KALO

Agricultural Product Guide

AUG 2026

LOOK TO KALO FOR SOLUTIONS

KALO serves seed care professionals, agricultural growers and turf managers by providing solutions to challenges that custom applicators, growers, and turf managers face with the utilization of plant protection products.

KALO supplies customers with a complete line of adjuvant and specialty products that cover a broad range of uses.

We provide innovative technical support encompassing formulation development, packaging, label design, shipping and order fulfillment operations.

Est. 1932

Since 1932, KALO has believed that a scientific approach delivers results. We are committed to providing our customers crop protection solutions that work.

The information used in this product guide is thought to be reliable. Consult plant control and adjuvant product labels to confirm use recommendations.

ALWAYS READ AND FOLLOW ALL DIRECTIONS ON THE PRODUCT LABEL AND THE LABEL OF THE PESTICIDE BEING USED.

CONTENTS

Select the Proper Adjuvant....4
Conversion Tables....5
About Agricultural Adjuvants....6
It's All About the Water....8
Determining Spray Water Quality....9
Understanding Spray Water pH....10
Understanding Water Hardness....12
How AMS Prevents Antagonism....13
Tips for Tank Mixing Success....14
Cropping Systems....15

LIQUID ADJUVANTS
90% Nonionic Surfactant....17
AeroStar....18
AMS/NIS....19
Avant Xtra....20
Bio-90....21
Bio-Film Extra....22
Boast....23
Bracer....24
Cadence....25
Capstar....26
CenterPoint....27
Channel....28
Citrix....29
Clarion....30
Concord....31
Crop Oil Concentrate....32
Cruzado....33
Drift-X....34
Eco-Shield....35
Hi-Surf COC....36
Hi-Surf MSO....37
K-Surf....38
Leeway II....39
Leeway Ultra....40
Mainstay....41
Maxway II....42
Methylated Seed Oil....43
Pure & Simple 90%....44
Pure & Simple Crop Oil....45
Pure & Simple NIS....46
Recoil....47
Regulaid....48
Restore....49
Spectra AMS....50
Spectra Max Tank Mix....51
Spray-Tek....52
Threshold....53
Tronic....54

DRY ADJUVANTS
Check-Point....55
Fraction....56
One-Ap XL....57
Raze....58
Spray-Start....59
Summit....60

SOIL ADJUVANTS
Rain-Check....61
Rainstorm....62
Variant....63
Water-Rite....64
Water-Rite FC....65

MANUFACTURING CONCENTRATE
Spectra Max Tech....66-67

ANTIFOAMING AGENT
Eliminating & Preventing Foam....68
Anti-Foam....69

FOAM MARKING AGENTS
Benchmark....70
Benchmark HT....71

COMPATIBILITY AGENT
Testing for Product Compatibility....72
Compex Extra....73

TANK CLEANERS
K-Klean....74
Tank Cleaner....75

SOYBEAN INOCULANTS
About Inoculants....76
Legacy....78
RhizoPro....81
Vigor....82

Terminology....84

Product registrations, certifications and approvals are indicated on each product page.

SELECT THE PROPER ADJUVANT

Adjuvants can greatly increase the effectiveness of your sprays, but no single adjuvant can perform across the board for all crops and all pesticides. Use this chart to select the KALO adjuvant that is right for your needs.

CATEGORY	INGREDIENTS	KALO PRODUCTS			
ACIDIFYING ADJUVANTS	Citric Amine Alkoxylates Phosphates	• Capstar • Cruzado	• Fraction • Leeway Ultra	• Restore	
ACTIVATOR OIL REPLACEMENTS	Ethoxylated Seed Oils	• Avant Xtra	• Boast	• Recoil	• Tronic
DRIFT SUPPRESSING & DEPOSITION ENHANCING	Oil Ethoxylates Methylated Seed Oils Polyacrylamide Polymers Alpha-Beta Pinene Polymers	• AeroStar • Avant Xtra • Boast • Capstar • CenterPoint • Check-Point	• Concord • Drift-X • Eco-Shield • Leeway II • Mainstay	• Maxway II • One-Ap XL • Spectra AMS • Spectra Max Tank Mix	• Spectra Max Tech • Spray-Start • Summit • Threshold
INOCULANTS	Inoculants for Soybeans	• Legacy	• RhizoPro	• Vigor	
NONIONIC ACTIVATORS	NPE & Alcohol Ethoxylates	• Bio-90 • Citrix	• K-Surf	• Pure & Simple 90%	• Pure & Simple NIS
OIL ACTIVATORS	Paraffinic Oil & Emulsifier Surfactant Blends	• Channel	• Crop Oil Concentrate	• Eco-Shield • Hi-Surf COC	• Pure & Simple Crop Oil
	MSO & Emulsifier Surfactant Blend	• Bracer	• CenterPoint	• Hi-Surf MSO	• Methylated Seed Oil
ORGANOSILICONE NIS BLENDS	NPE & Organo-Modified NIS Blend	• Cadence			
PENETRANTS	Oil & Water-Soluble Nonionic Blends	• AeroStar • Avant Xtra	• Boast • Bracer	• Leeway Ultra	
QUANTUM TECHNOLOGY	Soybean Oil Ethoxylates	• Avant Xtra • Boast	• CenterPoint • Recoil	• Tronic • Variant	
SOIL SURFACTANTS	Soil Surfactants	• Rain-Check • Rainstorm	• Variant	• Water-Rite • Water-Rite FC	
SPREADER-STICKERS	Polymerized Resins	• Bio-Film Extra	• Channel	• Eco-Shield	• Mainstay
UTILITY SPECIALTY PRODUCTS	NPE Free Nonionic Surfactants	• Rain-Check • Rainstorm	• Regulaid	• Tronic • Variant	• Water-Rite • Water-Rite FC
VOLATILITY REDUCING	Alkalai Metal Salts of Carboxylic Acid	• Maxway II			
WATER CONDITIONING – AMS & NON-AMS	AMS Citric Acid Phosphate Ester Mono Carbamide Di-hydrogen Sulfate Trisodium Citrate	• AMS/NIS • Capstar • Check-Point • Cruzado • Fraction	• Maxway II • One-Ap XL • Raze • Restore • Spectra AMS	• Spectra Max Tank Mix • Spectra Max Tech	• Spray-Start • Spray-Tek • Summit
PLANT-DERIVED ACTIVATOR DEPO AID FOLIAR RETENTION SOIL RETENTION* *Channel Only*	Modified Hydroxypropyl Starch APE/NPE Free	• Channel	• Eco-Shield		
SOIL RETENTION	Starch Synthetic	• Avant Xtra	• Channel	• Variant	
ADJUVANT BLENDED WITH BIOLOGICALS	AMS Citric Acid Consortium of Microbials	•Raze *Raze is a dry water conditioner with microbials for accelerating crop residue breakdown.*			

CONVERSION TABLES

How to Calculate Liquid Nutrients

Formula Examples:

Nutrients per gallon of product

Weight per gallon × % nutrient = lbs. nutrient 18-3-6

10.33 lbs. per gal. × 18% nitrogen = 1.9 lbs. nitrogen per gallon

1.9 lbs. nitrogen per gal. ÷ 128 oz. = 0.0148 lbs. nitrogen per ounce

Liquid Conversions

gals	qts	pts	ozs	cups	tbl	tsp	mls	ltrs
1	4	8	128	16	256	768	3,480	3.785
	1	2	32	4	64	192	960	0.946
		1	16	2	32	96	480	0.473
			1	1/8	2	6	30	0.030
				1	16	48	240	0.240
					1	3	15	0.015
						1	5	0.005

Parts Per Million

One part per million is one pound in a million pounds. 120,000 gallons of water equals 1,000,000 pounds (constant). To calculate ppm use this formula:

$$\frac{\text{Pounds of Ingredients Used} \times 120{,}000}{\text{Gallons of Water Treated}} = \text{ppm}$$

Area

1 sq. foot = 144 sq. inches
1 sq. yard = 9 sq. feet
1 sq. meter = 10.76 sq. feet
1 sq. meter = 1.20 sq. yards
1 sq. mile = 2.59 sq. kilometers
1 sq. mile = 640 acres
1 sq. mile = 259 hectares
1 sq. kilometer = 0.386 sq. miles
1 sq. kilometer = 247.10 acres
1 sq. kilometer = 100 hectares
1 acre = 43,560 sq. feet
1 acre = 4,840 sq. yards
1 hectare = 2.47 acres

Dry Weight Measure

1 gram = 0.035 ounces
1/2 ounce = 14.17 grams
1 ounce = 28.35 grams
3 ounces = 85.05 grams
3.75 ounces = 106.31 grams
4 ounces = 113.4 grams
8 ounces = 226.8 grams
12 ounces = 340.19 grams
16 ounces = 453.6 grams
0.5 pounds = 226.8 grams
1 pound = 453.6 grams
1 kilogram = 2.20 pounds

About Agricultural Adjuvants

Agricultural spray adjuvants have been known in various sections of the world as wetting agents, spreaders, stickers, or surfactants. The dictionary defines "adjuvant" as a "substance added to a prescription to aid the operation of the main ingredient."

SURFACTANTS IMPROVE PERFORMANCE

A spray adjuvant performs the function of improving the safety and effectiveness of an agricultural chemical application. It has been discovered that significant improvement in the performance of many foliage applied herbicides is possible when certain surfactants are included in the spray solution, firmly establishing at least one role of the agricultural spray adjuvant in improving the efficiency of agricultural chemicals.

The proper use of spray adjuvants can contribute substantially to safer and more effective pest control, and understanding their many properties and functions is important to their proper use. Although a single adjuvant may provide more than one of the properties, no single adjuvant can provide them all. As a result, there are a variety of spray adjuvants available which have been formulated to encompass those functions which are important to a particular type of application.

THE DIFFERENT FUNCTIONS OF ADJUVANTS

- **Wetting of foliage and/or pest.** Adequate wetting is required to provide good retention and coverage of the spray solution. A suitable adjuvant, at the proper concentration, will provide improved wetting of the plant or pest surface.
- **Modifies the rate of evaporation of spray.** The need for reducing the rate of evaporation of a spray solution applied at 2 to 3 gallons per acre in a hot dry area is obvious. The need, however, may be equally great in the application of a concentrate spray in an orchard. Once the spray has been applied, it may be desirable to have the spray dry as rapidly as possible. Both functions can be performed by a proper adjuvant.
- **Improves weatherability of spray deposit.** Resistance to heavy dews, rainfall, and sprinkler irrigation can mean the difference between successful control and failure of an application. The proper adjuvant can greatly improve the weatherability of the spray deposit under these conditions.

- **Enhances penetration & translocation.** Many chemicals perform most effectively when they have been absorbed by the plant and transported to areas other than the point of entry. "Systemic" pesticides have this ability. Their absorption can be enhanced and certain non-systemic chemicals can be made to penetrate plant cuticles through the use of a suitable adjuvant.
- **Adjusts pH of spray solution and deposit.** Many pesticides (primarily organic phosphates and some carbamates) degrade rapidly under even mildly alkaline conditions found in some natural waters and on certain leaf surfaces. Buffering adjuvants can prolong the effective life of alkaline sensitive chemicals under these conditions.
- **Improves uniformity of deposit.** It is well accepted that, with non-systemic pesticides, the quality of performance of a pesticide can be no better than the quality of the spray deposit. This is particularly true of most fungicides which require complete and uniform coverage. The proper adjuvants can provide this kind of coverage.
- **Compatibility of mixtures.** With the savings in labor costs to be obtained from doing more than one job with a single application, the effort is made frequently to mix various combinations of pesticides, and pesticides with liquid fertilizers, in the same spray tank for simultaneous application. The resulting compatibility problems can frequently be corrected with the proper adjuvant.
- **Safety to crop.** Phytotoxic chemicals can harm the crop which we are trying to protect. The hazard can be increased through the use of the wrong adjuvant or substantially reduced through the choice of a proper one.
- **Drift reduction.** The use of special viscosity building or droplet altering adjuvants applied through nozzles, often from conventional aerial or ground equipment, is one of the most promising approaches to drift reduction.

It's All About the Water!

97% of the world's water is contained in salt-water bodies, and another 2% is frozen in the polar ice caps, leaving only 1% of the world's fresh water supply available for domestic, industrial and agricultural uses. Water sustains our lives, fuels our environment, and is clearly one of our most precious natural resources.

WATER PLAYS A VITAL ROLE

Spray solutions commonly contain 95% water or more. Water is the most common liquid used to dilute plant protection products and deliver them to the target pests that they are intended to control, yet we often fail to consider and understand water quality and what it can do to impact the performance of plant protection products.

In the business of crop and plant protection, water is the engine that drives the delivery systems of nutrients and plant protection inputs. Without water, it would be impossible to efficiently apply protecting sprays and deliver nutrients that dramatically contribute to our industry's ability to meet the growing demands of our hungry world.

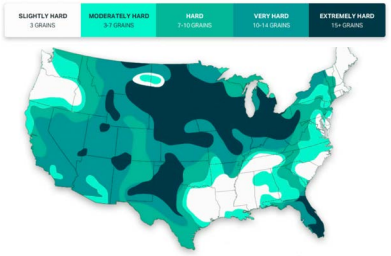
WATER QUALITY MATTERS

A typical spray droplet is 98% water or more, and yet we often fail to consider and understand the quality of water being used in our spray operations. By the time an EPA registered plant protection product reaches the market, the manufacturer of that product has invested millions of dollars and as many as 10 years of resources in development and commercialization. Even so, the most diligent and advanced development of new plant protection technology can all be for not if the water used in the spray operation is not of good quality and suitability for the application.

With years of R&D and substantial costs going into the development of plant protection products, performance can be dramatically altered if the water used in the spray operation is not of good quality and suitability for applications. Two water quality variables can quickly impact the activity of many plant protection products; water hardness or dissolved minerals, and water pH (acidity & alkalinity).

WATER HARDNESS MAP

Water quality parameters such as pH and hardness varies drastically around the country.



Determining Spray Water Quality

A significant challenge in managing spray water quality is that many of the negative factors associated with poor quality water cannot be seen. While an observant operator can easily detect impurities such as dirt and grime or other insoluble materials, factors like pH and the presence of hard water minerals cannot be visually observed.

Water quality varies from season to season and source to source. Even water sources managed under the operation of public utilities can vary in pH and hardness throughout the season. Managing spray water quality first requires determination of water quality and then utilizing technology to manage the spray operation.

Adjuvants are products added to the spray tank for the purpose of modifying and enhancing the spray solution. Spray water quality can be managed with the use of spray adjuvants to adjust pH and mitigate the antagonism of hard water minerals. Spray adjuvants that reduce the pH of spray solution are called acidifiers; others that adjust and hold spray pH to a desired level are called spray buffers.

Many different types of adjuvant products are available for managing spray pH and hard water minerals, these adjuvant products are generally called spray conditioners. Spray conditioners perform by offering hard water calcium, magnesium, and iron; a more attractive connective site in the spray tank solution than the pesticide being mixed and sprayed

Water conditioning adjuvants do not remove the hard water minerals from the spray solution, but rather tie them up to prevent and mitigate pesticide antagonism.

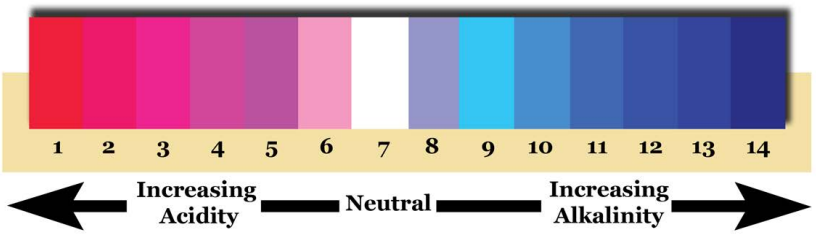
WATER HARDNESS

Almost all natural water sources contain some level of naturally occurring minerals. The minerals and other impurities in water impact spray water pH and overall spray water quality. Generally, the higher levels of mineral make the water harder, reducing spray water quality.

Hard water sources contain higher levels of minerals such as calcium, magnesium, and iron. These minerals impact performance by interacting with the plant protection products antagonizing the ability of the pesticide to perform. Hard water can cause some chemicals to precipitate or fall out of solution. Hard water can also affect the balance of the surfactant system and affect properties such as wetting, emulsification and dispersion.

Understanding Spray Water pH

It is important to have a general understanding of the spray water's pH and the sensitivity of pesticides to it. pH is a measure of water alkalinity represented on a logarithmic scale of 1 to 14. Water with pH greater than 7.0 is considered alkaline while water less than 7.0 pH is described as acidic.

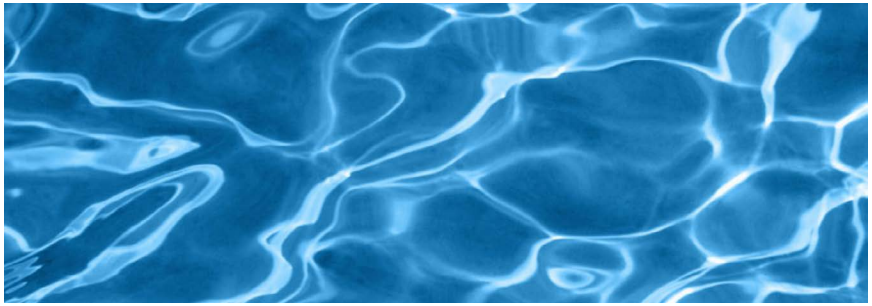


ALKALINE HYDROLYSIS / ACID HYDROLYSIS

Some pesticides, including insecticides, fungicides, growth regulators and miticides can degrade chemically when subjected to a high pH through a process called alkaline hydrolysis. Both alkaline hydrolysis and acid hydrolysis reduce the effectiveness of the pesticide.

The pesticide label will indicate the desired pH range of water in the spray tank. A pH of 5.0 to 6.5 (slightly acidic) is optimum for most spray applications.

The use of a water test kit can measure the pH of water.



IMPACT OF SPRAY pH ON PESTICIDE PERFORMANCE

A spray solution's pH plays an important role. The solution's pH determines how much of the pesticide will go into solution (solubility) and how quickly the pesticide will degrade or breakdown once dissolved.

Each pesticide molecule has a pH range that is optimal for its solubility and chemical stability in water. A pesticide's half-life describes how long it takes for half of a pesticide to be destroyed or degraded. Changes in pH can make a pesticide's half-life range from minutes to months.

For example, some carbamate insecticide have a half-life of 10 minutes in alkaline solutions. And sulfonylurea herbicides are far more soluble in solutions that are more alkaline.

Pesticide breakdown can be measured in terms of half-life. For example, if a pesticide is 100% effective when first added to a spray solution and has a half-life of 30 minutes, the effectiveness of that particular pesticide is cut in half every 30 minutes.

The chart below provides examples of pesticide half-life and the impact of spray pH on the performance of these pesticides.

PESTICIDE	pH 9	pH 7	pH 5
Betamix (herbicide)	10 min	17 hrs	60 days
Captan (fungicide)	2 min	3 hrs	10 hrs
Carzol (insecticide)	3 hrs	14 hrs	--
Dithane (fungicide)	4 hrs	17 hrs	20 days
Furadan (insecticide)	78 hrs	40 days	--
Guthion (insecticide)	12 hrs	--	60 hrs
Kelthane (miticide)	1 hr	5 days	20 days
Orthene (insecticide)	3 days	17 days	--
Sevin (insecticide)	24 hrs	10 days	--

Understanding Water Hardness

Almost all natural water sources contain some level of naturally occurring minerals. The minerals and other impurities in water impact spray water pH and overall spray water quality. Generally, the higher levels of mineral make the water harder, reducing spray water quality.

MINERALS IMPACT SPRAY PERFORMANCE

Water hardness is associated with increased levels of solubilized minerals contained in spray water. Calcium, magnesium, and iron are each considered "hard water" minerals that can have negative impact on spray performance. These minerals impact performance by interacting with the plant protection products antagonizing the ability of the pesticide to perform.

Hard water can cause some chemicals to precipitate or fall out of solution. Hard water can also affect the balance of the surfactant system and affect properties such as wetting, emulsification and dispersion.

HARD WATER MINERALS ANTAGONIZE HERBICIDE PERFORMANCE

Photo Courtesy of Corteva®

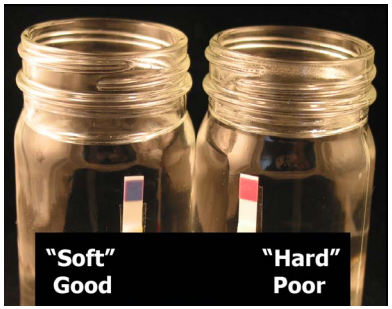
No Herbicide Applied | Good Water Glyphosate Applied | Hard Water Glyphosate Applied

OPPOSITES ATTRACT

Glyphosate is antagonized by hard water minerals when cationic (positively charged) calcium, magnesium, and iron minerals in hard water seek out and attract anionic (negatively charged) glyphosate herbicide mixed into spray solution. This antagonistic connection is made immediately when glyphosate herbicide is mixed into "hard water" spray solution, rendering the resulting spray mixture less effective.

MEASURING WATER HARDNESS

Water hardness is measured in parts per million (ppm) or grains per gallon (gpg). A gpg is equivalent to 17.1 ppm. Water is considered hard when it measures 250 ppm or 14.6 gpg. Soft water contains less then 50 ppm (3 gpg) of calcium carbonate.



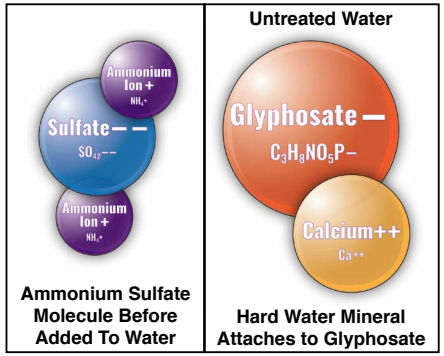
Although both of these water samples appear to be the same and of high quality, the sample on the right is substantially lower in quality with 200 ppm of water hardness compared to the soft water sample on the left.

