



# COMPENDIUM OF HERBICIDE ADJUVANTS



2016 • 13th Edition



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## COMMENTS ON THE 2016 COMPENDIUM

This 2016 *Compendium of Herbicide Adjuvants* is the 13th edition of the biennial publication and contains 779 entries from 38 companies. The first edition of the *Compendium* was assembled in 1992 and contained 76 entries from 22 companies.

What accounts for such growth in the adjuvant products we list? There are a combination of factors. First, foliar herbicide applications continue to be important. Second, growers need to optimize herbicide efficacy to discourage herbicide resistance. Third, there have been great advancements and innovations in herbicide adjuvant chemistry. Fourth, many adjuvants combine multiple adjuvant groups blended into a single product for greater functionality. Finally, growers are better informed about adjuvants and the value they provide.

While the *Compendium of Herbicide Adjuvants* is published every two years, the associated website is updated more frequently. This *Compendium* organizes adjuvant products by type (such as nonionic surfactants, crop oil concentrates, etc.). And each listing includes the product name, manufacturer/distributor, principal functioning agents, use rates, and comments.

Most listings do not include percent “active ingredient” since an industry-wide standard has not been established for the composition of these materials. However, the Council of Producers & Distributors of Agrotechnology (CPDA) has developed a voluntary certification program that requires adjuvant products to meet 17 separate benchmarks for adjuvant composition. For more information about CPDA and a list of certified products, see page 63.

The information in this *Compendium* is for educational purposes only and are based on descriptions provided by product manufacturers and/or distributors. We do not charge to list any adjuvant product in this *Compendium*. Any omission of commercial products is unintentional. If you wish to add a product not included in this *Compendium*, please contact Bryan Young at Purdue University, [BryanYoung@purdue.edu](mailto:BryanYoung@purdue.edu), 765.496.1646.

Reference in this publication to any specific commercial product, process, or service, or the use of any trade, firm, or corporation name is for general informational purposes only and does not constitute an endorsement, recommendation, or certification of any kind by Purdue Extension or Southern Illinois University. Individuals using such products assume responsibility for their use in accordance with current directions of the manufacturer.

## COMPENDIUM WEBSITE

All of the information in this printed version of the *Compendium* is also available online at [www.herbicide-adjuvants.com](http://www.herbicide-adjuvants.com).





















The website was established to supplement this printed *Compendium*. The site allows users to find additional information (such as product labels and electronic indexing) and more current information (when we add new products between printings).

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# ADJUVANT CATEGORIES

## *A Brief Explanation*

In this *Compendium*, we list adjuvant products by adjuvant type (as provided by the manufacturer or distributor/retailer). Herbicide labels will recommend adjuvant products using types similar to the adjuvants provided in the *Compendium*.

In this printed guide, products that have multiple functions may be cross-listed in up to three adjuvant categories. Entries in the online version of the *Compendium* may list up to four adjuvant categories. The first adjuvant category listed is considered the primary adjuvant category for the product.

High surfactant oil concentrates (HSOC) have been one of the largest areas for growth in herbicide adjuvants. These products are composed of both oil and surfactant chemistry to suit herbicides or herbicide combinations that may benefit from both nonionic surfactant (NIS) and crop oil concentrate (COC) or modified seed oil (MSO) adjuvant products. By definition, however, HSOC products are chemically different from COC or MSO products, so they are not cross-listed in the tables.



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## Nonionic Surfactants (NIS)

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
90% NONIONIC SURFACTANT	KALO, Inc.	1,2,3-trihydroxypropane, diethylene glycol, alkylphenol ethoxylate	1-4 pt/100 gal	Use with herbicides, insecticides, fungicides, defoliants
ACTIVATE PLUS	Winfield Solutions, LLC	Alkylaryl polyoxyethylene glycols, free fatty acids and IPA	0.063-0.5%	
ACTIVATOR 90	Loveland Products, Inc.	Alkylphenol ethoxylate, alcohol ethoxylate and tall oil fatty acid	0.125-0.5%	Low foam, biodegradable, non-flammable
AD-BUFF	Plant Health Technologies	Phosphatidyl choline, propionic acid and alkylphenol ethoxylate	See label	NIS, acidifier
ADEPT	Southern States Cooperative, Inc.	Alkylaryl polyethoxyethanol, free fatty acids, 2-buethoxy-ethanol, propylene glycol and dimethylpolysiloxane	1-4 pt/A	Contains antifoam
AD-MAX 90	Plant Health Technologies	1,2,3-Propanetriol, Dimethylbenzenesulfonic acid, sodium salt and alkyl phenol ethoxylate	8-64 floz/100 gal	Low foam
AD-SPRAY 101	Helena Chemical Co.	Alkyl aryl ethoxylates	0.125-0.5%	
AD-SPRAY 80	Helena Chemical Co.	Alkylaryl polyalkoxylated glycols and derivatives	0.125-0.5%	
AD-SPRAY 90	Helena Chemical Co.	Proprietary blend of alkylaryl polyalkoxylated glycols and derivatives	0.125-0.5%	
ADURO	Winfield Solutions, LLC	Ethoxylated fatty amine-glycerol acid complex, polyoxyethylene ether blend, pH adjusting agents and deposition agents	0.125-0.5%	All-in-1 glyphosate additive
AD-WET 90	Plant Health Technologies	alkylaryl polyoxyethylene ether, glycols, along with other blends	See label	Biodegradable
AD-WET 90 CA	Plant Health Technologies	Alkylphenol ethoxylate, glycols, free fatty acids, dimethylsiloxane	0.063-0.5%	Spreader-activator, contains antifoam
AD-WET 90 PLUS	Plant Health Technologies	Alkylphenol ethoxylate, propylene glycol, tall oil fatty acids	1-3 pt/A	NIS, contains antifoam
AERO DYNE-AMIC	Helena Chemical Co.	Proprietary blend of ethoxylated alkyl phosphate esters, polyalkylene modified polydimethylsiloxane, nonionic emulsifiers and methylated vegetable oils	0.25-1%	For aerial use only, pH reduction and buffering, NIS and oil blend
AG-ADVANTAGE	Innovictis Crop Care, LLC	Poly (methylene-nonyl phenoxy) poly (oxpropylene) propanol, modified resin, esterified oil	0.25-1%	
AIRCOVER	Winfield Solutions, LLC	Proprietary blend of polyalkyleneoxide modified polydimethylsiloxane and nonionic surfactants	6-64 oz/100 gal	Nonionic silicone blend
AMS/NIS	KALO, Inc.	Ammonium sulfate, alkyl polyglycoside, polydimethylsiloxane	1.25-5.0 gal/100 gal	3.4 lb AMS per gal and 20% NIS, NPE Free
APSA-80	Amway Global	80% Nonionic surfactant (alkylaryl alkoxylate) free fatty acids	0.02-0.4%	All purpose spray adjuvant concentrate
AQUA-KING PLUS	Winfield Solutions, LLC	Nonylphenol polyethylene glycol ether, free fatty acids, organic phosphatic acids, dimethylpolysiloxane	0.125-0.5%	Aquatic labeled, pH buffering

ASCENT 90	Plant Health Technologies	Alkylphenol ethoxylate, fatty acids and isopropanol	1-2 pt/A	Low foam NIS
ASSIST	GarCo Products Inc.	Nonionic surfactant blend, water conditioner and compatibility agent	1 qt/100 gal	Convenient combination
ASTUTE	MFA, Inc.	Alkylphenol ethoxylate, propylene glycol, tall oil fatty acids	1-3 pt/100 gal	Contains antifoam
ASTUTE LITE	MFA, Inc.	1,2,3-trihydroxypropane, diethylene glycol, alkylphenol ethoxylate	See herbicide label	For certain post emergence herbicides
ASTUTE XTRA	MFA, Inc.	Vegetable oil ethoxylate, tall oil fatty acids	1-3 pt/100 gal	COC replacement
AVANT XTRA	KALO, Inc.	Polyoxyethylene sorbitan fatty acid ester, soybean oil ethoxylate, copolymer of alpha- and beta-pinene	2-3 fl oz/A in 5-25 gpa	NPE free
BIG SUR 90	Brewer International	Alkylaryl polyoxyethylene glycols, free fatty acids, isopropanol 90%	0.25-0.5%	Wetter
BIO-90	KALO, Inc.	Alkylphenol ethoxylate, propylene glycol, tall oil fatty acids	1-3 pt/100 gal	Contains tall oil and antifoam
BLAZE	GarCo Products Inc.	Nonionic surfactant blend	1-4 pt/100 gal	
BORDER AQ	Plant Health Technologies	Ammonium sulfate, 2-hydroxypropyl guar gum, alkyl dimethyl ammonio acetate, surfactant content is 8%	0.375-0.5% v/v	Drift reduction polymers, retention aids and surfactant
BORDER AQ	Precision Laboratories, LLC	Ammonium sulfate, 2-hydroxypropyl guar gum, alkyl dimethyl ammonio acetate, surfactant content is 8%	0.375-0.5% v/v	Drift reduction polymers, retention aids and surfactant
BRANDT MAGNIFY	Brandt Consolidated, Inc.	Alkyl polyglycoside, ammonium sulfate and ammonium nitrate	1-4 qt/100 gal	2 lb AMS/gal, contains antifoam
BRANDT SUPER 7	Brandt Consolidated, Inc.	Alcohol ethoxylate, lecithin and propanoic acid	1-4 pt/100 gal	Low foam
BRANDT TORPEDO	Brandt Consolidated, Inc.	Modified vegetable (seed) oil, lecithin and alcohol ethoxylate	1-4 pt/100 gal	Low foaming
BREWER 80-20	Brewer International	Alkylaryl polyoxyethylene glycols free fatty acids, isopropanol	0.063-0.25%	Low foam
BREWER 90-10	Brewer International	Alkylaryl polyoxyethylene glycols free fatty acids, isopropanol	0.063-0.25%	Low foam
BRIMSTONE	Wilbur-Ellis Company	Monocarbamide dihydrogen sulfate (AMADS) and surfactants	2-8 pt/A	28% surfactant
BUFFER X-TRA	Custom Agricultural Formulators	Alkylaryl polyoxyethylene glycols isopropanol, phosphoric acid	1-2 qt/100 gal	Add to the tank first
CADENCE	KALO, Inc.	Diethylene glycol, polyether-polymethylsiloxane-copolymer	6-16 oz/100 gal	Approved for use with Regiment herbicide
CERIUM ELITE	West Central	Vegetable (seed) oil ethoxylate, oleic acid, alcohol ethoxylate	1 qt/100 gal	Use rate reduced for aerial applications
CHEMPRO CP-35	Chemorse, Ltd.	Ammonium sulfate, specialized acid blend, and nonionic surfactant	0.19-0.94%	
CHEMSURF 80	Chemorse, Ltd.	Alkyl polyoxyethylene ether and other ethoxylated derivatives	3-48 oz/100 gal	
CHEM-SURF 80	United Suppliers, Inc.	Alkylaryl polyoxyethylene glycol ether 60%, mixed glycol blend and siloxane 20%	0.063-0.375%	Low foam, 80% active
CHEMSURF 90	Chemorse, Ltd.	Alkylaryl polyoxykane ether, IPA and free fatty acids	0.063-0.5%	
CHEM-SURF 90	United Suppliers, Inc.	Alkylaryl polyoxyethylene glycol ether 60%, mixed glycol blend, free fatty acids and siloxane 30%	0.063-0.5%	Spreader, sticker, 90% active

