

How We Reduced Drift With Aquatic Herbicides

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MY primary interest in fighting water weeds is the fish and wildlife aspect of it. We need *some* weeds for our fish but we can't let the plants get out of hand. Some of these weeds down here take over so fast, they choke up the waterways before you hardly know it.

Then, too, navigating the rivers can be a tough chore when the water hyacinths and submerged vege-

tation have taken over—not to mention what it can do to skiing, swimming, and helping to build mosquito populations.

That's why all of us aquatic weed specialists stay so busy looking for new and better ways to keep our waters weed-free.

Something that especially interests me is anything that cuts down on herbicide drift, even though we

haven't had any big problems with that in the past. Unfortunately, the drift problems that have plagued the phenoxies since their introduction nearly 30 years ago continue to be a real worry, especially to people spraying rights-of-way. Drift from a right-of-way to nearby sensitive crops can do plenty of damage.

Concern with drift was why we
(Continued on page 48)



A small motor which operates from the 12-volt battery on the air boat, above, drives the Directa Sprayer unit. Arc of the spray pattern can be adjusted to 90, 180 or 360 degrees.



Directa Sprayer in action. Notice that the spray pattern is "wheel" shaped. Herbicide passes through the control box to the hub of the unit where it enters eight tubes which make up the delivery section. Nozzles may be attached to the tubes.

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HOW WE REDUCED DRIFT (from page 16)

ran some special tests earlier this year to evaluate the Directa-Spra as an aquatic herbicide applicator. It had been used successfully on most every formulation of herbicide for brush and weed control, but we wanted a close look ourselves over water hyacinth.

The applicator, which weighs only a few pounds, has a small motor that operates from the 12-volt battery of whatever spray vehicle it's attached to.

A hollow shaft passing through the control box carries the herbicide to the hub below where 8 tubes radiate like wheel spokes. Each tube can be tipped with a nozzle that has 5 openings, and you can spray with or without the nozzle tips depending on the desired pattern or mixture being used.

The "wheel" revolves at 70 rpm, throwing the spray in a circular pattern. To set up for the correct volume, the size of the opening at the shaft base is adjusted. Arc of the spray pattern can also be adjusted to 90, 180 or 360 degrees.

Our tests, which took place at the Tenoroc Mine near Lakeland, compared various phenoxy formulations: esters, amines, oil soluble amines, and invert emulsions. We had two booms, one on each side of the airboat acting as arms to

hold the Directa-Spra units. Running through heavy infestations of water hyacinth, we were able to put spray right on top of the plants.

Figure 1 shows the various commercial and experimental treatments used in these tests. Although data from actual evaluation is not yet compiled we have shown a visual estimate on the percent of control. Skips were evident in all plots. This can be expected with any type of spray equipment because of wind, weed movement and other factors.

One interesting point to note is that a great number of chemicals, used both conventionally and as an invert, can be sprayed through the Directa-Spra system. Because of its compact size, it was easy to clean and prepare for different chemical tests.

When it was all over, the oil soluble amine, E-3, looked superior for controlling water hyacinth. To more completely solve the drift problem, we added Lo-Drift spray additive to the E-3. The thickening agent, which makes spray adhere to the plants, also kept us from having any washoff due to propblast.

Even though I plan to run more tests, I have to say that putting Lo-Drift with E-3 through the Direct-Spra applicator looks like a good—essentially drift-free—spray system.

Figure 1. Directa-Spra Trials on Water Hyacinth — Florida

Commercial or Experimental Treatment used ⁴	Rate lbs. a.i. ³	Carrier Used ¹ (gallons)	Visual estimate of percent Brown-out (evaluation ²)
Weedone 170	4	89 H ₂ O	No evaluation. Hyacinths washed out of plot area
LV-4	4	70 H ₂ O	65 - 70 percent
2, 4-DP	4	70 H ₂ O	60 percent
MCPA	4	70 H ₂ O	80 percent, Plot looks very good, excellent burn
W-170	4	70 H ₂ O	25-30 percent
71-44	4	70 H ₂ O	40-50 percent
W-64	4	70 H ₂ O	65 percent
Emul. E-3	4	70 H ₂ O	40 percent
Brominal Ind.	1	70 H ₂ O	Very small amount of burn evident
Emul. E-3	5	70 H ₂ O	No evaluation, Plot too scattered to evaluate
Emul. E-3	4	70 H ₂ O	75 percent, Hyacinths that were sprayed 95% skips knock down
Emul. E-3 + Lo-Drift	4	70 H ₂ O	85 percent, Lo-Drift plots are best looking.
Emul. E-3 + Lo-Drift	4 + 1 qt.	35 H ₂ O	90 percent
Emul. D.	4	2 Chemicals 12 Oil 56 H ₂ O	35 percent
Weedone BK-171 ⁵	4	2 Chemicals 13 Oil 56 H ₂ O	50 percent, Coverage very uniform, but very little brown-out.

¹Applications were made to one acre plots in mid-and late-March. No nozzle tips were used.

²Evaluation was conducted by John Gallagher and Richard Messinger, Amchem Products, Inc.

³The purpose was to evaluate various formulations of 2,4-D, 2,4-DP and Brominal applied with Directa-Spra. A John Bean piston pump (10 gpm—7 Hp) was mounted on an airboat.

⁴Application was made by the Florida Game & Fish Commission.

⁵Would not invert.