COLOR-AIDE™

A pH BALANCING AGENT FOR MAXIMUM PESTICIDE PERFORMANCE

Specimen Label

IS YOUR SPRAY WATER REDUCING THE EFFECTIVENESS OF YOUR CHEMICALS?
Water varies considerably in terms of quality as well as usability. Salts and impurities in the water can interfere with spray chemicals reducing there effectiveness 50% and more.

WHY IS THE QUALITY OF SPRAY WATER SO IMPORTANT?
Water used for spraying is drawn from many different sources, ponds, streams, wells, city water and aquifers. Due to climatic and seasonal variations, the quality and composition of these waters can vary greatly.

All waters have the following features:
- pH value (acid/neutral/alkaline)
- Dissolved salt content (soft/hard water)
- Electrical conductivity (EC) - a function of salt content

These factors, either acting alone or in combination with each other will influence the effect of the spray water on the chemicals with which it is mixed and applied.

THE TWO MOST IMPORTANT FACTORS EFFECTING SPRAY WATER QUALITY ARE PH AND WATER HARDNESS.

1. The effect of pH

The efficiency of many pesticides can be adversely effected 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.

2. The effect of hard water

Hard water contains high levels of calcium, magnesium and iron that inactivate pesticides. Post applied herbicides, such as Glyphoste, Bentazone, Sethoxydim, Fluazifop, 2, 4-D, MCPA, insecticides and fungicides are inactivated in combination with hard water salts.

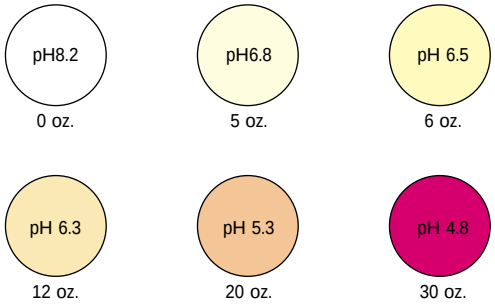
REGAL

DIRECTIONS FOR USE

Mix Color-Aide™ with the spray water before the addition of any chemicals. Add Color-Aide until the spray water turns pink to get the optimum pH 5.0. Add Color-Aide until the spray water turns orange to select pH 6.0.

The following table serves as a guide to the volume of Color-Aide required for different types of spray water.

Hard Water
Adjusted per 100 gallons of water



Water Hardness rating	Total Dissolved Salts t.d.s.	Conductivity s/cm	Drops per pint	Rate in 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+

Soft water: A rapid color change occurs from milky white to pink.

Hard water: Color changes slowly from milky white to yellow to orange to pink.

The correct volume of Color-Aide to be added to the spray water is indicated by the color: Pink at pH 5; Orange at pH 6.

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 synthetic pesticides and foliar nutrients.
- 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.

THE VALUE OF COLOR-AIDE

The use of Color-Aide counters both the detrimental effects of high pH and hard water on sensitive pesticides. One function of Color-Aide is to reduce the pH of whatever type of spray water is to be used. The ideal pH range of 4.5 to 5.5 can be readily obtained by addition of Color-Aide to the spray water, using its unique color change reaction to pink. Color-Aide 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 a n even film of spray over the leaf and better pesticide performance.

PESTICIDE 1/2 LIFE WHEN MIXED WITH SPRAY SOLUTIONS AT DIFFERENT PH LEVELS

PESTICIDE	1/2 LIFE AT PH					
	9.0	8.0	7.0	6.0	5.0	4.5
Captan	2 min.	10 min.	3 hrs.	-	10 hrs.	-
Di-Syston	7.2 hrs.	-	-	-	60 hrs,	-
Guthion	12 hrs.	-	-	-	60 hrs.	-
Sevin	24 hrs.	-	10 days	-	-	-
Lorsban	-	1.5 days	35 days	-	-	-
Cygon	48 min.	-	-	12 hrs.	-	-
Furadan	78 hrs.	5 days	40 days	-	-	-
Mavrik	1-2 days	-	-	30 days	-	-
Benlate	-	-	1 hr.	-	30 hrs.	-
Carbaryl	24 hrs.	2 -2 days	24-30 days	100 days	-	-
Dylox/proxol	-	63 min.	6.5 hrs.	3.7 days	-	-
Monitor	5 days	-	10 days	-	45 days	-
Orthene	3days	-	17 days	-	55 days	-
Carzol	3 hrs.	-	14 hrs.	-	4 days	-
Omite	1 day	-	-	331 days	-	-
Lannate	12 hrs.	-	-	46 hrs.	60 hrs.	-
Ethiuon	-	-	-	37 hrs.	-	-
Imidan	-	4 hrs.	12 hrs.	-	-	5 -13 days
Malathion	Stable at pH 5				Rapid Hydrolysis in alkaline solutions	
Dursban	-	1.5 days	35 days	-	-	-

Important:
Pesticide degradation accelerates after spraying on alkaline leaf surfaces. Pesticide breakdown (hydrolysis) is measured in terms of 1/2 life. As an example, if a product is 100% effective when first added to a spray solution and has a 1/2 life of 30 minutes, the effectiveness is cut in half (to 50%) in 30minutes. During the next 30 minutes it is halved again, making it essentially worthless. Once the alkaline hydrolysis occurs, it is irreversible.

REGAL CHEMICAL COMPANY