## Nonionic Surfactants (NIS)

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
CHEMURGIC'S NEXT GEN SPREADER	Chemurgic Agricultural Chemicals, Inc.	Alkyl polyoxyethylene ether	0.5 pt/100 gal	Includes antifoam
CHEMWETT PLUS	Coastal Agrobusiness, Inc.	Alkylaryl polyoxyethylene glycols	0.25-0.5%	
CHS FIXATE	CHS	Monocarboxamide dihydrogen sulfate, glycerine and alcohol alkoxyolate	1-3 qt/100 gal	
CHS FIXATE PRO	CHS	Vegetable (seed) oil ethoxyolate, oleic acid, alcohol ethoxyolate	1 qt/100 gal	Use rate reduced for aerial applications
CHS HYPERTONIC	CHS	1,2,3-Propanetriol, diethylene glycol, alkyl polyglycoside	0.25-0.5%	
CHS TRAPLINE PRO	CHS	Vegetable (seed) oil ethoxyolate, oleic acid, alcohol ethoxyolate	2 qt/100 gal	
CHS WHEELHOUSE PRO	CHS	Sodium tricarballoylate, alkyl polyglucoside, tallow amine ethoxyolate, urea	2 qt/100 gal	Rate depends on water hardness
CIDE-KICK	Brewer International	D'limonene, related isomers, and emulsifiers	0.25-0.5%	Penetrating surfactant, made from orange peels
CIDE-KICK II	Brewer International	D'limonene, related isomers, and emulsifiers	0.25-0.5%	Wetter, sticker, activator, penetrant
COMBUST	AgXplore International, Inc.	Phosphate ester of polyglycols, diols, defoamers, and blend of ammonium salts	See label	Includes defoamers and antidrift
COMPLEX	Winfield Solutions, LLC	Alkylphenol ethoxyolate, alkylphenol polymerized resin, linoleic diethanolamide	0.125-0.375%	Spreader-sticker
COMPOUND	Precision Laboratories, LLC	Blend of surfactants, water conditioning agents and phytobland base oil	1-3 pt/A	Turf and ornamentals
CONTROL COMBO	GarCo Products Inc.	Nonionic surfactant blend, drift mitigation/deposition aid (polymer blend), and ammonium sulfate	1 gal/100 gal	Convenient combination
CONTROL DUO	GarCo Products Inc.	Nonionic surfactant blend and drift mitigation/deposition aid (polymer blend)	1-4 pt/100 gal	Convenient combination
CORNBELT LOCKTITE	Van Diest Supply Co.	Blend of fatty acid complex alkoxyolate, oligomeric resin and isomeric alcohol alkoxyolate	1-2 qt/100 gal	Designed for air induction nozzles
CORNBELT PREMIER 90	Van Diest Supply Co.	alkylaryl polyalkoxylated nonionic surfactant and free fatty acids	0.25-0.5%	Highly active ingredient surfactant
CORNBELT SPRAY ACTIVATOR 85	Van Diest Supply Co.	alkylaryl polyalkoxylated nonionic surfactant and free fatty acids	0.25-0.5%	
CORNBELT TROPHY GOLD	Van Diest Supply Co.	Fatty acid complex alkoxyolate, free fatty acids, and alkylarylalkoxyolate	0.25%	95% active low-foaming replacement for COC and MSO
CORNBELT VAPORGARD	Van Diest Supply Co.	Beta-hydroxy tricarballylate, alkyl polyglucoside, monocarbamide dihydrogen sulfate and acrylamide sodium acrylate linear copolymer	1-3 qt/100 gal	Designed for nozzles delivering coarse droplets
COVERALL	Coastal Agrobusiness, Inc.	Alkylpolyethoxy ethers	0.125-0.5%	

CURIO	KALO, Inc.	Polyoxyethylene, sorbitan fatty acid ester, ethoxylated soybean oil	1-2 qt/100 gal	NPE free
DEPLOY	Custom Agricultural Formulators	Alkylarylpolyoxyethylene glycols isopropanol	1-4 pt/100 gal	Low foam, 90% active
DRI NONIONIC SURFACTANT	KALO, Inc.	Block polymer of carbonyldiamide polyoxyalkylated glycol adduct	12 oz/100 gal	Contains antifoam and urea for final analysis of (21-0-0)
DYNE-AMIC	Helena Chemical Co.	Proprietary blend of polyethoxylated dimethyl siloxanes, alkylaryl ethoxylates and methylated seed oils	See label	Blend of organosilicone surfactants and methylated seed oils
ELITE AMPLIFY	Red River Specialties, Inc.	Proprietary mixture of surfactants, buffering agents and dimethylpolysiloxane	0.0625-0.5%	Low foam
ELITE CHAMPION	Red River Specialties, Inc.	Alky polyethoxy ethers and other ethoxylated derivatives	0.0625-0.25%	
ELITE PLATINUM	Red River Specialties, Inc.	Surfactants, humectants, free fatty acids	0.125-0.5%	Low foam
EXPEDITE	MFA, Inc.	Monocarbamide dihydrogen sulfate, 1,2,3-trihydroxypropane, and proprietary blend of surfactants	1-8 pt/100 gal	AMS replacement
FLAME	Loveland Products, Inc.	Blend of alkyl polyglucoside, paraffinic oil, and ammonium sulfate	See label	Water conditioning, NIS
FORTIFY	Plant Health Technologies	Alkyl polyoxyethylene ethers, polymerized resins, and triethanol amine salts of oleic acid (TOFA derived) and petroleum distillates	1 to 4 pt/100 gal	Spreader-sticker
FRANCHISE	Loveland Products, Inc.	Lecithin, methylesters of fatty acids and alcohol ethoxylate	See label	Penetrant, wetter
FS AMS MAX DR	GROWMARK, Inc.	Proprietary blend of organic and mineral acids, compatibility agents, nonionic surfactant and drift reduction polymers, dimethylpolysiloxane antifoam	1-2.5%	
FS AQUALIGHT	GROWMARK, Inc.	Alkyl polyethoxy ethers, ethoxylated derivatives	0.125-0.5%	Low foam, nonionic activator
FS AQUAPRIME	GROWMARK, Inc.	1,2,3 propanetriol, alkylbenzenesulphonic acid sodium salt, alkyl phenol alkoxyate and dimethylpolysiloxane	8-64 floz/100 gal	Low foaming
FS AQUASUPREME	GROWMARK, Inc.	Alkyl polyethoxy ethers, ethoxylated and soybean oil derivatives	0.125-0.5%	
FS TRANSFORM ULTRA	GROWMARK, Inc.	Proprietary blend of nonionic surfactants, ammoniated ions, water conditioning agents and antifoam	0.25-0.5%	Contains antifoam
GREEN CYPRESS AG AIDE	Brandt Consolidated, Inc.	Yucca schidigera extract	4-16 floz/100 gal	Also a soil wetting agent
H2O MAXIMIZER	KALO, Inc.	Carbohydrate surfactant, poloxanlene, poly (2-propanamide)	16 oz/A	Soil surfactant and polymer resin blend
HOOK	Atlantic Pacific Agricultural, Inc.	Alkyl polyoxyethylene ethers, polymerized resins and fatty acid	1-4 pt/100 gal	Add HOOK last
HORIZON	Jay-Mar, Inc.	Alkylpolyoxyethylene glycols, free and modified fatty acids, organosilicone surfactant and blended diols	0.125-1%	Spreader, activator

## Nonionic Surfactants (NIS)

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
HUM-AC 820	Drexel Chemical Co.	Proprietary blend of alkylpolyoxyethanol and humectants	0.125-0.25%	
HYDRO-WET INJECTABLE	KALO, Inc.	Poloxyalkylene glycol	12-24 oz/A	NPE free soil surfactant
HYDRO-WET PELLETS	KALO, Inc.	Polyoxyethylenepolypropoxypropanol, glycol butyl ether	See label	NPE free soil surfactant
IMPETRO	MFA, Inc.	Sodium tricarballylate, alkylpolyglucoside, monocarbamide dihydrogen sulfate	2-4 qt/100 gal	Do not exceed 2.5% v/v
IMPROVE	GarrCo Products Inc.	Premium nonionic surfactant blend, humectant, and antifoam/defoamer	8-128 oz/100 gal	DuPont approved, contains antifoam
INDUCE	Helena Chemical Co.	Alkylarylpoloxyalkane ether and free fatty acids	0.125-0.5%	Non-flammable
INDUCE PH	Helena Chemical Co.	Proprietary blend of alkylarylpoloxyalkane ethers, alkylarylpoloxyethanol phosphates, free fatty acids plus buffering agents and other components	0.25-0.5%	pH reduction, buffering
INSIST 90	Wilbur-Ellis Company	Alkylphenol ethoxylate, isopropanol	0.063-0.5%	Not for aquatic use
INTAKE	Custom Agricultural Formulators	Alkylarylpoloxyethylene glycols isopropanol, humic acids	1-4 pt/A	80% active nonionic with humic acids
JACKHAMMER	West Central	Urea, ammonium nitrate, alcohol ethoxylate, and propionic acid	1-3 qt/100 gal	
JACKHAMMER ELITE	West Central	Trisodium citrate dihydrate, alkyl polyglucoside, monocarbamide dihydrogen sulfate, tallow amine ethoxylate	2 qt/100 gal	Rate depends on water hardness
JETTE 80/20	AgXplore International, Inc.	Alkyl polyethoxy alkylene esters and other derivatives	0.25-0.5%	Low foam
JOINT VENTURE	Helena Chemical Co.	Proprietary blend of polyalkyleneoxide, modified organosilicones, alkylpolyalkane ether, and aliphatic ester of C9-C12 fatty acids	0.125-0.25%	For use with conventional and biological pesticides
K-TONE	West Central	Alkylphenol ethoxylate, 2-butoxyethanol, butyl alcohol	6-48 oz/100 gal	
LANDLOCK	AgXplore International, Inc.	Proprietary blend of ethoxylates, fatty acids, and parafins	See label	Soil surfactant
LEEWAY	KALO, Inc.	Trisodium citrate dihydrate, alkyl polyglucoside, monocarbamide dihydrogen sulfate	2-4 qt/100 gal	Ammonium free water conditioner, NPE Free NIS
LI-700	Loveland Products, Inc.	Phosphatidylcholine, methylacetic acid, and alkylpolyoxyethylene ether	0.25-4 pt/100 gal	Acidifier, penetrant, drift reduction
LIBERATE	Loveland Products, Inc.	Lecithin, methyl esters of fatty acids, and alcohol ethoxylate	0.125-1%	Penetrant, deposition, drift reduction
LOAD UP	Plant Health Technologies	Tallow amine ethoxylate, ammonium sulfate, sulfuric acid	0.25-0.75%	
MAINSTAY	KALO, Inc.	Alkyl polyoxyethylene ethers, polymerized resins, and triethanol amine salts of oleic acid (TOFA derived), petroleum distillates	1-4 pt/100 gal	Resists washoff

