

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. □

APPLICATION *(from page 39)*

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. □