

Compatibility Test

Since liquid fertilizers can vary, even within the same analysis, always check compatibility with insecticide(s) each time before use. Be especially careful when using complete suspension or fluid fertilizers, as serious compatibility problems are more likely to occur. Commercial application equipment may improve compatibility in some instances. The following test assumes a spray volume of 25 gallons per acre. For other spray volumes, make appropriate changes in the ingredients. Check compatibility using this procedure:

1. Add 1 pint of fertilizer to each of two 1-quart jars with tight lids.
2. To one of the jars, add 1/4 tsp or 1.2 milliliters of a compatibility agent approved for this use, such as Compex or Unite (1/4 tsp is equivalent to 2 pt per 100 gal spray). Shake or stir gently to mix.
3. To both jars, add the appropriate amount of insecticide(s). If more than one insecticide is used, add them separately with dry insecticides first, flowables next and emulsifiable concentrates last. After each addition, shake or stir gently to thoroughly mix. The appropriate amount of insecticides for this test follows.
4. *Dry Insecticides:* For each pound to be applied per acre, add 1.5 level teaspoons to each jar. *Liquid Insecticides:* For each pint to be applied per acre, add 0.5 teaspoon or 2.5 milliliters to each jar.
5. After adding all ingredients, put lids on and tighten. Invert each jar ten times to mix. Let the mixtures stand 15 minutes and then look for separation, large flakes, precipitates, gels, heavy oily film on the jar or other signs of incompatibility. Determine if the compatibility agent is needed in the spray mixture by comparing the two jars. If either mixture separates but can be remixed readily, the mixture can be sprayed as long as good agitation is used. If the mixtures are incompatible, test the following methods of improving compatibility: (A) slurry the dry insecticide(s) in water before addition or (B) add one-half of the compatibility agent to the fertilizer and the other one-half to the emulsifiable concentrate or flowable insecticide before addition to the mixture.

Application Equipment Cleanout

Equipment cleanout is essential to avoid crop injury from a contaminated sprayer. It is particularly important when changing from wettable powders that are more prone to collect in filters, boom and nozzle bodies. Ensure proper clean-out by disassembling, inspecting and cleaning trouble areas when using these products. Also, many growth regulating herbicides can be particularly destructive to sensitive crops even in extremely small concentrations. Ensure proper cleanout by using proper soaking procedures and always refer to product labels for any clarification.

Following the procedures specified on the pesticide or commercial cleaner label is critical to removing pesticide residue from the sprayer system. Consult labels of the products that were previously in the tank and for the products that will be used for the next application for specific cleaning and mixing/loading instructions.

The University of Arkansas System Division of Agriculture recommends a minimum triple rinse for cleanout of all pesticides regardless of label recommendations.

FORMULATIONS AND CONCENTRATIONS

Aerosols (A) – solid or liquid air suspensions of ultramicroscopic size which remain suspended for long periods.

Baits (B) – a poison or poisons plus some substance which will attract the insect.

Dusts (D) – diluted toxicant with finely ground, dried plant materials or minerals. These include wheat, soybean, walnut shells, talc, clay or sulfur.

Emulsifiable Concentrates (E or EC) – insecticide and an emulsifying agent in a suitable solvent. These are diluted with water to form an emulsion and applied as sprays.

Flowable (F)/Liquid (L) – viscous concentrate of suspended pesticide in water.

Fumigant – substance or mixture of substances which produce gas, vapor, fume or smoke intended to destroy insects, bacteria, rodents or other organisms.

Granules (G) – insecticide attached to an inert carrier of 30- to 60-mesh particle size.

Low Volume (LV)/Concentrated Low Volume (CLV)/Ultra Low Volume (ULV) – formulation containing higher concentration of active ingredient per gallon of formulation that results in a lower volume of formulation per unit area.

Pellet (P or PS) – granular formulation where all of the particles are of the same weight and size.

Ready To Use (RTU) – formulation in a form that requires no mixing before use.

Soluble Powder (SP)/Water Soluble Powders (WSP) – powder formulation that dissolves in water.

Solutions (S) – liquid forms of insecticides that are dissolved in suitable solvents such as petroleum distillates or liquid gas. Oil-based cattle sprays, household sprays and gas-propelled aerosols are examples of insecticide solutions.

Suspension Concentrates (SC) or Capsule Suspensions (CS) – particles in suspension.

Water-Dispersible Granules (WDG)/Dry Flowables (DF) – granules of a pesticide formulation that disperse in water to form a spray solution.

Wettable Powders (WP) – dry forms of insecticides in which the toxicant is impregnated or absorbed on powders that can be readily mixed with water because a wetting agent has been added. These form a suspension-type spray that must be kept agitated in a sprayer tank.