MASTERLOCK	Winfield Solutions, LLC	Modified vegetable oil, polyoxyethylene sorbitan fatty acid ester, vegetable oil and soybean oil ethoxylated	See comments	NIS, deposition, drift reduction, 6.4 oz/a ground, 1% air
MEDALIST	KALO, Inc.	Proprietary blend of nonionic carbohydrate surfactants, polyoxyethylene-polyoxypropylene glycol, polydimethylsiloxane	16-24 oz/A	NPE free NIS for irrigation injection
MOR-ACT ADJUVANT	Wilbur-Ellis Company	Non-phytotoxic paraffin base petroleum oil, polyol fatty acid esters and polyethoxylated derivatives thereof	1-4 pt/A	Do not exceed 5%
NEW BALANCE	Precision Laboratories, LLC	Proprietary blend of alkyl polyethoxy ether and 2-hydroxy-1,2,3 propane tricarboxylic acid	8-32 oz/100 gal	Contains antifoam
NIS 80-20	Precision Laboratories, LLC	Alkyl, polyethoxy ethers, ethoxylated and soybean derivatives, antifoam 80-20	0.125-0.5%	Economy NIS
NIS 90-10	Precision Laboratories, LLC	Alkyl, polyethoxy ethers, ethoxylated and soybean derivatives, antifoam 90-10	0.125-0.5%	Economy NIS
NO FOAM A	Brandt Consolidated, Inc.	Alkyl phenol ethoxylate, isopropanol, and fatty acids	See label	
ONE-AP XL	KALO, Inc.	AMS block polymer of carbonyl diamine, polyoxyethylene polyoxypropylene, beta-hydroxy-tricarboxylic acid, polyacrylamide polymer, dimethylsiloxane	10-20 lb/100 gal	AMS with 0.25% v/v NPE free NIS, drift reduction, deposition, contains antifoam
PAS-800	Drexel Chemical Co.	Phosphatidylcholine, methylacetic acid and alkyl polyoxyethylene ether	0.25-4 pt/100 gal	Penetrant, acidifier, surfactant
PEN-A-TRATE II	Precision Laboratories, LLC	Alkyl polyethoxy ethers and other ethoxylated derivatives	0.125-0.5%	Contains antifoam
PHUSE	AgXplore International, Inc.	Alkyl polyethoxy esters and derivatives, carboxylic acids and phospholipids	See label	Nonionic, multi-functional adjuvant to prevent alkaline hydrolysis by lowering pH
POWERLOCK	Winfield Solutions, LLC	Modified vegetable oil, alkyl phenol ethoxylate, sodium salts of fatty acids.	5-8 oz/A	NIS, deposition, drift reduction
PRECISION SPREADER	Precision Laboratories, LLC	Blend of alkyl polyoxyethylene, glycol derivatives, humectant and formulation aids	0.5-4 pt/100 gal	Turf and ornamentals
PREFER 90	West Central	1,2,3-Propanetriol, diethylene glycol, alkyl polyglycoside	0.25-0.5%	
PREFERENCE	Winfield Solutions, LLC	Alkyl phenol polyethoxylate and soybean based fatty acids	0.063-1%	
PROTYX	Precision Laboratories, LLC	Proprietary blend of hydrocarbyl polyalkylene oxides and glycol ethers 99.5%	0.125-0.25%	Activator adjuvant for fungicides and insecticides
QUARK	Plant Health Technologies	Polyalkylene modified heptamethyltrisiloxane and nonionic surfactants	See label	Nonionic organosilicone wetting agent
R-11	Wilbur-Ellis Company	Alkyl phenol ethoxylate, butyl alcohol, dimethylpolysiloxane	6-48 oz/100 gal	Spreader, activator
R-56	Wilbur-Ellis Company	Alpha-(p-nonylphenyl) 2-hydroxypoly oxyethylene, poly(methylene-p-nonylphenoxy) polyoxypropylene propanol	0.125-0.5%	Good choice with fungicides, sticker
RAINER-EA	Wilbur-Ellis Company	Polyoxyethylene polyol fatty acid ester, butyl lactate and alcohol ethoxylate phosphate ester	6-48 floz/100 gal	NPE free, aquatic approved, low foam
REGULOID	KALO, Inc.	2-butoxylethanol, poloxalene, monopropylene glycol	0.5-3 pt/100 gal	NPE free NIS activator adjuvant
RENEGADE-EA	Wilbur-Ellis Company	Methyl soyate, ammonium nitrate, urea and other components	1-3 gal/100 gal	NPE free, aquatic approved, unique blend

## Nonionic Surfactants (NIS)

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
RRSINIS	Red River Specialties, Inc.	Alkylaryl polyethylene glycols, free fatty acids	0.5-2 pt/100 gal	Low foam
SATURALL 85	Conklin Co., Inc.	Alkylaryl polyoxyethylene glycol, EO/PO block copolymer, dimethylpolyisiloxane	0.016-0.125%	Concentrated wetting agent/surfactant
SCANNER	Loveland Products, Inc.	1,2-propanediol, alkylphenol ethoxylate, polydimethylsiloxane	See label	NIS
SILKICK	Brewer International	Blend of polydimethylsiloxane, limonene, related isomers	0.125-0.5%	
SIMPLYX	Precision Laboratories, LLC	Proprietary blend of surfactants, water conditioning agents and mineral oil	0.5-0.75%	For use with glyphosate
SPREADER 90	Loveland Products, Inc.	Alkylpolyethoxy ethers and ethoxylated derivatives	See label	
SPREDDE 90/10	AgXplore International, Inc.	Alkylaryl polyoxyethylene glycols, free fatty acids and IPA	0.5-4 pt/100 gal	Low foam
SUPER SPREAD 7000	Wilbur-Ellis Company	Alkylaryl polyoxyethylene ethoxylated alcohols, aliphatic polycarboxylate	0.25-4 pt/100 gal	
SUPER SPREAD 90	Wilbur-Ellis Company	Alkylaryl polyoxyethylene glycols and free fatty acids	0.125-0.5%	Spreader
SUREWET	Chemorse, Ltd.	Polyvinyl polymer and nonionic surfactant	0.5-0.75%	30% dry
SURF-80	Cannon Packaging Co. Inc.	Alkylaryl polyethoxylate and alkylpolyoxyethylene	1.5-2.5 pt/A	Contains antifoam
SURF-90	Cannon Packaging Co. Inc.	Alkylpolyethylene glycols and other ethoxylated derivatives	1.5-2.5 pt/A	Contains antifoam
SURF-AC 820	Drexel Chemical Co.	Alkyl and alkylaryl polyoxyethylene glycol 80-20	0.125-0.375%	Low foaming
SURF-AC 910	Drexel Chemical Co.	Alkyl and alkylaryl polyoxyethylene glycol 90-10	0.125-0.375%	Low foaming
SURFACT 50	Brandt Consolidated, Inc.	Yucca schidigera and citric acid	1-4 pt/100 gal	Low foaming
SURSIL	AgXplore International, Inc.	Polyalkyleneoxide modified heptamethyltrisiloxane and nonionic surfactants	12-64 oz/100 gal	
SYNC	Precision Laboratories, LLC	Blend of hydrocarbyl polyalkylene oxides, glycol ethers and dimethylpolyisiloxane antifoam	0.13%	For use with fungicides and their tank mixes
SYNTACT	Coastal Agrobusiness, Inc.	Modified terpene polymers and emulsifiers plus organo-silicone surfactants	0.125-0.25%	
TOPSURF	Winfield Solutions, LLC	Alkylpolyethoxyalkylene ethers and other ethoxylated derivatives	0.25-8 pt/100 gal	Contains antifoam
TOURNAMENT-READY	KALO, Inc.	Alkylpolyglycoside, polyalkoxylate, siloxane	16-24 oz/A	NPE Free NIS soil wetting agent
TOURNAMENT-READY PELLETS	KALO, Inc.	Blend of carbohydrate and polymeric surfactants, binders and antifoam agents	1 pellet/12,000 sqft	NPE Free NIS soil wetting agent
TRADITION 93	Rosen's, Inc.	Alkylaryl polyethoxyethanol, free fatty acids, 2-butoxy-ethanol, propylene glycol and dimethylpolyisiloxane	0.125-0.5%	C+E119ontains antifoam



