

United Soybean Board Reports On Oils In Herbicides

ST. LOUIS, MO. — The label on the jug says "crop oil concentrate." If you believe that means the product is made from a vegetable oil, you'd better read the label a little closer. Chances are, the primary ingredient is a petroleum distillate.

The United Soybean Board (USB) wants farmers and other herbicide users to know the difference and then make up their own minds whether to use a herbicide adjuvant made from petroleum or one made from a vegetable oil, such as soybean oil. The USB does not recommend any particular brand of herbicide or any brand of adjuvant. But, since vegetable oil is an important market for soybeans, and since the use of vegetable oils as an adjuvant could be an important growth market for soybean oil, they do want all herbicide users, farm and non-farm, to be able to make an informed decision.

An adjuvant does not contain an active ingredient to control weeds or other pests; it is an additive used to help a pesticide work more effectively. This may allow pesticide manufacturers to recommend a lower rate of a pesticide or improve control of a pest so that retreatment is less frequent or unnecessary. But adjuvants are not regulated by the Environmental Protection Agency as pesticides are, and there are no consistent, national labeling laws for adjuvants used with herbicides and other pesticides.

Several different kinds of adjuvants are defined by the American Society for Testing and Materials (ASTM). The ASTM defines a crop oil concentrate as "an emulsifiable petroleum oil-based product containing 15 to 20 percent w/w surfactant and a minimum of 80 percent w/w phytobland oil." The name "crop oil" came from the fact that the product was formulated to be used on crops, not because it came from a crop.

The ASTM defines a modified vegetable oil concentrate as "an emulsifiable, chemically modified vegetable oil product containing 5 to 20 percent w/w surfactant and the remainder chemically modified vegetable oil." If the product says "methylated seed oil" or "methylated vegetable oil" or "methyl soyate" it is vegetable oil-based. But some vegetable oil-based products are mistakenly called "crop oils" or "crop oil concentrates" and may list ingredients with chemical names that are not recognizable to the lay person as coming from a vegetable oil. These vegetable oils primarily come from seeds such as soybeans, sunflowers, canola and cottonseed but, in some cases, may be derived from coconut or palm oils.

Almost all adjuvants contain or act as a surfactant to improve the dispersion of the herbicide in the water used as a carrier. Some surfactants, or surface active agents, may also be made from vegetable products or contain products such as soy lecithin as an ingredient. This surfactant action also improves the "wetting" of the leaf surface, so more herbicide stays on the weed. Vegetable oil concentrates and modified vegetable oil concentrates do both of these things, as do straight surfactants.

Additionally, modified vegetable oil concentrates improve the penetration of the herbicide into the weed. Experts don't agree on

how this occurs physically, though the widely held theory is that the modified vegetable oil acts as a solvent to penetrate the waxy cuticle covering the leaf and allow more herbicide to be absorbed. Vegetable oil concentrates, those that are not chemically modified, have less solvency so they may not hasten penetration of the herbicide significantly, but do help to "stick" the herbicide to the leaf. This logically results in increased uptake of the herbicide, but less rapidly than with a modified vegetable oil.

Finally, the solvent properties of modified vegetable oils may help to dissolve some herbicides. This also helps to distribute the herbicide evenly throughout the spray mixture, which can lead to more consistent results.

For most post-emergence herbicides, use of either a vegetable oil concentrate or a modified vegetable oil concentrate will improve

its performance. The amount of improvement depends on the herbicide; with modified vegetable oils working as well as, and sometimes significantly better than, the petroleum-based oils. Control of larger weeds and/or longer-lasting weed control are some of the benefits attributed to the use of modified vegetable oil concentrates.

In recent years, work specifically with modified seed oil concentrates as adjuvants have shown them to be clearly superior to petroleum-based crop oil concentrates when used with specific herbicides. These herbicides recommend using a modified vegetable oil concentrate as an adjuvant. This is when it is most important to know whether the adjuvant you select contains a vegetable oil or a petroleum oil as its base. Just because it says "crop oil concentrate" does not mean it contains vegetable oil.

NFU Applauds Secretary Glickman, Senators For Agreement To Combat Anti-Competitive Measures

WASHINGTON, D.C. — National Farmers Union (NFU) fly-in participants were the first to learn that a group of U.S. senators led by Senate Minority Leader Tom Daschle, D-S.D., has agreed with Agriculture Secretary Dan Glickman to aggressively pursue measures to combat anti-competitive practices in the livestock processing sector.

"We must end the secret deals in livestock sales right now," Daschle told NFU fly-in participants. "I'm very pleased to announce that the secretary has said he agrees with us and will aggressively seek mandatory price reporting (of livestock sales) with Congress and make sure that it becomes law before year end."

NFU has repeatedly called for mandatory price reporting on all livestock sales, including the price and terms of meat sales for export, on the basis that a lack of price transparency has contributed to a thinner market and lower livestock prices. NFU also has been frustrated by the lack of aggressive enforcement of Packers and Stockyards Act provisions which are supposed to be used to combat anti-competitive practices by the buyers and processors of livestock.

"We want to be sure that we put teeth into the Packers and Stockyards laws, and we want to see the Department of Agriculture use muscle to put competition back in to the system," Daschle said. "This isn't something that ought to be left just to the Department of Agriculture. I want to see the Department of Justice do for meat what it has done with Microsoft in the last month."

