

High Flying Contract Application



IT'S morning's first light. And the early silence is broken by the sound of a helicopter rotor beating the still air. It flies over the rise and down into the still dark valley followed by a sparkling stream of spray.

The pilot is a contract applicator treating vegetation beneath an electrical transmission line. His name is Jerry Hill.

Hill is president of Eastern Helicopter Corporation based in Roanoke, Virginia. He sprays many of the thousands of miles of electrical transmission and distribution cable stretched across the most rugged territory in the Eastern Seaboard states.

This eastern area has historically been a source of rights-of-way maintenance problems. Major utility companies such as Appalachian Power Co., Virginia Electric Power Co., Monongahela Power Co., and South Carolina Electric and Gas have installed their lines through areas too mountainous and swampy for economical ground crew control. Confirmed opinions from vegetation control managers indicate that ground control is not the answer. Most look to contract aerial applicators for the solution to their vegetation control problems.

Recently one utility official remarked that a tree grew into his company's electrical transmission lines. The tree caused a short-out and resulted in a breakdown of service. The outage cost this company more money than their entire contract aerial application program of nearly \$160,000.

Jerry Hill is just one of many contract applicators servicing the needs of the Eastern utility companies. But outside of a few corporate-owned flying services, most are seasonal businesses operating with less than a handful of pilots. Just the nature of contract application requires extensive travel. And Hill and his ground crew travel a several state region during the 90-day spray season.

During the past spray season Hill has managed to put down over 100,000 gallons of chemicals. "By the end of this season, I'll probably have sprayed more gallons of material than I have in the four years since I started Eastern," Hill told **WEEDS TREES AND TURF** in September. A major percentage of Hill's high volume is a result of his efficient operating techniques.

"A pilot's ground crew can make or break any spray operation," Hill said. "My ground crew is always there with the set-ups when I land for refilling. I lose very little time on the ground."

Top: Jerry Hill steers his ship down the right-of-way applying a herbicide to the unwanted vegetation. This is the first season Hill has used the new boom and nozzle arrangement. Bottom: Hill, left, founded Eastern Helicopter Service in 1971. A major part of his success as a contract applicator is attributed to an efficient ground crew. Here Hill is shown with Charlie Turpin, center, and Bill Chappell, right, two members of his crew.



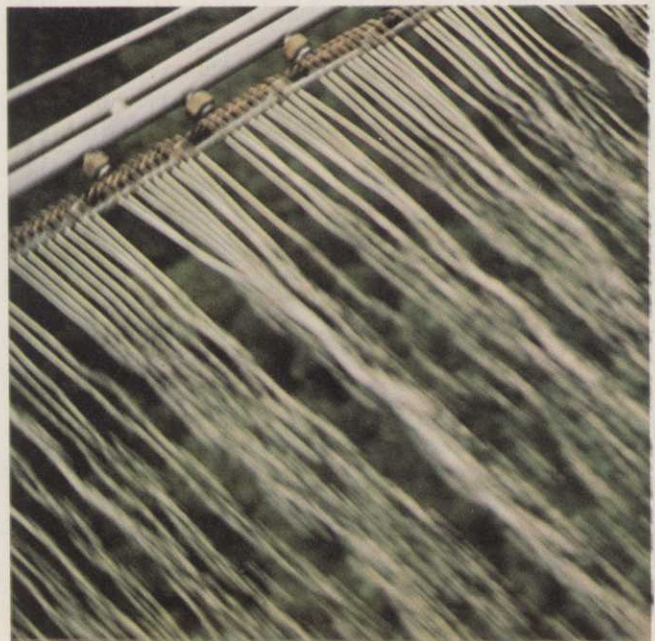
Another factor contributing to his best-ever season Hill attributes to the use of a boom and nozzle arrangement manufactured by Amchem Products, Inc., Ambler, Pennsylvania. The boom, called the Microfoil, is hardly a newcomer to the helicopter application field. "Tex" Waldrum of Amchem's Mechanical Research and Development Division pioneered the boom in 1967. Since that time, the boom has been equipped with a variety of nozzle configurations and ending, at present, with the .060 nozzle.

"The .060 refers to the orifice size in inches," said Waldrum, "That's a large droplet size compared to the earlier .013 and .028 nozzles."

Waldrum, along with several pilots using the new combination, consider it one of the most effective weapons yet for vegetation control. "The .060 produces a large droplet size giving maximum drift control and creating a shattering effect when it hits the top canopy of brush," said Waldrum. This shattering effect allows for a large part of the volume to fall through the brush giving better than average penetration and improved coverage.

