pH Stability Of Commonly Used Pesticides

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Water pH is a critical factor in the effectiveness of most insecticides. Since most insecticides are acid-formers, it is critical that your water pH be acid, optimum being between 5.0 and 6.0, to prevent chemical hydrolysis (breakdown). The best way to correct a high water pH is with a buffer because it will lock the pH in, and it will not fluctuate with changes in temperatures. pH can be measured using a swimming pool test kit, litmus paper or a pH meter. Use what will work best for you.

Water pH is affected by temperatures, sunlight, rainfall, drought and many other factors and is seldom the same from one spraying to the next. Thus, check water pH before each spray. There are several buffers on the market, and they are about equal. Use the one available to you. However, you should test the effectiveness of the buffer by using 1 to 2 ounces per 50 gallons of water, mix and recheck pH. Whatever is dissolved in your water will determine how much buffer you may need. The label may say 1 qt. and you may need less or occasionally more, so check each time and start with about 2 ounces/20 gallons of water and add 1 oz. at a time until the correct pH is reached. Too much of a buffer will cause the water to be to acid, and it can be phytotoxic to your plants. Buffers will help to enhance the initial knockdown of your spray and give you a better residual. This will, in the long term, reduce the number of sprays you make, reducing tolerance development of the pest, harm to the environment, effect on beneficial and save money while helping you to produce a good crop.

Insecticides / Miticides

Astro	Permethrin	pH 5-6 optimal
Avid	Abomectin	Stable pH 5-9
Bt	*Bacillus thuringiensis*	Optimal spray pH 4-8
	Malathion	Optimal pH 5-6
	Diazinon	pH 5-14 days, pH 7-70 days
Cyon	Dimethoate	pH 6-12 hrs, pH 9-48 minutes
DeltaGard	Deltamethrin	More stable in acidic conditions
Di-Syston	Disulfaton	Decomposes in alkaline conditions
Dursban	Chlorpyrifos	pH 7-35 days, pH 8-22 days
Dycarb.	Bendiocarb	Buffer pH 6.5-7.2
Fireban	Tefluthrin	Stable pH 5-7 > 30 days
Hexygon	Hexythiazox	Stable in acid or alkaline conditions
Joust	Chinomethionat	pH 7-80 hours, pH 9-225 minutes
Kelthane	Dicofal	pH 5 stable, pH 7-1/2 day
Lindane	Lindane	Avoid high pH
Mach 2	Halofenozide	Stable pH 5-9
Marathon	Imidacloprid	Stable pH 5-11
Margosan-O	Azadirachitin	pH 4.5 to 7.5 optimal
Mavrik	Fluvalinate	Buffer pH 5-7
Mesurol	Methiocarb	Stable at neutral pH
Metasystox-R	Oxydemeton-methyl	pH 6-12 hours, pH > 7 unstable
Ornamite	Propargite	pH 7-80 days
Orthene	Acephate	pH 5-7 optimal, pH 9-3 days
Pentac	Dienochlor	pH 6-7 optimal
Sevin	Carbaryl	pH 7-30 days, pH 8 2-3 days
Talstar	Bifenthrin	Stable pH 5-9
Tame	Fenpropathrin	Decomposes in alkaline solutions
Tempo	Cyfluthrin	Stable pH 5-9
Topcide	Lambda-Cyhalothrin	Buffer under alkaline conditions

Fungicides

Aliette	Fosetyl	pH5-5 days, pH 8-12 hours
Banner MANX	Propiconazole	Stable pH 5-9
Banol	Propamocarb	Stable to hydrolysis
Bayleton	Triadimefon	Stable over wide pH range
Captan	Captan	pH 7.1-8 hours, pH 10-2 minutes
Chipco 26019	Iprodione	pH 5-90 days
Cleary's 3336	Thiophanate-methyl	Stable over wide pH range, pH 6-8 optimal
Daconil	Chlorothalonil	Stable for 31 days at pH 9
Dithane T/O	Mancozeb	Decomposes under high acid or alkaline
Funginex	Triforine	Stable to pH 10
Kocide	Copper hydroxide	pH 6.5 optimum
Ornalin	Vinclozolin	Stable in acid medium
Pentathalon	Maneb	pH 5-9 < 4 hours
Prostar	Flutolanil	Stable pH 3-11
Rubigan	Fenaraimol	Stable over wide pH range
Sentinel	Cyproconazole	Stable from pH 1 to 9 for 35 days
Subdue	Metalaxyl	Stable pH 5-9
Systhane	Myclobutanil	Stable pH 5-9
Triforine	Triforine	Sable to pH 10
Truban	Etridiazole	Stable at pH 6
Zyban	Thio + Mancozeb	pH 4.5 to 7.5 optimal

Plant Growth Regulators

Atrimmec	Dikegulac Sodium	Unstable under acidic conditions
B-Nine	Daminozide	Do not use with alkaline materials
Bonzi	Paclobutrazol	Stable pH 4-9
Cutless	Flurprimidol	Stable pH 4-9
Cycocel	Chlormequat Chloride	pH 5-6 optimal
Florel	Ethephon	Stable pH 3, neutralized pH 7
Primo	Trinexapac	Unstable under alkaline conditions
ProGribb	Gribberallic Acid	Unstable under alkaline conditions
Royal Slo-Gro	Maleic Hydrazide	pH 5 to 7-58 days, pH 9-34 days

Herbicides

Acclaim Extra	Fenoxaprop-P-ethyl	Decomposes in alkaline conditions
Balan	Benefin	Stable at pH 5-9
Banvel	Dicamba	Stable at pH 5-6
Basagran T/O	Bentazone	Resistant to hydrolysis
Casoron	Dichlogenil	Hydrolysis rapid in strong alkaline
Crossbow	Triclopyr +2,4-D	pH 7-7.5 optimal
Fusilade	Fluazifop-butyl	Stable at neutral pH
Gallery	Isoxaben	pH 5-9 for optimal effectiveness
Goal	Oxyfluorfen	Stable at neutral pH
Illoxan	Diclofop-methyl	pH 7-31 days, pH 9-1/2 days
Image	Imazaquin	Stable at pH 5-9, pH 7 optimal
Manage	Halosulfuron-methyl	Optimum solubility at pH 7
Pendulum	Pendimethalin	pH 6-7 optimal
Pennant	Metalochlor	pH 2-10 > 200 days
Poast	Sethoxydim	pH 3-4 optimal
Predict	Norflurazon	pH 6-7 optimal
Princep	Simazine	Decomposes slowly under alkaline conditions
Progress	Ethofumesate	Stable to hydrolysis
Reward	Diquat	Decomposes in alkaline conditions
Ronstar	Oxadiazon	Stable in acidic or neutral medium
RoundUp	Glyphosate	Adjust pH 7, pH 3.5-6 optimal
Starfire	Paraquat	Unstable under alkaline conditions
Stinger	Clopyralid	pH 7-7.5 optimal
Surflan	Oryzalin	pH 5-9 optimal
Treflan	Trifluralin	pH 5-9 optimal
Turflon Ester	Triclopyr	Resistant to hydrolysis
Vantage	Sethoxydim	ph 8.7-5.5 days