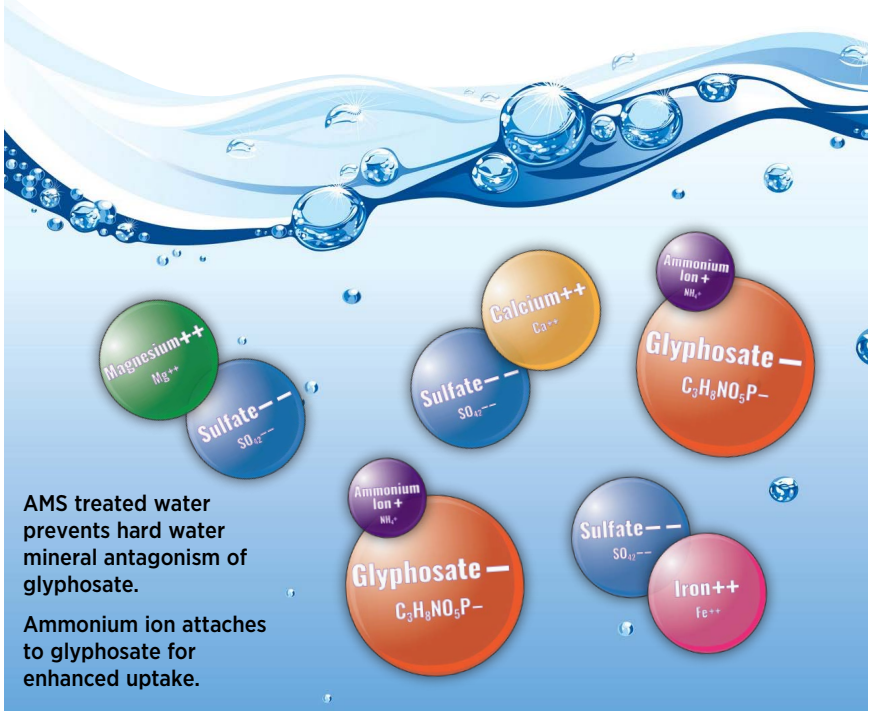
How Ammonium Sulfate Treated Water Prevents Hard Water Antagonism

Ammonium sulfate disrupts hard water antagonism of herbicides, fungicides and insecticides and conditions spray water in two ways:

First: The weakly bonded ammonium ion disassociates from the sulfate, leaving the double-negative sulfate wide open for attraction to the double-positive hard water minerals; such as calcium, magnesium, and iron.

Second: The disassociated single-positive ammonium ion is attracted to the single-negative glyphosate molecule, becoming more readily accessible to targeted plant.





Tips for Tank Mixing Success

Proper mixing of crop protection products is critical to ensure the products are applied uniformly. Mixing can sometimes make the difference between acceptable and unacceptable performance.

WALES is an acronym for tank mixing order of liquid products:
Wettables - **A**gitate - **L**iquids - **E**Cs - **S**urfactants

DALES is an acronym for tank mixing order of dry products:
Dry - **A**gitate - **L**iquids - **E**Cs - **S**urfactants

These acronyms have been around for some time and have served the industry well over the years.

TANK MIXING SEQUENCE

Unless otherwise specified by directions on the pesticide manufacturer's label, the following tank mix sequence more accurately addresses newer formulations.

1. Water. Fill the spray tank 1/3 to 1/2 full with clean water and start the agitation.
2. Water-soluble bags (WSB) • Water-soluble granules (SG) • Water-dispersable granules (WG, XP, DG)
   Some product labels will require pre-slurry.
3. Wettable powders (WP)
4. Water-based suspension concentrates (SC) • Water-soluble concentrates (SL)
5. Suspoemulsions (SE) • Oil-based suspension concentrates (OD)
6. Emulsifiable concentrates (EC) • Surfactant • Oils • Adjuvants • Soluble fertilizers • Drift retardants
7. Continue filling with remaining water.

TIPS

- Before mixing, make sure all spray mixing and application equipment is thoroughly cleaned.
- Slowly pour dry products into the spray mix at the point of maximum agitation.
- Maintain good agitation at all times, until the contents of the tank are sprayed.
- If mixture is allowed to settle, thorough agitation is recommended before spraying is resumed.
- If refilling a partially full tank, take care to avoid exceeding the recommended use rate for the product.
- Screen size in line strainers should be no finer than 50 mesh.
- If using AMS for a water conditioner, add the AMS after the dry products have been completely dispersed in the spray tank solution.

Cropping Systems

Weed resistance (mainly broadleaf resistance) to glyphosate has been widely documented. Corteva Agriscience and Valent have USDA and EPA approved cropping systems to combat and control resistant weeds. KALO has a broad offering of water conditioning and drift control products that fit these markets. For listings of KALO adjuvants that are approved for these technologies, look for the Enlist One, Enlist Duo or Regiment logos within the product pages of this guide.

Enlist One® COLEX•D® technology HERBICIDE

Enlist Duo® COLEX•D® technology HERBICIDE

Enlist One® Herbicide & Enlist Duo® Herbicide
by Corteva Agriscience

Corteva Agriscience genetically modified maize and soybeans resistant to 2,4-D choline and glyphosate have been approved in the United States and Canada. Enlist One and Enlist Duo have been approved by the EPA.

Enlist One & Enlist Duo can utilize an AMS or non-AMS water conditioner.

Enlist One & Enlist Duo have no pH restrictions.

Enlist One® Herbicide.
Contains Colex-D®, a new formulation of 2,4-D choline.
www.enlist.com/en/herbicides/approved-tank-mix/enlist-one-tank-mix-products.html

Enlist Duo® Herbicide.
Contains Colex-D® and glyphosate.
www.enlist.com/en/herbicides/approved-tank-mix/enlist-duo-tank-mix-products.html

---

Regiment® HERBICIDE Regiment® CA HERBICIDE

Regiment® Herbicide & Regiment® CA Herbicide
by Valent U.S.A. LLC

Regiment controls yield-robbing broadleaf, aquatic and grass weeds. Regiment even controls barnyardgrass that is propanil- and/or Facet®-resistant.

Regiment® for Southern Rice.
To rice farmers, Regiment is the best post-emergence rice herbicide because only Regiment effectively controls all three major classes of weeds: broadleaves, grasses and aquatics.

Regiment® CA for California Rice.
Regiment CA is the best post-emergence rice herbicide because only Regiment effectively controls these major classes of weeds: broadleaves, aquatics, grasses and resistant biotypes.

www.valent.com/products/regiment-herbicide

Enlist One, Enlist Duo, and Colex-D are registered trademarks of Corteva Agriscience. • Regiment is a registered trademark of Valent U.S.A. LLC.

90% Nonionic Surfactant

and ANTIFOAMING AGENT

90% Nonionic Surfactant improves the effectiveness of certain post-emergent herbicides, desiccants, defoliants, insecticides, fungicides, acaricides, and miticides to enhance activity.

90% Nonionic Surfactant improves performance of the active spray ingredients by providing more uniform distribution and better wetting of the plant surface.

USE RATES	
Post-Emergence Herbicides	1 to 4 pints per 100 gallons (0.125% to 0.5% v/v) spray solution
Fungicides	4 to 8 fl. oz. per 100 gallons
Insecticides	4 to 8 fl. oz. per 100 gallons
Acaricides	4 to 8 fl. oz. per 100 gallons

Net Weight: 9.92 lbs/gal	**Specific Gravity:** 1.17 - 1.19
Flashpoint: >200ºF SFCC	**pH:** 8.0 - 8.5 (aqueous solution)
Odor: Pleasant	**Appearance:** Clear Pale Yellow Liquid

PRINCIPAL FUNCTIONING AGENTS
1,2,3-Trihydroxypropane,
Diethylene Glycol,
Alkylphenol Ethoxylate.....90.0%

Surfactant Content...9.95%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
4 x 1 gallon jugs
36 cases per pallet
Item# NI9001

2 x 2.5 gallon jugs
36 cases per pallet
Item# NI9002

REGISTRATIONS, CERTIFICATIONS & APPROVALS

dpr Approved For Use In CALIFORNIA

Enlist Duo® COLEX-D® technology HERBICIDE

cpda CERTIFIED

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with. Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

AeroStar

PENETRANT / DRIFT REDUCTION AGENT / DEPOSITION AID

AeroStar is a deposition and drift management agent specifically designed to suppress off-target drift of spray applications.

AeroStar improves the uniformity and density of spray droplets and is particularly beneficial in aerial applications.

AeroStar maximizes deposition by increasing droplet size and maintaining a more uniform spray pattern.

AeroStar can be used with air assist and conventional spray nozzles.

PRINCIPAL FUNCTIONING AGENTS
Modified Vegetable Oil,
Olgomeric Terpene Resin,
Alcohol Alkoxylate.....100.0%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
4 x 1 gallon jugs
36 cases per pallet
Item# ASTAR01

2 x 2.5 gallon jugs
36 cases per pallet
Item# ASTAR02

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

Enlist One® COLEX-D® technology HERBICIDE

Enlist Duo® COLEX-D® technology HERBICIDE

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES FOR GROUND AND AERIAL	
Tank Mixing and Direct Injection Rates for Herbicides, Fungicides and Insecticides:	Add 1 to 2 quarts (0.25% - 0.5% v/v) per 100 gallons.
Direct Injection	AeroStar can be applied through injection systems when added to one of the system's chemical injection tanks. An in-line mixing chamber is recommended. 1) add AeroStar to the chemical injection tank; 2) pump the correct amount of AeroStar into the line; 3) pump the proper amount of water, pesticide, fertilizer and other adjuvants into the line, for mixing with AeroStar and chemicals, before going into the spray boom.

TECHNICAL INFORMATION	
Net Weight: 8.17 lbs/gal	**Specific Gravity:** 0.98
Flashpoint: >200ºF SFCC	**pH:** 4.5 - 6.5
Odor: Mild	**Appearance:** Clear Pale Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

AMS/NIS

WATER CONDITIONING AGENT / NONIONIC SURFACTANT

AMS/NIS is a premium blend of ammonium sulfate and nonionic surfactant formulated to optimize glyphosate and other herbicide activity.

AMS/NIS optimizes herbicide performance by preventing hard water mineral antagonism of spray mixtures while providing faster wetting and spreading of spray droplets to enhance herbicide movement through the targeted plant surface.

AMS/NIS enhances spray coverage, biological activity and absorption of herbicide product labels that recommend the use of ammonium sulfate and/or nonionic surfactants.

PRINCIPAL FUNCTIONING AGENTS
Ammonium Sulfate,
Alkyl Polyglycoside,
Polydimethylsiloxane.....49.9%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# AMS02

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

dpr Approved For Use In CALIFORNIA

Enlist One® COLEX-D® technology HERBICIDE

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES		
Specific use rates will vary with conditions such as water hardness, application method, equipment, and weather. Follow pesticide label directions. Do not add this product at a rate which exceeds 5% of finished spray volume.		
Gals of AMS/NIS per 100 Gals	**Qts of NIS per 100 Gals**	**Lbs of AMS per 100 Gals**
1.25 gallons	1 quart	4.25 pounds
2.50 gallons	2 quarts	8.50 pounds
5.00 gallons	4 quarts	17.0 pounds

TECHNICAL INFORMATION	
Net Weight: 10.09 lbs/gal	**Specific Gravity:** 1.21
Flashpoint: >200ºF SFCC	**pH:** 6.75 - 7.75 (aqueous solution)
Odor: Not Measured	**Appearance:** Clear Pale Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Avant Xtra

DEPOSITION/DRIFT REDUCTION AGENT / NONIONIC SURFACTANT / PENETRANT

Avant Xtra is a tank mix adjuvant formulated to provide optimal pesticide spray performance by enhancing deposition of the spray application.

Avant Xtra suppresses off-target drift of spray applications by providing a more uniform pattern and velocity of the spray droplets.

Avant Xtra can be used with air assist and conventional spray nozzles.

Avant Xtra can be used with herbicides, including desiccants, insecticides, fungicides and plant-growth regulators, in keeping with pesticide label recommendations.

Avant Xtra maximizes pesticide performance by improving spray coverage and through enhanced retention and infiltration of the targeted leaf surface. Avant Xtra will not eliminate all drift.

Avant Xtra can be applied through injection systems when added to one of the systems's chemical injection tanks. An in-line mixing chamber is recommended.

QUANTUM

This product contains Quantum technology, an innovative, vegetable oil-derived surfactant that delivers enhanced penetrating properties and assists with translocation of active ingredients throughout the targeted plant.

GROUND AND AERIAL USE RATES	
Tank Mixing and Direct Injection Rates:	Add 1 to 2 quarts (0.25% - 0.5% v/v) per 100 gallons.
Direct Injection:	Avant Xtra can be applied through injection systems when added to one of the system's chemical injection tanks. An in-line mixing chamber is recommended. 1) add Avant Xtra to the chemical injection tank; 2) pump the correct amount of Avant Xtra into the line; 3) pump the proper amount of water, pesticide, fertilizer and other adjuvants into the line, for mixing with Avant Xtra and chemicals, before going into the spray boom.

TECHNICAL INFORMATION	
Net Weight: 8.13 lbs/gal	**Specific Gravity:** 0.96 - 0.98
Flashpoint: >200°F TCC	**pH:** 4.5 - 5.5
Odor: Not Measured	**Appearance:** Clear Pale Yellow Liquid

PRINCIPAL FUNCTIONING AGENTS
Polyoxyethylene Sorbitan Fatty Acid Ester, Soybean Oil Ethoxylate, Copolymer of Alpha- and Beta-Pinene.....100.0%
Surfactant Content...35.0%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# AVX02

REGISTRATIONS, CERTIFICATIONS & APPROVALS

dpr Approved For Use In CALIFORNIA
WSDA Approved For Use In WASHINGTON
cpda CERTIFIED
Enlist One® COLEX-D® technology HERBICIDE
Enlist Duo® COLEX-D® technology HERBICIDE

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Bio-90

NONIONIC SURFACTANT / HUMECTANT / ANTIFOAMING AGENT

Bio-90 is a nonionic surfactant formulated for increasing the efficacy of various agricultural and horticultural spray applications.

Bio-90 should be used where wetting and uniform coverage of the spray is required.

Bio-90 improves the performance of the active spray ingredients by giving more uniform distribution and better wetting of the plant surface.

Bio-90 is intended for use with pesticides that are labeled for agricultural and non-agricultural uses. Some pesticide labels recommend a higher or lower surfactant use rate for optimum efficacy. Follow the pesticide label directions when this occurs.

Bio-90 can be used with most insecticides, fungicides, herbicides, defoliants and desiccants to improve the performance of the active spray ingredients by giving more uniform distribution and better wetting of the plant surface.

Bio-90 is a broad-spectrum adjuvant specifically designed for optimum activity enhancement when used with a wide range of pesticides and solvents such as water, aromatics, alcohol and alphatics.

USE RATES		
Do not add this product at a rate which exceeds 0.375% of the finished spray volume.		
Herbicides	1 to 3 pints per 100 gallons	Improves the performance of the active spray ingredients by giving more uniform distribution and better wetting of the plant surface.
Fungicides	3 to 8 fluid ounces per 100 gallons	
Insecticides	3 to 8 fluid ounces per 100 gallons	
Defoliants & Desiccants	1 to 2 pints per 100 gallons	
Acaricides	3 to 8 fluid ounces per 100 gallons	
Wettable Powders, Water Soluble Materials, Emulsifiable Products	Add Bio-90 in water after a good mixture is formed.	
For Use With Glyphosate Herbicides	Refer to the herbicide label for recommended surfactant rates.	

TECHNICAL INFORMATION	
Net Weight: 8.75 lbs/gal	**Specific Gravity:** 1.0.3 - 1.05
Flashpoint: >200°F SCC	**pH:** 5.0 - 7.0
Odor: Fatty	**Appearance:** Clear Amber Liquid

PRINCIPAL FUNCTIONING AGENTS
Branched Alkyl Phenol Ethoxylate, Propylene Glycol, Tall Oil.....90.0%
Surfactant Content...50.0%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
4 x 1 gallon jugs
36 cases per pallet
Item# BI9001

2 x 2.5 gallon jugs
36 cases per pallet
Item# BI9002

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

dpr Approved For Use In CALIFORNIA
WSDA Approved For Use In WASHINGTON
cpda CERTIFIED

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Bio-Film Extra

SPREADER-STICKER ADJUVANT

Bio-Film Extra is a self-emulsifiable, nonionic spreader-sticker adjuvant intended for use with most plant protection products in which the label permits the use of a spreader-sticker.

Bio-Film Extra is compatible in spray solutions with most commercial plant protection products and foliar feed micronutrients.

A thin coating of Bio-Film Extra forms an elastic film and bonds the accompanying tank mix product to the plant foliage. This enhances the efficiency of the spray application and minimizes loss through rainfall or irrigation run-off.

PRINCIPAL FUNCTIONING AGENTS
Branched Alkyl Phenol Ethoxylate, Alkyl Phenolic Resin, Propoxylated, Paraffinic Oil.....100.0%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
4 x 1 gallon jugs
36 cases per pallet
Item# BFE01

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

dpr Approved For Use In CALIFORNIA

WSDA Approved For Use In WASHINGTON

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES	
Observe spray patterns and adjust the amount of Bio-Film Extra as needed.	
Fungicides	4 to 16 fl. oz. per 100 gallons of spray mix
Acaricides	4 to 16 fl. oz. per 100 gallons of spray mix
Insecticides	4 to 16 fl. oz. per 100 gallons of spray mix
Aerial Application	4 to 16 fl. oz. depending on usage and spray equipment

TECHNICAL INFORMATION	
Net Weight: 8.34 lbs/gal	**Specific Gravity:** 0.98 - 1.0
Flashpoint: >200ºF SCC	**pH:** 5.0 - 7.0 (1% aqueous solution)
Odor: Not Measured	**Appearance:** Clear Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Boast

DEPOSITION/DRIFT REDUCTION AGENT / NONIONIC SURFACTANT / PENETRANT

Boast is a tank mix adjuvant formulated to provide optimal pesticide spray performance by enhancing deposition of the spray application.

Boast contains Quantum™ Technology, an innovative adjuvant technology that has an affinity for pesticide active ingredients.

Boast suppresses off-target drift of spray applications by providing a more uniform pattern and velocity of the spray droplets.

Boast can be used with herbicides, including desiccants, insecticides, fungicides and plant-growth regulators, in keeping with pesticide label recommendations.

Boast maximizes pesticide performance by improving spray coverage and through enhanced retention and infiltration of the targeted leaf surface.

Boast will not eliminate all drift.

QUANTUM

This product contains Quantum technology, an innovative, vegetable oil-derived surfactant that delivers enhanced penetrating properties and assists with translocation of active ingredients throughout the targeted plant.

PRINCIPAL FUNCTIONING AGENTS
Sorbitan Ethoxylate, Seed Oil Ethoxylate, Polyterpene Resins.....100%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# BOAST02

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

Enlist One® COLEX-D® technology HERBICIDE

Enlist Duo® COLEX-D® technology HERBICIDE

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

GROUND AND AERIAL USE RATES		
Always read and follow label instructions of accompanying pesticide product.		
Recommended Rates For Herbicides*	2 to 3 ounces per acre in 5 to 25 gallons per acre spray rate.	*Do not exceed 2 quarts of Boast per 100 gallons.
Recommended Rates For Fungicides & Insecticides*	2 ounces per acre in 5 to 25 gallons per acre spray rate.	
Direct Injection Rates For Herbicides	2 to 3 ounces per acre in 5 to 25 gallons per acre spray rate.	
Direct Injection Rates For Fungicides & Insecticides	2 ounces per acre in 5 to 25 gallons per acre spray rate.	

TECHNICAL INFORMATION	
Net Weight: 8.13 lbs/gal	**Specific Gravity:** 0.96 - 0.98
Flashpoint: >200ºF TCC	**pH:** 4.5 - 5.5
Odor: Not Determined	**Appearance:** Clear Pale Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Bracer

MODIFIED VEGETABLE OIL / WATER CONDITIONING AGENT / WETTING AGENT / PENETRANT

Bracer is a blend of methylated seed oil, surfactants, and water conditioning agents formulated for use with a broad range of tank mix pesticides. Bracer contains a blend of methylated seed oil, herbicide activators and water conditioners that produce micro emulsions for improved spray mix compatibility.

The addition of Bracer to the spray tank modifies the wetting and deposition characteristics of the spray solution resulting in a more even and uniform spray deposit. Bracer contains a surfactant ingredient that assists with spreading and infiltrating into the targeted leaf surface.

Bracer enhances crop control spray efficacy by sequestering hard water minerals and moderately acidifying the spray water carrier.

Bracer is a herbicide activator that delivers superior performance by providing enhanced canopy spray deposition, infiltration and translocation into plant tissue and effectively lowers and buffers spray water pH.

Derived from soybean oil, Bracer is an excellent wetter, spreader adjuvant that contains a water conditioning agent that sequesters hard water minerals to prevent hard water antagonism of herbicide solutions.

FOR USE WITH PRODUCTS REGISTERED FOR: AGRICULTURAL, FORESTRY, INDUSTRIAL, MUNICIPAL, NON-CROPLAND, RIGHTS-OF-WAY, AND OTHER USES.

USE RATES	
Bracer may be applied by Ground, CDA, or Aerial equipment. In most applications, use enough Bracer to allow for uniform wetting and deposition of the spray onto plant surfaces without undue runoff.	
Ground Use & Drift Management:	Use 1 gallon per 100 gallons of spray (1% v/v) or 1 pint per acre.
Aerial & Low Volume CDA:	Use 6 to 8 fluid ounces per 1 to 5 gallons of water per acre.
For Buffering & pH Adjustment:	Using 0.5 to 1.0% v/v will be sufficient.
Do not mix with oxidizing agents unless oxidizing agents are in solution.	

