

Emulsifiable oils are very special oils containing specially blended emulsifiers (about 1-2%) so they will mix with water. When an oil spray strikes the spray target, the oil separates out onto the sprayed surface while the water carrier and emulsifier run off onto the ground or evaporate away. The oil is then without emulsifier, is no longer water miscible, and is not readily washed off the spray target. (NOTE: Stickers, if used at high rates, can hold pesticide residues so tightly they are literally entombed and useless).

An adjuvant with both spreading and adhesive qualities is called a spreader/sticker. (NOTE: The greatest misrepresentation, confusion and misunderstanding in the whole subject of spray adjuvants is the promiscuous use of the term "spreader/sticker". Many products labeled "spreader/sticker" are nothing more than a nonionic spreader, having no adhesive quality whatsoever).

Acid adjuvants to lower the pH of alkaline spray solutions are called acidifying agents, acidifier or buffer. Defoamers or anti-foam agents are used to break or prevent foam formation in spray tanks. Every sprayer should have some defoamer with it at all times, just in case a foam problem develops. Defoamers are much cheaper than down time.

Drift control agents are adjuvants that reduce the breakup of sprays into fine droplets that can drift out of the spray zone. Spray drift is double jeopardy; first, it reduces the effectiveness of the spray application; second, it creates contamination hazards for adjacent properties, crops and people with a potential for serious legal implications.

Adjuvants that increase the amount of pesticide actually deposited on spray targets are called desposition aides and thickeners, and dispersants that maintain more uniform dispersions of chemicals in spray solutions are called suspending agents.

A functional knowledge of adjuvants is important in order for spray managers to obtain maximum benefits and returns from every dollar spent for spray chemicals.

#### Consider the Following When Making Your Decisions:

- Select adjuvants as carefully as pesticides. Read the pesticide labels and select adjuvants that meet label requirements and the conditions under which the spray will be applied and expected to perform.
- Buy spray adjuvants, as well as spray chemicals, from reliable, professional suppliers.
- Bottle test spray mixtures for compatibility. If anything in a spray mix is new or different (the water source, the pesticide mix, the brands of chemicals), test before mixing a full batch of spray.
- Check the spread of some drops of the spray mixture on the plants to be sprayed. Somewhat mounded spray drops that stay in place are what is wanted. High standing, round drops that fall off or shake off easily indicate the need for more spreader. Flat drops that tend to slide easily off of the plant surfaces, leaving a wet line, indicate too much spreader. For hairy plants, drops should flow down among the hairs but not readily flow off a vertical leaf surface.
- If a rain or heavy dew is likely before the next regular spray, use a sticker.
- If it is windy, the humidity low, or there is a temperature inversion near the ground, use a drift control agent.

- When using alkaline spray water, lower pH to below 7.0 with an acidifying agent. Lower the pH to about 6.0 if the spray must stand in the tank overnight or longer than a normal application time.
- When spraying a solar heat or ultraviolet radiation sensitive pesticide (a surprising number are), use an extender.

Credit: A Patch of Green, May/June 1993

## MAGCS 42nd Turf Clinic Speakers

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