



Directions for Optimum Pesticide Performance Using pHase5- Updated 3.30.2005

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With the loss of some tried and true pesticides from our arsenal more pressure has been placed on the existing chemistry. Resistance to various insecticides, fungicides and herbicides has caused us to re-evaluate our pest management programs with an eye towards fine-tuning them for maximum effectiveness and wise stewardship of the active ingredients.

It has never been more important to insure that the chemical applications we make are as effective as possible. Most pesticides are expensive and our time is valuable. Each pesticide application needs to be made under conditions that will yield maximum control. An area that deserves more attention is the effect that water quality has on the efficacy of many pesticides. The pH and hardness (calcium and magnesium content) of the water source used for spraying pesticides can have a significant effect on the ability of certain products to do their jobs. Hydrolysis is the term used to describe the process that begins to degrade pesticides after they are added to water. For most pesticides this process is accelerated by high pH water. In some cases this decrease in activity happens quickly.

pHase5 is a recent addition to our product line and addresses the most serious obstacles your water can create, and does so in a unique way. It utilizes a color change to indicate the changes in pH that are taking place as you add the product. If your goal is pH of 5 add product until the water turns pink or red (depending on the hardness of your water). A pH of 6.0 is satisfactory for many pesticides and can be achieved by just adding enough pHase5 to cause the spray water to turn orange. pHase5 also negates the effects of high calcium and magnesium associated with hard water sources. The harder the water source the more product it takes to achieve the desired pH and pHase5 takes the guess work out of the process with the easily observable color change. This process should take place before the chemical is added to the spray tank.

Additional benefits from pHase5

- Contains a surfactant to reduce surface tension increasing pesticide coverage and decreasing visible residue from wettable powders. **Caution:** Do not add additional surfactant if you are already using pHase5 as this could cause a phytotoxic reaction.
- Aids in compatibilities of tank mixes. (Test all tank mixes for safety before wide scale use and never attempt tank mixes forbidden on the pesticide label.)

Not all pesticides react the same to the pH of the spray water solution. Listed below are some products that Griffin sells that either should not be used with pHase5 or require a lower rate for maximum performance.

Products that should not be used with pHase5:

Fungicides- Daconil Ultrex, Daconil Weather-stik, Eagle, Medallion, Milstop, Pathguard, Phytan-27, Systhane

Herbicides- Basagran T&O, Scythe

Insecticides- Citation, Conserve, Endeavor, Thiodan (Thionex) WP and EC

Products that should be used with pHase5 only down to pH 6.0 (color change to orange):

Fungicides- Aliette, Camelot, Chipco 26GT, Cleary's 3336 F and WP, Junction DF, Kocide 2000, Sextant, Spectro WDG

Herbicides- Pennant, Touchdown Pro

Insecticides- Avid, M-Pede, OHP Insecticidal soap

The chemical companies listed provided the pH information for their products.

<u>CHEMICAL</u>	<u>COMPANY</u>	<u>OPTIMUM SPRAY WATER pH</u>	<u>COMMENTS</u>
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FUNGICIDES

Aliette	Bayer	6.0	--
Camelot	Whitmire	6.0 or higher	
Captan 50WP	UPA Northwest	5.5 - 7.0	--
Chipco 26019	Olympic	4.5-8.0	
Chipco GT	Bayer	7.0	Higher pH degrades product lower pH will extend it's half life
Cleary 3336-F	Cleary	6.0 - 7.0	pH of less than 7.5 is OK
Cleary 3336-WP	Cleary	6.0 - 7.0	pH of less than 7.5 is OK
Compass 50 WG	Olympic	3.0 - 7.0	--
Concorde DF	Griffin LLC	pH not a factor	Not affected by pH
Concorde SST	Griffin LLC	pH not a factor	Not affected by pH
Contrast 70 WSP	Scotts	5.0 - 8.0	--
Cygnus WDG	Scotts	5.0 - 7.0	--
Daconil Ultrex	Syngenta	6.5 - 7.5	--
Daconil Weather-Stik	Syngenta	6.5-7.5	
Decree 50 WDG	Sepro	5.5 - 6.5	Not critical, avoid high pH
Eagle	Dow	6.5-7.5	
Fenstar	Olympic	4.5-8.0	
Fungo Flo	Scotts	5.0 - 8.0	--
Heritage	Syngenta	7.0	--
Junction DF	Griffin LLC	6.0 or higher	--

Kocide 2000	Sepro	6.5-7.5	--
Medallion 50 WP	Syngenta	7.0 - 8.0	--
Milstop	Bioworks	8.0	Buffered to approx. 8.1 and should not be mixed with an acid or in a solution that has buffering capacity in the acidic range
Pathguard	Whitmire	6.5 - 7.5	
Pentathlon 37%	Griffin LLC	pH not a factor	Not affected by pH
Phyton 27	Source Tech Bio	6.5	Both spray and dip
Pipron	Sepro	5.5 - 6.5	Not critical, avoid high pH
PlantShield	Bioworks	4.0 - 8.0	--
Plantvax 75W	Cromptons	5.0 - 7.0	Hydrolyzes @ pH 7 - 9
Protect TO	Cleary	pH not a factor	Chemical stable between 4-8
Rubigan EC	Sepro	5.5 - 6.5	Not critical, avoid high pH
Rhapsody	Agraquest	pH not a factor	
Serenade	Agraquest	pH not a factor	
Sextant	Olympic	6.0 - 7.0	--
Spectro WDG	Cleary	6.0 - 7.0	pH of less than 7.5 is OK
Stature	Sepro	5.5 - 6.5	Not critical, avoid high pH
Stature DM	Sepro	5.5-6.5	
Strike 50% WDG	Olympic	3.0 - 7.0	--
Sunspray Ultrafine	Whitmire	3.0 - 8.0	
Sythane	Dow	6.5 - 7.5	--
Terraclor 75% WP	Cromptons	5.0 - 9.0	--
Terrachlor 400	Cromptons	pH not a factor	
Terraguard	Cromptons	7.0	Begins to hydrolyze as pH approaches 5 or 9
Triact 70	Olympic	3.0 - 7.0	--
Zero Tol	Bio Safe	5.0 - 7.0	pH between 3-8 efficacy will not be significantly diminished
Zyban WSB	Scotts	5.0 - 8.0	--