TRANSLATE	United Suppliers, Inc.	Lecithin, esters of fatty acids and phosphate and alcohol ethoxylate	0.125-1%	For use with glyphosate
TRANSPORT ULTRA	Precision Laboratories, LLC	Proprietary blend of nonionic surfactants, ammoniated ions, water conditioning agents and antifoam	0.25-0.5%	For use with glyphosate formulations
TRIPLE PLAY	AgXplore International, Inc.	Proprietary blend of alkanolamids, alkanolates, trisiloxane, carbamides and UAN	0.25-1%	
TRONIC	KALO, Inc.	Vegetable oil ethoxylate, tall oil fatty acids	1-3 qt/100 gal	Veg oil derived NPE free NIS
ULTRA 90-NF	Brandt Consolidated, Inc.	Alkyl phenol ethoxylate, polyethylene glycol, isopropanol, and polydimethylsiloxane	See label	Includes antifoam
UNIFAST-B	Custom Agricultural Formulators	Alkylaryl polyoxyethylene glycols isopropanol, phosphoric acid	0.5-4 pt/100 gal	Add to the tank first
VADER	Loveland Products, Inc.	Phosphatidylcholine, methylated vegetable oil, alcohol ethoxylate	See label	Penetrant, acidifier, deposition
VELOMAX	Innkvictis Crop Care, LLC	Methyl esters of fatty acids, paraffinic hydrocarbons and fatty acids	0.25-0.5%	
VENTURI	Innkvictis Crop Care, LLC	Paraffinic oil, castor oil ethoxylate, fatty acids, $\alpha$ , $\beta$ pinene copolymer	0.5-1% v/v	Add to the tank last
VERACITY	West Central	Water conditioners, surfactants, and drift control agents	3 qt/100 gal	
VERACITY ELITE	West Central	Vegetable (seed) oil ethoxylate, oleic acid, alcohol ethoxylate	2 qt/100 gal	
VERTEX	Precision Laboratories, LLC	Alkyl phenol ethoxylate, 1,2,3-propanetriol, dimethylpolysiloxane	8-64 fl oz/100 gal	Surfactant content is 83%
VOYAGER 80/20	Innkvictis Crop Care, LLC	Alkyl phenol ethoxylate, propylene glycol, free fatty acids	0.0625-0.5%	Includes antifoam
VOYAGER 90/10	Innkvictis Crop Care, LLC	Alkyl phenol ethoxylate, propylene glycol, free fatty acids	0.0625-0.5%	Low foam
WATER-RITE	KALO, Inc.	Poloxalene, alkyl polyglucoside, vegetable oil ethoxylate	1-8 pt/A	NPE free NIS, AG adjuvant, soil surfactant
WATER-RITE FC	KALO, Inc.	Alkylglucoside, 1,2,3-trihydropropane, polydimethylsiloxane	1-4 pt/A	NPE free NIS, AG adjuvant, soil surfactant, fertilizer compatible
WAYPOINT	MFA, Inc.	Ammonium sulfate, hydroxy carboxylic acid, phosphoric acid, alkyl polyoxyethylene glycol blend, and dispersing agents	1-4 qt/100 gal	Refer to pesticide label for crops/rates
WEX	Conklin Co., Inc.	Alcohol ethoxylates, propylene glycol, dimethylpolysiloxane	0.08-0.5%	Also reduces chemical foaming
WHITewater 90	West Central	Glycerin, alkyl polyglucoside, diethylene glycol	0.25-0.5%	
WHITewater NIS	West Central	Alkyl phenol ethoxylate, glycerol, diethylene glycol	0.25-0.5%	
WILLOWOOD BUFFER SPREADER	Willowood USA	Alkylaryl polyoxyethylene glycols, isopropanol, phosphoric acid	0.5-4 pt/100 gal	Low foam
WILLOWOOD SPREADER	Willowood USA	Alkylaryl polyoxyethylene glycol, isopropanol 90-10	0.125-0.5%	

## Surfactants plus Nitrogen Source

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
AFFIX PLUS	Southern States Cooperative, Inc.	A liquid proprietary blend of diammonium sulfate, surfactants, dimethylpolysiloxane, modified elasto polymer and antifoaming agents	1-1.25%	Crop (guar) based polymer
AIRTECH	Winfield Solutions, LLC	Ammonium sulfate, high fructose corn syrup, substituted fatty alkylammonium alkylcarboxylate, alkyl poly glucoside	1-4%	20% surfactant
AMS-ALL	Drexel Chemical Co.	Ammonium sulfate, proprietary drift reduction solution, defoamer and surfactant	1.5 gal/100 gal	3.4 lb AMS per gallon
AMSURFXTRA	United Suppliers, Inc.	Proprietary blend of ammonium salts, polyol, alkylpolyoxyethylene sulfate, aryl sulfonate, polyacrylamide	1.25-5%	AMS, deposition, surfactant
AQUABUPH	Brewer International	Blend of nonionic surfactant, phosphoric acid, sequestering agent, and nitrogen	0.25-0.5%	
BRONC PLUS DRY	Wilbur-Ellis Company	AMS, surfactants and anti-foam	12 lb/100 gal	12 lb/100 gal = 8.5 lb AMS + 2 qt 80% NIS
CARRIER-PLUS	Cannon Packaging Co. Inc.	Nonionic surfactant plus nitrogen solution	2 pt/A	
CAVUSE PLUS	Wilbur-Ellis Company	AMS, alcohol ethoxylates, ammonium nitrate	1-1.5%	
CHS AXON	CHS	Urea ammonium nitrate, alcohol ethoxylate, and propionic acid	1%	
CHS WHEELHOUSE	CHS	Ammonium sulfate, glycerin and sodium xylene sulfonate	2.5 gal/100 gal	2.5 gal/100 gal = 8.5 lb AMS + 0.5% surfactant
CLASS ACT FLEX	Winfield Solutions, LLC	Ammonium sulfate, high fructose corn syrup, substituted fatty alkylammonium alkylcarboxylate, alkyl poly glucoside	1-4%	20% surfactant
CLASS ACT NG	Winfield Solutions, LLC	Corn based nonionic surfactant plus ammonium sulfate	2.5-5%	
CO-ACTION WC PLUS	Southern States Cooperative, Inc.	Di-ammonium sulfate, and dimethylpolysiloxane, alkyl (C 12-C 16) dimethyl ammonium acetate	5-10 qt/100 gal	20% surfactant, includes antifoam
CONDITION MAX	GarCo Products Inc.	Concentrated ammonium sulfate and nonionic surfactant blend	0.5-1%	
CONDITION PLUS	GarCo Products Inc.	Ammonium sulfate, nonionic surfactant blend, and drift mitigation/deposition aid (polymer blend)	0.5-1%	Provides 1 lb AMS/qt, contains antifoam/defoamer
DELIVER	Precision Laboratories, LLC	Proprietary blend of nonionic surfactants and ammonium sulfate	2.50%	Provides 8.5 lb AMS, plus 2 qt NIS, contains antifoam
DELUX	Precision Laboratories, LLC	Proprietary blend of nonionic surfactant and formulation aids, ammonium sulfate	0.5-1.25%	
DRI NONIONIC SURFACTANT	KALO, Inc.	Block polymer of carbonyldiamide polyoxyalkylated glycol adduct	12 oz/100 gal	Dry NIS, contains antifoam and urea for final analysis of (21-0-0)
DYNE-A-PAK	Helena Chemical Co.	Alkanoates, nonionic surfactants, and carbamide salts	0.5-0.75%	Substitute for methylated or ethylated seed oils

ENHANCER	Cannon Packaging Co. Inc.	Liquid ammonium sulfate plus polymer and surfactant	1.5-2 pt/A
EVENT	Rosen's, Inc.	A liquid proprietary blend of diammonium sulfate, surfactants, dimethylpolysiloxane, modified elasto polymer and antifoaming agents	1-1.25% Crop (guar) based polymer
FASTRACK	United Suppliers, Inc.	Proprietary blend of water conditioning agents, ammonical nitrogen and nonionic surfactant	0.25-1% Minimum of 0.5% with glyphosate mixtures
FS AMS MAX	GROWMARK, Inc.	Ammonium sulfate, nonionic surfactants and humectants	1.25-5%
FUSION	Cannon Packaging Co. Inc.	Ammonium sulfate souldion, defoamer, copolymer of sodium, acrylate, and acrylamide, polymeric viscosity modifier	2.5-5 gal/ 100 gal
IMPRESSIVE DB	Rosen's, Inc.	Proprietary blend of surfactants plus ammoniated carrier and antifoaming agents	2.25 lb/A
INTERACTIVE	Helena Chemical Co.	Surfactants, ammoniated nitrogen salts, polydimethylsiloxane, polyacrylates	0.25-1% Use rate dependent on glyphosate surfactant content
INVADE X-TRA	Innervict Crop Care, LLC	Nonionic and anionic surfactant, trisiloxane, nitrogen, dimethylpolysiloxane	1%
LINKAGE	West Central	Urea, ammonium nitrate, alcohol ethoxylate, and propionic acid	1%
MOMENTA	KALO, Inc.	UAN fertilizer, methylated vegetable oil, alkyl phenol ethoxylate, tallow amine ethoxylate, polydimethylsiloxane	2.5 gal/100 gal Single tank mix additive for Kixor products
NEWTONE	Winfield Solutions, LLC	Surfactant blend and ammoniated salts	1% Less than 5 GPA use 2%, do not exceed 5%
NITRO-SURF	Drexel Chemical Co.	NIS plus 28% UAN	2.5-3 pt/A Contains antifoam
ONE-AP XL	KALO, Inc.	AMS, block polymer of carbonyl diamine, polyoxyethylene polyoxypropylene, beta-hydroxy-tricarboxylic acid, polyacrylamide polymer, dimethylsiloxane	10-20 lb/100 gal AMS with 0.25% v/v NPE free NIS, drift reduction, deposition, contains antifoam
PATROL	Helena Chemical Co.	NIS plus 28% UAN	See label
PAYOFF PLUS	United Suppliers, Inc.	Proprietary blend of ammonium salts, surfactant, antifoam and multifunctioning polymeric deposition agents	10 lb/100 gal 10 lb/100 gal = 8.5 lb AMS, 2 pt NIS/100 gal, deposition
POWERHOUSE	Rosen's, Inc.	Diammonium sulfate, surfactants and dimethylpolysiloxane	1.25-2.5% Use when AMS and/or AMS+surfactants are needed
PRECINCT	West Central	Ammonium sulfate, sorbitol, sodium xylene sulfonate	2.5 gal/100 gal Rate depends on water hardness
QUAD 7	Loveland Products, Inc.	Proprietary blend of ammonium salt, nonionic surfactant, and buffering agent	1% May be utilized for micro-rate herbicide applications, basic blend
REDUCE	Helena Chemical Co.	Ammonium sulfate, nonionic surfactants, and water conditioners	1-2.5% Provides 8.5 lb AMS and NIS at 2.5%
RENDEZVOUS CTM	Innervict Crop Care, LLC	A proprietary blend of ammonium salts, alkylpolyglycoside, phosphatidyl choline, paraffinic oil, formulation aids	0.75-1.5%
REVEL	Rosen's, Inc.	Diammonium sulfate, surfactants and dimethylpolysiloxane	0.25-0.5% Use when AMS and/or AMS+surfactants are needed