TECHNICAL INFORMATION	
Net Weight: 8.01 lbs/gal	**Specific Gravity:** 0.94 - 0.96
Flashpoint: >200°F	**pH:** 2.5 - 3.5 (1% dilution)
Odor: Mild	**Appearance:** Clear Pale Yellow Liquid

PRINCIPAL FUNCTIONING AGENTS
Methylated Seed Oil, Alcohol Ethoxylate Phosphate Ester, Alkyl Amine Alkoxylate.....100.0%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# BRAC02

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

Enlist One® COLEX-D® technology HERBICIDE

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Cadence

HUMECTANT / NONIONIC SURFACTANT / WETTING AGENT / DEFOAMING AGENT

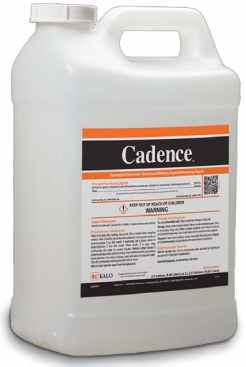
Cadence is a surfactant based on organomodified siloxane technology for use in water-based pesticide formulations. While Cadence has been proven to be a highly efficient surfactant; timing, weather conditions, methods of application, crop conditions, and/or mixture with other chemicals not specifically recommended are beyond the control of the seller. CONTAINS NONPLANT FOOD INGREDIENTS.

USE RATES		
As A Spray Adjuvant With Herbicide	16 fl. oz. per 100 gallons, or 1.6 fl. oz. per acre using a 10 gallon per acre spray rate	
As An Adjuvant with Herbicides, Micronutrients or Defoliants	6 to 16 fl. oz. per 100 gallons of spray solution	
As An Adjuvant with Insecticide, Miticides or Fungicides	6 to 12 fl. oz. per 100 gallons of spray solution	
For Use with Aerial Applications	12 to 16 fl. oz. per 100 gallon of spray solution	
As A Soil Wetting Agent (Such as Golf Course Tees and Greens)	0.1% v/v, or use the following spray rates per 1,000 square feet: 1/8 fl. oz. in 1 gallon of water; or 1/5 fl. oz. in 1.5 gallons of water; or 1/4 fl. oz. in 2 gallons of water	
For Large Turf Areas (Such as Golf Fairways): Boom Sprayers	0.05% to 0.1% v/v concentration, or 6 to 13 fl. oz. per 100 gallons of tank mix/water	
Injection Through Irrigation	1,000:1 To accommodate 100:1 proportioners, mix a 10% solution of Cadence and water and inject at 100:1	Adjust proportioning valve to inject at the ratio 1:1000, based on weekly application.
As a Mulch, Peat or Potting Soil Wetting Agent	0.05% to 0.1% v/v concentration, or 6 to 13 fl. oz. per 100 gallons	Repeat as needed.
As a Dew Control Agent	0.1% v/v concentration, or 13 fl. oz. (approx.) per 100 gallons of water every 7 to 10 days	Will prevent dew formation on turf areas such as tees and greens. Apply with a boom sprayer or hand sprayer.
For Use with Liquid Fertilization	6 to 13 fl. oz. per 100 gallons of mix	

TECHNICAL INFORMATION	
Net Weight: 8.92 lbs/gal	**Specific Gravity:** 1.07
Flashpoint: >300°F PMCC	**pH:** 5.0 - 7.0
Odor: Mild	**Appearance:** Clear Colorless Liquid

PRINCIPAL FUNCTIONING AGENTS
Diethylene Glycol, Polyether-Polymethylsiloxane- Copolymer, Alkylphenol Ethoxylate, Dimethylpolysiloxane.....100.0%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180



PACKAGING
4 x 1 gallon jugs
36 cases per pallet
Item# CADEN01

2 x 2.5 gallon jugs
36 cases per pallet
Item# CADEN02

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

dpr Approved For Use In CALIFORNIA

WSDA Approved For Use In WASHINGTON

Regiment® HERBICIDE Regiment® CA HERBICIDE

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Capstar

SURFACTANT / DRIFT REDUCTION / DEPOSITION AID / ACTIVATOR / ACIDIFIER

Capstar is a unique tank mix adjuvant formulation containing water conditioners, surfactants, activators, deposition, acidifying agents and antifoam.

Capstar reduces the antagonistic effects of hard spray water. Spray water containing dissolved minerals can have a negative impact on herbicide efficacy. Capstar's specialized formulation will lower the pH of the spray solution which helps increase the effectiveness of weak acid herbicides such as glyphosate.

Capstar suppresses off-target drift and enhances canopy penetration by providing a more uniform spray pattern, thereby increasing spray deposition and coverage of targeted surfaces.

Capstar contains a nonionic surfactant system to optimize wetting and spreading of the spray droplet.

Capstar slows spray droplet drying time to minimize droplet evaporation and improve absorption during low humidity conditions.

Capstar contains antifoam to reduce troublesome foam.

Do not use Capstar with sulfonamide herbicides or sulfonylurea herbicides or other mixtures that cannot tolerate low pH levels.

PRINCIPAL FUNCTIONING AGENTS
Oxirane, 2-Methyl-, Polymer with Oxirane, Mono(2 Ethylhexyl) Ether, Alcohol Ethoxylate Phosphate Ester, Soybean Oil, Ethoxylated.....82.48%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# CAP02

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES

Always read and follow adjuvant use instructions found on the pesticide label before using. For use with pesticides registered for use for agriculture, forestry, industrial municipal, non-cropland and right-of-way.

General Use Rates:	2 quarts (0.5% v/v) to 3 quarts (0.75%) in 100 gallons of spray water.

For enhanced deposition and drift suppression, use the higher rate.

TECHNICAL INFORMATION	
Net Weight: 8.59 lbs/gal	**Specific Gravity:** 1.01 - 1.03
Flashpoint: >200ºF SFCC	**pH:** 2.5 - 4.0
Odor: Mild	**Appearance:** Clear Pale Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

CenterPoint

HIGH SURFACTANT OIL CONCENTRATE / DEPOSITION AID / PENETRANT

CenterPoint is a unique, highly concentrated methylated seed oil based spray adjuvant developed to maximize effectiveness of post-emergence herbicides.

CenterPoint suppresses off-target drift by providing a more uniform spray pattern and reduces driftable fines.

CenterPoint maximizes pesticide performance by enhancing active ingredient droplet retention on the targeted surface.

Use CenterPoint when the accompanying pesticide label recommends use of a methylated seed oil adjuvant.

CenterPoint contains Quantum technology, an innovative, vegetable oil-derived surfactant that delivers enhanced penetrating properties and assists with translocation of active ingredients throughout the targeted plant.

PRINCIPAL FUNCTIONING AGENTS
Modified Vegetable Oil, Ethoxylated Soybean Oil, Modified Fatty Acid Ethoxylate...100%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

QUANTUM

This product contains Quantum technology, an innovative, vegetable oil-derived surfactant that delivers enhanced penetrating properties and assists with translocation of active ingredients throughout the targeted plant.

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# CP02

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES

CenterPoint can be used with air-assist and conventional spray nozzles.

General Use Rates:	1 to 2 quarts per 100 gallons of spray water.

TECHNICAL INFORMATION	
Net Weight: 8.00 lbs/gal	**Specific Gravity:** 0.93 - 0.96
Flashpoint: >200ºF SFCC	**pH:** 5.0 - 7.0 (1% dil in water)
Odor: Mild	**Appearance:** Slightly Hazy Pale Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Channel

DEPOSITION AID / ACTIVATOR / SOIL RETENTION AGENT / EXTENDER / BUFFERING AGENT / HUMECTANT

Channel is a specialized blend of modified starch with deposition enhancing agents designed to improve deposition and soil residual activity for most herbicides, fungicides, and nutrients when used in a soil application.

Channel provides improved efficacy and enhances the performance of a range of soil applied crop protection spray applications.

Crop protection products and fertilizers are more readily adsorbed to the targeted soil root zone resulting in reduced potential for leaching of the active ingredients.

The buffering agent assists in maintaining nutrient and microbial activity, and stabilizes pH levels.

PRINCIPAL FUNCTIONING AGENTS
2-Hydroxypropyl Starch,
Monobasic Potassium Phosphate,
Humic Acid.....18.05%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# CHAN02

REGISTRATIONS, CERTIFICATIONS & APPROVALS

WSDA Approved For Use In WASHINGTON

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES	
Formulated for use in agriculture, forestry, golf course, industrial, non-cropland, roadside, turf, and ornamentals.	
Use Rates for General Ground Use Application:	24 fluid ounces per acre
Use Rates for Turf Application:	3 fluid ounces per 1,000 square feet.

TECHNICAL INFORMATION	
Net Weight: 8.59 lbs/gal	**Specific Gravity:** 1.01 - 1.03
Flashpoint: >200ºF SFCC	**pH:** 2.5 - 4.0
Odor: Mild	**Appearance:** Clear Pale Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Citrix

PENETRANT / WETTING AGENT / SPREADER

Citrix is intended for use with products registered for agricultural, horticultural, turf, ornamental, industrial and non-crop use as a tank mix adjuvant. The unique surfactant chemistry provides enhanced wetting and absorption of nutrient and crop control tank mix partners that recommend the addition of an adjuvant to improve performance. Use Citrix for superior spray application spreading, penetration and uniform distribution of the spray application. The nonionic surfactant component in Citrix assists with the spreading and infiltration of the spray deposit.

Citrix may be used with most fungicides, insecticides, and fertilizer products in keeping with instructions on the accompanying crop protection or fertilizer label.

USE RATES (CA-ONLY)		
Herbicides, Insecticides, Fungicides, Miticides, Foliar Nutrients:	Air-assisted sprayer & conventional sprayer in field and row crops: 25 to 64 fluid ounces per 100 gallons of water.	ULV equipment such as aerial, electrostatics, foggers and misters: 25 to 64 fluid ounces per 100 gallons of water.

USE RATES (NOT APPLICABLE IN CA)			
Herbicides, Defoliants, Desiccants:	25 to 64 fluid ounces per 100 gallons of water.	Use higher rates on weed with waxy or hairy leaf surfaces that are hard to penetrate.	
Plant Growth Regulators:	5 to 10 fluid ounces per 100 gallons of water.		
Insecticides, Fungicides, Miticides, Foliar Nutrients:	Air-assisted sprayer & conventional sprayer in field and row crops: 25 to 64 fluid ounces per 100 gallons of water.	ULV equipment such as aerial, electrostatics, foggers and misters: 25 to 64 fluid ounces per 100 gallons of water.	Chemigation* through irrigation systems such as drip, microjet, sprinklers or pivot: 10 to 20 fluid ounces per acre. *Not approved in CA.
Precautions: Do not apply to fruiting stages of pome fruit, cherries, table grapes or other sensitive or stressed crops without first consulting your distributor or representative. Test for compatibility when combining in tank mixes with EC products, copper and/or chlorpyrifos on sensitive crops.			
Note: Citrix reduces dew formation for up to 7 days and therefore may increase the risk of frost damage in frost prone areas.			

TECHNICAL INFORMATION	
Net Weight: 9.50 lbs/gal	**Specific Gravity:** 1.12 - 1.14
Flashpoint: >200ºF SCC	**pH:** 7.0 - 9.0 (1% aqueous solution)
Odor: Mild	**Appearance:** Clear Liquid

PRINCIPAL FUNCTIONING AGENTS
Alcohol Alkoxylate,
Sodium Laureth Sulfate.....12.15%
Surfactant Content...22.8%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# CIT02

REGISTRATIONS, CERTIFICATIONS & APPROVALS

dpr Approved For Use In CALIFORNIA

WSDA Approved For Use In WASHINGTON

cpda CERTIFIED

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Clarion

MODIFIED VEGETABLE OIL / NONIONIC SURFACTANT

Clarion is a unique blend of highly refined and modified spray oil and nonionic organosilicone.

Clarion's unique chemistry allows for enhanced wetting and absorption of those pesticides or products recommending the addition of a spray adjuvant to improve performance.

The addition of Clarion to a spray tank solution will improve a spray application by physically modifying the wetting and spreading characteristics, the result being a more uniform spray deposit.

Observe the initial application to insure thorough coverage without excessive runoff of the spray.

PRINCIPAL FUNCTIONING AGENTS
Methyl Soyate,
Methylated Silicones,
Ethoxylated Castor Oil.....100.0%
Surfactant Content...23.0%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
4 x 1 gallon jugs
36 cases per pallet
Item# CLAR01

2 x 2.5 gallon jugs
36 cases per pallet
Item# CLAR02

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

dpr Approved For Use In CALIFORNIA
WSDA Approved For Use In WASHINGTON
cpda CERTIFIED
Enlist One® COLEX-D® technology HERBICIDE
Regiment® HERBICIDE
Regiment® CA HERBICIDE

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

GROUND AND AERIAL USE RATES

Clarion is intended for use with pesticides that are labeled for agricultural and non-agricultural uses. The use of Clarion can increase pesticidal activity where the following factors occur, but is not limited to:
1) Low humidity and high temperatures;
2) Low water volume rates of less than 15 gallons per acre; and
3) when target species are larger than the label recommendations at time of application.
For optimum results, spray mixes containing KALO Clarion should be applied within 36 hours.

Ground Rate	3 to 5 pints per 100 gallons
Aerial Rate	6 to 16 pints per 100 gallons
NOTE:	The application rates on this label are based on pesticides recommending the use of a nonionic surfactant. Rates of this product may be increased or decreased for optimum results. Follow pesticide labeling for proper recommendations. Before using Clarion where a nonionic surfactant may not be recommended, the user or applicator advisor must have experience with the combination or must have conducted a phytotoxicity trial.

TECHNICAL INFORMATION	
Net Weight: 7.67 lbs/gal	**Specific Gravity:** 0.90 - 0.92
Flashpoint: >200ºF PMCC	**pH:** 4.5 - 7.0
Odor: Fatty	**Appearance:** Clear Pale Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Concord

SPRAY ADJUVANT / DEPOSITION AID / NITROGEN

Concord is a unique adjuvant that delivers deposition enhancement and improved uptake, while providing an alternative to traditional nonionic surfactant, methylated seed oil, and crop oil concentrate adjuvants.

Concord provides equivalent or superior efficacy enhancement with improved crop safety.

Concord enhances absorption of water-soluble herbicides and is compatible with most pesticides and liquid fertilizers.

PRINCIPAL FUNCTIONING AGENTS
Ammonium Nitrate, Urea,
Alkoxylated Triglyceride,
Methyl Soyate, Amine Salt of
Alkyl Ethoxylate Phosphate,
Trisiloxane.....84.3%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# CON02

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

Regiment® HERBICIDE

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

GROUND AND AERIAL USE RATES

Aerial Application	3 to 6 ounces per acre in 1 to 5 gallons of water.
Ground Application	4 quarts per 100 gallons of spray mixture. This rate provides the spray adjuvant functions of both crop oil concentrates and surfactants.

TECHNICAL INFORMATION	
Net Weight: 9.84 lbs/gal	**Specific Gravity:** 1.16 - 1.18
Flashpoint: >200ºF SCC	**pH:** 5.5 - 6.5
Odor: Mild	**Appearance:** Clear Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

KALO LIQUID ADJUVANTS

Crop Oil Concentrate

PETROLEUM OIL

Crop Oil Concentrate is a blend of a surfactant and a non-phytotoxic superior type of agricultural spray oil designed for use with a broad range of postemergence herbicides as well as desiccants, defoliants, and other pesticide uses.

Crop Oil Concentrate increases the activity of herbicides and, therefore, care should be exercised when herbicide spray containing Crop Oil Concentrate is applied to new varieties or highly inbred lines not previously treated with spray tank adjuvants. Use caution when applying with herbicides.

Crop Oil Concentrate may increase the effectiveness of the spray mixture. If mixture has not been used before, it is recommended that small test areas be treated before undertaking large-scale application.

PRINCIPAL FUNCTIONING AGENTS
Paraffinic Petroleum Oil, Tall Oil Fatty Acids, Alkylphenol Ethoxylates.....99.0%

Surfactant Content.....16.0%

Unsulfonated Oil Residue (UR) Value.....92.0% Minimum

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
2 x 2.5 gallon jugs
48 cases per pallet
Item# CR02

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

dpr Approved For Use In CALIFORNIA

cpda CERTIFIED

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

GROUND AND AERIAL USE RATES	
Aerial Application	1 to 3 pints in 2 to 15 gallons of water
Ground Application	1 to 8 pints in 15 to 100 gallons of water

TECHNICAL INFORMATION	
Net Weight: 7.42 lbs/gal	**Specific Gravity:** 0.87 - 0.89
Flashpoint: >200ºF SCC	**pH:** 5.0 - 7.0
Odor: Oily	**Appearance:** Clear Pale Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Cruzado

WATER CONDITIONING AGENT / ACIDIFIER / HUMECTANT / SURFACTANT

Cruzado is a water conditioner and pH modifying adjuvant specifically used as a tank mix additive for glyphosate and other pesticides that are susceptible to antagonism from hard water minerals such as calcium, iron, manganese and other impurities.

Cruzado prevents hard water mineral antagonism and improves absorption into plants to enhance efficacy on difficult to control weeds.

Cruzado should be used with spray mixes that are registered for agricultural, horticultural, turf, ornamental, industrial and non-crop use.

PRINCIPAL FUNCTIONING AGENTS
Monocarbamide Dihydrogen Sulphate, Glycerin, Polyoxyethylene Tallow Amine.....74.45%

Surfactant Content...28.0%

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# CRUZ02

REGISTRATIONS, CERTIFICATIONS & APPROVALS

dpr Approved For Use In CALIFORNIA

WSDA Approved For Use In WASHINGTON

cpda CERTIFIED

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES

For all Applications: Do not substitute Cruzado for water required by the label. Spray equipment should be rinsed thoroughly after use. Unless instructed otherwise by pesticide label, always add Cruzado first to the spray water. NOTE: Read and follow all pesticide label directions. Do not use where the pesticide label specifically prohibits the use of an adjuvant. If the pesticide label neither recommends nor prohibits an adjuvant, the applicator must have previous experience with the adjuvant/pesticide spray mixture or should apply a small test area before making large scale applications. The addition of an adjuvant to spray mixtures may cause phytotoxicity to susceptible crop and vegetation. Care should be exercised when using on new varieties or crops not previously treated with Cruzado. Do Not Use Cruzado With Sulfonylurea Herbicides. After water hardness has been determined, use the following rates:

If water hardness is less than 200 ppm	Use 0.25% v/v (1 quart) of Cruzado per 100 gallons of spray mixture.
If water hardness is between 200-500 ppm	Use 0.50% v/v (2 quarts) of Cruzado per 100 gallons of spray mixture.
If water hardness is greater than 500 ppm	Use 1.0% v/v (1 gallon) of Cruzado per 100 gallons of spray mixture.
Cruzado may be used with pesticides that may benefit from its water conditioning and acidifying properties.	

TECHNICAL INFORMATION	
Net Weight: 10.84 lbs/gal	**Specific Gravity:** 1.2 - 1.3 @ 20ºC
Flashpoint: >200ºF TCC	**pH:** 1.8 - 2.2 (0.5% aqueous solution)
Odor: Not Measured	**Appearance:** Clear Golden Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Drift-X

DEPOSITION AGENT / DRIFT REDUCTION AGENT

Drift-X is a proprietary drift management adjuvant that is easy to use and does not require any special mixing or handling.

When used properly, Drift-X reduces spray drift and enhances deposition by improving canopy coverage and penetration, reducing droplet bounce, and minimizing formation of small droplets that may be prone to off-target drift or evaporation.

Drift-X improves spray coverage and reduces drift and evaporation of herbicides, defoliants and desiccants being applied by ground or air applications.

Note: Spray drift reduction is dependent upon many factors including equipment and weather conditions. For proper management of spray drift, all factors including nozzle type and configuration, boom height, wind speed and direction, humidity and temperature must be taken into consideration.

Drift-X may be used with flat fan, hollow cone, and coarse spray nozzles. It is suitable for use with the latest nozzle technology including air inclusion, air induction, and venturi-type air induction nozzles.

PRINCIPAL FUNCTIONING AGENTS
Soybean oil, octadecanoic acid, 12-hydroxy-homopolymer, ester with alpha,alpha',alpha"-1,2,3-propanetriyltris[omega-hydroxypoly(oxy-1,2-ethanediyl)], poly(oxy-1,2-ethanediyl), alpha-(1-oxo-9-octadecenyl)-omega-hydroxy-(Z)-.....100%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# DX02

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

WSDA Approved For Use In WASHINGTON

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

GROUND AND AERIAL USE RATES		
Use Rate For Drift Management and Deposition:	**Spray Volume**	**Rate of Drift-X**
	<10 GPA	2-3 oz/acre
	10-25 GPA	3-4 oz/acre
For Spray Volumes Greater Than 20 GPA:	Use at a rate of 0.25% v/v (1 quart per 100 gallons of spray solution). Do not exceed a use rate of 1% v/v.	

TECHNICAL INFORMATION	
Net Weight: 7.65 lbs/gal	**Specific Gravity:** 0.917
Flashpoint: >200ºF	**pH:** 5.0
Odor: Characteristic	**Appearance:** Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Eco-Shield

ACTIVATOR / DEPOSITION AID / EXTENDER / FOLIAR RETENTION AGENT / STICKER

Eco-Shield is a plant-based, modified starch adjuvant that is formulated for use as an activator, extender and sticker to increase the efficacy and longevity of herbicides, fungicides, insecticides, and fertilizer tank mix partners.

Eco-Shield enhances the adhesion of active ingredients to the plant surface and minimizes the effects of environmental factors that may lessen the effectiveness of crop protection products and fertilizers.

Through its natural slow-release properties, active ingredients are released uniformly thereby reducing abiotic stress on the crop.

PRINCIPAL FUNCTIONING AGENTS
Hydroxypropyl Starch.....10.0%

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# ECO02

REGISTRATIONS, CERTIFICATIONS & APPROVALS

WSDA Approved For Use In WASHINGTON

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES	
Formulated for use in agriculture, forestry, golf course, industrial, non-cropland, roadside, turf, and ornamentals.	
Use Rates for Herbicides and Fertilizers:	24 fluid ounces per acre
Use Rates for Acaricides, Fungicides and Insecticides:	24 to 56 fluid ounces per acre

TECHNICAL INFORMATION	
Net Weight: 8.34 lbs/gal	**Specific Gravity:** 1.0
Flashpoint: Not Determined	**pH:** 5.5 - 5.6
Odor: Odorless	**Appearance:** Light Brown Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Hi-Surf COC

HIGH SURFACTANT OIL CONCENTRATE

Hi-Surf COC is a nonionic blend of surfactants and highly refined phytobland paraffin oil. It is designed for use with a broad range of pesticides where an oil concentrate adjuvant is recommended.