GROWTH REGULATORS

A-Rest	Sepro	5.5 - 6.5	Not critical, avoid high pH
B-Nine	Cromptons	5.0 - 9.0	B-Nine is acidic-pH 3
Bonzi	Cromptons	4.0 - 9.0	No degradation-these pH
Cycocel	Olympic	3.0 - 7.0	--
Fascination	Valent	5.5 - 6.5	pH should never drop below 5 or raise over 7
Florel	Monterey Chemical	5	Keep below 5.0
Progibb	Valent	5.5 - 6.5	pH should never drop below 5 or raise over 7
Sumagic	Valent	5.5 - 6.5	pH should never drop below 5 or raise over 7

HERBICIDES

Barricade WDG	Syngenta	pH not a factor	--
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Basagran T&O	Micro Flo	8.1 - 8.8	--
Devrinol	UAP	5.5 - 7.0	--
Envoy	Valent	5.5 - 6.5	pH should never drop below 5 or raise over 7
Finale	Ago Evo	4.0-8.0	--
Gallery 75DF	Helena	pH not a factor	
Goal 2XL	Dow	5.0 - 8.0	--
Lontrel	Dow	5.0-9.0	
Manage 75%WDG	Monsanto	5.0 - 7.0	Not to be used w/ hard water. Needs to be less than 500 ppm Ca, Mg, & Fe
Oryzalin 4 Pro	Vegetation Manage LLC	5.0 - 7.5	--
Pendulum EC	UAP Northwest	5.5 - 7.0	--
Pendulum WDG	UAP	5.5 - 7.0	--
Pennant	Syngenta	6.0 - 7.5	--
Pennant Magnum	Syngenta	pH not a factor	--
Predict	Helena	pH not a factor	
Reward	Syngenta	pH not a factor	--
Roundup Pro Dry	Monsanto	5	pH range between 5.0 -- 7.0 is OK
Roundup Pro 41%	Monsanto	5	pH range between 5.0 -- 7.0 is OK
Scythe	Dow	6.5 - 7.5	--
Sureguard	Valent	pH not a factor	
Touchdown Pro	Syngenta	6.0 - 7.5	--

INSECTICIDES

Adept	Cromptons	5.0 - 9.0	Stable between 5--9
Akari	Sepro	5.5 - 6.5	Not critical, avoid high pH
Avid	Syngenta	6.0 - 7.0	--
Azatin	Olympic	3.0 - 7.0	--
Botanigard	Whitmire	3.0 - 7.8	
Cinnamite	Whitmire	not avail	
Citation	Syngenta	6.5 - 7.0	--
Closure	Scotts	5.0 - 8.0	Closure opt. Is below 8
Conserve	Dow	6.5 - 7.5	--
Decathlon	Olympic	3.0 - 7.0	--
Discus	Olympic	3.0-7.0	
Distance	Valent	5.5 - 6.5	pH should never drop below 5 or raise over 7
Duraguard ME	Whitmire	3.0 - 9.0	
Endeavor	Syngenta	7.0 - 9.0	Rapidly degrades at low pH
Enstar II	Lynx	pH not a factor	
Floramite	Cromptons	< 9.0	--

Hexygon DF	Gowan	5.0 - 9.0	--
Judo	Olympic	3.0-7.0	
Kelthane	Prosource One	5.0 - 7.0	--
M-pede	Dow	6.5 - 7.5	--
Marathon II	Olympic	3.0 - 7.0	--
Mavrik	Lynx	5.0 - 7.0	--
MesuroI 75 WP	Gowan	5.0 - 9.0	--
OHP Insecticidal Soap	Olympic	6.5 - 7.5	Calcium, magnesium and iron cause precipitate- pure water (low EC) is best
Ornazin	Sepro	5.5 - 6.5	Important to avoid high pH
Orthene	Valent	5.5 - 6.5	pH should never drop below 5 or raise over 7
Ovation SC	Scotts	5.0 - 8.0	--
Pedestal	Cromptons	< 9.0	--
Pylon	Olympic	3.0 - 7.0	--
Pyreth-it	Whitmire	3.0 - 8.0	
Sanmite 75% WSB	Scotts	5.0 - 8.0	--
Scimitar	Syngenta	7.0	--
Sunspray Ultrafine	Whitmire		
Synergy Oil	Brant	pH not a factor	Not pH dependant
Talstar GH	Whitmire	4.0 - 9.0	
Talstar N	Whitmire	4.0 - 9.0	
Talus	Sepro	5.5-6.5	
Tame	Valent	5.5 - 6.5	pH should never drop below 5 or raise over 7
Thiodan (Thionex) WP	FMC	7.0	Higher pH degrades product Lower pH will extend its half life
Thiodan (Thionex) EC	FMC	7.0	Higher pH degrades product Lower pH will extend its half life
Triact 70	Olympic	3.0 - 7.0	--
Tristar	Cleary's	5.0-9.0	