

Adjuvant Use Guide

Herbicides

	Adjuvant	Use Rate
2,4-D	Transport Ultra™	1-2 quarts/100 gallons
Acclaim®	Pen-A-Trate II™	2 pints/100 gallons
Barricade® 4L	Speed™	12 ounces/100 gallons
Blade™	Microyl™	3-4 pints/100 gallons
Certainty®	Microyl	3-4 pints/100 gallons
Chipco® Ronstar®	Speed	12 ounces/100 gallons
Confront®	Transport Ultra	1-2 quarts/100 gallons
Corsair™	Pen-A-Trate II	2 pints/100 gallons
Crossbow®	Transport Ultra	1-2 quarts/100 gallons
Dimension®	Pen-A-Trate II	2 pints/100 gallons
Direx® 4L	Pen-A-Trate II (pre-plant only)	2 pints/100 gallons
Drive®	Microyl	3-4 pints/100 gallons
Finale®	Transport Ultra	1-2 quarts/100 gallons
Fusilade®	Pen-A-Trate II	2 pints/100 gallons
Gallery®	Pen-A-Trate II	2 pints/100 gallons
Garlon®	Pen-A-Trate II	2 pints/100 gallons
Glyphosate	Transport Ultra	1-2 quarts/100 gallons
Goal®	Microyl	3-4 pints/100 gallons
Illoxan®	Pen-A-Trate II	2 pints/100 gallons
Image®	Microyl	3-4 pints/100 gallons
Karmex®	Pen-A-Trate II (see label)	2 pints/100 gallons
Kerb®	Speed	12 ounces/100 gallons
Lontrel®	Delux™	3-5 quarts/100 gallons
Manor®	Pen-A-Trate II	2 pints/100 gallons
Monument™	Microyl	3-4 pints/100 gallons
MSMA	Delux	3-5 quarts/100 gallons
Pendulum® Aquacap™	Speed	See rates below
Power Zone®	not recommended	
Q4®	Transport Ultra	1-2 quarts/100 gallons
Quicksilver™	Pen-A-Trate II	2 pints/100 gallons
Remedy®	Pen-A-Trate II	2 pints/100 gallons
Revolver™	Microyl	3-4 pints/100 gallons
Reward	Pen-A-Trate II	2 pints/100 gallons
Ronstar® Flo	Speed	12 ounces/100 gallons
Scythe®	Pen-A-Trate II	2 pints/100 gallons
Sedgehammer®	Microyl	3-4 pints/100 gallons
Sencor®	Speed	12 ounces/100 gallons
Simazine	Speed	12 ounces/100 gallons
Speed Zone®	Microyl	3-4 pints/100 gallons
Surge®	Transport Ultra	1-2 quarts/100 gallons
Surflan	Speed	12 ounces/100 gallons
Tranxit®	Microyl	3-4 pints/100 gallons
Trimec®	Transport Ultra	1-2 quarts/100 gallons

Fungicides

	Adjuvant	Use Rate
Aliette®	SYNC®	1 pint/100 gallons
Banner Maxx®	SYNC	1 pint/100 gallons
Banol®	SYNC	12 ounces/100 gallons
Bayleton®	SYNC	1 pint/100 gallons
Chipco® GT	SYNC	1 pint/100 gallons
chlorothalonil	SYNC	1 pint/100 gallons
Cleary's 3336™	Chem-Stik™	8 ounces/100 gallons
Concert®	SYNC	1 pint/100 gallons
Disarm® C	SYNC	1 pint/100 gallons
Dovetail®	SYNC	1 pint/100 gallons
Emerald®	SYNC	1 pint/100 gallons
Endorse®	Speed	12 ounces/100 gallons
Fore®	Chem-Stik	8 ounces/100 gallons
Heritage®	SYNC	1 pint/100 gallons
Insignia®	SYNC	1 pint/100 gallons
Instrata™	SYNC	1 pint/100 gallons
Junction™	New Balance™	refer to label
Kaligreen®	Chem-Stik™	8 ounces/100 gallons
Kestrel & Kestrel MEX®	SYNC	1 pint/100 gallons
Kocide® 4.5 LF	Chem-Stik	8 ounces/100 gallons
Pentathion® LF	Chem-Stik	8 ounces/100 gallons
Prostar®	Speed	See rates below
Renown™	SYNC	1 pint/100 gallons
Raven®	SYNC	1 pint/100 gallons
Rubigan™	SYNC	1 pint/100 gallons
Stellar®	SYNC	1 pint/100 gallons
Chipco® Subdue Maxx™	Speed	12 ounces/100 gallons
Triton™	SYNC	1 pint/100 gallons
Trinity™	SYNC	1 pint/100 gallons
thiophanate-methyl	Speed	See rates below
thiophanate-methyl	SYNC	1 pint/100 gallons
Tourney™	SYNC	1 pint/100 gallons
Zeroto™	Speed	8-16 ounces/100 gallons
Zyban® WSB	SYNC	1 pint/100 gallons