Hi-Surf COC increases contact activity and penetration of the spray while also providing uniform coverage on leaf surfaces.

Always follow herbicide label recommendations.

PRINCIPAL FUNCTIONING AGENTS
Paraffinic oil.....55.4%
POE sorbitan fatty acid ester, alcohol ethoxylate.....36.6%

USE RATES

Use strictly in accordance with accompanying pesticide label warnings and directions.

Hi-Surf COC may be applied by ground, CDA or aerial application equipment along with any other spray equipment recommended by the pesticide label.

Hi-Surf COC can be substituted for traditional crop oil spray adjuvants at significantly lower use rates.

Always follow recommendations of the pesticide label if higher rates are required.

Generally Hi-Surf COC will provide equivalent results at one-half the use rate of traditional crop oil concentrate adjuvants.

Recommended Ground Applications	2 quarts per 100 gallons (0.5% v/v) of spray solution.
For Spray Volumes Below 12.5 GPA	1 pint to the acre.
Aerial, Low Volume, CDA:	2 to 8 fluid ounces per acre.
DO NOT ADD THIS PRODUCT AT A RATE THAT EXCEEDS 2.5% v/v OF SPRAY VOLUME.	

TECHNICAL INFORMATION	
Net Weight: 7.67 lbs/gal	**Specific Gravity:** 0.92
Flashpoint: >200ºF SCC	**pH:** 3-5
Odor: Mild	**Appearance:** Pale Yellow Liquid

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# HSCOC02

REGISTRATIONS, CERTIFICATIONS & APPROVALS

dpr Approved For Use In CALIFORNIA

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with. Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Hi-Surf MSO

MSO / PENETRANT / DEPOSITION AID

Hi-Surf MSO is a superior blend of special emulsifier-surfactants and highly refined soybean oil that is designed for use with a broad range of pesticides where an oil concentrate adjuvant is recommended.

Hi-Surf MSO is a high surfactant-load methylated seed oil.

Hi-Surf MSO improves the efficacy of herbicides, insecticides, fungicides, fertilizers, and micronutrients.

The addition of Hi-Surf MSO to a spray tank improves pesticide applications by modifying wetting and contact activity of the spray, enhancing penetration, and providing uniform deposition of spray deposit to the leaf surface.

Hi-Surf MSO contains antifoam to suppress foam development in tank-mix combinations.

Care must be taken when treating sensitive crops, particularly during periods of drought stress, high temperatures and high humidity.

PRINCIPAL FUNCTIONING AGENTS
Methylated Seed Oil, Branched Alkyl Phenol Ethoxylate, Fatty Acids.....96.0%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

RECOMMENDED USE RATES

OIL ADJUVANT RECOMMENDED ON PESTICIDE LABEL	AMOUNT OF HI-SURF MSO TO APPLY
1 pint per acre	0.5 to 0.75 pints per acre
1.5 pints per acre	0.75 to 1 pint per acre
1 quart per acre	1 pint per acre
0.5% v/v	1 to 2 quarts per 100 gallons
1.0% v/v	2 to 4 quarts per 100 gallons

TECHNICAL INFORMATION	
Net Weight: 7.69 lbs/gal	**Specific Gravity:** 0.923
Flashpoint: >200ºF	**pH:** 5.05 (1%)
Odor: Not Determined	**Appearance:** Amber Liquid

DOES NOT CONTAIN NPE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# HSMSO02

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with. Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

K-Surf

NONIONIC SURFACTANT

K-Surf improves the effectiveness of certain post-emergent herbicides, desiccants, defoliants, insecticides, fungicides, acaricides, and miticides to enhance activity.

K-Surf contains nonionic surfactant and humectant properties.

K-Surf improves performance of the active spray ingredients by providing more uniform distribution and better wetting of the plant surface.

PRINCIPAL FUNCTIONING AGENTS
Alcohol Ethoxylate,
Alkylphenol Ethoxylate,
Glycol.....90.0%

USE RATES

The accompanying pesticide label often provides specific use rates, mixing, and application instructions, and any additional precautionary statement. Always read and follow label directions of the pesticide being applied. For ground and air applications.

Post-Emergence Herbicides	1 to 4 pints per 100 gallons (0.125% to 0.500% v/v) spray solution
Fungicides, Insecticides, Acaricides	4 to 8 fluid ounces per 100 gallons

Unless instructed otherwise by accompanying pesticide label, add K-Surf as the first component to the spray tank.

*Not for use on aquatic sites in the state of Washington.

TECHNICAL INFORMATION	
Net Weight: 8.67 lbs/gal	**Specific Gravity:** 0.98-1.04
Flashpoint: >200°F	**pH:** 4.5-6.5 (1% dil in dist water)
Odor: Pleasant	**Appearance:** Hazy Light Yellow Liquid

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# KSURF02

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Leeway II

WATER CONDITIONING AGENT / NONIONIC SURFACTANT / HUMECTANT / DRIFT REDUCTION AGENT

Leeway II contains a drift reduction agent for reducing off-target drift.

Leeway II imparts a neutral pH.

Leeway II can eliminate antagonism of the spray tank caused by hard water minerals such as calcium, iron and magnesium.

The surfactant ingredient in Leeway II improves spray droplet spreading and penetration into the targeted leaf surface.

Leeway II provides humectancy to spray droplets resulting in a slower drying time for enhanced uptake of active ingredients.

Leeway II can be used for a wide range of pesticide and nutrient spray mixtures when accompanying labels recommend water conditioners and spreader-wetter adjuvants.

PRINCIPAL FUNCTIONING AGENTS
Trisodium Citrate Dihydrate,
Alkyl Polyglucoside C9-11,
Diethylene Glycol.....34.75%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

GROUND, AERIAL AND CDA USE RATES

For use with herbicides registered for use for agriculture, forestry, and industrial, municipal, ornamental, right-of-way, turf, non cropland and other uses. Prior to using Leeway II, the user or application advisor must have experience with the combination of active ingredients or must have conducted a phytotoxicity trial.

Ground/Aerial for Water Conditioning/Buffering:	Use 1 to 4 quarts per 100 gallons of spray mixture.
As a Drift Reduction Agent:	Use 5 pints (minimum) to 8 pints (maximum) per 100 gallons in the spray mixture.

Do not use this product at a rate to exceed 1% v/v of finished spray tank mixture.

TECHNICAL INFORMATION	
Net Weight: 9.59 lbs/gal	**Specific Gravity:** 1.12 - 1.15
Flashpoint: >200°F SFCC	**pH:** 5.8 - 7.5 (neat)
Odor: Mild	**Appearance:** Slightly Hazy Liquid

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# LWYII02

30 gallon drums
5 drums per pallet
Item# LWYII30

REGISTRATIONS, CERTIFICATIONS & APPROVALS

WSDA Approved For Use In WASHINGTON

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Leeway Ultra

WATER CONDITIONER / PENETRANT

Leeway Ultra is a blend of water conditioning agents and surfactants formulated for use with a broad range of pesticide and nutrient spray mixtures.

The water conditioning ingredients in Leeway Ultra work to reduce hard water mineral antagonism of pesticide spray mixtures.

Leeway Ultra improves pesticide performance by modifying the wetting and deposition of spray applications for more uniform coverage.

Leeway Ultra is particularly effective with glyphosate-type herbicides that respond favorably to water conditioners and enhanced absorption of the targeted plant tissue.

Note: Spray application performance can be influenced by environmental factors, spray volume, spray pressure, companion tank mix products, spray equipment, weed or pest pressures and other factors.

Leeway Ultra is recommended for use with pesticides registered for use for agriculture, forestry, industrial, municipal, ornamental, right-of-way, turf, non-cropland and other uses.

Leeway Ultra can be applied by ground sprayers, CDA or aerial spray equipment.

PRINCIPAL FUNCTIONING AGENTS
Tripotassium Citrate, Amine Alkoxylates, Alcohol Phosphates.....56.4%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# LWYU02

30 gallon drums
5 drums per pallet
Item# LWYU30

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

dpr Approved For Use In CALIFORNIA
WSDA Approved For Use In WASHINGTON
Enlist One® COLEX-D® technology HERBICIDE
Enlist Duo® COLEX-D® technology HERBICIDE

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

GROUND, AERIAL AND CDA USE RATES

Ground/Aerial/CDA Use Rates:	2 to 8 pints per 100 gallons of spray mixture.

TECHNICAL INFORMATION	
Net Weight: 9.76 lbs/gal	**Specific Gravity:** 1.16 - 1.17
Flashpoint: >200°F SFCC	**pH:** 2.5 - 3.5
Odor: Fatty	**Appearance:** Clear Pale Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Mainstay

STICKER / DEPOSITION AID / SPREADER / SURFACTANT

Mainstay is a water dispersible, nonionic spreader-sticker adjuvant that is formulated to improve the efficiency of a variety of pesticides by increasing droplet spreading and adhesion onto leaf surfaces.

Mainstay enhances efficacy of herbicide, insecticide and fungicide spray applications.

Mainstay works by reducing water surface tension to increase coverage while forming a protective film to adhere active ingredients to the plant surface.

Mainstay improves spray droplet deposition and suppresses off-target drift by producing a more uniform droplet spray pattern.

The sticking properties in Mainstay help to reduce tendency for wash-off of the spray deposit caused by light rainfall or irrigation.

USE RATES

If the pesticide label does not specifically recommend, yet does not prohibit, the use of a spreader-sticker adjuvant, the applicator should conduct an advance phytotoxicity test using a small volume of tank mix combinations to confirm compatibility and plant safety. Mainstay may be used by ground or air applications.

Defoliants, Desiccants, Herbicides	1 to 4 pints	Per 100 gallons spray mix
Fungicides, Acaricides, Insecticides	1/4 to 2 pints	
Wettable Powders	1/2 to 3 pints	
In Concentrated or Diluted Spray Applications	Allow enough Mainstay to allow for uniform wetting and deposition onto leaf surfaces without unnecessary run-off.	
For Field Crop Applications	1/4 to 2 pints per acre	
For Drift Suppression	At least 2 pints to minimize off-target spray drift.	
Note:	Mainstay will not eliminate spray drift. Off-target drift hazards vary with the type of pesticide and application conditions. Mainstay improves spray deposition and suppresses drift by producing a more uniform spray pattern.	

TECHNICAL INFORMATION	
Net Weight: 8.51 lbs/gal	**Specific Gravity:** 1.00 - 1.02 @ 20°C
Flashpoint: >200°F SFCC	**pH:** 8.5 - 9.5 (5% aqueous solution)
Odor: Not Measured	**Appearance:** Creamy Off-White Liquid

PRINCIPAL FUNCTIONING AGENTS (CA ONLY)
Alkyl Polyoxyethylene Ethers, Polymerized Resins, and Triethanol Amine Salts of Oleic Acid (TOFA derived).....20.7%
Petroleum Distillates.....2.5%

PRINCIPAL FUNCTIONING AGENTS (WA and all other states except CA)
Polyethylene Glycol Nonylphenyl Ether, Methanal Propylene Oxide p-Nonylphenol Polymer, Triethanolamine 21.5%
Petroleum Distillates.....2.5%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# MS02

REGISTRATIONS, CERTIFICATIONS & APPROVALS

dpr Approved For Use In CALIFORNIA
WSDA Approved For Use In WASHINGTON

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Maxway II

WATER CONDITIONER / VRA / NIS / DRA / DEPOSITION AID / ANTIFOAM

Maxway II is an all-in-one, water conditioner, volatility reducing agent (VRA), nonionic surfactant (NIS), drift reducing agent (DRA) and deposition adjuvant. Maxway II offers the convenience of a single use tank mix adjuvant that meets all the requirements for accompanying crop protection labels.

Maxway II sequesters hard water minerals to minimize antagonism of the spray mixture for enhanced herbicide efficacy. Maxway II contains a proven volatility reducing agent that binds protons (H+) in the spray solution to significantly limit the formation of dicamba acid, a primary cause of spray application volatility.

The surfactant ingredient in Maxway II improves spray droplet spreading and penetration into the targeted leaf surface. Maxway II provides humectancy to spray droplets resulting in a slower drying time for enhanced uptake of active ingredients.

Maxway II reduces spray drift and enhances deposition by improving canopy coverage and penetration, reducing droplet bounce, and minimizing formation of small droplets that may be prone to off-target drift or evaporation.

Maxway II has clearly demonstrated effective performance and is available for use as an all-in-one adjuvant to effectively manage hard water, spray volatility, impart surfactancy, reduce spray drift, slow spray droplet drying time and suppress tank mix foam.

PRINCIPAL FUNCTIONING AGENTS
Alkali Metal Salts of Carboxylic Acid, Alkylpolyglucoside, Acrylamide Polymer.....50.0%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

DOES NOT CONTAIN AMS

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# MWYII02

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES

Always follow the precautions, restrictions, recommended use rates and application directions appearing on the labels for each product to be tank mixed. It is the applicator's responsibility to ensure that all products are registered for the intended use.

Typical Use Rate	Use Maxway II at 26 ounces per acre in a minimum of 15 gallons of water per acre.

TECHNICAL INFORMATION	
Net Weight: 10.43 lbs/gal	**Specific Gravity:** 1.25
Flashpoint: >200ºF SFCC	**pH:** 7.5 (neat) / 6.35 (5% dilution)
Odor: Not Measured	**Appearance:** Hazy Amber Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Methylated Seed Oil

MODIFIED VEGETABLE OIL / NONIONIC SURFACTANT / ANTIFOAMING AGENT

Methylated Seed Oil is a unique blend of highly refined and modified spray oil and superior nonionic surfactant.

Methylated Seed Oil's chemistry allows for superior wetting and absorption of those pesticides or products which labels recommend the addition of a spray adjuvant to improve coverage.

The addition of Methylated Seed Oil to a spray tank solution will improve a spray application by physically modifying the deposition and wetting characteristics of the spray solution, the result being a more uniform spray deposit. This product cannot be used for aquatic applications.

The use of Methylated Seed Oil can increase pesticidal activity where the following factors occur, but is not limited to: 1) When used in areas of the country with low relative humidity and high temperatures, 2) When target species are larger than label recommendations at time of application.

PRINCIPAL FUNCTIONING AGENTS
Methyl Soyate, Branched Alkyl Phenol Ethoxylate, Dimethylsiloxane Polymer.....98.1%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
2 x 2.5 gallon jugs
48 cases per pallet
Item# MSO02

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

dpr Approved For Use In CALIFORNIA

WSDA Approved For Use In WASHINGTON

IDAHO Approved For Use In IDAHO

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES

A compatibility test is recommended prior to use. For optimum results, spray mixes containing MSO should be applied within 36 hours. Higher rates may be required on hard to control weeds or weeds which are under stress.

Typical Use Rate	1.5 to 2 pints per acre	The 2.0 pints per acre rate may be required if weed populations are extreme or if plants are stressed at the time of treatment.

TECHNICAL INFORMATION	
Net Weight: 7.51 lbs/gal	**Specific Gravity:** 0.88 - 0.90 @ 20ºC
Flashpoint: >200ºF SFCC	**pH:** 4.5 - 7.0 (5% aqueous solution)
Odor: Fatty	**Appearance:** Clear Pale Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Pure & Simple 90%

HUMECTANT / NONIONIC SURFACTANT

Pure & Simple 90% improves the effectiveness of certain post-emergent herbicides, desiccants, defoliants, insecticides, fungicides, acaricides, and miticides to enhance activity.

Pure & Simple 90% improves performance of the active spray ingredients by providing more uniform distribution and better wetting of the plant surface.

Not for use on aquatic site in the state of Washington.

PRINCIPAL FUNCTIONING AGENTS
1,2,3-Propanetriol, Diethylene Glycol, Branched Alkylphenol Ethoxylate.....90.0%

Surfactant Content...9.95%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# PS9002

30 gallon drums
5 drums per pallet
Item# PS9030

265 gallon tote
1 tote per pallet
Item# PS90265

REGISTRATIONS, CERTIFICATIONS & APPROVALS

WSDA Approved For Use In WASHINGTON

cpda CERTIFIED

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES	
Post Emergence Herbicides	1 to 4 pints per 100 gallons (0.125% to 0.5% v/v) spray solution
Fungicides	4 to 8 fl. oz. per 100 gallons
Insecticides	4 to 8 fl. oz. per 100 gallons
Acaricides	4 to 8 fl. oz. per 100 gallons
Aquatic	Apply at rate recommended as instructed by pesticide label.

TECHNICAL INFORMATION	
Net Weight: 9.92 lbs/gal	**Specific Gravity:** 1.15 - 1.19 @ 20ºC
Flashpoint: >200ºF SFCC	**pH:** 8.0 - 8.5 (1% aqueous solution)
Odor: Mild	**Appearance:** Clear Pale Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Pure & Simple Crop Oil™

CROP OIL CONCENTRATE

Pure & Simple Crop Oil is a nonphytotoxic superior type of agricultural spray oil designed for use with a broad range of post-emergence herbicides as well as desiccants, defoliants, and other pesticides.

Pure & Simple Crop Oil increases the activity of herbicides and, therefore, care should be exercised when herbicide spray containing Pure & Simple Crop Oil is applied to new varieties or highly inbred lines not previously treated with spray tank adjuvants. Use caution when applying with herbicides.

Pure & Simple Crop Oil may increase the effectiveness of the spray mixture. If mixture has not been used before, it is recommended that small test areas be treated before undertaking large-scale application.

PRINCIPAL FUNCTIONING AGENTS
Paraffinic Oil, Tall Oil Fatty Acids, Branched Alkyl Phenol Ethoxylates.....98.8%

Contains Petroleum Distillates

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
2 x 2.5 gallon jugs
48 cases per pallet
Item# PSCO02

REGISTRATIONS, CERTIFICATIONS & APPROVALS

WSDA Approved For Use In WASHINGTON

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

AERIAL/CDA/GROUND USE RATES	
Aerial/CDA Application	4 to 8 pints (0.50% to 10% v/v) per 100 gallons of spray mix.
Ground Application	1 to 4 pints (0.125% to 0.50% v/v) per acre.
NOTE: Do not exceed 2.5% v/v.	

TECHNICAL INFORMATION	
Net Weight: 7.34 lbs/gal	**Specific Gravity:** 0.86 - 0.88 @ 20ºC
Flashpoint: Not Measured	**pH:** 4.0 - 6.0 (5% dilution)
Odor: Oily	**Appearance:** Clear Amber Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Pure & Simple NIS™

NONIONIC SURFACTANT

Pure & Simple NIS improves the effectiveness of certain post-emergent herbicides, desiccants, defoliants, insecticides, fungicides, acaricides, and miticides to enhance activity.

Pure & Simple NIS contains nonionic surfactant and humectant properties.

Pure & Simple NIS improves performance of the active spray ingredients by providing more uniform distribution and better wetting of the plant surface.

PRINCIPAL FUNCTIONING AGENTS
Ethoxylated Branched C11-14, C13 Rich Alcohols, Polyethylene Glycol Mono(branched p-nonylphenol) Ether, 2,2'-Oxybisethanol.....20.0%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# PSNIS02

30 gallon drums
5 drums per pallet
Item# PSNIS30

265 gallon tote
1 tote per pallet
Item# PSNIS265

REGISTRATIONS, CERTIFICATIONS & APPROVALS

WSDA Approved For Use In WASHINGTON

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES	
Post-Emergence Herbicides	1 to 4 pints per 100 gallons (0.125% to 0.5% v/v) spray solution
Fungicides	4 to 8 fl. oz. per 100 gallons
Insecticides	4 to 8 fl. oz. per 100 gallons
Acaricides	4 to 8 fl. oz. per 100 gallons

TECHNICAL INFORMATION	
Net Weight: 8.67 lbs/gal	**Specific Gravity:** 0.98-1.04
Flashpoint: >200ºF	**pH:** 4.5-6.5 (1% dil in dist water)
Odor: Not Measured	**Appearance:** Hazy Light Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Recoil

HIGH SURFACTANT VEGETABLE OIL CONCENTRATE / PENETRANT / ACTIVATOR

Recoil is a unique, high concentration penetrant designed for use with a broad range of pesticides.

Recoil is a self-emulsifying adjuvant that replaces traditional paraffinic and MSO products.

Recoil enhances pesticide performance through dual-action delivery containing a denser population of active ingredients within a reduced molecular surface area, all at a fraction of the use rates required of traditional oil adjuvants.

Recoil is intended for use with products registered for agricultural, horticultural, turf, ornamental, industrial, aquatic and non-crop uses.

Recoil is designed for use with herbicides, fungicides, insecticides, defoliants, desiccants, plant growth regulators, and any other crop protection products where an oil concentrate is required or recommended.

The efficacy of Recoil and the effects of the spray application may be affected by various environmental factors and the condition and operation of the sprayer. Periodic calibration of spray equipment and visual inspection of the spray application may necessitate an adjustment of the adjuvant rate.

When used according to the Directions for Use, Recoil is compatible with most pesticides and fertilizers.

QUANTUM

This product contains Quantum technology, an innovative, vegetable oil-derived surfactant that delivers enhanced penetrating properties and assists with translocation of active ingredients throughout the targeted plant.

GROUND / AERIAL / AQUATIC USE RATES	
For pesticides where an oil concentrate is recommended, use the following rates.	
Ground Application	1 to 3 pints per 100 gallons of spray solution.
Aerial Application	4 to 8 ounces per acre. Refer to pesticide label for minimum water volume per acre.
Aquatic Application	2 to 4 pints per 100 gallons of spray solution.