## Surfactants plus Nitrogen Source

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
SPRINT ADT	United Suppliers, Inc.	Proprietary blend of nonionic surfactants, water conditioning agents and deposition aids/drift control agents	0.75%	Water conditioner, drift reduction, NIS
SURFACTANT PH WITH NITROGEN	Brewer International	Nonionic buffering and conditioning agent containing nitrogen	See label	Acidifier
SURFATE	Loveland Products, Inc.	Nonionic surfactant and ammonium sulfate	1%	1.25 gal/100 gal = 0.25% NIS and 4.25 lb AMS
ULTRA-LITE	United Suppliers, Inc.	Nonionic surfactant and ammonium sulfate 90-10	2.5-5%	Liquid AMS, NIS
ULTRASURF AMS	United Suppliers, Inc.	Nonionic surfactant and ammonium sulfate 80-20	1.25-5%	Liquid AMS, NIS
VOLT	Jay-Mar, Inc.	Nonionic surfactant plus 32% UAN	0.5-1.13%	
ZENITH	Rosen's, Inc.	Proprietary blend of diammonium salts, surfactants, crop-based elasto polymer and polysiloxane	1.5-2.25 lb/A	

## Organo-Silicone Surfactants

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
AIRCOVER	Winfield Solutions, LLC	Proprietary blend of polyalkyleneoxide modified polydimethylsiloxane and nonionic surfactants	6-64 oz/100 gal	Nonionic silicone blend
BRANDT SILICONE SPREADER	Brandt Consolidated, Inc.	Blend of organosilicone surfactant and alcohol ethoxylate	12-64 fl oz/100 gal	Also a soil wetting agent
BRANDT SUPER WETTER	Brandt Consolidated, Inc.	Polyether-polymethylpolysiloxane-copolymer, polyether	See label	100% organosilicone surfactant
BREAK-THRU	Evonik Corporation	Polyether-polymethylsiloxane-copolymer	0.025-0.1%	100% nonionic organosilicone, wetter, spreader, surfactant
BROADSPRED	Custom Agricultural Formulators	Blend of polydimethylsiloxane non-ionic surfactants	2-12 fl oz/100 gal	Add anti-foam to the tank before Broadspred
BROADSPRED GREEN	Custom Agricultural Formulators	Siloxane polyalkyleneoxide copolymer and polyalkyleneoxide	3.2-13 fl oz/100 gal	OMRI listed
CADENCE	KALO, Inc.	Diethylene glycol, polyether-polymethylsiloxane-copolymer	6-16 oz/100 gal	Approved for use with Regiment herbicide

CHEMPRO 5-163	Chemorse, Ltd.	Alkylphenol ethoxylate, polyether-modified polysiloxane, and glycol blend	0.03-1%
CHEMPRO 5-172	Chemorse, Ltd.	Proprietary blend of polyalkyleneoxide modified polydimethylsiloxane, nonionic emulsifiers and methylated seed oil	0.125-0.75%
CHEMURGIC'S OR-100 SUPER SPREADER	Chemurgic Agricultural Chemicals, Inc.	Siloxane polyalkyleneoxide copolymer and polyalkyleneoxide	3.2-13 floz/100 gal Water reducing adjuvant
CLARION	KALO, Inc.	Methylated vegetable oil, polyether modified polysiloxane, alkylphenol ethoxylate	3-5 pt/100 gal Highly refined/modified spray oil plus nonionic organosilicone surfactant
DRENCH	GarrCo Products Inc.	Siloxane surfactant	2-12 oz/100 gal pH stable for up to 4 hours, reduces surface tension
DYNE-AMIC	Helena Chemical Co.	Proprietary blend of polyethoxylated dimethyl siloxanes, alkylaryl ethoxylates and methylated seed oils	See label Organosilicone surfactants and methylated seed oils
ELITE MARVEL	Red River Specialties, Inc.	Silicone and other nonionic surfactants and humectants	0.125-0.25% Increased drying time
EXCEL 2000	Coastal Agrobusiness, Inc.	Polyether polymethylsiloxane copolymer	0.5-1 pt/100 gal
FASTSTRIKE	Plant Health Technologies	Proprietary blend of polyalkyleneoxide modified polydimethylsiloxane nonionic emulsifiers and methylated vegetable oil	0.75-2% Blend of refined and modified spray oil and nonionic organosilicone
FREEWAY	Loveland Products, Inc.	Silicone polyether co-polymer and alcohol ethoxylates	6-64 oz/100 gal Surfactant blend, organosilicones
GREEN CYPRESS ECOSPREADER	Brandt Consolidated, Inc.	Siloxane polyalkyleneoxide copolymer and polyalkyleneoxide	3.2-13 floz/100 gal OMRI listed
HAWKER	MFA, Inc.	Polyalkyleneoxide-modified polymethylsiloxane, non-ionic emulsifiers, and methylated vegetable oil	1-5 pt/100 gal Refer to pesticide label for crops/rates
HI-WETT	Loveland Products, Inc.	Polysiloxane polyether copolymer, alcohol ethoxylate, polyoxyethylene-polyoxypropylene copolymer	See label High coverage with low spray volume
IMPACT	Jay-Mar, Inc.	Proprietary blend of polyalkyleneoxide, modified heptamethyltrisiloxane and nonionic surfactant	0.094-0.19% Works best with water soluble herbicides
INERGY	Winfield Solutions, LLC	Proprietary blend of modified vegetable oil, polyalkyleneoxide modified dimethylpolysiloxane and nonionic emulsifiers	0.25-0.63% Blend of MSO and organosilicone
INVADE RST	Innervict Crop Care, LLC	Methyl esters of fatty acids, nonylphenol ethoxylate and ethoxylated heptamethyltrisiloxane	4-32 oz/A
INVADE X-TRA	Innervict Crop Care, LLC	Nonionic and anionic surfactant, trisiloxane, nitrogen, dimethylpolysiloxane	1%
KINETIC	Helena Chemical Co.	Proprietary blend of polyalkyleneoxide modified polydimethylsiloxane and polyoxypropylene-polyoxyethylene block copolymers	0.125% Co-surfactant blend contains evaporation reducing agents

## Organo-Silicone Surfactants

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
KINETIC HV	Helena Chemical Co.	Proprietary blend of polyalkyleneoxide modified polydimethylsiloxane and polyoxypropylene-polyoxyethylene block copolymers	0.25%	Designed for high volume sprays
MATRIX	Coastal Agrobusiness, Inc.	Polymethylsiloxane copolymer and polyethoxy ethers	0.125-0.25%	
NUTRIENT BUFFER 0-10-0	Plant Health Technologies	Polyether-polymethylsiloxane-copolymer	See label	100% nonionic organosilicone, wetter, spreader, surfactant
PHASE	Loveland Products, Inc.	Methylated seed oil plus organosilicone surfactant	0.125-0.5%	
QUARK	Plant Health Technologies	Polyalkylene modified heptamethyltrisiloxane and nonionic surfactants	See label	Nonionic organosilicone wetting agent
RAIN-FAST	Conklin Co., Inc.	Polyether-polymethylsiloxane-copolymer, organic surfactants, anti-foam agent	6-12 oz/100 gal	Rainfastness, wetter, spreader, penetrant
RAPID SPREAD	Cannon Packaging Co. Inc.	Premium surfactant plus silicone	2-6 oz/A	
SIL ENERGY	Brewer International	Polyalkyleneoxide modified polydimethylsiloxane and nonionic surfactants	6-12 oz/100 gal	Super wetter
SIL-FACT	Drexel Chemical Co.	Blend of organosilicone surfactant and alcohol ethoxylates	6-32 oz/100 gal	Wetter, spreader
SILKIN	Winfield Solutions, LLC	Polyalkyleneoxide modified heptamethyltrisiloxane and nonionic surfactant	4-32 oz/100 gal	
SIL-MES 100	Drexel Chemical Co.	Blend of organosilicone, methylated seed oil, alcohol ethoxylate and NIS	0.375-0.75%	100% active, wetter, spreader
SILNET 200	Brewer International	Polyalkyleneoxide modified polydimethylsiloxane and nonionic surfactants	8-26 oz/100 gal	
SILWET L-77	Helena Chemical Co.	Polyalkyleneoxide modified heptamethylsiloxane	0.025-0.25%	
SPEED	Precision Laboratories, LLC	Proprietary blend of polyether polydimethyl siloxane copolymers	0.063-0.125%	Contains antifoam
SUN ENERGY	Brewer International	Blend of methylated vegetable oil, and organosilicone surfactants	0.125-0.5%	Super oil surfactant
SUR-PLUS	United Suppliers, Inc.	Silicone-polyether copolymer and NIS	0.063-0.5%	
SYL-COAT	Wilbur-Ellis Company	Polyether-polymethylsiloxane-copolymer and polyether	4-16 floz/100 gal	NPE free, OMRI listed
SYL-TAC-EA	Wilbur-Ellis Company	Ethylated seed oil, polyether-polymethylsiloxane-copolymer, and polyoxyalkylene fatty ester	See label	NPE free, aquatic approved
TURBULENCE	Winfield Solutions, LLC	Proprietary blend of modified vegetable oil, polyalkyleneoxide modified dimethylpolyisiloxane and nonionic emulsifiers	0.25-0.63%	Blend of MSO and organo silicone
VESTIS	Plant Health Technologies	Siloxane polyalkyleneoxide copolymer and polyalkyleneoxide	3.2-13 floz/100 gal	OMRI listed
VESTIS	Precision Laboratories, LLC	Siloxane polyalkyleneoxide copolymer and polyalkyleneoxide	3.2-13 floz/100 gal	OMRI listed
WIDESPREAD MAX	Loveland Products, Inc.	Polyether-polymethylsiloxane-copolymer, polyether	See label	Silicone surfactant