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Top: Hill demonstrated the boom and nozzle arrangement at the recent meeting of the Mountain Lake Right-Of-Way Management Council meeting near Richmond, Virginia. Here some of the members examine Hill's ship. Lower Left: This is a close-up view of the .060 nozzle mounted on a Microfoil boom. Below: The boom and nozzle produce drift control through the formation of nearly uniform droplets with a minimum of fine droplets. This results in a sheet of spray falling to the ground, rather than a drifting cloud of material.



Microfoil Background

By "TEX" WALDRUM, Director,
Mechanical Research and Development,
Amchem Products, Inc., Ambler, PA

THE STORY of the Microfoil™ spray device actually begins shortly after World War II. At that time, the use of hormone herbicides in effective vegetation control was really coming into its own. When this hormone herbicide began to be used commercially, it became apparent that drift control, especially in aerial application, would be very important for effective use.

Amchem Products, Inc. (known as American Chemical Paint Company at that time) held patents on 2-4D and were immediately aware of the drift control problem and how important a solution would be. In those days, scientific thinking was oriented around the use of thickened carriers which would produce larger droplets than conventional spray . . . and reduce drift in this way. With this concept in mind, Amchem developed invert emulsion.

Everyone agreed that this should be an extraordinary drift control material. But, there was no spray equipment available which was capable of handling the invert . . . even on an experimental basis. The problem was assigned to Amchem mechanical research and development. The result was invention of a device now known as the Spra-Disk™.

The Spra-Disk is a centrifugal device for aerial application which sprays through 360° and is capable of handling invert emulsions at their maximum viscosity. For 15 to 17 years this device was a leading development where precise drift control was needed in aerial application of industrial chemicals. It became the mainstay of helicopter industrial application east of the Rocky Mountains.

Through these years, while taking advantage of the invert emulsion system, technical and scientific personnel were increasingly aware that further advances needed to be made. Invert emulsion was an added economic burden, for one thing.

The consensus was that conventional spray would be the answer, if a device could be conceived to eliminate or drastically reduce the drift of material during application. The Microfoil aerial applicating spray device was the result.

Microfoil controls drift by using surface tension to manufacture uniform droplets from a laminar flowing stream. The process allows all droplets making up the pattern to be virtually uniform in size — preventing segregation of droplets due to cross wind conditions and eliminating aerosol. With the precise spray pattern it is possible to make drops from whatever height necessary and still apply all spray material on target. □

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But the Waldrum development has done more than improve the chemical coverage. It has allowed pilots to apply more chemical in a single pass over the right-of-way. "During the first days of rights-of-way maintenance, all control was accomplished from the ground," Hill added. "Now with this new nozzle and boom arrangement, my application rates have increased to 25 gallons per acre under optimum conditions." Hill claims the increased rate attains and surpasses any control from the ground.

And according to Hill, aerial application at these new rates is cheaper than ground control. "Side-trimming is one of the most difficult control operations to perform from the ground, Hill says, but it's a relatively simple job with a helicopter and Microfoil." "The boom does a better job with an .060 than can be done from the ground, considering the type and ability of the pilot versus the ground crew."

Hill describes his airborne ship and boom as a very precise instrument. "A pilot can write his name with this boom," he said. But a precision instrument is only as good as the operator. And pilot finesse has become the name of the game.

The chemical application business is being bombarded from all sides by government agencies, a variety of citizen organizations, and the media. The negative publicity has done nothing to lessen the number of complaints or damage claims. "A pilot has to be extremely careful when spraying chemical," Hill added. "You have to maintain a stable ship and keep the spray on target."

Vegetation control from the air has always stayed in the 90 percent area, says Hill. But with the extra volumes of chemical pilots are now able to put down, control has been reported at almost 100 percent. Once the pasture-like appearance has been achieved in the rights-of-way, the unwanted woody growth is easier to keep under control.

The maximum spray season using phenoxy herbicides is approximately 90-days for most eastern areas. But one new chemical recently introduced to the rights-of-way market may extend the season by an additional 30 days. The product is called Krenite. It's manufactured by DuPont. "Krenite doesn't cause the unsightly brownout found with most of the herbicides," said Hill. "It's especially useful around roadsides and crossings where the public has a first-hand view."

An old crop duster once said that airplanes were made to fly and helicopters were made to crash. But then he never met Jerry Hill. The 35-year-old pilot has been in air for a dozen years and with his precise control and thorough ship maintenance he'll be in the air for another dozen. □