

Can soybean oil induce an ag revolution?

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LANCASTER — There's talk of revolution in the air, and on the ground for that matter. In recent months the use of soybean oil with pesticides has become one of agriculture's hottest topics.

Soybean oil advocates speaking at ag oil days and equipment dealer seminars list soy oil's promises to revolutionize herbicide application, aid in cutting herbicide costs and help remove worldwide oil surplus contributing to lower soybean prices.

But there are signs you won't see these promises fulfilled immediately, according to an article in the March issue of Soybean Digest, a magazine for soybean growers published by the American Soybean Association. Environmental Protection Agency restrictions, a lack of research, and in-fighting among various agricultural factions appear to be delaying soy oil's full development and use with herbicides.

Most university scientists, aerial

applicators, chemical companies and equipment manufacturers agree on soy oil's future as a replacement for petroleum in crop oil concentrates. There, soy oil seems a certainty because it lacks the toxicity and volatility of petroleum. Result: Soy oil should offer longer residual effects for the herbicide.

Soy oil as a crop oil has another plus. It can move into commercial channels without undergoing EPA scrutiny. "Unless it makes pesticidal claims, we have no authority," explains C.E. Poin-dexter of the EPA office in Kansas City, Mo. That means companies selling soy crop oils don't have to spend months and dollars testing a product in order to get EPA clearance.

Use of soy oil as a crop oil is probably closest to reality. Valley Chemical of Greenville, Miss., has been selling a vegetable oil-based surfactant for three years. Stoller Enterprises of Houston, Texas, has

for a year been selling product labeled as a surfactant to replace petroleum crop oil, an anti-evaporant mixed with water and a diluent for synthetic pyrethroids.

Major chemical companies are researching crop oil additives, too. BASF's surfactant division is formulating a generic crop oil concentrate using soy oil instead of petroleum. Company and university tests during 1983 will decide label recommendations for 1984.

Part of the controversy over soy oil swirls around its use to replace water as a herbicide carrier. Even though soy oil is cleared as a carrier for some insecticides, herbicides lack federal registration to use it as a sole carrier. That clearance would solve only part of the problem. Each chemical company would have to apply for permission to change each product's label.

Also, EPA regulations still say it's illegal to apply herbicides with

less carrier than noted on each product. Again, each company would have to submit test results showing the reduced carrier volume wouldn't harm the environment.

The label amendment for less volume is necessary for soy oil's use as a single carrier. At \$2 per gallon, once-refined soy oil is too expensive to replace water on a gallon per gallon basis. But it could be an option in low volume and ultra-low volume amounts of less than five gallons and a gallon per acre, respectively. These rates are common with controlled droplet applicators, the spinning cups or cages.

That's why equipment companies selling CDAs and custom applicators using CDAs are prominent among those promoting soy oil.

But another use for soy oil, says Jerry Stoller of Stoller Enterprises, is to mix it with herbicide, then add the combination to

the labeled amount of water. Soy oil added to a herbicide/water mixture in the same way as a petroleum crop oil has no chance to absorb the herbicide, he says. But mixing the herbicide in soy oil before adding it to water lets the oil surround the herbicide, reduce evaporation and improve herbicide effectiveness.

Stoller says the method works with preplant, preemergence and postemergence materials and doesn't require new sprayers. "We can cut down chemical volatilization and cut down on rates without going to 100 percent soy oil," he says. "It can be used with regular equipment. You use smaller nozzle tips and higher pressure."

He claims the technique of mixing herbicide with soy oil then adding to regular water volumes doesn't violate EPA regulations. "Labels say mix with so many gallons of water. It doesn't say what you can or can't put in the water," he notes.



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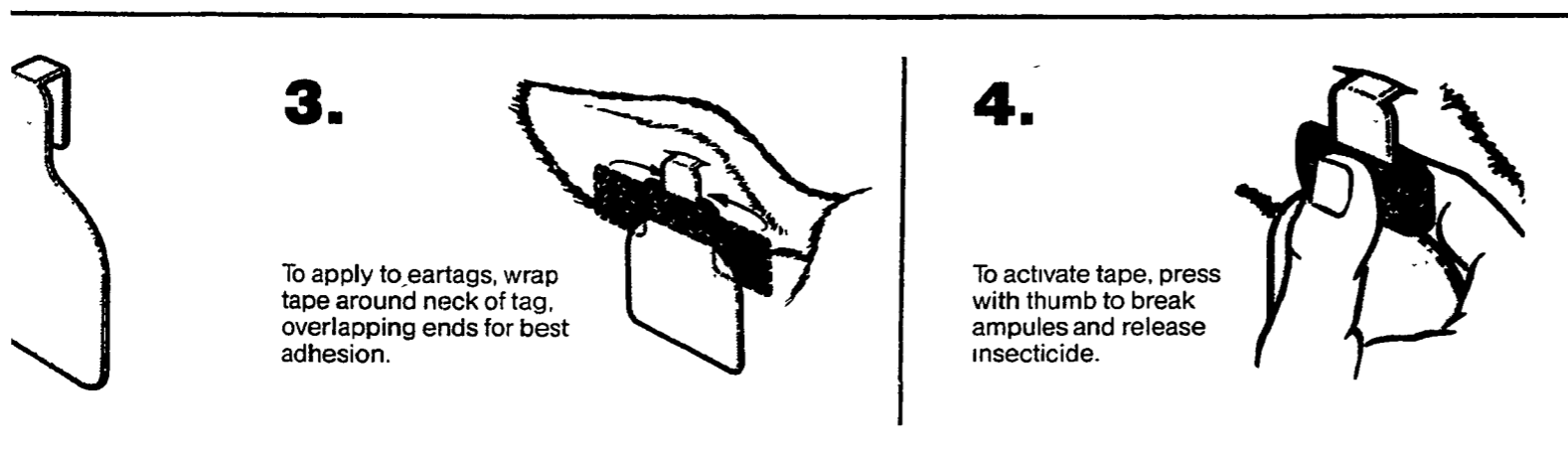
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