## High Surfactant Oil Concentrates (HSOC)

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
60-40 CROP OIL	Chemorse, Ltd.	Concentrated blend of high quality nonionic surfactants and paraffinic oil	0.50%	
60-40 MSO	Chemorse, Ltd.	Methylated vegetable oil and high load of nonionic surfactant	4-8 oz/A	
ATMOS	Winfield Solutions, LLC	Methylated soybean oil, high fructose corn syrup, sorbitan fatty acid esters	0.75-2 qt/A	Soybean and corn based ingredients
BEANOIL	Drexel Chemical Co.	Soybean oil 60% and alkyl and alkylaryl polyoxyethylene glycol 40%	0.5-0.75%	Contains antifoam
BETWEEN	United Suppliers, Inc.	Paraffin base petroleum oil, polyolfatty acid esters, polyethoxylated derivatives 60-40	1 pt/A	High load COC
CHS SITKA	CHS	Petroleum hydrocarbons, fatty acids of tall oil, alkylphenol ethoxylates	0.5% or 1-2 pt/A	
CHS WOODSIDE	CHS	Soybean oil methyl ester, fatty acids of tall oil, alkyl phenol ethoxylate	0.5% or 1 pt/A	
CIDE WINDER	Helena Chemical Co.	Ethoxylated alkyl phosphate esters, nonionic surfactants, and C16-C18 alkanooates	0.25-1%	Use rate determines spray adjuvant functions
CLARION	KALO, Inc.	Methylated vegetable oil, polyether modified polysiloxane, alkylphenol ethoxylate	3-5 pt/100 gal	Modified spray oil plus nonionic organosilicone surfactant
CORNBELT LOCKTITE MSO	Van Diest Supply Co.	Blend of methylated soybean oil, fatty acid complex alkoxyates, alkyl aryl polyoxyethylene glycol, oligomeric resin and isomeric alcohol alkoxyate	2-3 qt/100 gal	Designed for all nozzle types
DESTINY HC	Winfield Solutions, LLC	Methylated soybean oil, high fructose corn syrup, sorbitan fatty acid esters	0.75-2 qt/A	Crop based ingredients
DIPLOMAT	Rosen's, Inc.	Paraffinic petroleum oil and surfactant/emulsifier blend 60-40	0.375-0.5%	
DUCE	Helena Chemical Co.	Proprietary blend of methylated oils and nonionic surfactant	0.375-0.75%	Replaces NIS or COC
EXCHANGE	Precision Laboratories, LLC	60-40 blend of paraffinic mineral oil and surfactants	0.50%	Replaces ordinary COC
FS COC SUPREME	GROWMARK, Inc.	60-40 blend of paraffinic mineral oil and surfactants	0.375-0.5%	Replaces ordinary COC at 50% normal use rate
GLACIER-EA	Wilbur-Ellis Company	Methylated vegetable oil and surfactant blend	4-32 oz/A	NPE free, aquatic approved
HIGH LOAD	Wilbur-Ellis Company	Paraffin base oil, sorbitol fatty acid alkoxyates, alkyl ethoxylates	0.25-1%	High surfactant COC
HI-SURF COC	KALO, Inc.	Paraffinic oil, POE sorbitan fatty acid ester, alcohol ethoxylate	1-4 pt/100 gal	Below 12.5 GPA use 1 pt/A
HOT MES	Drexel Chemical Co.	Methylated seed oil 60%, surfactant emulsifier blend 40%	0.25-1% v/v	Use a minimum of 4-8 oz/A

## High Surfactant Oil Concentrates (HSOC)

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
HYBRID	Miller Chemical Co.	Methyl esters of fatty acids, N, N-Bis 2-(omega-hydroxypolyoxyethylene ethyl) alkylamine, tall oil fatty acids	See label	Rates are less than or equal to MSO rates
INVADE HC	Innkvictis Crop Care, LLC	Methylated vegetable oil and surfactant blend	4-8 oz/A	
KIXYT	Precision Laboratories, LLC	Methyl canolate and a proprietary blend of nonionic surfactants	0.50%	Use higher rates for use with Kixor products
MICROYL	Precision Laboratories, LLC	Paraffin base petroleum oil surfactant blend	0.50%	Replaces ordinary COC
MSO HIGH LOAD	Wilbur-Ellis Company	Methylated vegetable oil and surfactant blend	4-32 fl oz/A	Add to the tank last
NAVIGATOR HC	Innkvictis Crop Care, LLC	Paraffinic petroleum oil, selected emulsifier	0.25-0.75%	Use where COC's recommended
ORO HSMO	ORO Agri, Inc.	Methylated seed oil alcohol ethoxylate	1-3 qt/100 gal	High surfactant MSO
PERSIST ADVANCED	Precision Laboratories, LLC	Methylated canola oil, polyalkyleneoxide modified heptamethyltrisiloxane, nonionic surfactants, and emulsifiers	1 pt/100 gal	Siloxane maximized MSO
PREMIUM 60/40	Cannon Packaging Co. Inc.	Paraffinic oil and surfactants 60/40	See label	
SAVY	West Central	Soybean oil methyl ester, fatty acids of tall oil, nonylphenol ethoxylate	0.5% or 1 pt/A	
STAKE	West Central	Petroleum hydrocarbons, fatty acids of tall oil, alkylphenol ethoxylates	0.5% or 1-2 pt/A	
SUCCEED ULTRA	United Suppliers, Inc.	Soybean oil, methyl ester, fatty acid, alkylphenol ethoxylates, and alcohol ethoxylates	0.25-0.75%	One half the rate of conventional MSO concentrates
SUPERB HC	Winfield Solutions, LLC	Phytoblend paraffinic oil, high fructose corn syrup, nonionic surfactant emulsifier system	0.50%	COC replacement, compatible with glyphosate
TRONIC	KALO, Inc.	Vegetable oil ethoxylate, tall oil fatty acids	1-3 pt/100 gal	Veg oil derived NPE free NIS
TYRANT CSOC	AgXplore International, Inc.	Refined, bleached and deodorized seed oil and alkylpolyalkylene esters 60-40	8-16 oz/A	
VERIFACT	Innkvictis Crop Care, LLC	Fatty acid complex alkoxyate, free fatty acids	0.25-0.5%	Soybean derived, low foaming
VOLARE DC	Plant Health Technologies	Phytoblend base oil, tall oil fatty acids, N,N-bis-2-(omega-hydroxypolyoxyethylene/polyoxypropylene) ethyl alkylamine, surfactant content is 35.3%	0.25-0.5%	Resists wind-stream shear
VOLARE DC	Precision Laboratories, LLC	Phytoblend base oil, tall oil fatty acids, N,N-bis-2-(omega-hydroxypolyoxyethylene/polyoxypropylene) ethyl alkylamine, surfactant content is 35.3%	0.25-0.5%	Resists wind-stream shear
XPOND	MFA, Inc.	Paraffin base petroleum oil, surfactant blend	1-2 qt/100 gal	Refer to pesticide label for crops/rates



## Crop Oil Concentrates (COC)

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
AG-ADVANTAGE	Innkvictis Crop Care, LLC	Poly (methylene-nonyl phenoxy) poly (oxpropylene) propanol, modified resin, esterified oil	0.25-1%	
AGRI-DEX	Helena Chemical Co.	Proprietary blend of heavy range paraffin base petroleum oil polyol fatty acid esters polyethoxylated derivatives	See label	Com oil derived emulsifiers
BREWER 83-17	Brewer International	Paraffin base petroleum oil and surfactant	0.03-0.063%	Nonionic paraffinic oil and surfactant
CHEM SPRAY	Chemorse, Ltd.	Paraffinic oil/surfactant blend	1-2 qt/A	
CHEM-OIL 83	Coastal Agrobusiness, Inc.	Paraffinic oil plus emulsifiers	1-2 pt/A	
CITRUFILM	Helena Chemical Co.	Light to mid-range paraffin base petroleum oil, polyol fatty acid esters, and polyethoxylated derivatives	0.5-1%	Designed specifically for citrus
CITRU-SHIELD	Drexel Chemical Co.	Proprietary blend of agricultural paraffinic oil and nonionic emulsifying surfactants	0.5-2 pts/A	2 pt. replaces 1 gal of conventional spray oil
GMR HERBICIDE ACTIVATOR	Brandt Consolidated, Inc.	Petroleum distillate and alkyl phenol ethoxylate	8-32 oz/100 gal	Use 1 pt/A if 20 GPA or less
COMPOUND	Precision Laboratories, LLC	Blend of surfactants, water conditioning agents and phytobland base oil	1-3 pt/A	Turf and ornamentals
CORNBELT CROP OIL CONCENTRATE	Van Diest Supply Co.	Paraffinic oil surfactant blend/emulsifier 83-17	0.5-1%	Reduces surface tension
CORNBELT PREMIUM CROP OIL CONC.	Van Diest Supply Co.	Paraffinic mineral oil, nonionic surfactant/emulsifier 80-20	0.5-1%	Greater ratio of nonionic surfactant/emulsifier
CROP OIL	West Central	Light paraffinic petroleum distillates, tall oil fatty acid, alkylphenol ethoxylate	1%	
CROP OIL CONCENTRATE	Helena Chemical Co.	Paraffin base petroleum oil plus polyoxyethylated polyol fatty acid esters, and polyol fatty acid esters 83-17	0.5-1%	
CROP OIL CONCENTRATE	KALO, Inc.	Paraffinic petroleum oil, tall oil fatty acids, alkylphenol ethoxylates	1-8 pt/100 gal	Paraffinic oil with emulsifier
CROP OIL CONCENTRATE	Plant Health Technologies	Paraffin base petroleum oil along with unique blend of other performance-enhancing agents	See label	Blend of surfactant, nonphytotoxic oil
CROP OIL	Cannon Packaging Co. Inc.	100% active paraffinic oil plus emulsifiers	See label	
FS COC PLUS SURFACTANT	GROWMARK, Inc.	Paraffinic oil plus emulsifiers	2-4 pt/A	

## Crop Oil Concentrates (COC)

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
HERBIMAX	Loveland Products, Inc.	Petroleum hydrocarbons (light paraffinic distillate and odorless aliphatic petroleum solvent) alkylphenol ethoxylate, tall oil fatty acid	1-4 pt/A	High performance, multi-component crop oil/surfactant blend
JAGGE	AqXplore International, Inc.	Paraffin based petroleum oil, poly fatty acid esters and polyethoxylated derivatives 83-17	Do not exceed 5%	
KAMMO PLUS	Helena Chemical Co.	D-Limonene and natural plant oils	See label	Odor masking
MAXIMIZER	Loveland Products, Inc.	Paraffinic oil plus emulsifying surfactants	0.5-4 pt/A	
MONTERY CROP OIL	Brandt Consolidated, Inc.	Paraffinic petroleum oil, alcohol ethoxylate	See label	
MOR-ACT ADJUVANT	Wilbur-Ellis Company	Non-phytotoxic paraffin base petroleum oil, polyol fatty acid esters and polyethoxylated derivatives thereof	1-4 pt/A	Do not exceed 5%
NAVIGATOR	Innvictis Crop Care, LLC	Paraffin base petroleum oil, free fatty acids and alkyl phenol ethoxylate	1-2 pt/A or 1-2%	
NAVIGATOR PLUS	Innvictis Crop Care, LLC	Mineral oil-COC	1-2 pt/A or 1-2%	
NEW CENTURY OIL SPREADER	Custom Agricultural Formulators	Blend of paraffinic petroleum oil poly fatty acid esters and polyethoxylated derivatives thereof	1-4 pt/A	Improved retention under adverse weather conditions
PENETRATOR	Helena Chemical Co.	Light range paraffin based petroleum oil and polyol fatty acid esters, and polyethoxylated derivatives	See label	
PENETRATOR PLUS	Helena Chemical Co.	Mid-range mineral oil, polyol fatty acid esters, polyethoxylated ester thereof, ethoxylated alkyl phosphate esters	0.5-1%	Buffering
PEPTOIL	Drexel Chemical Co.	Paraffinic base petroleum oil plus blend of linear ethoxylated alcohol	8-128 oz/A	Low foam
PREMIUM CROP OIL CONCENTRATE	United Suppliers, Inc.	Paraffinic oil plus surfactant emulsifiers 83-17	1-2 pt/A	Low foam
PRIMARY	Drexel Chemical Co.	Paraffinic base petroleum oil plus blend of linear ethoxylated alcohol	1-2 pt/A	Wetter, spreader
PRIME OIL	Winfield Solutions, LLC	Paraffin base petroleum oil and polyol fatty acid esters and polyethoxylated derivatives	1.5-4 pt/A	
R.O.C.	Wilbur-Ellis Company	Paraffin base petroleum oil, surfactant blend	See label	
RELAY	MFA, Inc.	Paraffin base petroleum oil, surfactant blend	See herbicide label	Do not exceed 2.5% v/v

RELIABLE	Southern States Cooperative, Inc.	Paraffinic mineral oil and surfactant/emulsifier 80-20	1-2 pt/A	Compatibility, contains antifoam
RRSI PACER	Red River Specialties, Inc.	Paraffin base petroleum oil 83-17	0.5-1%	
R-WAY	Rosen's, Inc.	Paraffinic petroleum oil plus surfactant/emulsifier 83-17	1-2 pt/A	Contains antifoam
VIGOR	Precision Laboratories, LLC	83-17 blend of paraffinic mineral oil and emulsifiers	1-2 pt/A or 1%	
WILLOWOOD COC	Willowood USA	Paraffinic petroleum oil poly fatty acid esters and polyethoxylated derivatives thereof 83-17	1-4 pt/A	

## Vegetable Oil Concentrates (VOC)

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
AMIGO	Loveland Products, Inc.	Vegetable oil and emulsifiers	See label	
BRANDT SIDEKICK	Brandt Consolidated, Inc.	Cottonseed oil, alkyl phenol ethoxylate	See label	93% cottonseed oil and 7% emulsifiers
CURIO	KALO, Inc.	Polyoxyethylene, sorbitan fatty acid ester, ethoxylated soybean oil	1-2 qt/100 gal	NPE free
LANDOIL	SO-IL Service, Inc.	Soybean oil with emulsifiers	1 pt/A	Mix with water prior to chemicals
SOY OIL SPRAY CONCENTRATE	United Suppliers, Inc.	Refined soybean oil and surfactant blend 90-10	1-2 qt/A	
SOY-DEX PLUS	Helena Chemical Co.	Proprietary blend of vegetable oil, polyol fatty acid ester, polyethoxylated esters thereof, ethoxylated alkylaryl phosphate ester	0.25-2%	Buffering activity at 2%
TRONIC	KALO, Inc.	Vegetable oil ethoxylate, tall oil fatty acids	1-3 pt/100 gal	Veg oil derived NPE free NIS
VEGETABLE OIL CONCENTRATE	Helena Chemical Co.	Vegetable oil plus nonionic blend of alkyloxyated alkylphenols and fatty acids 85-15	0.5-1%	
VEGETOIL	Drexel Chemical Co.	Soybean oil plus nonionic emulsifiers	See label	ULV, LV, and CDA application

## Modified Vegetable Oils (MVO or MSO)

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
AERO DYNE-AMIC	Helena Chemical Co.	Proprietary blend of ethoxylated alkyl phosphate esters, polyalkylene modified polydimethylsiloxane, nonionic emulsifiers and methylated vegetable oils	0.25-1%	For aerial use only, pH reduction and buffering, NIS and oil blend
AIRFORCE	United Suppliers, Inc.	Methylated seed oil, organosilicones, and nonionic surfactant	0.125-0.5%	Wetter, canopy penetration
BRANDT M.S.O.	Brandt Consolidated, Inc.	Modified seed oil, alkyl phenol ethoxylate and free fatty acids	0.5-2 pt/A	Multicomponent spray adjuvant
CHEMPRO 5-172	Chemorse, Ltd.	Proprietary blend of polyalkyleneoxide modified polydimethylsiloxane, nonionic emulsifiers and methylated seed oil	0.125-0.75%	
CHEMURGIC'S MVO	Chemurgic Agricultural Chemicals, Inc.	Methylated vegetable oil, alcohol ethoxylate, tall oil fatty acid	1-4 pt/A	NPE Free
CHS EMULATE	CHS	Soybean oil methyl ester - 91%, alkylphenol ethoxylate - 9%	0.5-1% or 1.5-2 pt/A	
CONQUER	Chemorse, Ltd.	Methylated vegetable oil and surfactant blend	1-2 pt/A	
CONTINGENT	Helena Chemical Co.	Methylated seed oil (MSO), C10-C12 aromatic hydrocarbons, alkyl amine ethoxylate, alcohol ethoxylate phosphate ester	1%	Add to the tank last
CORNBELT BASE	Van Diest Supply Co.	Alkaline buffered methylated seed oil, nitrogen-based fertilizer solution, nonionic surfactant and antifoam agent	1%	Increases water pH
CORNBELT METHYLATED SOY-STIK	Van Diest Supply Co.	Blend of methylated soybean oil and surfactant emulsifier	1.5-2 pt/A	Contains antifoam
CORNBELT TROPHY GOLD	Van Diest Supply Co.	Fatty acid complex alkoxyate, free fatty acids, and alkylarylalkoxyate	0.25%	95% active low-foaming replacement for COCs and MSOs
DLZ	Helena Chemical Co.	Methylated seed and paraffin oil, nonionic surfactants	0.5-1%	Deposition agent
DYNE-AMIC	Helena Chemical Co.	Proprietary blend of polyethoxylated dimethyl siloxanes, alkylaryl ethoxylates and methylated seed oils	See label	Organosilicone surfactants and methylated seed oils
ELITE PINNACLE	Red River Specialties, Inc.	Modified vegetable oil, and a blend of organosilicone and nonionic emulsifiers	3-6 pt/100 gal	Contains 84% modified vegetable oil
ELITE SUPREME	Red River Specialties, Inc.	Modified vegetable oil, blend of organosilicone and nonionic emulsifier 84-16	0.25-1%	
ENTRO	KALO, Inc.	Methylated seed oil, nitrogen based fertilizer solution, surfactant blend, alkali buffer and antifoam	1-2.5%	Buffers pH to minimize acid hydrolysis, retention aid

EXIT	Miller Chemical Co.	Poly (methylene-p-nonyl phenoxy) poly (oxypropylene) propanol, modified resin, esterified oil	0.5-1%	Nomionic activator-enhancer
EXURO	United Suppliers, Inc.	Soybean oil, methyl ester, polymeric nonionic and alkyl and aryl ethoxylate blend	1-2 pt/A	Higher rates on hard-to-control / stressed weeds
FASTSTRIKE	Plant Health Technologies	Proprietary blend of polyalkyleneoxide modified polydimethylsiloxane nonionic emulsifiers and methylated vegetable oil	0.75-2%	Blend of refined and modified spray oil and nonionic organosilicone
FIRE ZONE	Helena Chemical Co.	Methylated seed oil, polyethoxylated aliphatics, phosphorated polyethoxlated alkanates	1%	
FRANCHISE	Loveland Products, Inc.	Lecithin, methylesters of fatty acids and alcohol ethoxylate	See label	Penetrant, wetter
FS MSO ULTRA	GROWMARK, Inc.	Methylated soybean oil and surfactants	20-24 oz/A	
FS OPTIQUE	GROWMARK, Inc.	Methylated canola oil and surfactants	20-24 oz/A	
HASTEN-EA	Wilbur-Ellis Company	Ethylated seed oil, polyoxalkylene fatty ester	1-4 pt/A	NPE free, aquatic approved
HAWKER	MFA, Inc.	Polyalkyleneoxide-modified polymethylsiloxane, non-ionic emulsifiers, and methylated vegetable oil	1-5 pt/100 gal	Refer to pesticide label for crops/rates
HOME RUIN	Conklin Co., Inc.	Methylated soybean oil plus emulsifier package	1-2 pt/A	Easily dispersed for trouble-free mixing
INERGY	Winfield Solutions, LLC	Proprietary blend of modified vegetable oil, polyalkyleneoxide modified dimethylpolysiloxane and nonionic emulsifiers	0.25-0.63%	Blend of MSO and organosilicone
INVADE	Innervictis Crop Care, LLC	Methyl esters of fatty acids, nonylphenol ethoxylate	1.5-2 pt/A or 1%	
INVADE RST	Innervictis Crop Care, LLC	Methyl esters of fatty acids, nonylphenol ethoxylate and ethoxylated heptamethyltrisiloxane	4-32 oz/A	
KAMMO PLUS	Helena Chemical Co.	D-Limonene and natural plant oils	See label	Odor masking
LIBERATE	Loveland Products, Inc.	Lecithin, methyl esters of fatty acids, and alcohol ethoxylate	0.125-1%	Penetrant, deposition, drift reduction
MES-100	Drexel Chemical Co.	Methylated seed oil plus emulsifiers	1.5-2 pt/A	
METHALATED SEED OIL	Cannon Packaging Co. Inc.	Methylated vegetable oil	0.5-2 pt/A	Use higher rates for larger weeds
METH-N-OIL	Jay-Mar, Inc.	Methylated canola oil plus surfactants	0.5-1%	
METHSOYOIL	AqXplore International, Inc.	Methylated seed oil	1.5-2 pt/A	
MEZO	Southern States Cooperative, Inc.	Methylated soyoil plus surfactants and emulsifiers 90-10	1.5-2 pt/A	Contains antifoam
MODIFIEDVEGETABLE OIL	KALO, Inc.	Modified vegetable oil, alkylphenol ethoxylate, polysiloxane	1.5-2 pt/A	Methylated soybean oil with emulsifier
MOMENTA	KALO, Inc.	UAN fertilizer, methylated vegetable oil, alkyl phenol ethoxylate, tallow amine ethoxylate, polydimethylsiloxane	2.5 gal/100 gal	Single tank mix additive for Kixor products