Daschle made the announcement on the steps of the Senate before 130 Farmers Union members immediately following the group's meeting with Glickman. Daschle was joined in the announcement by Sen. Tim Johnson, D-S.D., and Sen. Byron Dorgan, D-N.D. Others meeting with Glickman were Sens. Bob Kerrey, D-Neb., Tom Harkin, D-Iowa, Kent Conrad, D-N.D., Max Bau-

cus, D-Mont., and Paul Wellstone, D-Minn.

Those addressing the Farmers Union members commended their participation in the fly-in and NFU's work in keeping concentration in agricultural markets on the legislative front burner. NFU has pointed out the danger to producers as well as to consumers of the current industry structure in which more than 80 percent of red meat processing nationwide is controlled by just four multinational firms. This compares with just 36 percent of red meat processing controlled by these firms in 1980. NFU also has pointed to the fact that consumer meat prices have remained constant despite precipitous drops in the prices of live animals.

"We need aggressive attention by the department (USDA) in each of these four areas. The secretary has said he will work with us to make it happen. Now we have to make sure the job gets done," Daschle said.

The announcement by Daschle follows an address to NFU fly-in participants yesterday by Vice President Al Gore, who stressed the importance of involving agricultural producers in the development and implementation of environmental regulations.

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The use of a crop oil concentrate, or a modified vegetable oil concentrate, is not recommended with some herbicides. This should be clearly spelled out on the herbicide label. There can be several reasons for this: the herbicide may not be compatible with an oil and the spray mixture may form a jelly-like substance; the oil may make the herbicide move too quickly into the leaf, killing the leaf but not moving into other parts of the plant so the weed grows back; or the use of an oil with the herbicide may cause crop damage. In the last case, it may still be effective to use a vegetable oil concentrate. These non-modified vegetable oils with surfactants may improve the activity of the herbicide, although a modified vegetable oil does not.

There may be some basis for the perception that vegetable oil concentrates and modified vegetable oil concentrates are less likely to cause crop damage, but data comparing the potential for crop injury between petroleum-based crop oil concentrates and vegetable oils, or modified vegetable oils, on a wide variety of crops under various climatic conditions, is not available.

At recommended rates, vegetable oils and modified vegetable oils themselves do not cause crop damage. Because they enhance penetration of the herbicide into the plant, either petroleum-based crop oil concentrates or modified vegetable oil concentrates may intensify the activity of a specific herbicide on a crop and cause crop injury. Herbicide damage to a crop varies greatly with climatic conditions and the development stage of the crop. The use of any adjuvant is one more factor which may, or may not, be the cause of crop injury in a specific situation. Avoiding contact between the herbicide spray and the crop is the best method of reducing or eliminating the potential for crop damage.

"Our goal is not to recommend one herbicide over any other, or any adjuvant brand over any other," David Durham, chairman of the United Soybean Board Domestic Marketing Committee stated. "I, personally, use methylated seed oil as an adjuvant whenever it fits my program, and I am pleased with the performance. That doesn't mean that it is the right choice with every herbicide or for every situation. It's up to each herbicide user to read and follow the label directions that come with the herbicide. I just want every farmer, every road supervisor, every utility company, every forest owner and any other herbicide user to know that they

have a choice to use a vegetable oil-based product, instead of a petroleum-based product."

A list of herbicide adjuvants containing vegetable oils, particularly soybean oil, has been compiled and placed on the Internet at www.StratSoy.com and at www.omnitechintl.com. For more information about soy adjuvants please contact your state soybean board.

ASTM Definitions

Crop oil concentrate — an emulsifiable petroleum oil-based product containing 15 to 20 percent weight-to-weight (w/w) surfactant and a minimum of 80 percent w/w phytobland oil.

Crop oil (emulsifiable) — an emulsifiable petroleum oil-based product containing up to five percent weight-to-weight (w/w) surfactant and the remainder of a phytobland oil.

Modified vegetable oil — an oil, extracted from seeds, that has been chemically modified (for example, methylated).

Modified vegetable oil concentrate — an emulsifiable, chemically modified vegetable oil product containing 5 to 20 percent weight-to-weight (w/w) surfactant and the remainder chemically modified vegetable oil.

Nonionic surfactant — a surface-active agent having no ionizable polar-end groups but comprised of hydrophilic and lipophilic segments.

Phytobland oil — a highly refined paraffinic material with a minimum unsulfonated residue of 92 percent volume-to-volume (v/v).

Sticker — a material that assists the spray deposit to adhere or stick to the target and may be measured in terms of resistance to time, wind, water, mechanical action, or chemical action.

Surface-active agent — a material that, when added to a liquid medium, modifies the properties of the medium at a surface or interface.

Note — surface-active agent is the general term which includes soluble detergents in liquid medium, dispersing agents, emulsifying agents, foaming agents, penetrating agents, and wetting agents.

Surfactant - see surface-active agent.

Vegetable oil — oil extracted from seeds; typically those of corn, cotton, peanut, rapeseed, sunflower, canola, or soybean.

Vegetable oil concentrate — an emulsifiable vegetable oil product containing 5 to 20 percent weight-to-weight (w/w) surfactant and a minimum of 80 percent w/w vegetable oil.

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