAA approved repair station and the pilots rework helicopters during the winter months.

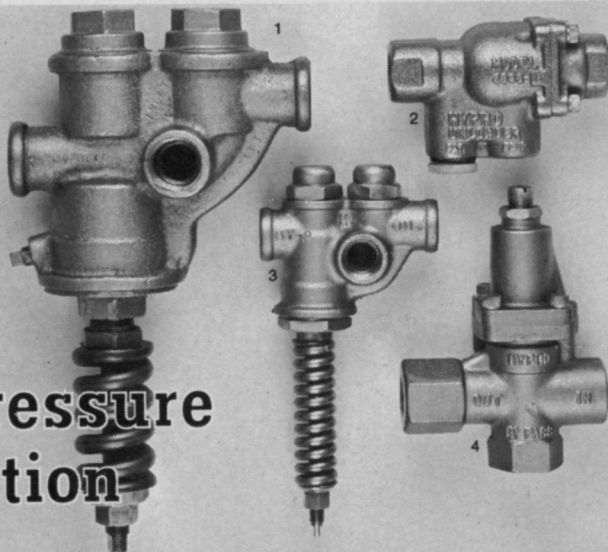
During this period, Cady spends his own time largely in lining up the coming work season. He likes to allot three months of the year in selling contracts and scheduling.

When contacted, Cady was spraying Bundick Lake for aquatic weed control. This was a project of the Louisiana Wild Life and Fisheries Commission supervised by Biologist Louie V. Richardson, Tioga, La. Richardson reported that hyacinths were first noted on the lake in 1964. A year later, more than 25 percent of the lake was covered. Normal application by mobile spray crews using boats failed to control the infestation.

### Air Application Needed

Since only a portion of the hyacinth reproduction could be controlled, Richardson decided the so-

## Piston pumps need this overpressure protection



You encounter big trouble fast if you close off the discharge line from a piston pump. Instantaneous pressure build-up can burst a hose or blow off a pump head or quickly ruin a pump bearing.

The best protection against such misfortune is one of these Hypro UNLOADER VALVES which instantly opens a bypass line when pressure exceeds a given setting. Unlike relief valves which merely limit pressure to a set maximum, these unloader valves drop the pump pressure load to zero when pressure at the valve is excessive, thereby reducing pump and motor wear during OFF periods.

- (1) 3390-1 Unloader Valve—25 gpm capacity, 200-600 psi range
  - (2) 3393 Unloader / Regulator Valve—5 gpm capacity, various ranges
  - (3) 3390-7 Unloader Valve—5 gpm capacity, 200-500 psi range
  - (4) 3390-13 Unloader Valve—3 gpm capacity, 0-700 psi range
- Before ordering, consult Hypro literature regarding suitability of specific models for liquids pumped.



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# THE STULL BIFLUID SYSTEM

**Background.** The Stull Bifluid System is a scientifically and commercially accepted method for the preparation and application of water-in-oil (w/o) and oil-in-water-in-oil (o/w/o) emulsions. Following is a graphical representation of the basic emulsion types utilized in most pesticide applications today:

## BASIC EMULSION TYPES

"INVERT"  
WATER-IN-OIL



OIL SURROUNDS WATER

KEY:



"COMMON"  
OIL-IN-WATER



WATER SURROUNDS OIL

"MULTIPHASE INVERT"  
OIL-IN-WATER-IN-OIL



OIL SURROUNDS WATER SURROUNDING OIL

**Advantages of W/O and O/W/O Emulsions.** Water-in-oil and oil-in-water-in-oil emulsions possess certain distinct advantages over oil-in-water emulsions for pesticide applications:

1. Less Evaporation Loss
2. Less Spray Drift
3. Less Run-off Waste
4. More Rain Resistance
5. More Surface Coverage
6. More Surface Absorption
7. Pesticide Chemicals Can Be Placed In Any or All Phases.

lution was a massive application by air using a drift limited carrier such as the invert emulsion. This led to the contract with ROWCO, Inc., and Cady. When the spraying began, Richardson estimated that the infestation had grown to a range of 50 to 800 million hyacinth seeds per square acre of lake.

In one area of 70 acres, Banvel-D was used with disel and invert. (Results of this trial will be published in WTT when they become known).

Richardson carries a regular program of aquatic weed control on Louisiana lakes. He has 22 two-man boat crews at his disposal. They are dispersed over the state to save travel and at the same time keep inland waters open.

Each crew is equipped with a lightweight pumping unit consisting of a rotary hydro-tractor pump and an air-cooled gasoline engine mounted on a wood frame. The unit produces a nozzle pressure of about 100 p.s.i. and does not normally cause fogging of the spray mixture.



## We can help you on any spraying job

You get dependable performance on any spraying job—turf, ornamentals, trees—with Hudson power sprayers.

**Big turf acreage?** Consider our 150-gallon Peerless<sup>TM</sup>. Can cover 10 acres an hour with 20-foot boom. More than enough pressure and output for other jobs—for reaching high into trees. More trouble-free service with features such as Ten-O-Matic<sup>®</sup> pump, stainless steel lined tank. Models on wheels or skids. Tank capacities to 300 gallons.

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urban<sup>TM</sup> Trail-N-Spray<sup>TM</sup> or 50-gallon Peerless. Hitch to a compact tractor. Handle most any spray material to tackle most any spraying job.

Write us for full details on the complete line of Hudson power sprayers.

**HUDSON<sup>®</sup>**  
**POWER SPRAYERS**



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*St. Andrews Brought  
Game to America*

# 81 Years Of Golf

**S**T. ANDREW'S GOLF CLUB—first in the nation and named after its parent and predecessor in Scotland — can be credited with fathering the golf industry the country enjoys today.

To visit St. Andrews today is to experience the deep traditions of golf. For St. Andrews members, golf has been both sport and common meeting ground for the leaders of American industry and government. For the golf course superintendent today, its 81-year history exemplifies efforts since the beginning of golf to establish, improve, and maintain playable courses.

When the St. Andrews group moved to Mt. Hope, only about six years after founding the club in 1888, one of its first concerns was planning and building a superior course. A young native of Scotland, Samuel Tucker, was serving as pro at the time and doubling as caretaker of the course. He was shortly joined by his brother, Willie, who

**Golf Superintendent Roger Harmonay, left, and Dean Botjer, WTT advertising representative on tee apron overlooking the fifth hole at St. Andrew's Golf Club. Height of tee above hole is equivalent to a 20-story building.**