Insecticides

	Adjuvant	Use Rate
Acelepryn™	Speed	8 ounces/100 gallons
Aerena™	Speed	8 ounces/100 gallons
Aloft®	Speed	8 ounces/100 gallons
Allectus®	Speed or Chem-Stik	See rates below
Avid®	Speed or Chem-Stik	See rates below
Azadiractin	none recommended	
Conserve®	Speed or Chem-Stik	See rates below
Discus™	Chem-Stik	8 ounces/100 gallons
DeltaGard®	Speed or Chem-Stik	See rates below
Dursban®	Speed or Chem-Stik	See rates below
Meridian™	Speed	8 ounces/100 gallons
Merit 75 WP®	Speed or Chem-Stik	See rates below
M-Pede®	See pesticide label	
Permethrin	See pesticide label	
Provaunt®	Speed or Chem-Stik	See rates below

Use the following rates with Chem-Stik or Speed for delivering spray solution to the appropriate target areas:

- 8 ounces of Chem-Stik / 100 gallons for foliar feeding pests
- 8 ounces of Speed / 100 gallons for thatch or crown feeding pests
- 8 ounces of Speed / 100 gallons for sub-surface pests

Always read and follow label directions.

GUIDELINES TO ADJUSTING pH LEVELS

Adjusting / buffering the pH level of spray solutions can significantly increase the performance of certain pesticides by reducing alkaline hydrolysis which causes the accelerated breakdown of their active ingredients. Below is a guideline for determining the optimal pH.

Pesticide Brand Name	Generic Product Name	Optimum pH	Needs Buffer	Half-Life at Various pH Levels				
				← Alkaline →	Neutral	← Acidic →		
				9.0	8.0	7.0	6.0	5.0
FUNGICIDES								
BANNER MAXX®	PROPICONAZOLE		NO	Stable pH 5.0 - 9.0				
BANOL®	PROPAMOCARB		NO	Stable over wide pH range				
BAYLETON®	TRIADIMEFON	7	NO	Stable over wide pH range				
BENLATE	BENOMYL	5	YES		1 hr	7 hr	80 hr	
CAPTAN	CAPTAN	5.0 - 7.0	NO					
CHIPCO GT®	IPRODIONE	7	NO	Rapid hydrolysis at pH above 8.0				
CHIPCO® SIGNATURE™	FOSETYL-AL	6	NO	Stable at pH 4.0 to 8.0				
CLEARY 3336™	THIOPHANATE-METHYL	6.0-7.0	YES	Buffer to a pH of 6.0 to 7.0 prior to addition of 3336				
COMPASS™	TRIFLOXYSTROBIN		NO	Stable over wide pH range				
DACONIL®	CHLOROTHALONIL	7	NO	Stable over wide pH range				
DITHANE WF	MANCOZEB	7	NO	Optimum pH range 5.5 - 6.0				
EAGLE WSP	MYCLOBUTANIL		NO	Stable over wide pH range				
EMERALD®	BOSCALID		NO	Stable over wide pH range				
ENDORSE™	POLYOXIN D & MANCOZEB		NO	Stable over wide pH range				
FORE SC RAINSHIELD	MANCOZEB	7	NO	Optimum pH range 5.5 - 6.0				
HERITAGE®	AZOXYSTROBIN		NO	Stable over wide pH range				
INSIGNIA®	PYRACLOSTROBIN		NO	Stable over wide pH range				
JUNCTION®	COPPER HYDROXIDE & MANCOZEB	5	YES	Optimum pH range 4.0-7.0				
KOCIDE	COPPER HYDROXIDE	6.5	NO					
PROSTAR®	FLUTOLANIL	7	NO	Stable pH 3.0 - 11.0				
RUBIGAN	FENARIMOL	7	NO	Decompose in acidic solutions				
SPECTRO™ 90	CHLOROTHALONIL, THIOPHANATE-METHYL	6.0-7.0	YES	Buffer to a pH of 6.0 to 7.0 prior to addition of 3336				
SUBDUE MAXX®	METALAXYL	5.0-9.0	YES	Buffer to a pH of less than 7.5				
TERRAZOLE®	ETRIDIAZOLE		NO	Stable over wide pH range				
HERBICIDES								
ACCLAIM® EXTRA	FENOXAPROP-P-ETHYL		YES	Unstable in acidic conditions				
BALAN	BENEFIN		NO	Stable at pH 5.0-9.0				
BANVEL	DICAMBA	5.0-6.0	YES					
BARRICADE®	PRODIAMINE		NO	Stable over wide pH range				
BASAGRAN T&O®	BENTAZONE	8.0-9.0	NO	Resistant to hydrolysis				
CHIPCO® RONSTAR™	OXADIAZON		NO	Stable over wide pH range				
CONFRONT	TRCLOPYR, CLOPYRALID		NO	Stable over wide pH range				
CORSAIR™	CHLORSULFURON	>7.0	YES	Corsair is more stable in high pH. Avoid application in low pH.				
DIMENSION	DITHIOPYR		NO	Stable over wide pH range				
DRIVE®	DICHLORO QUINOLINECARBOXYLIC ACID		NO	Stable over wide pH range				
ENVOY®	CLETHODIM	5.5-6.5	YES	pH should be >5.0 and <7.0				
FINALE®	GLUFOSINATE-AMMONIUM	4.0-8.0	NO	Stable over wide pH range				
FUSILADE®	FLUAZIFOP-P-BUTYL	7	NO					
GALLERY	ISOXABEN		NO	Optimum pH range 5.0-9.0				
GLYPHOSATE	GLYPHOSATE		NO	Stable over wide pH range				
ILLOXAN®	DICLOFOP-METHYL		NO	Stable over wide pH range				
IMAGE®	IMAZAQUIN	7	NO	Stable over pH range 5.0-9.0				
KERB	PRONAMIDE		NO	Stable over wide pH range				
LONTREL	CLOPYRALID		NO	Stable over wide pH range				
MANAGE®	HALOSULFURON-METHYL	7	NO	Optimum pH range 5.0-7.0				
MANOR™	METSULFURON METHYL METHYL BENZOATE	>7.0	YES	May degrade in 24 hours in acid solutions				
MONUMENT™	TRIFLOXY SULFURON-SODIUM	7	YES	If pH is less than 5.5, add a buffer to raise pH to 7.0				
PENDULUM®	PENDIMETHALIN		NO	Stable over wide pH range				
PENNANT MAGNUM®	METOLACHLOR	6.0-7.5	NO	Stable over wide pH range				
REVOLVER™	FORAMSULFURON	7	YES	If pH is less than 6.0, add a buffer				
REWARD® DIQUAT			NO	Stable over wide pH range				
RONSTAR®	OXADIAZON	<7.0	YES	Stable in acid or neutral solutions				
INSECTICIDES								
ASTRO®	PERMETHRIN	5.5	YES	Optimal pH range 5.0-6.0				
AVID®	ABAMECTIN	6.5	NO	Stable pH range 5.0-9.0				
DELTAGARD®	DELTAMETHRIN		NO	Most stable at pH < 7.0				
DURSBAN	CHLORPYRIFOS	7	NO	1.5 days	35 days			
DYLOX®	TRICHLORFON	5	YES	63 min.	6.5 hours	3.7 days		
ENDEAVOR™	PYMETOZINE	>7.0	YES	Degrades at low pH				
MACH 2	HALOFENOZIDE		NO	Stable over wide pH range				
MALATHION	MALATHION	5	YES	5 hours	19 hours	3 days	8 days	
MERIT®	IMIDACLOPRID		NO	Stable over wide pH range				
ORTHENE®	ACEPHATE	7	NO	16 days	46 days	40 days		
SCIMITAR®	LAMBDA-CYHALOTHRIN	5.0-7.0	YES	Adjust pH to level between 5.0-7.0				
SEVIN®	CARBARYL	7	YES	24 hours	2.5 days	24 days	100 days	
TALSTAR®	BENFENTHRIN		NO	Stable over pH range 5.0-9.0				
TEMPO®	CYFLUTHRIN		NO	Stable over pH range 5.0-9.0				
PLANT GROWTH REGULATORS								
B-NINE®	DEMINOZIDE	<7	YES	Do not use with alkaline materials				
BONZI®	PACLOBUTRAZOL		NO	Stable pH 4.0-9.0				
CUTLESS	FLURPRIMIDOL		NO	Stable over wide pH range				
EMBARK	MEFLUIDIDE	6.5	NO					
PRIMO MAXX™	TRINEXAPAC-ETHYL	<7.0	YES	Best performance in acidic solutions				



