

MAY 22 1979

Herbicide Additives

L. E. Anderson, Department of Agronomy, College of Agriculture

Herbicide additives include products with several different names, but the overall functions are generally the same—to increase the effectiveness of a foliar application. Following are commonly used terms with their book definitions:

Adjuvant: This is a substance added to a herbicide to improve activity of the active ingredient.

Emulsion stabilizer: This substance reduces the tension between two immiscible liquids (that cannot be mixed; oil and water, for example) resulting in a stabilized surface.

Penetrant: This substance improves the entry of a herbicide into the vascular system of a target plant.

Spreader-wetting Agent: Spreaders and wetting agents, sometimes considered independently, are closely related. When the wetting agent reduces surface tension, spreading naturally follows. Consequently, when used in connection with herbicides, spreaders and wetting agents should be considered together.

Surfactant: This substance aids in emulsifying, dispersing, spreading, wetting, and other surface-modifying properties of herbicide formulations.

The preceding definitions are worded differently, but the performance intent is similar for all. Surface active agents are designed to intensify the activity of a herbicide. The activities of additives are:

- They ensure maximum distribution of the spray material, which results in uniform wetting of the foliage.
- Spray droplets tend to stick to the foliage with less bounce-off and less runoff.
- The active ingredient is brought into close contact with the foliar surface, promoting rapid penetration. Droplets do not remain suspended on leaf hairs, scales, spines or other surface structures.
- A surface active agent may dissolve the waxy cuticle on the leaf surface so absorption of the chemical may proceed rapidly.
- Additives are believed to have various effects upon plant proteins. Protein may be precipitated and denatured and enzymes may be inactivated.



Additives enhance herbicide penetration through spines and surface hairs.

Herbicide Additives

Product	Remarks	Producer
Pace	A spray adjuvant combining penetrating activity of an oil with wetting activity of a surfactant.	Amchem
Trans-Aid	An additive to increase translocation of 2,4,5-T to roots of woody plants.	Amchem
Trans-Vert	For use with invert emulsions.	Amchem
Amway Spray Adjuvant	Improve plant penetration of pesticides.	Amway
Ortho Additive	Designed to give added solubility to insecticide—diesel oil mixtures.	Chevron
Ortho Chevron Spreader	Compatible with most wettable powders, emulsions, and water soluble pesticides.	Chevron
Ortho Spray Stickers	A liquid sticker and adhesive for agricultural pesticide sprays.	Chevron
Ortho Tronic	Type of herbicide formulation and quality of water may influence amount required.	Chevron
Ortho X-77	Provides quick wetting, uniform coverage, and increased retention of pesticide sprays.	Chevron
Compex	Compatibility agent for direct application to liquid fertilizer.	Farmland Ind.
Co-op Spreader	Increases contact activity and aids penetration of foliage.	Farmland Ind.
Crop Oil Plus	Surfactant/oil and adjuvant for use with herbicides.	Farmland Ind.
Fomark	Non-protein foam marker.	Farmland Ind.
Nalco Trol	Drift control for water-based crop and non-crop pesticide sprays.	Farmland Ind.
Tronic	Use with atrazine as post-emergent in corn and sorghum.	Farmland Ind.
X-77 Spreader	Non-ionic spreader and activator.	Farmland Ind.
Bio - 88	Provides quick wetting. Used effectively with Paraquat.	MFA
Citowett Plus	Good for leaf surfaces that are waxy or hairy.	MFA
Compex	For direct application to liquid fertilizer.	MFA
Crop Oil Fortified	A paraffinic crop oil plus a recently developed surfactant.	MFA
Lo-Drift	Stabalizes sprays by increasing droplet size.	MFA
X - 77	Improves foliage wetting and coverage. Excessive rates may increase foaming and leaf runoff.	MFA
Triton Ag-98	Reduces foam and incompatibility in spray mixtures.	Rohm & Haas
Triton B-1956	Water dispersible, resin-based, non-ionic surfactant.	Rohm & Haas
Triton CS-7	Binds pesticides to plant foliage by reducing surface tension of liquid.	Rohm & Haas
Activate 107	Increases performance of herbicides, insecticides, and fungicides.	Thompson-Hayward
Savol	An emulsifiable oil that mixes readily with water.	Thompson-Hayward
Savol Super Concentrate	Oil surfactant for use with herbicides.	Thompson-Hayward

■ Issued in furtherance of Cooperative Extension Work Acts of May 8 and June 30, 1914 in cooperation with the United States Department of Agriculture. Carl N. Scheneman, Vice President for Extension, Cooperative Extension Service, University of Missouri and Lincoln University, Columbia, Missouri 65211. ■ An equal opportunity institution.