TECHNICAL INFORMATION	
Net Weight: 8.42 lbs/gal	**Specific Gravity:** 0.98 - 1.01 @ 20ºC
Flashpoint: >200ºF SFCC	**pH:** 4.0 - 6.0 (1% aqueous solution)
Odor: Fatty	**Appearance:** Clear Liquid

PRINCIPAL FUNCTIONING AGENTS
Vegetable Oil Ethoxylate, Tall Oil Fatty Acids, and Emulsifiers.....100.0%

Surfactant Content...85.0%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APPROVED FOR AQUATIC USE

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
48 cases per pallet
Item# REC02

REGISTRATIONS, CERTIFICATIONS & APPROVALS

cpda CERTIFIED

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Regulaid

NONIONIC SURFACTANT FOR USE WITH GROWTH REGULATORS

Regulaid is a nonionic spreader-activator for use in improving the effectiveness of foliar applied plant growth regulators or streptomycin applications.

Regulaid provides superior wetting of the spray solution, uniform spray coverage and improved foliar penetration.

PRINCIPAL FUNCTIONING AGENTS (CA ONLY)
2-Butoxyethanol, Poloxalene, Monopropylene Glycol.....90.6%

PRINCIPAL FUNCTIONING AGENTS (WA and all other states except CA)
Polyoxyethylene-Polyoxypropylene Polymer, Propylene Glycol, 2-Butoxyethanol.....96.8%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APE/NPE FREE

PACKAGING
4 x 1 gallon jugs
36 cases per pallet
Item# RG02

2 x 2.5 gallon jugs
36 cases per pallet
Item# RG02

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

dpr Approved For Use In CALIFORNIA

WSDA Approved For Use In WASHINGTON

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES

	Pints per 100 Gallons	Mls per 100 Liters
Apogee®	1 to 2 pints	125 to 250 ml
Ethephon, Ethrel	2 pints	250 ml
Maleic Hydrazide	1 to 3 pints	250 to 375 ml
NAA or Amide Sprays	2/3 pint	85 ml
NAA plus Carbaryl	1/2 pint	65 ml
NAD	1 pint	125 ml
Streptomycin	1 to 2 pints	125 to 250 ml
Thinex™	1 to 2 pints	125 to 250 ml
Wilthin™	1 to 2 pints	125 to 250 ml

The most effective rate will vary with temperature and humidity at the time of application. The lower rate will normally be required under conditions of high humidity and the higher rate range is suggested under arid conditions. The above use recommendations are considered to be adequate for most uses. Since many factors such as heat, humidity, wind conditions and equipment performance can influence performance, the user should always follow label directions of the product to be tank mixed with Regulaid and consult local agricultural authorities or perform a limited test using this product to determine the optimum use rate for a given application and specific crop.

TECHNICAL INFORMATION	
Net Weight: 8.67 lbs/gal	**Specific Gravity:** 0.94 - 1.04
Flashpoint: >141ºF TCC	**pH:** 6.0 - 7.0
Odor: Mild Solvent	**Appearance:** Clear Colorless Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Restore

WATER CONDITIONING AGENT / ACIDIFIER

Restore is intended for use with products registered for agricultural, horticultural, turf and ornamental, industrial and non-crop use as a tank mix adjuvant where water conditioning and spray deposition is important.

Restore is formulated to enhance spray coverage and retention of pesticide products that recommend the use of ammonium sulfate or a nitrogen source. Restore contains 2.44 pounds ammonium sulfate per gallon.

Restore improves the efficiency of various post-emergent herbicide sprays by minimizing antagonism of hard metal ions that are frequently present in most spray water sources.

Restore contains a humectant ingredient that works to improve spray deposition and retention thereby improving the ability of agrichemical sprays to deposit and penetrate targeted surfaces. Water content of spray deposits can be increased which slows drying time and minimizes crystal formation of active ingredients which can impede plant uptake of certain active ingredients.

PRINCIPAL FUNCTIONING AGENTS
Ammonium Sulfate, 1,2,3-Trihydroxypropane, Phosphoric Acid.....50.0%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# RES02

REGISTRATIONS, CERTIFICATIONS & APPROVALS

WSDA Approved For Use In WASHINGTON

IDAHO Approved For Use In IDAHO

Enlist One® COLEX-D® technology HERBICIDE

Enlist Duo® COLEX-D® technology HERBICIDE

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

GROUND AND AERIAL USE RATES

For Ground and Aerial Applications	2 to 3 quarts per 100 gallons	Use a minimum of 1 pint of Restore per acre when the total spray volume is less than 15 gallons per acre.

TECHNICAL INFORMATION	
Net Weight: 10.34 lbs/gal	**Specific Gravity:** 1.23 - 1.24
Flashpoint: >200ºF SCC	**pH:** 2.5 - 3.5 (1% aqueous solution)
Odor: Sweet	**Appearance:** Clear Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Spectra AMS

WATER CONDITIONING AGENT / DRIFT REDUCTION AGENT / DEPOSITION AID

Spectra AMS is a highly active ammonium sulfate, drift retardant based solution designed to reduce drift while enhancing herbicide performance by modifying solution pH and water hardness.

Spectra AMS contains 3.4 pounds ammonium sulfate per gallon.

The ammoniacal nitrogen in Spectra AMS has been found to promote herbicide (such as glyphosate) uptake in agricultural applications.

Spectra AMS contains a special deposition and water conditioning complex which minimizes drift and contains emollients to keep the spray deposit moist for maximum absorption.

Spectra AMS also contains a pH stable antifoam which helps control foaming during tank mixing.

For use with product registered for agricultural, forestry, industrial, municipal, non-cropland ornamental, rights-of-way and other uses.

PRINCIPAL FUNCTIONING AGENTS
Ammonium Sulfate, Ammonium Nitrate, Phosphoric Acid, Polyacrylamide & Dimethylpolysiloxane...37.0%
Surfactant Content...0.3%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# SPAMS02

REGISTRATIONS, CERTIFICATIONS & APPROVALS

dpr Approved For Use In CALIFORNIA

cpda CERTIFIED

USE RATES	
For 8.5 lbs of Ammonium Sulfate per 100 Gallons	2.5 % (2.5 gallons) per 100 gallons solution
For 17 lbs of Ammonium Sulfate per 100 Gallons	5% (5 gallons) per 100 gallons solution
For greater deposition enhancement, use the higher range of recommended use rate for this product.	

TECHNICAL INFORMATION	
Net Weight: 10.26 lbs/gal	**Specific Gravity:** 1.19 - 1.23
Flashpoint: >200°F PMCC	**pH:** 5.5 - 6.5 (1% aqueous solution)
Odor: Sweet	**Appearance:** Liquid

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Spectra Max Tank Mix

WATER CONDITIONING AGENT / HUMECTANT / DRIFT REDUCTION AGENT

Spectra Max Tank Mix contains water conditioning properties and a homogenized deposition agent designed to improve the precision of spray applications and reduce off-target drift. It is suitable for use on both conventional and transgenic crop varieties.

Spectra Max Tank Mix contains 2 pounds ammonium sulfate per gallon.

When used at labeled rates Spectra Max Tank Mix will automatically optimize the angle of the spray pattern, as the spray exits the nozzle, to give maximum coverage of target surfaces while minimizing "pattern fringe" which contains the most driftable particles.

Spectra Max Tank Mix is intended for use as a tank-mix adjuvant where a deposition or drift control agent is required or recommended. Spectra Max Tank Mix may be used when the pesticide label recommends the use of a deposition aid or drift control agent. It is not intended as substitute for surfactants or crop oil concentrates. No product will provide 100% control of harmful spray drift.

Spectra Max Tank Mix technology has been proven to increase glyphosate activity.

This product also contains emollients which may improve absorption of herbicides into leaf surfaces.

Spectra Max Tank Mix also contains buffering and sequestering agents to adjust pH to a neutral range.

The efficacy of Spectra Max Tank Mix and the effects of the spray application may be affected by various environmental factors and the condition and operation of the spray equipment. Periodic calibration of spray equipment and visual inspection of the spray application may necessitate an adjustment of the adjuvant rate.

When used according to the Directions of Use, Spectra Max Tank Mix is compatible with most pesticides and fertilizers.

Spectra Max Tank Mix technology has been tested on several transgenic crop varieties with no negative effects, and can be considered safe for use on transgenic crops.

PRINCIPAL FUNCTIONING AGENTS
Ammonium Sulfate, Glycerol, Phosphoric Acid.....37.3%
Surfactant Content...1.5%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# SPMTMIX02

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

dpr Approved For Use In CALIFORNIA

WSDA Approved For Use In WASHINGTON

cpda CERTIFIED

Enlist One® COLEX-D® technology HERBICIDE

Enlist Duo® COLEX-D® technology HERBICIDE

GROUND AND AERIAL USE RATES		
Ground and Air Rates	Normal Use	2 to 3 quarts per 100 gallons of water
	Hard Water	3 quarts per 100 gallons of water

TECHNICAL INFORMATION	
Net Weight: 9.92 lbs/gal	**Specific Gravity:** 1.19 @ 20°C
Flashpoint: >200°F SFCC	**pH:** 4.5 - 5.5 (1% aqueous solution)
Odor: Sweet Aromatic	**Appearance:** Hazy Liquid

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Spray-Tek

WATER CONDITIONER / NONIONIC SURFACTANT

Spray-Tek is a water conditioning agent and nonionic surfactant formulated to enhance pesticide performance.

Spray-Tek improves the spreading and activation of pesticides. Hard water cations and high pH can decrease mixability and solubility of certain pesticides, especially glyphosates, 2,4-D amines, and garlon salts. Ammonium sulfate has long been recognized to aid in the effective uptake of certain pesticides by some plant species.

Spray-Tek contains ammonium sulfate as well as acidifying, buffering, and chelating agents which aid in maintaining the right pH in the tank mix solution, and blocks hard water cations from interacting with the pesticide molecule.

PRINCIPAL FUNCTIONING AGENTS
Ammonium Sulfate,
Hydroxy Carboxylic Acid,
Phosphoric Acid,
Alkyl Polyoxyethylene Glycol Blend,
and Dispersing Agents.....100%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# ST02

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES	
General Use	1 to 4 quarts per 100 gallons
For Smaller Weeds	1 to 2 quarts per 100 gallons
For Larger Weeds	3 to 4 quarts per 100 gallons

TECHNICAL INFORMATION	
Net Weight: 10.00 lbs/gal	**Specific Gravity:** 1.18 - 1.20
Flashpoint: >200ºF SCC	**pH:** 6 - 7
Odor: Not Measured	**Appearance:** Clear to Hazy Color Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Threshold

AMMONIUM FREE WATER CONDITIONER / NONIONIC SURFACTANT / HUMECTANT / DRIFT REDUCTION AGENT

Threshold is a multi-functional tank mix adjuvant that minimizes hard water mineral antagonism to enhance pesticide performance by modifying hardness of spray water.

Threshold contains a nonionic surfactant that improves spreading and penetration into targeted leaf and stem surfaces.

Threshold provides humectancy to spray deposit resulting in slower drying time to improve uptake of active ingredients.

The drift reduction ingredient in Threshold reduces off-target drift while not adversely effecting pesticide performance.

Threshold can be used with a wide range of pesticide and nutrient spray mixtures such as glyphosate and 2,4-D premixes as well as other tank mix partners with labels that recommend water conditioners and spreader activator adjuvants.

PRINCIPAL FUNCTIONING AGENTS
Sodium Tricarbalylate,
Alkyl Polyglucoside,
1,2,3-Propanetriol,
Polyacrylamide,
Polydimethylsiloxane.....33.9%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# TH02

REGISTRATIONS, CERTIFICATIONS & APPROVALS

Enlist One® COLEX-D® technology HERBICIDE

Enlist Duo® COLEX-D® technology HERBICIDE

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES	
Threshold is compatible with most fertilizers and pesticides. If the desired mixture has not been used previously, conducting a jar test for confirm compatibility is recommended. Read and follow the precautions, restrictions and recommendations on the labels of pesticides used with Threshold.	
Typical Use Rate	1 to 2 quarts per 100 gallons (0.25% to 0.50% v/v)

TECHNICAL INFORMATION	
Net Weight: 9.59 lbs/gal	**Specific Gravity:** 1.13 - 1.15 @ 20ºC
Flashpoint: >200ºF SFCC	**pH:** 5.5 - 6.5 (neat)
Odor: Mild	**Appearance:** Slightly Hazy Pale Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Tronic

NONIONIC SURFACTANT

A Unique Vegetable Derived Nonionic Surfactant and Crop Oil Replacement

Tronic is a premium high concentrate 95% active low-foaming nonionic surfactant which will replace crop oil and modified seed oil concentrates.

Tronic is a unique surfactant which improves the deposition and penetration of active ingredients into the target plant.

Tronic contains free fatty acids to improve rain fastness and wash-off resistance.

Tronic is designed for use with herbicides, insecticides, fungicides, defoliants, desiccants, plant growth regulators, and any other crop protection product where an oil concentrate or a nonionic surfactant is required or recommended.

An integrated antifoaming system helps minimize foam in the spray tank.

When used according to the Directions for Use, Tronic is compatible with most pesticides and fertilizers.

QUANTUM

This product contains Quantum technology, an innovative, vegetable oil-derived surfactant that delivers enhanced penetrating properties and assists with translocation of active ingredients throughout the targeted plant.

GROUND, AERIAL, AQUATIC USE RATES		
Ground Application	1 to 3 pints per 100 gallons of spray solution	
Aerial Application	4 to 8 fl. oz. per acre	Refer to pesticide label for minimum water volume per acre.
Aquatic Application	2 to 4 pints per 100 gallons of spray solution	

TECHNICAL INFORMATION	
Net Weight: 8.42 lbs/gal	**Specific Gravity:** 0.98 - 1.01 @ 20°C
Flashpoint: >200°F SFCC	**pH:** 4.0 - 6.0 (1% aqueous solution)
Odor: Fatty	**Appearance:** Clear Liquid

PRINCIPAL FUNCTIONING AGENTS
Vegetable Oil Ethoxylate, Tall Oil Fatty Acids.....95.0%
Surfactant Content...85.0%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APPROVED FOR AQUATIC USE

APE/NPE FREE

PACKAGING
4 x 1 gallon jugs
36 cases per pallet / Item# TRONIC01

2 x 2.5 gallon jugs
36 cases per pallet / Item# TRONIC02

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

dpr Approved For Use In CALIFORNIA

WSDA Approved For Use In WASHINGTON

Enlist One COLEX-D technology HERBICIDE

cpda CERTIFIED

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Check-Point

DRY WATER CONDITIONING AGENT / DRIFT & DEPOSITION AGENT / ANTIFOAM AGENT

Check-Point is an AMS free, dry water-soluble water conditioning agent formulated to significantly reduce antagonism from hard water minerals contained in spray water used for agricultural spray solutions.

Check-Point can be used with a wide range of crop control products including Dicamba, 2,4-D, glufosinate and glyphosate type herbicides to effectively condition spray water efficiently at low use rates.

Check-Point sequesters hard water minerals such as calcium, iron and magnesium while imparting a neutral pH to the spray water.

Check-Point contains a drift reduction agent to minimize off-target drift.

Note: Many factors affect spray drift such as spray boom height, nozzle type, spray pressure, temperature, wind and thermal inversions. Check-Point will not eliminate all drift. Always read and follow pesticide label instructions pertaining to mitigating off-target drift.

USE RATES	
Use Rates	2 pounds per 100 gallons of spray solution

TECHNICAL INFORMATION	
Solubility in Water: Soluble	**Specific Gravity:** Not Measured
Flashpoint: Not Combustible	**pH:** 6.0
Odor: Not Measured	**Appearance:** Dry, White Powder

PRINCIPAL FUNCTIONING AGENTS
Trisodium citrate dihydrate, sodium hexametaphosphate, sodium tripolyphosphate, polyacrylamide, dimethylpolysiloxane.....97.3%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

DOES NOT CONTAIN AMS

PACKAGING
20 pound bag
80 bags per pallet
Item# CP20

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

WSDA Approved For Use In WASHINGTON

cpda CERTIFIED

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Fraction

DRY WATER CONDITIONING AGENT FOR HERBICIDE SPRAYS

Fraction is a specially formulated blend of reduced rate water conditioning and sequestering agents intended for use with glyphosate and other herbicide spray applications that recommend the use of ammonium sulfate or nitrogen fertilizer as a tank mix additive. Contains 0.69 pound of ammonium sulfate per pound of Fraction, or 16.56 pounds of ammonium sulfate per 24-pound bag.

Fraction is a spray grade granule that readily goes into solution.

Fraction improves weed control by conditioning and acidifying the water.

Fraction works to maximize herbicide performance by neutralizing antagonism from water impurities such as iron, calcium and magnesium.

Fraction is compatible with all glyphosate formulations and with separately applied drift retardants or nonionic surfactants and is approved

Do not use Fraction if the accompanying tank mix pesticide label prohibits use of water conditioners or acidifying agents.

USE RATES		
For optimum water conditioning, the spray mixture should be used within eight hours.		
For Ground, Air, and Aquatic Applications	3 to 4 pounds per 100 gallons of spray solution	
Hard Water Conditions	Use the higher rate	
When tank mixed with Glyphosates or other Herbicides That Do Not Contain a Surfactant Ingredient	Use the higher rate	
Where Extremely Hard Water Conditions Exist in Conjunction With Difficult to Control Weeds	Additional Fraction or AMS may be required	Fraction can be used as a replacement for ammonium sulfate under most conditions.

TECHNICAL INFORMATION	
Solubility in Water: Complete	**Specific Gravity:** Not Applicable
Flashpoint: Difficult to Burn	**pH:** Not Measured
Odor: Slight Chemical	**Appearance:** Free Flowing Light Blue Granule

PRINCIPAL FUNCTIONING AGENTS
Ammonium Sulfate, 2-Hydroxy-1,2,3-Propanetricarboxylic Acid...98.99%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APPROVED FOR AQUATIC USE

PACKAGING
24 pound bag
80 bags per pallet
Item# FRA24

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

dpr Approved For Use In CALIFORNIA

WSDA Approved For Use In WASHINGTON

cpda CERTIFIED

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

One-Ap XL

DRY WATER SOLUBLE BLEND OF AMMONIUM SULFATE / NONIONIC SURFACTANT / DEPOSITION AID / ANTIFOAM AGENT

One-Ap XL is a water soluble blend of ammonium sulfate, nonionic surfactant, deposition aid and antifoam agent.

One-Ap XL is formulated to improve the efficacy of glyphosate-based herbicides and other post-emergence herbicides that recommend ammonium sulfate or nitrogen solution and nonionic surfactant.

One-Ap XL contains nonionic surfactant, to help increase the biological efficacy of herbicides.

The ammonium sulfate in One-Ap XL helps to reduce tank mix antagonism.

The antifoam agent in One-Ap XL reduces the formation of troublesome foam.

One-Ap XL is micronized to aid in solubility and speed of tank mixing.

One-Ap XL is intended for use with pesticides that are labeled for agricultural, forestry, right-of-way and non-cropland use.

For optimum performance, the spray mixture must be used within eight hours after herbicide product is mixed with One-Ap XL.

USE RATES		
Use One-Ap XL at a range of use rates from 10 to 20 pounds per 100 gallons of spray solution. Do not exceed the maximum use rate for this product.		
When Used at the 10 Pound Rate	One-Ap XL provides 8.5 pounds of ammonium sulfate and the equivalent of 1 quart (0.25% v/v) of nonionic surfactant per 100 gallons.	This lower use rate maintains a lower range of polymeric activity for spray deposition.
When Used at the 20 Pound Rate	One-Ap XL provides 17 pounds of ammonium sulfate and the equivalent of 2 quarts (0.50% v/v) of nonionic surfactant per 100 gallons.	This maximum use rate provides the optimum polymeric activity for enhanced spray deposition.

TECHNICAL INFORMATION	
Solubility in Water: Soluble	**Specific Gravity:** Not Measured
Flashpoint: Difficult to Burn	**pH:** Not Measured
Odor: Slight Chemical	**Appearance:** Free Flowing White Granule

PRINCIPAL FUNCTIONING AGENTS
Ammonium Sulfate, Urea, Polyoxyethylene Polyoxypropylene Polymer.....98.73%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APPROVED FOR AQUATIC USE

PACKAGING
40 pound bag
49 bags per pallet
Item# OAXL40

2,000 pound super sack
1 sack per pallet
Item# OAXL00

REGISTRATIONS, CERTIFICATIONS & APPROVALS

dpr Approved For Use In CALIFORNIA

WSDA Approved For Use In WASHINGTON

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Raze

DRY WATER CONDITIONING AGENT FOR HERBICIDE SPRAYS WITH MICROBIAL TECHNOLOGY FOR ACCELERATING CROP RESIDUE BREAKDOWN

Raze is a water conditioning adjuvant system along with a proprietary consortium of microorganisms to hasten the natural breakdown and conversion of crop residue into nutrient rich soil organic matter.

The Microbial Technology consists of a premium blend of microorganisms and fungi that actively break down crop residue while cycling nutrients for subsequent uptake. The Microbial Technology is a proven microbial collection that is used on millions of acres annually. Accelerated breakdown of crop residue allows for more carbon to be captured and recycled to build soils, increase nutrient availability, and enhance plantability for greater yield potential.

Raze is suitable for use alone or in tank mix applications with burn down herbicides such as glyphosate, 2,4-D, and others requiring AMS or water conditioning to prevent hard water antagonism. The sulfur in Raze serves as an important food source for bacteria to multiply and is a key component for protein synthesis both for plants and bacteria.

Raze is a spray-grade formulation that readily dissolves in water to neutralize antagonism from hard water minerals such as iron, calcium and magnesium. When used at the labeled rate, Raze delivers equivalent water conditioning and chelating performance of up to 2% by weight (w/w) of ammonium sulfate spray solutions.

Raze is compatible with a wide range of crop protection inputs and can be used with additional tank mixed spray adjuvants such as nonionic surfactants and drift control agents as needed.

Crop residue that has been sprayed with Raze is not harmful to livestock.

Tank mixes containing Raze should be used within 48 hours of mixing for best results.

USE RATES

NOTE: Specific timing for optimal use varies based on tillage practices, fertility levels and other factors.