Adjuvants

Chem-Stik™ - Nonionic Spreader Sticker

Highly concentrated and uniquely formulated for efficacy and easy handling and clean up. Excellent for contact fungicides and insecticides that require leaf surface retention.

Delux™ - Surfactant plus Ammonium Sulfate Adjuvant

A biodegradable activator surfactant and ammonium sulfate premix formulated to enhance the performance of certain post-emergence herbicides.

Microyl™ - Activator Adjuvant

A unique non-ionic paraffin based MSO replacement that provides superior performance and improved turfgrass safety at low-use rates.

New Balance™ - pH Buffer and Nonionic Surfactant

A surfactant and buffer combination that effectively lowers spray solution pH and improves leaf surface coverage.

Pen-A-Trate II™ - Premium Nonionic Surfactant

Formulated for use with conventional and new-generation low-use rate pesticides, to ensure superior wetting and spreading for excellent weed control.

Persist® Ultra - Methylated Seed Oil

Formulated to optimize pesticide performance and mixing characteristics with a wider range of tank mix partners than ordinary methylated seed oils or crop oils.

Speed™ - Nonionic Siloxane Surfactant

Utilizes Silquick™ wicking action to move spray solution up and down the plant for superior coverage of targeted pests.

SYNC® - Fungicide Activator

A unique, proprietary adjuvant technology proven to enhance the performance of both contact and systemic fungicides, and to lengthen disease control at reduced water volume on a wide variety of turf diseases.

Transport Ultra™ - Water Conditioning NIS

Combination of nonionic surfactant, water conditioning agents and ammonium ions replaces the need for ammonium sulfate with weak acid herbicides such as glyphosate, dicamba and phenoxies.

Distributed by: