

Got Spray Problems?

5

INDICATE 5

THE PESTICIDE ADJUVANT

Indicate 5

- Acidifies
- Indicates pH
- Buffers
- Wets, spreads, and penetrates
- Aids compatibility and reduces volatility

PRINCIPLE FUNCTIONING AGENTS

Wetters, Spreaders and Penetrants 49%

Spray Water Buffers 34%

Other Ingredients 17%

Indicate 5 has been specially developed as a multi-functioning spray adjuvant, designed to cater to a wide variability in spray water quality.

What is Indicate 5?

Indicate 5 is an adjuvant designed to adjust pH in water so that maximum efficacy of foliar sprays can be realized. *Indicate 5* will acidify all alkaline waters as well as neutralize the dissolved salts present in hard waters. Mixing *Indicate 5* into your spray solution requires no lab tests, litmus paper, or guesswork. *Indicate 5* turns the solution pink when the optimum pH has been achieved.

Acidifying Action

Indicate 5 is added to the spray solution after foliar fertilizers and before pesticides are mixed in. Most pesticides work best in acidic conditions. *Indicate 5* reduces the pH in your spray water, overcoming the tendency of dissolved salts to resist pH change.

When cypermethrin is mixed into a spray solution and left to stand, the insecticide degrades rapidly if allowed to stand in an alkaline solution. After two hours in a pH 12 solution, only 25% of the insecticide is recovered. After the same length of time in a pH 5 solution, twice as much insecticide (50%) is still active.

Built-in pH Indicator

Indicate 5 is the only adjuvant with a patented built-in pH indicator. When the optimum pH of 4.5 - 5.5 is reached, the spray solution will change to pink or red (depending on water hardness). *Indicate 5* eliminates the need for cumbersome pH testing equipment in the laboratory or in the field - all you need to do is to check the color of your spray solution.

If you cannot see into your spray tank, you can easily determine how much *Indicate 5* you need by mixing a small amount of solution in a calibrated bottle and then adding *Indicate 5* to your spray tank in the same proportion.



pH 8.2 ▶

pH 6.8 ▶

pH 6.5 ▶

pH 6.3 ▶

pH 5.3 ▶

pH 4.5 ▶

No Accidental Overdosing

The amount of *Indicate 5* you add will depend on the hardness of your water. Harder water requires higher concentrations of *Indicate 5*. To prevent overdosing, *Indicate 5* will not acidify your solution beyond pH 3 - no matter how much *Indicate 5* is added.

Wetting/Spreading/Penetration

Water droplets are caused by surface tension (the result of chemical attraction between water molecules). The surface tension of water droplets act as a barrier to optimum distribution of spray solution over a plant. The addition of *Indicate 5* to the spray mixture will reduce surface tension, ensuring uniform wetting and spreading of the spray.

Indicate 5 also contains humectants which, by maintaining a moist leaf surface, permits better penetration of the spray solution. By improving the wetting, spreading and penetration of the spray, plant uptake and nutrient absorption are enhanced.

Compatibility Aid

Due to the high cost of spraying, many growers choose to reduce mix a number of products in the spray tank so that fewer sprays are needed. Mixing chemicals can increase salt concentrations in the solution, which can lead to incompatibility (reduced effectiveness of the spray). *Indicate 5's* ability to "tie up" salts reduces problems associated with incompatibility.

Safety

Indicate 5 has consistently proved to be safe when applied under various climatic conditions, against a wide variety of crops, using various methods (aerial and ground).

Indicate 5 Recommended Usages

INSECTICIDES

Carbamates
Bacillus thuringiensis (B.T.)
Synthetic pyrethroids
Organic phosphates

FUNGICIDES

Benzimidazoles
EBDC Compounds
Morpholines
Triazoles

HERBICIDES

Aliphatics
Sulfonylureas
Substituted ureas
Triazines

GROWTH REGULATORS

Ethephon
Gibberellic Acid (GA 3)

FOLIAR NUTRIENTS

NPK + Micronutrients
Potassium Nitrate (KNO_3)
Calcium Nitrate ($CaNO_3$)
Chelates

Directions for Use

Mix *Indicate 5* with the spray water before the addition of any chemicals. Add *Indicate 5* until the spray water turns pink to get the optimum pH 5.0. Add *Indicate 5* until the spray water turns orange to select pH 6.0.

Water Hardness Rating	Total Dissolved Salts (t.d.s.)	Conductivity s/cm	Drops Per Pint	Rate (oz.) Per 100 gal. water
Soft	0-100	0-200	7- 9	5- 6
Medium	100-200	200-300	9-10	6- 7
Medium Hard	200-250	300-400	10-15	7-10
Hard	250-300	400-450	15-30	10-20
Very Hard	300-400	450-500	30-44	20-30
Extremely Hard	400 +	500 +	44 +	30 +

Alkaline and Hard Spray Water Can Sabotage Your Spray Efforts

The two most important factors affecting spray water quality are pH and water hardness.

The Effect of pH

The efficacy of many pesticides can be adversely affected by exposure to alkaline spray water (high pH) through the degradation process known as alkaline hydrolysis. Chemicals sensitive to alkaline hydrolysis include:

- Organo Phosphates
- Synthetic Pyrethroids
- Carbamates
- Chlorinated Hydrocarbons
- Triazines and Others

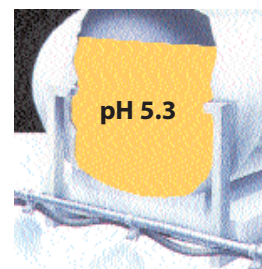
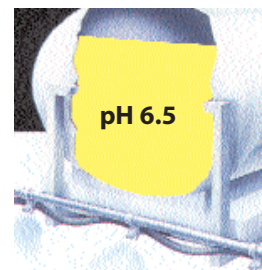
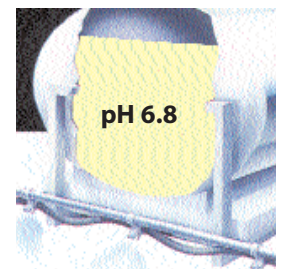
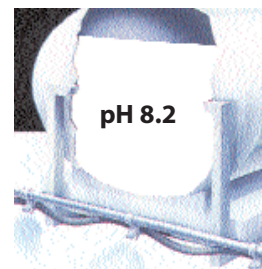
The Effect of Hard Water

Hard water contains high levels of calcium, magnesium, and iron that inactivate pesticides. Post applied herbicides such as Glyphosates, Bentazone, Sethoxydins, Fluazifops, 2, 4-Ds, MCPAs, and others, insecticides and fungicides are inactivated in combination with hard water salts.

The Value of Indicate 5

The use of *Indicate 5* counters both the detrimental effects of high pH and hard water on sensitive pesticides. One function of *Indicate 5* is to reduce the pH of whatever type of spray water to be used. The ideal pH range of 4.5 to 5.5 can be readily obtained by addition of *Indicate 5* to the spray water, using its unique color change reaction to pink. *Indicate 5* also acts as a wetting, spreading and penetrating

agent. When spray water turns pink the surface tension is reduced to 26 dynes per centimeter, resulting in an even film of spray over the leaf and better pesticide performance.



- Contains a unique patented color pH indicator
- Changes color at the ideal pH range (4.5 - 5.5)
- Does not require pH measuring equipment
- Combats the effect of alkaline hydrolysis in the tank
- Safe for use in all spray equipment



Advantages of Indicate 5 on the Leaf

- Improves plant uptake by maintaining a mildly acidic environment on the leaf
- Prevents alkaline hydrolysis of the pesticide on the plant surface
- Acid components do not evaporate after application
- Contains additional wetters, spreaders and penetrants to enhance spray performance
- No potentially harmful phytotoxic acid residues remains on leaf surface
- Ensures optimum performance in varying water quality
- Replicated field trials confirm enhanced pesticide performance

Indicate 5 is an adjuvant containing a combination of nonionic and anionic components and is suitable for ground and aerial coarse spray applications.

Improves Pesticide Performance

- Reduces and buffers the pH of the spray solution
- Prevents hard water inactivation of post-emergent herbicides, insecticides, fungicides, and plant hormones
- Prevents rapid hydrolysis (degradation) of alkaline sensitive pesticides such as organophosphates, carbamates, synthetic pyrethroids and chlorinated hydrocarbons
- Has excellent wetting and spreading properties thereby helping to reduce the possibility of chemical damage to the plant
- Improves cuticular penetration and increases plant uptake of systemic pesticides and foliar nutrient sprays
- Contains a unique pH indicator that turns the color of the spray water pink when the optimum pH range of 4.5-5.5 has been reached
- Improves the compatibility of emulsifiable concentrates with foliar nutrients

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