Ground Applications	Use 5 pounds of Raze per 100 gallons of water applied at 12 to 15 gallons per acre.
Seasonal Applications	**FALL:** Apply after harvest for best performance. **SPRING:** Apply with early herbicide application or in the termination of cover crops. **SUMMER:** Ideal for breaking down wheat stubble.

TECHNICAL INFORMATION	
Solubility in Water: Complete	**Specific Gravity:** Not Applicable
Flashpoint: Difficult to Burn	**pH:** Not Measured
Odor: Slight Chemical	**Appearance:** Free Flowing White Granule

PRINCIPAL FUNCTIONING AGENTS
Ammonium Sulfate,
2-Hydroxy-1-2,3-Propanetricarboxylic Acid,
Consortium of Microbials.....100%

MINIMUM GUARANTEED ANALYSIS

Microbial content	**2.5%**
Bacillus amyloliquefaciens	**2.125×10^9 cfu/g**
Bacillus licheniformis	**8.500×10^9 cfu/g**
Bacillus megaterium	**2.125×10^9 cfu/g**
Bacillus pumilus	**6.375×10^9 cfu/g**
Phanerochaete chrysosporium	**1.487×10^5 cfu/g**
Trichoderma harzianum	**6.375×10^5 cfu/g**

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
20 pound bag
50 bags per pallet
Item# RAZE20

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Spray-Start

DRY WATER CONDITIONING AGENT / DRIFT REDUCTION AGENT / DEPOSITION AID / ANTIFOAMING AGENT

For use with glyphosates and other post-emergence herbicides.

Spray-Start is designed to improve the efficacy of post-emergence herbicides requiring a nitrogen solution or ammonium sulfate adjuvant. Ammonium salts reduce the antagonism of spray water with herbicides.

The antifoam agent in Spray-Start prevents the formation of troublesome foam.

Spray-Start is milled to enhance solubility.

Spray-Start can suppress spray drift and improve deposition by reducing spray fines.

Many factors affect spray drift, such as spray height, nozzle configuration, spray pressure, temperature, wind and thermal inversion.

Spray-Start will not eliminate all drift.

USE RATES

Do not exceed recommended rate as restriction of nozzle pattern may occur. If the herbicide label makes no recommendation for use of ammonium sulfate or nitrogen source, consult local agricultural authorities before use.

Ground Application	9 to 12 pounds per 100 gallons of spray solution	Use the higher rate for enhanced spray deposition.

The use rate of 9 pounds of Spray-Start per 100 gallons of spray solution will supply 8 1/2 pounds of ammonium sulfate per 100 gallons.

TECHNICAL INFORMATION	
Solubility in Water: Soluble	**Specific Gravity:** Not Measured
Flashpoint: Difficult to Burn	**pH:** 5.1 (approximate)
Odor: Slight Chemical	**Appearance:** Free Flowing White Granule

PRINCIPAL FUNCTIONING AGENTS
Ammonium Sulfate,
Polyacrylamide Polymer,
Dimethylpolysiloxane.....98.9%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
9 pound bag
220 bags per pallet
Item# SS09

45 pound bag
40 bags per pallet
Item# SS45

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

WSDA Approved For Use In WASHINGTON

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Summit

DRY WATER CONDITIONING AGENT / DRIFT REDUCTION AGENT / DEPOSITION AID / ANTIFOAM AGENT

Summit is a highly active, dry tank mix adjuvant designed to enhance post-emergence herbicides that require the use of ammonium sulfate. AMS reduces hard-water mineral antagonism prevalent in most water sources that interfere with the performance certain herbicides.

Summit can be used with glyphosate, glufosinate, Enlist One®, and other herbicides.

Summit contains drift reducing polymers that suppresses driftable spray fines and improves deposition onto plant surfaces.

The antifoam agent in Summit minimizes the formation of troublesome foam.

Summit has been finely milled to enhance rapid solubility.

PRINCIPAL FUNCTIONING AGENTS
Ammonium Sulfate, Drift Reduction/Deposition Enhancing Polymers and Antifoam Agent.....100%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
9 pound bag
220 bags per pallet
Item# SUM09

45 pound bag
40 bags per pallet
Item# SUM45

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

Enlist One® COLEX-D® technology HERBICIDE

Enlist Duo® COLEX-D® technology HERBICIDE

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES
Use Summit at 9 to 17 pounds per 100 gallons of water to deliver 1% to 2% w/w of ammonium sulfate.
Always monitor spray patterns for use rates greater than 17 pounds per 100 gallons.
NOTE: Many factors contribute to drift, such as boom height, distance from target area, proper nozzle selection, nozzle configuration, spray pressure, temperature, wind, and thermal inversion.

TECHNICAL INFORMATION	
Solubility in Water: Complete	**Specific Gravity:** Not Applicable
Flashpoint: Difficult to Burn	**pH:** Not Measured
Odor: Slight Chemical	**Appearance:** Free Flowing White Granule

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Rain-Check

IRRIGATION SOIL SURFACTANT

Maximize irrigation efficiency with Rain-Check.

Rain-Check is a multi-function soil surfactant and humectant that promotes rapid and complete soil wetting.

Rain-Check significantly reduces irrigation run times and allows managers to water less often by maximizing the efficiency of irrigation or rainfall.

Rain-Check makes every drop of water count, helping to reduce drought stress while improving plant health.

Rain-Check is biodegradable, non-toxic and safe for equipment.

Rain-Check is fertilizer-compatible and can be mixed in advance and used when needed, without falling out of solution when no agitation is present. By providing more uniform coverage, Rain-Check enhances fertilizer effectiveness.

Rain-Check has the ability to drain water-logged soils and facilitate water movement into the soil matrix.

CONTAINS BENEFICIAL SUBSTANCE
1,2,3 Propanetriol.....20.0%
Propylene Glycol.....20.0%
Alcohols, C12-14-secondary, Ethoxylated.....10.0%
D-glucopyranose, Oligomeric, C9-11 Alkyl Glycosides.....7.5%

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# RC02

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

cdfa CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

RATES FOR INJECTION THROUGH IRRIGATION SYSTEMS	
Initial Application	Inject 1 quart of Rain-Check per acre.
Follow-Up Application	Inject 1 pint of Rain-Check per acre, or increase to meet the demand of the crop or environmental conditions.

RATES FOR CONVENTIONAL SPRAYERS	
Initial Application	Apply at 1 quart per acre diluted in sufficient water carrier for adequate spray distribution.
Follow-Up Application	Reapply Rain-Check at 1 pint per acre every four weeks to maintain efficacy.
Follow spray applications with a brief irrigation cycle to assist moving Rain-Check into the soil profile.	

TECHNICAL INFORMATION	
Net Weight: 9.09 lbs/gal	**Specific Gravity:** 1.07 - 1.09
Flashpoint: >200°F SFCC	**pH:** 7.0 - 9.0 (1% aqueous solution)
Odor: Mild	**Appearance:** Clear Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Rainstorm

SOIL SURFACTANT

Rainstorm is a unique blend of soil surfactants formulated to improve movement and infiltration of rainfall and irrigation water into agricultural soils.

This multi-purpose soil surfactant significantly reduces water's surface tension to increase soil moisture content for a more efficient use of irrigation water.

Rainstorm can be used in advance, or following soil applied crop control products, to increase soil moisture content for enhanced efficacy.

CONTAINS BENEFICIAL SUBSTANCE
Oxirane, Methyl-, Polymer with Oxirane.....15.6%

D-Glucopyranose, Oligomeric, C9-11-alkyl Glycosides.....16.0%

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# RS02

30 gallon drums
5 drums per pallet
Item# RS30

REGISTRATIONS, CERTIFICATIONS & APPROVALS

Approved For Use In OREGON

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES

Rainstorm is formulated for use on a wide range of targeted crops. Always apply Rainstorm in accordance with label instructions.

Irrigation Injection	Apply through an irrigation system using drip tubes, tape, micro-emitters or overhead sprinklers.
Initial Application Use Rates	Apply Rainstorm at 1 quart per acre. Follow initial application with additional 1 pint per acre as determined by crop requirements and environmental conditions.
Application Interval	Apply Rainstorm every 3 to 4 weeks as required by soil type, crop response, or environmental conditions.
Spray Application	Using boom type sprayers, apply Rainstorm at a rate of 1 to 2 quarts per acre in adequate water volume to achieve uniform coverage.

TECHNICAL INFORMATION	
Net Weight: 8.76 lbs/gal	**Specific Gravity:** 1.02 - 1.05 @ 20°C
Flashpoint: >200°F	**pH:** 5.5 - 7.5 (1% Dilution in Distilled Water)
Odor: Mild	**Appearance:** Clear to Slightly Hazy Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Variant

AGRICULTURAL SOIL SURFACTANT / SOIL RETENTION AGENT

Variant is a surfactant and resin blend that improves the uniform movement of water through the soil profile and assists in holding moisture within the plant germination zone.

This unique blend of vegetable oil-derived surfactant and resin ingredients works to enhance soil absorption and minimizes leaching and loss of critical concentration for a range of soil applied nutrients and crop protection applications.

CONTAINS BENEFICIAL SUBSTANCE
Ethoxylated Triglyceride.....20.0%

Copolymer of Alpha- and Beta-Pinene.....20.0%

QUANTUM

This product contains Quantum technology, an innovative, vegetable oil-derived surfactant that delivers enhanced penetrating properties and assists with translocation of active ingredients throughout the targeted plant.

USE RATES

Use rates are determined by the volume of liquid carrier applied per acre.

GPA Spray Volume	Use Rate Per Acre
5-10	8 fl. oz.
10-20	16 fl. oz.
20-30	24 fl. oz.
30+	32 fl. oz.

TECHNICAL INFORMATION	
Net Weight: 8.17 lbs/gal	**Specific Gravity:** 0.96 - 0.98
Flashpoint: >200°F SFCC	**pH:** 4.5 - 5.5 (1% aqueous solution)
Odor: Fatty	**Appearance:** Clear Pale Yellow Liquid

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# VAR02

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Water-Rite

NONIONIC SURFACTANT (CA & WA) / SOIL AMENDMENT (OR)

Water-Rite is a unique soil surfactant designed to lower surface tension, improve soil conditions, increase water penetration, and increase water percolation.

Water-Rite can be used either preventatively or curatively as a soil surfactant and does provide extended residual activity.

Early spring applications are more effective followed by repeat applications as needed.

For use on all agricultural crops.

CONTAINS NON-PLANT FOOD INGREDIENTS

USE RATES FOR SOIL MOISTURE MANAGEMENT		
Irrigation Systems	Use at 1 to 6 quarts per acre through any type of irrigation system. First application should coincide with first irrigation cycle. A follow-up application of 1 to 6 pints per acre is recommended two weeks after initial application. Continue with 1 to 6 pints per acre every 4 to 6 weeks.	Always use back-flow prevention valve (check-valve) when injecting into irrigation systems.
Conventional Tank Mix Sprayers	Apply at 2% v/v (2 gallons per 100 gallons) of spray solution and apply at a rate of 1 to 8 pints per acre.	Irrigate following application to move into soil profile. In non-irrigated areas, apply prior to anticipated rainfall.
Drip or Micro-Sprinkler Systems	Apply 1 to 6 quarts per acre. Apply to coincide with first irrigation cycle. Two weeks after initial application, follow up with a second application of 1 to 6 pints per acre then follow with 1 to 6 pints per acre every 4 to 6 weeks.	The final application of the season should be scheduled with the last full irrigation cycle.
As a Tank Mix Adjuvant	Use at a rate of 0.25% v/v to 1.00% v/v (1 to 4 quarts per 100 gallons).	Water-Rite can be used with a range of liquid fertilizers and crop control products.

TECHNICAL INFORMATION	
Net Weight: 8.59 lbs/gal	**Specific Gravity:** 1.03
Flashpoint: >200ºF SFCC	**pH:** 5.5 - 6.0
Odor: Sweet	**Appearance:** Slight Hazy Pale Yellow Liquid

PRINCIPAL FUNCTIONING AGENTS (CALIFORNIA & WASHINGTON)
Poloxalene, Alkyl Polyglucoside, Vegetable Oil Ethoxylate.....30.7%
Surfactant Content...30.5%

NONPLANT FOOD INGREDIENTS (OREGON)
17.0% Poloxalene
11.7% Alkyl polyglucoside
2.0% Vegetable oil ethoxylate

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# WR02

30 gallon drums
5 drums per pallet
Item# WR30

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

dpr Approved For Use In CALIFORNIA
WSDA Approved For Use In WASHINGTON
Approved For Use In OREGON
cpda CERTIFIED

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Water-Rite FC

NONIONIC SURFACTANT

Water-Rite FC is a unique, plant derived, nonionic surfactant, formulated to enhance the infiltration and uniform distribution of irrigation water and rainfall in a variety of soil types.

Water-Rite FC will improve irrigation efficiency and increase soil moisture content.

Apply Water-Rite FC through irrigation injection systems or through the use of conventional spray equipment.

For use on all agricultural crops.

CONTAINS NON-PLANT FOOD INGREDIENTS

USE RATES FOR SOIL MOISTURE MANAGEMENT		
For Soil Moisture Management	1 quart per acre of through any type of irrigation system. First application should be made at initial irrigation cycle. A follow-up application of 1 pint per acre is recommended two weeks after initial application. Continue with 1 pint per acre every 4 to 6 weeks.	Schedule the last application of the season with the final full irrigation cycle.
Conventional Tank Mix Sprayers	2% v/v (2 gallons per 100 gallons) of spray solution and apply at a rate of 1 to 4 pints per acre.	
As a Tank Mix Adjuvant	0.25% v/v to 0.50% v/v (1 to 2 quarts) per 100 gallons).	Water-Rite FC can be used with a range of liquid fertilizers and crop control products. Always read and follow label directions of the accompanying tank mix product pertaining to the use of an adjuvant.

TECHNICAL INFORMATION	
Net Weight: 9.17 lbs/gal	**Specific Gravity:** 1.10 @ 20ºC
Flashpoint: >200ºF SFCC	**pH:** 6.0 - 8.0 (1% aqueous dilution)
Odor: Sweet	**Appearance:** Clear Liquid

PRINCIPAL FUNCTIONING AGENTS (CA ONLY)
Alkylglucoside, 1,2,3-tri-hydroxypropane, Polydimethylsiloxane.....45.15%

PRINCIPAL FUNCTIONING AGENTS (WA and all other states except CA)
Alkyl Polyglucoside, 1,2,3-trihydroxypropane.....44.85%
Surfactant Content...34.8%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

APE/NPE FREE

PACKAGING
2 x 2.5 gallon jugs
36 cases per pallet
Item# WRFC02

30 gallon drums
5 drums per pallet
Item# WRFC30

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

dpr Approved For Use In CALIFORNIA
WSDA Approved For Use In WASHINGTON
cpda CERTIFIED

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Spectra Max Tech

MANUFACTURING CONCENTRATE

Spectra Max Tech is a manufacturing concentrate that contains an integrated water conditioning system with an optimized rate of viscosity modifiers. Spectra Max Tech is formulated to provide a labor and material cost savings for local facilities to use their own source of dry ammonium sulfate and water to formulate a finished tank mix adjuvant containing liquid AMS Water Conditioning Agent / Drift Reduction Agent / Deposition Aid / Antifoaming Agent.

Following the supplemental Formulating and Packaging Guidelines, the finished blend will deliver 8.5 pounds of liquid ammonium sulfate-based water conditioning agent per 2.5 gallons of finished blend adjuvant that enhances herbicide performance by modifying the pH and water hardness of the spray solution. The ammoniacal nitrogen in the finished blend promotes herbicide (such as glyphosate) uptake in agricultural applications. The finished blend will contain a drift suppressing agent that reduces off-target drift and a deposition aid that contains emollients to keep the spray deposit moist for maximum absorption and a pH stable antifoam which helps control foaming during tank mixing.

IMPORTANT: It is recommended that local AMS sources be tested for compatibility prior to conducting large scale formulations. Your KALO representative can provide this service.

PRINCIPAL FUNCTIONING AGENTS

Sodium Polyacrylate-Citrophosphate Glycerol Complex with Siloxane.....18.0%

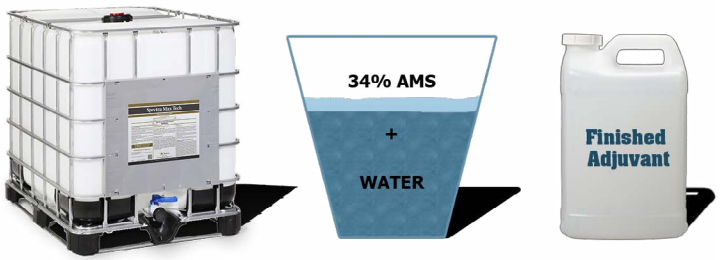
Ammoniated Salt Solution as Formulation Aid*.....82.0%

**This product contains equivalent to 1.2 pounds of ammonium sulfate per gallon.*

All ingredients accepted for use under 40 CFR 180.

COMPATIBLE WITH ALL GLYPHOSATES, GLUFOSINATES AND 2,4-D HERBICIDES

PACKAGING
265 gallon tote
1 tote per pallet
Item# SPMTECH00



Spectra Max Tech + On-Site Blending = Finished Adjuvant

FOR MANUFACTURING USE ONLY
DO NOT MIX IN SPRAY TANK

Spectra Max Tech is formulated to be used as a manufacturing concentrate only. Do not add Spectra Max Tech directly to spray tanks. Spectra Max Tech is a manufacturing concentrate to be commercially blended with ammonium sulfate and water. Spectra Max Tech is not to be used as a tank mix adjuvant, and is not for retail sale. Spectra Max Tech must be used in accordance with Formulating and Packaging Guidelines that are shown on the next page.

TECHNICAL INFORMATION	
Net Weight: 9.59 lbs/gal	**Specific Gravity:** 1.12 - 1.15 @20°C
Flashpoint: >200°F TCC	**pH:** 5.0 - 6.2
Odor: Sweet	**Appearance:** Slightly Hazy Yellow Liquid

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Spectra Max Tech

GUIDELINES FOR HANDLING, STORAGE, FORMULATING AND PACKAGING

VESSEL INFORMATION
- Receive into a clean dry tank or holding vessel.
- Vessel should be free from any oils or surfactants which may not be soluble in Spectra Max Tech.
- Avoid contaminating with other materials.
- High density plastic or stainless-steel storage tanks are preferred.
- Avoid mild steel tanks as iron is reactive with certain components.
- Avoid using holding vessels which have contained materials of extreme pH (high or low) as this will negatively affect the polymer system.

HANDLING
- It is recommended to use gloves and eye protection when handling this product.
- Product is very soluble in water and can be washed off easily.
- The manufacturing concentrate contains a pre-swelled polyacrylamide polymer that will exhibit stringy characteristics and will make surfaces slippery.
- Use caution when handling and rinse surfaces thoroughly with water to remove residue.
- Avoid excessive pumping, such as continuous recirculation of the concentrate, as this negatively affects the polymer performance.

STORAGE
- Avoid freezing or extremely cold temperatures for extended periods.
- Avoid prolonged storage in bulk. Spectra Max Tech contains a silicone defoamer which will separate over time. Prolonged storage in bulk will cause uneven layers of defoamer product with significantly higher than desired levels of defoamer at the top of the tank.
- Defoamer separation in the packaged product is usually manageable and re-dispersible in final package size.

FORMULATING AND PACKAGING
- Spectra Max Tech is designed to be used as a manufacturing concentrate only and is NOT intended to be packaged without further formulating.
- Spectra Max Tech is designed to be blended into a concentrated Ammonium Sulfate solution.
- Final % AMS content should NOT exceed 34% in the finished product.
- Recommended use level of Spectra Max Tech in finished product is 20%. This delivers 4% AMS into the finished product.
- Finished blend should be blended long enough to fully hydrate the polymer concentrate.
- Recirculation pumps may be used to enhance solution but DO NOT TURN OVER more than once as this affects the efficiency of the polymer activity.
- The finished product should be filtered prior to packaging using a 5 to 100-micron filter (the smaller micron size is preferred). This is to prevent trash (collected from transportation, internal transferring from holding, and formulating) from being packaged and to filter out any non-dispersed defoamer which might have escaped initial filtering.
- It is normal for small amounts of gelled polymer and white defoamer to collect in the final filtering.
- An additional final polishing filter of similar porosity should be used immediately prior to packaging to result in a clear high-quality product.
- Finished packaging should be polyethylene or polypropylene types.
- Avoid metal packaging containers as the AMS as well as other components will react with iron and cause corrosion as well as reduction of activity of the blend.

RECOMMENDED FIELD USE RATES
- 2.5 gallons per 100 gallons spray mix.

FORMULATION AND LABEL RECOMMENDATIONS
DO NOT MIX IN SPRAY TANK

FORMULATION RECOMMENDATIONS

COMPONENT	% wt/wt	LBS/GALLONS
Water	49.50%	4.975 lbs
AMS Powder	30.50%	3.065 lbs
Spectra Max Tech	20.00%	2.010 lbs
Total	100%	10.050 lbs

LABEL RECOMMENDATIONS

Using the formulation recommendations in chart to the left, the below label recommendations are as follows:

Ammonium Sulfate	34%
Glycerol Acid (citro phosphate complex and siloxane)	3%
Inert Ingredients	63%
Total	100%

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Eliminating and Preventing Foam

A defoamer or an antifoaming agent is a chemical additive that reduces and hinders the formation of foam in industrial process liquids. The terms antifoam agent and defoamer are often used interchangeably. Strictly speaking, defoamers eliminate existing foam and antifoamers prevent the formation of further foam.

HOW ANTIFOAMERS AND DEFOAMERS WORK

Controlling or knocking down foam is a physical process, not chemical. Hydrophobic chemicals (silicone, aluminum stearate, propylene-oxide, etc.) penetrate and physically break bubble walls. Through this process, foam generating chemicals are adsorbed on the bubble surface, thinning the bubble wall, and ultimately cause them to burst or never form.

ANTIFOAMER vs DEFOAMER

Antifoam products are designed to be added to the tank mix for the purpose of preventing foam in the spray tank. Defoamer products are designed to knockdown foam once it has developed in the spray tank. Some antifoam products do contain knockdown ability and can be used for both purposes.

NOT ALL ANTIFOAMERS AND DEFOAMERS ARE CREATED EQUALLY

The active ingredient in most common antifoamer and defoamer products is dimethyl polysiloxane. Performance can be a function of active ingredient levels and proper use rate – common products contain from 10 to 30% of active ingredient levels and general use rates vary accordingly. Even though most products contain the same active ingredient, the formulations can vary greatly.

Well engineered and formulated products can substantially out-perform poor products with higher levels of the same active ingredient.

Performance is greatly a function of how well the antifoamer and/or defoamer adjuvant emulsifies and reacts in the spray tank.

Anti-Foam

ANTIFOAMING AND DEFOAMING AGENT

Anti-Foam is a fast, effective defoamer for use in suppressing foam.

Controlling foam reduces filling time and lessens overflow waste.

Anti-Foam improves spray performance.

The combination of effective ingredients allows for very fast knockdown of troublesome foam if it should occur in the spray tank.

Tank mix partners that generate foam during tank mix agitation require the addition of Anti-Foam to properly suppress foam formation.

PRINCIPAL FUNCTIONING AGENTS
Polydimethylsiloxane,
Silicon Dioxide.....10.0%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
12 x 1 quart bottles
60 cases per pallet
Item# AF1Q

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

dpr Approved For Use In CALIFORNIA

WSDA Approved For Use In WASHINGTON

Enlist Duo® COLEX-D® technology HERBICIDE

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES		
Shake well before using. Agitation is recommended to aid in dispersion of the various components.		
General Use Rate	1 to 2 fl. oz. per 100 gallons of spray mixture	Add Anti-Foam to the spray mixture before the pesticide, or any additional surfactant is added.
For Recirculating Sprayers	4 fl. oz. per 100 gallons of spray mixture	
If Foam Has Already Occurred	6 fl. oz. per 100 gallons of spray mixture	

TECHNICAL INFORMATION	
Net Weight: 27.81 lbs/case	**Specific Gravity:** Not Measured
Flashpoint: >212ºF	**pH:** 3.5 - 4.5
Odor: Undetected to Mild	**Appearance:** Milky White Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with. Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Benchmark

FOAM MARKING AGENT

This foam concentrate is specially formulated to deliver long lasting foam in a range of weather and field conditions. This highly concentrated formula, when used as directed, will produce a thick, white, highly visible foam. This foam can be used with any foam marker equipment for fertilizer and pesticide applications, seed planting and general field cultivation. This product is formulated to handle extreme hard water and high temperature conditions. Benchmark foam marking agent, when used at proper consistency and foam volume, should be visible for up to 40% longer than traditional foaming agents. Foam will disappear faster when placed on dry soil under bright sunlight, high temperature and high wind conditions.

PRINCIPAL FUNCTIONING AGENTS
Proprietary Blend of Active Foam Agents.....100%

USE RATES

Always thoroughly clean out the foam generator reservoir and lines when changing from one brand of foam marker to another. Use a high quality tank cleaner to remove residues and ensure optimum performance. This product is effective at a range of application rates. The addition of water conditioners is generally not recommended.

Standard Use Rate	1 gallon for every 160 gallons of water, or, 8 fl. oz. for every 10 gallons	
If Foam Colorant Additive Is Being Used	2 fl. oz. for every 1 gallon of solution reservoir capacity	Use highest rate when adding a foam colorant.
If Adverse Conditions Exist (High Temperature / Hard Water)	2 fl. oz. for every 1 gallon of solution reservoir capacity	
Hard Water (Up to 1,500 ppm)	This product performs well in hard water up to 1,500 ppm	
If Foam Solution Is Used In Near Freezing Temperatures	2 to 3 fl. oz. of methanol per 1 gallon of foam solution for immediate use	Mixes well in cold water.
NOTE:	Foam will disappear faster when placed on dry soil under bright sunlight, high temperature and high wind conditions. The concentrate when used at proper consistency and foam volume, should be visible for up to 40% longer than traditional foaming agents.	

PACKAGING
4 x 1 gallon jugs
36 cases per pallet
Item# BMK01

30 gallon drums
5 drums per pallet
Item# BMK30

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

TECHNICAL INFORMATION	
Net Weight: 9.50 lbs/gal	**Specific Gravity:** 1.02 - 1.04 @ 20ºC
Flashpoint: >176ºF SFCC	**pH:** 7.0 - 9.0 (1% aqueous solution)
Odor: Sweet	**Appearance:** Clear Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Benchmark HT

HI-TEMPERATURE FOAM MARKER CONCENTRATE

Benchmark HT is specially formulated with a unique blend of high foaming surfactants and foam stabilizers that produces a long lasting foam, particularly under adverse hot and windy application conditions and in hard water. Benchmark HT produces foam that is resistant to wind allowing the foam ball to be resilient to the degrading effects of moderate wind.

Benchmark HT can be used with any foam marker equipment. Field tests conducted using Benchmark HT indicate that this versatile formula produces long lasting, heat resistant foam when used with both pressurized and non-pressurized foam marking systems. Benchmark HT is effective at various dilution rates based on the hardness of the water. Many factors influence how long the foam will last. Foam ball size, colorants, pressure, temperature, humidity, soil type and wind velocity will impact foam life. To insure a good quality foam, be certain to flush and clean the foam generating equipment before use.

PRINCIPAL FUNCTIONING AGENTS
Proprietary Blend of Active Foam Agents and Formulation Aids.....100%

USE RATES

For optimum results, always start by putting half of the water needed in the tank, followed by the total amount of needed Benchmark HT, followed by the remaining half of the water needed.

Standard Use Rate	1 gallon per every 100 gallons of water	
Under Soft Water Conditions (less than 300 ppm)	1 gallon per 120 to 160 gallons of water	May provide satisfactory results.
Under Hard Water Conditions (more than 1,000 ppm)	1 gallon per 80 gallons of water	May be preferred for extended foam life.
Whenever a Foam Colorant Additive is Tank Mixed	1 gallon for every 80 gallons of water	
NOTE:	Do not mix Benchmark HT foam marker with any other foam marker concentrate. This formula is a carefully tested blend of foam additives and stabilizers that may not be compatible with other products. Tank mixtures containing different foam concentrates will likely result in poor quality foam.	

PACKAGING
4 x 1 gallon jugs
36 cases per pallet
Item# BMKHT01

30 gallon drums
5 drums per pallet
Item# BMKHT30

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

TECHNICAL INFORMATION	
Net Weight: 9.50 lbs/gal	**Specific Gravity:** 1.02 - 1.04 @ 20ºC
Flashpoint: >176ºF SFCC	**pH:** 7.0 - 9.0 (1% aqueous solution)
Odor: Sweet	**Appearance:** Clear Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

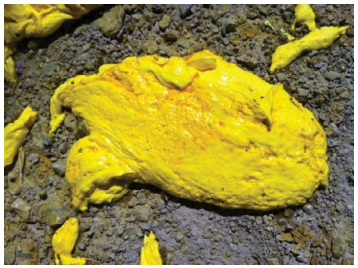
Testing for Product Compatibility is Important!

Since formulations sometimes change and are not all created equally, users should perform a jar test to determine the physical compatibility of the products being introduced into the spray tank and to determine water volume proportional to the water volume of the planned spray tank. Refer to the tank mixing sequence shown on prior page.

JAR TEST INSTRUCTIONS

- Pour 1 pint of water into a 1 quart jar.
- Add the correct proportion of fertilizer and wettable powders to the water and ensure that the materials are uniformly mixed.
- Add aqueous components individually, again ensuring each is mixed uniformly. Add EC compounds last.
- Invert (DO NOT SHAKE) the jar 10 times to mix, and let stand for at least one hour.
- Inspect for unusual signs such as participates, clumping or layering in the mixture.

It is important to remember that a jar test will only show physical incompatibilities and not phytotoxic incompatibilities. To check for the latter, test by spraying an inconspicuous spot.



This photo shows an example of an improperly mixed crop protection product. Following the proper mixing sequence and testing for compatibility with a jar test is highly recommended.

NOTE: If the tank mix is not compatible, a higher water volume, reduced rate of tank mix partners, reduced number of tank mix partners or a compatibility agent (such as KALO's Compex Extra) may be needed.

Use This Pesticide Chart to Test One Pint (16 fl. oz.) Liquid Fertilizer	If the Pesticide Use Rate Is:	Tsp/ml to Use per Acre
Wettable Powders:	1.0 lb/acre	1.4 tsp or 7.0 ml
	2.0 lb/acre	2.9 tsp or 14.0 ml
	5.0 lb/acre	7.2 tsp or 35.0 ml
Emulsifiable Concentrates, Flowables, or Liquids:	0.5 qt/acre	0.5 tsp or 2.4 ml
	1.0 qt/acre	0.9 tsp or 4.7 ml
	3.0 qt/acre	2.9 tsp or 14.2 ml

Compex Extra

NONIONIC SURFACTANT COMPATIBILITY AGENT FOR LIQUID FERTILIZER-PESTICIDE MIXTURES

Compex Extra is a compatibility agent for direct addition to liquid fertilizers.

Compex Extra should be used where simultaneous application of liquid fertilizer and a pesticide is desired and improved stability of the mixture is required.

Compatibility of liquid fertilizer-pesticide mixtures is essential to insure trouble-free, accurate and uniform application.

Crop protection chemicals do not always mix evenly with liquid fertilizers or the components may separate too quickly to make their combined use of practical value.

Incompatibility may be due to pH, concentration and type of certain salts and percentage of water content of the liquid fertilizer.

Compex Extra is effective in improving compatibility and stability of most liquid fertilizer-pesticide mixtures.

Compex Extra is completely soluble in liquid fertilizers such as 28-0-0, 10-34-0, 4-10-10 and 6-18-6.

Because of the wide variety of pesticide and liquid fertilizer combinations possible, the beneficial effects of Compex Extra on compatibility may be tested beforehand by conducting a jar test. Refer to the jar test instructions page in this booklet.

PRINCIPAL FUNCTIONING AGENTS
Alkyl Polyglycoside, 2-Ethylhexyl Sulfate Sodium Salt.....45.3%

All ingredients are exempt from the requirement of a tolerance under 40 CFR 180

PACKAGING
4 x 1 gallon jugs
36 cases per pallet
Item# CXE01

REGISTRATIONS, CERTIFICATIONS, & APPROVALS

dpr Approved For Use In CALIFORNIA

WSDA Approved For Use In WASHINGTON

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

USE RATES	
Liquid Nitrogen Fertilizers	1 to 2 pints, or 0.5 to 1.0 liters/400 liters, per 100 gallons of fertilizer
Liquid Mixed Fertilizers	2 to 3 pints, or 1.0 to 1.5 liters/400 liters, per 100 gallons of fertilizer

TECHNICAL INFORMATION	
Net Weight: 9.42 lbs/gal	**Specific Gravity:** 1.03 - 1.13
Flashpoint: >200ºF SCC	**pH:** 10.0 - 11.0
Odor: Mild	**Appearance:** Pale Yellow Liquid

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with. Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

K-Klean

LIQUID TANK AND EQUIPMENT CLEANER

K-Klean is an effective cleaner for metal, fiberglass and plastic spray systems.

K-Klean aids in the removal of dirt, grime, grease, chemical and fertilizer residues from tanks and equipment.

K-Klean helps eliminate rust and scale and keeps costly equipment in ready-to-use condition.

PRINCIPAL FUNCTIONING AGENTS
Cleaning Agents in a Proprietary Transparent Emulsion.....100%

USE RATES		
K-Klean is effective at dilution rates of up to 1:100.		
For Large Volume Sprayers	1 quart will treat 100 gallons of water	Adjust the dilution rate as needed for individual conditions. Circulate treated solution throughout the entire spray system for 5 to 10 minutes. Use a high-pressure sprayer or hose to rinse all interior areas and tank walls. Purge hoses, spray lines and nozzles for at least one minute. After cleaning, drain system and rinse tanks and spray areas.
For Tanks Or Sprayers (Not Equipped With Hand-Gun or Hose)	1 quart per 100 gallons of water	
Cleaning Procedures	After spraying, drain tank, hoses and boom completely. Rinse inside of tank of visible residues using approved site for handling pesticides. Fill tank half-full with clean water and add K-Klean at selected rate. Agitate and flush the hoses and boom with cleaning solution. Fill with water making sure the tank is completely full and allow to stand for 10 minutes with agitation. Flush the hoses and boom and drain tank completely.	

TECHNICAL INFORMATION	
Net Weight: 8.42 lbs/gal	**Specific Gravity:** 1.05-1.10
Flashpoint: >200°F	**pH:** 12.2 (neat)
Odor: Citrus	**Appearance:** Light Fluorescent Lime Green Liquid

PACKAGING
4 x 1 gallon jugs
36 cases per pallet
Item# KKLEAN01

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

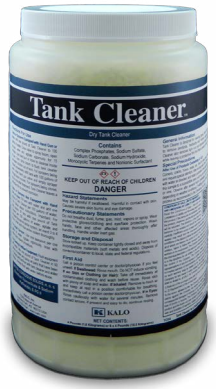
Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Tank Cleaner

DRY TANK & EQUIPMENT CLEANER

Tank Cleaner is designed for cleaning tanks, lines and nozzles to remove pesticide, herbicide and fertilizer residues. Tank Cleaner also removes light rust and dissolves deposit buildups while leaving a protective film that helps prevent corrosion. Color dye in Tank Cleaner indicates ingredients are still active in solution. Tank Cleaner leaves a protective film that helps prevent corrosion.

CONTAINS
Complex Phosphates, Sodium Sulfate, Sodium Carbonate, Sodium Hydroxide, Monocyclic Terpenes and Nonionic Surfactant



USE RATES		
For Tanks or Sprayers Not Equipped with Hand-Gun or Hose	Fill tank with water first, then add 1 pound per 100 gallons of water	Close valve to spray boom, open by-pass valve and agitate vigorously for 15 minutes. Use hand gun or hose to cleanse inside of tank. Open spray boom to flush Tank Cleaner and water solution out of tank.
For Small Sprayer	1 teaspoon per 1 gallon of water	Agitate vigorously, rinse with water, then repeat procedure.
For Sulfonylurea Clean-Out	May require up to 2 pounds per 100 gallons	Some pesticides including, but not limited to, sulfonylurea and phenoxy herbicides (i.e. Classic® and 2-4,D respectively) are active at very small amounts. Classic® is a Reg. Trademark of Corteva
For Cleaning Fertilizer Equipment	Flush equipment with water. Mix 1 pound of Tank Cleaner in 50 gallons of water and spray all parts that have been in contact with fertilizer with Tank Cleaner and water solution.	Always flush with water before reuse.
For Sprayers Being Reused Immediately	Refill tank with 100 gallons of water	Close hand gun valve and empty sprayer through boom nozzles.
For Sprayers Being Stored	Do not rinse after treatment.	Tank Cleaner leaves a protective film to prevent corrosion.

TECHNICAL INFORMATION	
Solubility in Water: Complete	**Specific Gravity:** Not Measured
Flashpoint: Not Measured	**pH:** Not Measured
Odor: Citrus	**Appearance:** Orange Powder

PACKAGING
12 x 1 pound jar
10 cases per pallet
Item# TC01

6 x 4 pound jar
10 cases per pallet
Item# TC04

30 pound drum
10 drums per pallet
Item# TC30

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

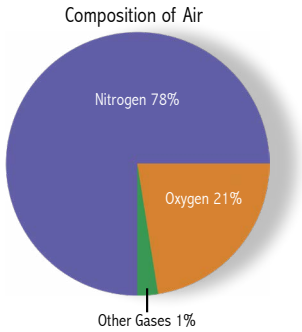
Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Soybean Inoculation & Nitrogen Fixation

Soybeans need nitrogen to grow just like all other plants. However, soybeans and other legumes, like alfalfa, clover, and peas, can manufacture their own nitrogen through a process called nitrogen fixation.

THE MOST EFFICIENT WAY TO FERTILIZE SOYBEANS WITH NITROGEN

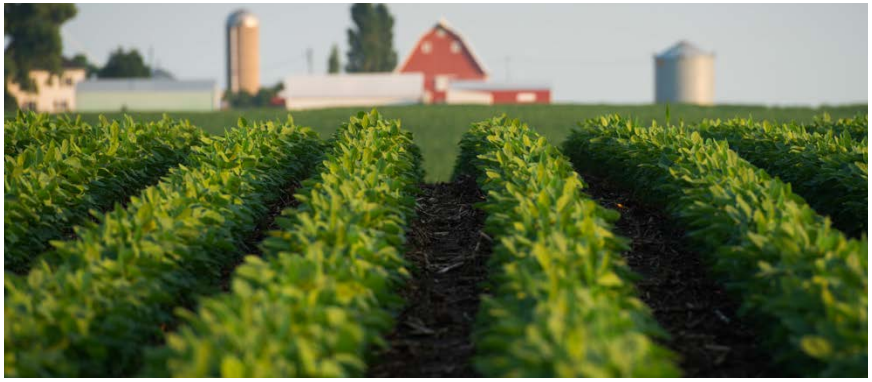
Nitrogen fixation occurs when a rhizobia bacteria in the soil infect legume plant roots, initiating plant response to nodulate and begin a plant process of pulling needed nitrogen from the air.



NITROGEN FIXATION TAKING PLACE

What Happens: Seedling roots grow and inoculating bacteria multiply. The bacteria take nitrogen from the air and convert it to nitrogen fertilizer for the plant. The bacteria colonize root nodules creating a life giving nitrogen rich environment for the plant.

The images below show the formation of nodules on the roots. Large, dark pink/red nodules indicate active nitrogen fixation is taking place within the plant. This is caused by leghemoglobin in the plant nodules; very similar to hemoglobin in the blood of vertebrates. Dark pink/red means alive and functioning!



SOYBEAN NUTRIENT DEMAND

The demand for nutrients depends on the soybean growth stage. Since the soybean seed has high levels of protein, demand for nitrogen is extremely high during seed formation.

	NUTRIENT	Concentration (lbs of nutrient per bushel raised)			Total Crop Nutrient		
		Grain	Straw	TOTAL	50 bu	60 bu	70 bu
Primary NPK	Nitrogen	4.20	1.30	5.50	275	330	385
	Phosphorus	0.40	0.13	0.53	26.5	31.8	37.1
	Potassium	1.25	0.75	2.00	100	120	140
Secondary Nutrients	Calcium	0.20	1.50	1.70	85	102	119
	Magnesium	0.23	0.22	0.45	22.5	27	31.5
	Sulfur	0.20	0.25	0.45	22.5	27	31.5

IT IS IMPORTANT TO FOLLOW THESE GUIDELINES FOR PROPER HANDLING, USAGE AND STORAGE OF SOYBEAN INOCULANTS

- Prepare only as much soybean inoculant as will be applied to seed that day.
- DO NOT OPEN PACKAGE UNTIL THE TIME OF APPLICATION. Once all components have been mixed, apply to seed within 24 hours. If mixing inoculant in same tank with fungicide or insecticides, apply to seed within 4 hours.
- If mixed in a dedicated inoculant tank, on-seed survival of 95 days or more can be achieved.
- Seed treatment products are recommended to be applied sequentially for best results.
- Store in a cool place between 40ºF (4ºC) and 77ºF (25ºC). Do not allow inoculant to freeze or to be exposed to extreme heat. Avoid frequent temperature fluctuations.
- Store in original packaging only and do not reuse empty package.
- Product is not harmful and may be disposed of by using as irrigation for house plants, bedding plants, gardens, and lawns.
- NOT A PLANT FOOD INGREDIENT!

Legacy

DUAL-ACTION LIQUID INOCULANT FOR SOYBEANS

One Legacy carton contains a two-part system:
1. Super-Concentrated Liquid Inoculant (Part A);
2. Chitosan Based Bio-Stimulant Plus Extender (Part B);

When the two parts of the system are combined, the resulting mixture is a ready-to-apply seed inoculant, that should be applied to seed immediately. On-seed survival of bacteria can last as long as 95 days after application. Sequential application of separate seed treatment products is recommended for best results.

When both parts are combined, the resulting mixture is a ready-to-apply live bacteria and bio-stimulant/extender agent formulated to inoculate 50 units of soybean seed.

Part A – Super Concentrated Liquid Inoculant
10 billion ($1x10^{10}$) active Bradyrhizobium japonicum per ml results in superior nodulation and higher yielding soybeans.

Part B – EPA Registered Chitosan Based Bio-Stimulant plus Low Viscosity Rhizobium Extender
Low use rate product contained in the rhizobium extender biological plant immuno-stimulant which triggers a defense response within the plant, leading to the formation of physical and chemical barriers against invading pathogens.

Up to 30% thinner than the leading brands of extender on the market, thus eliminating treatment system problems and bridging or clumping of seed.

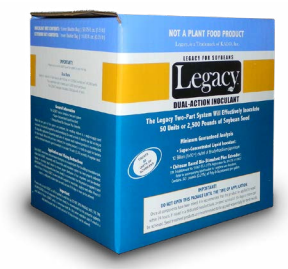
Offers excellent time on seed compatibilities.

DIRECTIONS FOR USE		
IMPORTANT! Prepare only as much LEGACY as will be applied to seed that day. DO NOT OPEN PACKAGE UNTIL THE TIME OF APPLICATION. Once all components have been mixed, it is recommended that this product be applied to seed within 24 hours. If mixed in a dedicated inoculant tank, on-seed survival of 95 days or more can be achieved. Seed treatment products are recommended to be applied sequentially for best results. If mixing LEGACY in same tank with fungicide or insecticides, apply to seed within 4 hours.		
Use Rate	2.5 fl. oz. per 100 cwt, or 1.25 fluid ounces per 140,000 seeds. This application is based upon 2,800 seeds per pound.	Each 2-bladder carton is formulated to inoculate 2,500 pounds of seed.

MINIMUM GUARANTEED ANALYSIS
PART A – Super-Concentrated Liquid Inoculant:
10 billion (1 x 10^{10}) cfu/ml of Bradyrhizobium japonicum
PART B – Chitosan Based Bio-Stimulant Plus Extender:
Contains 0.004 Pounds (0.0018 kg) of Chitosan per gallon

PRINCIPAL FUNCTIONING AGENTS
Active Ingredient (Chitosan)...0.05%
Contains 0.004 Pounds (0.0018 kg) of Chitosan per gallon
Other Ingredients.....99.95%

EPA Establishment No. 91967-TX-2
EPA Registration No. 91429-1-91967



EPA REGISTERED CHITOSAN
EXCLUSIVE
BIO-STIMULANT

PACKAGING
INNER CARTON CONTENTS (EACH):
PART A: 50.72 ounce bladder bag
PART B: 11.83 ounce bladder bag

CASE CONTENTS:
4 Inner Cartons
8 Bladder Bags

48 cases per pallet

Case Item# LEG4CS

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Legacy

INOCULATION SYSTEM FOR SOYBEANS

Benefits of Legacy

- Increased early season vigor. Stimulates the plant's hormones responsible for root formation, stem growth, fruit formation and development.
- Higher stand counts. An increase in stand count of 12% at 14 DAE.
- Nematode suppression. Protects against attacks by activating genes which produce protease inhibitors. (Auburn University Trials, Dec. 2015)
- Higher yields. Over six Midwest locations demonstrated an increase of 4.8 bushels over the control.

Legacy Mode of Action

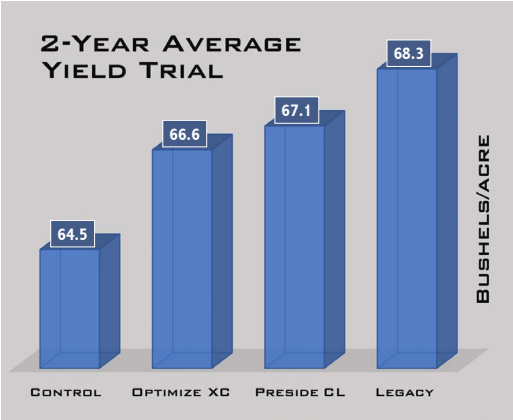
Systemic Acquired Resistance (SAR) is a mechanism of plant defense that provides broad spectrum protection against multiple pathogens including both disease and nematodes.

Legacy behaves like a general elicitor, inducing a non-host resistance and priming the systemic acquired immunity within the plant's cellular tissue.

The vasculature provides the excellent channel for transport of systemic signals.

SAR takes 24 to 48 hours to activate the plant responses, and lasts the entire plant growing cycle.

Involves gene activation and transmitted signal of chitinases, B1, 3-glucanases and PR proteins.

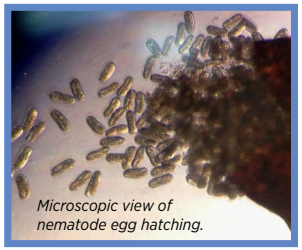


Optimize is a registered trademark of Bayer Group

LEGACY™ Protects Against Soybean Cyst Nematode Damage

The EPA registered bio-pesticide in Legacy promotes protection from invading soybean cyst nematodes and is extremely fatal to nematode eggs and larvae.

Yield Loss From Soybean Cyst Nematode Can Exceed 30%



Microscopic view of nematode egg hatching.

Soybean cyst nematodes (SCN) are microscopic roundworms that infect the roots of soybean and other plants.

SCN is one of the most significant pathogens of soybean. SCN look like small white lemon shaped cysts.

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

RhizoPro

LIQUID INOCULATION FOR SOYBEANS

RhizoPro is intended to be applied on-seed. RhizoPro is a culture of a highly effective strain of rhizobia (nitrogen-fixing bacteria) that will colonize the plant roots to gather and fix the "free" nitrogen of the air, making it available to the plants.

RhizoPro is a ready-to-apply seed inoculant containing live bacteria formulated to inoculate 400 units (20,000 pounds) of soybean seed.

RhizoPro is designed to be custom applied through an approved application device by a retail location that has been trained in the proper methods of handling and applying this liquid inoculant to soybean seed. This product contains live organisms that are sensitive to chemicals and harsh environmental conditions.

MIXING INSTRUCTIONS

- Ensure that the treater has been properly calibrated.
- Shake each bladder well before use.
- Pour each bladder into mix tank.
- Agitate or recirculate liquid mixture to ensure proper distribution of RhizoPro.
- Prepare only as much RhizoPro as will be used that day.
- On-seed survival of 30 days maximum (untreated).
- To prevent contamination of the dilute solutions by possible pesticide or other chemical residues in the spraying equipment, use dedicated equipment, and be sure that the equipment is thoroughly clean before use.

DIRECTIONS FOR USE

USE BEFORE EXPIRATION DATE. RhizoPro carries a one-season shelf life and expires the date stamped on the carton. Open package only when ready to use. DO NOT OPEN PACKAGE UNTIL THE TIME OF APPLICATION. It is recommended that this product be applied to seed within 24 hours. Always read and follow instructions. RhizoPro is designed to be custom applied through an approved application device by a retail location that has been trained in the proper methods of handling and applying liquid inoculant to soybean seed. RhizoPro contains live organisms that are sensitive to chemicals and harsh environmental conditions.

Use Rate	Apply at a rate of 2.0 fl oz (60 mL) per cwt or 1.0 fl oz (30 mL) per 140,000 seeds. **Application rates are based upon 2,800 seeds per pound (0.45 kg).**	Each RhizoPro bladder inoculates 20,000 pounds of seed. Consult with a representative for a complete list of compatible seed treatments.

TECHNICAL INFORMATION	
Net Weight: Not Measured	**Specific Gravity:** Not Measured
Flashpoint: Not Measured	**pH:** 6.5-7.4
Odor: Mild	**Appearance:** Yellow to Brown Liquid

CONTAINS NONPLANT FOOD INGREDIENTS

GUARANTEED ANALYSIS

Liquid Inoculant:
10 billion (1 x 10^{10}) cfu/ml of Bradyrhizobium japonicum

Active Ingredient:
<1% by weight

PACKAGING

1 gaylord box per pallet
50 bladders per gaylord box
405.77 fl oz per bladder
Item#: RPRO-GB

TREATMENT SIZE

Each Bladder Treats:
20,000-lbs (400 units)

A Full Gaylord Box Treats:
1,000,000-lbs (20,000 units)

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Vigor

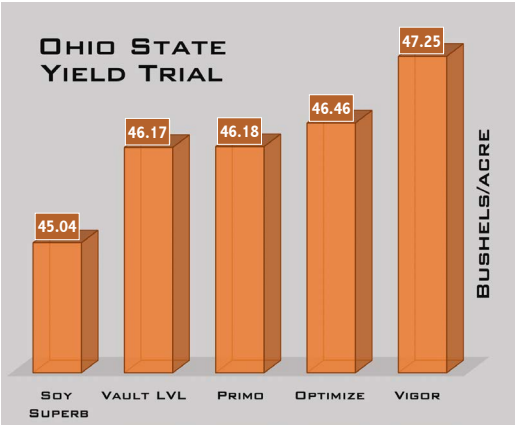
INOCULATION SYSTEM FOR SOYBEANS

Vigor is an at-planting-time soybean seed enhancer.

Vigor inoculates and hastens early growth and establishment of the crop, delivers two types of bio-active performance (nitrogen fixing inoculant/plant growth promoting rhizobacteria) has a high level of viable bacteria, has advanced on-seed survival and has yield proven results.

The tri-pak contains a three-part system. When the three parts of the system are combined, the resulting mixture is a ready-to-apply seed treatment, designed for application at the time of planting or up to 95 days prior to planting.

DIRECTIONS FOR USE		
IMPORTANT! Prepare only as much VIGOR as will be applied to seed that day. DO NOT OPEN PACKAGE UNTIL THE TIME OF APPLICATION. Once all components have been mixed, it is recommended that this product be applied to seed within 24 hours. If mixed in a dedicated inoculant tank, on-seed survival of 90 days or more can be achieved. Seed treatment products are recommended to be applied sequentially for best results. If mixing VIGOR in same tank with fungicide or insecticides, apply to seed within 4 hours.		
Use Rate	3 fl. oz. per 100 pounds of seed	Formulated to inoculate 200 units of soybean seed.



Vault LVL is a registered trademark of Bayer
Primo is a registered trademark of Verdesian Life Sciences
Optimize is a registered trademark of Bayer Group

PART A -
MINIMUM GUARANTEED ANALYSIS:
10 billion (1 x 10^{10}) cfu/ml of Bradyrhizobium Japonicum

PART B –
MINIMUM GUARANTEED ANALYSIS:
1 billion (1 x 10^{9}) cfu/ml of Azospirillum Brasilense

PART C –
Liquid Activator and Stabilizer Synergist

PACKAGING
Case Includes Parts A, B, & C

PART A NET CONTENTS:
1 Bladder Bag
202.88 fl. oz. (6.0 ltr)

PART B NET CONTENTS:
1 Bladder Bag
50.72 fl. oz. (1.49 ltr)

PART C NET CONTENTS
1 Bladder Bag
47.33 fl. oz. (1.39 ltr)

45 cases per pallet

Item#: VIGTP

SCAN QR CODE FOR MORE INFORMATION ON THIS PRODUCT

Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

INOCULANT FOR SOYBEANS

Vigor

INOCULATION SYSTEM FOR SOYBEANS

Part A –
Industry Leading Count of Viable Bacteria

Contains a nitrogen fixing inoculant concentrate.

Vigor for soybeans ultimately delivers living bacteria to the seed that hastens the plant's ability to fix and manufacture the nitrogen it needs to grow.

Vigor is very concentrated so that more viable bacteria can be available for effective inoculation when the plant is ready. Specifically, 1 x 10^{10} bacteria cfu/ml means that every milliliter of VIGOR nitrogen fixing product contains 1 billion viable bacteria! As a result, VIGOR for soybeans delivers an industry leading count of viable bacteria to the seed when properly applied and used according to label instructions. In addition to improving the inoculation rate under a broad range of conditions, the concentrated VIGOR product results in a very high number of bacteria delivered per seed regardless of the seed size.

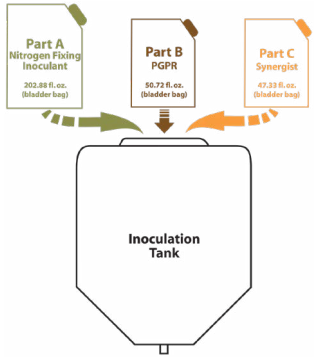
Part B –
Plant Growth Promoting Rhizobacteria (PGPR)

PGPR interacts synergistically with nitrogen fixing bacteria (inoculant) to promote improved nodulation and nitrogen fixation.

Phytohormones produced by the Vigor PGPR, have been shown to promote epidermal-cell differentiation in root hairs that increase the number of potential sites for rhizobial infection, leading to the enhanced nodulation and nitrogen fixation, among many other biological benefits. Most importantly, Vigor is designed to deliver premium inoculation with the backup co-inoculation of PGPR, giving the crop a better start and hastened stand establishment.

Part C –
Liquid Activator and Stabilizer Synergist

Liquid activator and stabilizer Synergist is a nutritional and stabilizing agent for use with the Vigor tri-pak system. Synergist protects and enhances Vigor's nitrogen fixing bacteria (Part) and plant growth promoting bacteria (Part B) to sustain viability of bacteria and extend on-seed stability up to 95 days after inoculation.



Read and follow the precautions and directions for use on the product label and the pesticide it is being applied with.
Always follow pesticide label directions, acceptable practices and advice from your crop consultant.

Absorption	A process in which one material (the absorbent) takes in and retains another (the absorbate).
Acaracide	A chemical agent used to kill mites.
Acidifier	A material that can be added to spray mixtures to neutralize alkaline solutions and lower pH.
Activator	A material that increases the biological efficacy of agrichemicals.
Active Ingredient	A component of the formulation that produces a specific effect for which the formulation is designed.
Adjuvant	A material added to a tank mix to aid or modify the action of an agrichemical, or the physical characteristics of the mixture.
Alkalinity Agent	A material that can be added to the spray mixture to raise the pH.
Ammonium Sulfate (AMS)	An inorganic salt that is most commonly use as a soil fertilizer. It contains 21% nitrogen and 24% sulfur. In the soil the ammonium ion is released and forms a small amount of acid, lowering the pH balance of the soil, while contributing essential nitrogen for plant growth. It is also used as an agricultural spray adjuvant for water-soluble insecticides, herbicides, and fungicides. There, it functions to bind iron and calcium cations that are present in both well water and plant cells. It is particularly effective as an adjuvant for 2,4-D (amine), glyphosate, and glufosinate herbicides.
Anionic Surfactant	A surface-active agent in which the active portion of the molecule containing the lipophilic segment forms exclusively a negative ion (anion) when placed in aqueous solution.
Antifoaming Agent	A material used to inhibit or prevent the formation of foam.
Buffering Agent	A compound or mixture that, when contained in solution, causes the solution to resist change in pH. Each buffer has a characteristic limited range of pH over which it is effective.
Cationic Surfactant	A surface-active agent in which the active portion of the molecule containing the lipophilic segment forms exclusively a positive ion (cation) when placed in aqueous solution.
Chitosan	A fat-binding fiber found in aquatic crustaceans. It is made by treating shrimp and other crustacean shells with alkali sodium hydroxide. It can be used in agriculture as a seed treatment and bio-pesticide, helping plants to fight off fungal infections.
Colorant	A material used to alter the color of the tank mix.
Compatibility Agent	A surface active agent that allows simultaneous application of liquid fertilizer and agrichemical or two or more agrichemical formulations, as a uniform tank mix, or improves the homogeneity of the mixture and the uniformity of the application.
Crop Oil Concentrate (COC)	An emulsifiable petroleum oil-based product containing 15 to 20% w/w surfactant and a minimum of 80% w/w phytobland oil.
Defoaming Agent	A material that eliminates or suppresses foam in the spray tank.
Defoliant	A chemical that causes the foliage to drop from plants.
Deposition Aid	A material that improves the ability of agrichemical sprays to deposit on targeted surfaces.
Dessicant	A desiccant is a substance that absorbs water. It is most commonly used to remove humidity that would normally degrade or even destroy products sensitive to moisture. Silica gel, calcium sulfate, montmorillonite clay, and molecular sieves are commonly used as desiccants.
Drift Reduction Agent (DRA)	A material used in liquid spray mixtures to reduce spray drift.
Elicitors	Extrinsic, or foreign, molecules often associated with plant pests, diseases or synergistic organisms.
Emulsifier	A surfactant that promotes the suspension of one immiscible liquid in another.
Extender	A material that increases the effective life of an agrichemical after application.
Fertilizer	Any of a large number of natural and synthetic materials, including manure and nitrogen, phosphorus, and potassium compounds, spread on or worked into soil to increase its capacity to support plant growth.
Foam	A thick chemical froth.
Foaming Agent	A material that increases the volume or stability of the foam formed in a spray mixture.
Fungicide	A chemical substance that destroys or inhibits the growth of fungi.
Glyphosate	A white compound, C3H8NO5P, that is soluble in water, used as a broad-spectrum herbicide.
Herbicide	A chemical substance used to destroy or inhibit the growth of plants, especially weeds.
Humectant	A material which increases the equilibrium water content and increases the drying time of an aqueous spray deposit.
Inhibitor	An agent that slows or interferes with a chemical action.
Insecticide	A chemical substance used to kill insects.

Ion	An atom or molecule with a net electric charge due to the loss or gain of one or more electrons. “hydrogen ions”
Methylate	To mix or combine with methyl alcohol.
Methylated Seed Oil (MSO)	A group of specially refined crop oil concentrates derived from a seed oil crop such as cotton, soybean, sunflower, or rape.
Micronutrient	A substance, such as a vitamin or mineral, that is essential in minute amounts for the proper growth and metabolism of a living organism.
Modified Vegetable Oil (MVO)	An oil extracted from seeds that has been chemically modified (for example, methylated).
Modified Vegetable Oil Concentrate	An emulsifiable, chemically modified vegetable oil product containing 5% to 20% w/w surfactant and the remainder chemically modified vegetable oil.
Nematode	A phylum of worms including species parasitic in humans and plants as well as free-living nonparasitic species in soil or water. It includes the intestinal roundworms and filarial roundworms.
Nonionic Surfactant (NIS)	A surface-active agent having no ionizable polar end groups but comprised of hydrophilic and lipophilic segments.
Organosilicone (OSS)	A type of NIS that is commonly used as a tank-mix adjuvant with pesticides. Often called super-spreaders or super-wetters because they decrease surface tension so much. They also may have penetrant properties and greatly increase droplet spreading and decrease droplet sizes, which may be more desirable for some active ingredients and application conditions and less desirable for others.
Parraffinic Oil	A petroleum oil (derived from paraffin crude oil) whose paraffinic carbon type content is typically greater than 60%.
Penetrant	A material that enhances the ability of an agrichemical to enter a substrate or penetrate a surface.
Pesticide	A chemical used to kill pests, especially insects.
pH	A measure of the acidity or alkalinity of a solution, numerically equal to 7 for neutral solutions, increasing with increasing alkalinity and decreasing with increasing acidity. The pH scale commonly in use ranges from 0 to 14.
Protease	Any of a group of enzymes that catalyze the hydrolytic degradation of proteins or polypeptides to smaller amino acid polymers.
Sequester	To bind (a metal or metal ion) in the form of a soluble complex or chelate by adding a suitable reagent for the purpose of preventing precipitation in water solution by chemical agents that would normally bring it about, of solubilizing precipitates already formed, or of otherwise suppressing undesired chemical or biological activity
Silica	An inorganic compound composed of silicon and oxygen. It is a very high melting solid that is insoluble in water. In commerce, silica is a fine, white powder. Also known as silicon dioxide.
Silicone Surfactant	A surface active agent in which at least 75% (by weight) is derived from organically modified silicone.
Spreader	A material which increases the area that a droplet of a given volume of spray mixture will cover on a target.
Spreader-Sticker	A material that has the properties of both a spreader and a sticker.
Sticker	A material that assists the spray deposit to adhere or stick to the target and may be measured in terms of resistance to time, wind, water, mechanical action, or chemical action.
Surface Tension	A property of liquids arising from unbalanced molecular cohesive forces at or near the surface, as a result of which the surface tends to contract and has properties resembling those of a stretched elastic membrane.
Surfactant	A material that improves the emulsifying, dispersing, spreading, wetting, or other surface-modifying properties of liquids.
Vegetable Oil	Oil extracted from seeds; typically those of corn, cotton, peanut, rapeseed, sunflower, canola, or soybean.
Vegetable Oil Concentrate	An emulsifiable vegetable oil product containing 5 to 20% w/w surfactant and a minimum of 80% w/w vegetable oil.
Volatility Reduction Agent (VRA)	Volatility is an act of evaporating rapidly; passing off readily in the form of vapor. The use of a VRA will aid in reducing the rate of evaporation.
Water Conditioning Agent	A material that reduces or eliminates the antagonism between a pesticide and ions present in the application water and results in improved bioefficacy.
Wetting Agent	A substance that reduces the surface tension of a liquid, causing the liquid to spread across or penetrate more easily the surface of a solid.

NOTICE-READ CAREFULLY

CONDITIONS OF SALE, LIMITED WARRANTY, AND LIMITATIONS OF LIABILITY AND REMEDIES

Read the Conditions of Sale – Warranty and Limitations of Liability and Remedies before using these products. If the terms are not acceptable, return the product, unopened, and the full purchase price will be refunded. The directions are believed to be reliable and should be followed carefully. Insufficient control of pests and/or injury to crop to which the product is applied may result from the occurrence of extraordinary or unusual weather conditions or the failure to follow the label directions or good application practices, all of which are beyond the control of KALO, Inc., the manufacturer or seller. In addition, failure to follow label directions may cause injury to crops, animals, workers or the environment. The Company warrants that the product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use subject to the factors noted above which are beyond the control of the Company. The Company makes no other warranties or representations of any kind express or implied concerning the product, including no implied warranty of merchantability or fitness for any particular purpose, and no such warranty shall be implied by law. The exclusive remedy against the Company for any cause of action relating to the handling or use of this product shall be limited to, at KALO, Inc.'s election, one of the following: 1) Refund of the purchase price paid by buyer or user for product purchased, or, 2) Replacement of the product used to the extent allowed by law. The Company shall not be liable and any and all claims against the Company are waived for special, indirect, incidental, or consequential damages or expense of any nature, including, but not limited to, loss of profits or income. The Company, the manufacturer and seller offer these products and the buyer and user accept it, subject to the foregoing conditions of sale and limitation of warranty, liability and remedies.

KALO, Inc.
13200 Metcalf Ave., Suite 250
Overland Park, KS 66213
(800) 255-5196
www.Kalo.com / www.KaloSeedCare.com

® Bio-Film, Check-Point, Compex, Drift-X, Fraction, One-Ap XL, Rain-Check, Rainstorm, Regulaid, Spray-Start, Tronic and Vigor are all registered trademarks of KALO, Inc.

™ 90% NIS, AeroStar, AMS/NIS, Anti-Foam, Avant Xtra, Benchmark, Benchmark HT, Bio-90, Boast, Bracer, Cadence, Capstar, CenterPoint, Channel, Citrix, Clarion, Concord, Crop Oil Concentrate, Cruzado, Eco-Shield, Hi-Surf COC, Hi-Surf MSO, K-Klean, K-Surf, Leeway II, Leeway Ultra, Legacy, Mainstay, Maxway II, Methylated Seed Oil, Pure & Simple 90%, Pure & Simple Crop Oil, Pure & Simple NIS, Raze, Recoil, Restore, RhizoPro, Spectra AMS, Spectra Max Tank Mix, Spectra Max Tech, Spray-Tek, Stratum, Summit, Tank Cleaner, Threshold, Variant, Water-Rite, and Water-Rite FC, are all trademarks of KALO, Inc.

® Enlist One, Enlist Duo, and Colex-D are registered trademarks of Corteva Agriscience

® Regiment is a registered trademark of Valent U.S.A. LLC

Excerpts in this guide were referenced from Purdue University/Purdue Extension and the CPDA (Council of Producers and Distributors of Agrotechnology).