## Modified Vegetable Oils (MVO or MSO)

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
MSO	Helena Chemical Co.	Proprietary blend of methylated oils and nonionic surfactant	1-2 pt/A	
MSO COMPLETE	Custom Agricultural Formulators	Methylated seed oil, nonionic surfactants & methylated esters of free fatty acid	1-4 pt/A	Add to the tank last
MSO CONCENTRATE WITH LECITECH	Loveland Products, Inc.	Methylated seed oils plus emulsifying surfactants	1-2 pt/A	
MSO ULTRA	Precision Laboratories, LLC	Proprietary blend of methyl soyate, nonionic surfactants and emulsifiers 80-20	1-2 pt/A or 1%	80% MSO with 20% surfactant
NOBLE	Winfield Solutions, LLC	Methylated soy oil plus surfactants / emulsifiers (90:10)	1-2 pt/A	Contains surfactant
PERSEIST ULTRA	Plant Health Technologies	Methylated vegetable oil, alkylphenol ethoxylates	1.5-2 pt/A	Methylated canola seed oil
PERSEIST ULTRA	Precision Laboratories, LLC	85-15 methylated canolate	1-2 pt/A or 1%	
PHASE I	Loveland Products, Inc.	Methylated seed oil plus organosilicone surfactant	0.125-0.5%	
PHASE II	Loveland Products, Inc.	Carbamides, alcohol ethoxylates, methyl esters and polyether modified polysiloxane	1%	Improves uptake, spreading, coverage, penetration
PREMIUM MSO	GarCo Products Inc.	Methylated soybean oil and surfactant emulsifier blend	1-2 pt/A	Soy based, narrow range methyl ester
RENEGADE-EA	Wilbur-Ellis Company	Methyl soyate, ammonium nitrate, urea and other components	1-3 gal/100 gal	NPE free, aquatic approved, unique blend
RRSI SUNRISE	Red River Specialties, Inc.	Proprietary blend of oils, emulsifiers, organosilicone and formulation aids	0.5-1%	High or low volume applications
RRSI SUNSET	Red River Specialties, Inc.	Methylated seed oil blend and emulsifiers	0.75-12 qt/A	
SIL-MES 100	Drexel Chemical Co.	Blend of organosilicone, methylated seed oil, alcohol ethoxylate and NIS	0.375-0.75%	100% active, wetter, spreader
SOY PLUS	MFA, Inc.	Mixed fatty acid methyl esters of vegetable oil and alkylphenol ethoxylate	1-2 pt/A	Refer to pesticide label for crops/rates
SPECTRUM	Coastal Agrobusiness, Inc.	Methylated seed oils plus nonionic surfactant	0.25-0.75%	Contains organosilicone surfactant
SPIRIT	Jay-Mar, Inc.	Methylated canola oil plus organosilicone surfactant	0.375-0.63%	
SUCCEED	United Suppliers, Inc.	Methylated soybean oil and surfactant blend	1-2 pt/A	Methyl ester soy oil, emulsifier
SUCCEED ULTRA	United Suppliers, Inc.	Soybean oil, methyl ester, fatty acid, alkylphenol ethoxylates, and alcohol ethoxylates	0.25-0.75%	Half the rate of conventional MSO concentrates
SUN WET	Brewer International	Blend of methylated seed oil and emulsifiers	0.25-0.5%	Seed oil surfactant
SUNDANCE II	Rosen's, Inc.	Methylated soy oil plus surfactants and emulsifiers 90-10	1.5-2 pt/A	Contains antifoam
SUPER SPREAD MSO	Wilbur-Ellis Company	Methyl soyate nonylphenol blend	1-4 pt/A	100% active

SYL-TAC-EA	Wilbur-Ellis Company	Ethylated seed oil, polyether-polydimethylsiloxane-copolymer, and polyoxyalkylene fatty ester	See label	NPE free, aquatic approved
SYNERGY	Coastal Agrobusiness, Inc.	Methylated seed oils, surfactants and emulsifiers	0.5%-1%	
TURBULENCE	Winfield Solutions, LLC	Proprietary blend of modified vegetable oil, polyalkyleneoxide modified dimethylpolysiloxane and nonionic emulsifiers	0.25-0.63%	Blend of MSO and organosilicone
UPLAND MSO	West Central	Soybean oil methyl ester - 91%, alkylphenol ethoxylate - 9%	0.5-1% or 1.5-2 pt/A	
ZAAR	Helena Chemical Co.	Proprietary blend of methylated oils and nonionic surfactant	1% v/v	Compatibility agent

## Nitrogen Sources

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
ALLIANCE	Winfield Solutions, LLC	AMS and a proprietary blend of water conditioning, coupling and antifoam agents	0.5-0.75%	Contains antifoam
AMSOL	United Suppliers, Inc.	34% liquid ammonium sulfate	5%	2.5% = 8.5 lb AMS/100 gal
AMSOL DRY	United Suppliers, Inc.	Ammonium sulfate, polydimethylsiloxane	1-2% w/v	Includes antifoam
AMS-XTRA	Drexel Chemical Co.	Ammonium sulfate solution, dimethylpolysiloxane	1-2.5%	Contains antifoam
BREEZE	Winfield Solutions, LLC	High fructose corn syrup, ammonium sulfate, water conditioning, buffering, coupling and antifoam agents	4-96 oz/100 gal	Rate depends on desired function, see label
BRONC MAX	Wilbur-Ellis Company	AMS/ammonium alkylaryl sulfonates, polycarboxylic acid	0.125-1%	AMS replacement
CHEM-N	United Suppliers, Inc.	28% UAN solution	1-8 pt/A	Clean filtered 28% UAN
CONDITION CONCENTRATE	GarCo Products Inc.	Ammonium sulfate, proprietary water conditioning agents, and antifoam/defoamer system	0.125-0.5%	
CONDITION ND	GarCo Products Inc.	Concentrated ammonium sulfate, blend of water conditioning agents	0.125-0.5%	Contains almost 1 lb AMS per qt
CORNBELT PREMIUM AMS	Van Diest Supply Co.	Sprayable ammonium sulfate	17 lb/100 gal	
FRACTION	KALO, Inc.	Ammonium sulfate, tricarboxylic acid	3-4 lb/100 gal	Dry, low use rate ammonium sulfate replacement
FS AMS LDF	GROWMARK, Inc.	Liquid AMS	2.5-5%	3.4 lb AMS/gal plus contains antifoam
IMPERIAL AMS	Rosen's, Inc.	Spray grade ammonium sulfate	8.5-17 lb/100 gal	Highly soluble granule
LAS-34	Chemorse, Ltd.	34% liquid ammonium sulfate	2.5-5%	

## Nitrogen Sources

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
LEVEL 7	Winfield Solutions, LLC	High fructose corn syrup, ammonium sulfate, water conditioning, buffering, coupling and antifoam agents	See label	Contains antifoam
MILLED AMS	United Suppliers, Inc.	Ammonium sulfate polydimethylsiloxane	8-20 lb/100 gal	Contains antifoam
N-PAK AMS LIQUID	Winfield Solutions, LLC	Ammonium sulfate solution	1.25-5%	2.5% = 8.5 lb AMS/100 gal
OMNIX	Precision Laboratories, LLC	Ammonium sulfate	8.5-17 lb/100 gal	Spray grade AMS
OMNIX LDF	Precision Laboratories, LLC	34% liquid ammonium sulfate and dimethylpolysiloxane defoamer	2.5-5%	2.5% = 8.5 lb AMS/100 gal
QUEST	Helena Chemical Co.	Proprietary blend of hydroxycarboxylic acid, phosphoric acids, ammonium sulfate, and polyacrylic acid	0.125-0.5%	Water conditioner, AMS replacement, buffer
RENEGADE-EA	Wilbur-Ellis Company	Methyl soyate, ammonium nitrate, urea and other components	1-3 gal/100 gal	NPE free, aquatic approved, unique blend
REQUEST	Helena Chemical Co.	Proprietary blend of ammonium acrylates, hydroxycarboxylates, and sulfates	0.125-0.5%	Water conditioner, AMS replacement, no buffer
RUSH	Winfield Solutions, LLC	Ammonium sulfate, modified glycerol acid complex, polymeric copolymer, and dimethylpolysiloxane	0.5-1%	Contains antifoam
SPECTRA AMS	KALO, Inc.	Ammonium sulfate, glycerol, phosphoric acid, polyacrylamide, dimethylpolysiloxane	2.5-5 gal/100 gal	Full load AMS with drift suppression, enhanced deposition
SPRAY-START	KALO, Inc.	Dry ammonium sulfate, polyacrylamide polymers and anti-foam agent	9-12 lb/100 gal	Dry Water conditioning

## Deposition (Drift Control) and/or Retention Agents with and without Ammonium Sulfate and/or Defoamer

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments	AMS	Defoamer
2% MIST CONTROL	Cannon Packaging Co. Inc.	Polyvinyl polymer	1-4 qt/100 gal	Will retard but not eliminate drift		
34-PLUS	Chemorse, Ltd.	Ammonium sulfate, drift retardant, antifoam	2.5-5%		X	X
38-F	Brandt Consolidated, Inc.	Polyacrylamide polymer	2-4 oz/100 gal	Liquid 32% active		
41-A	Brandt Consolidated, Inc.	Polyacrylamide, polysaccharid polymers	1-7 oz/100 gal	Dry 30% active		



ACQUUEST WM	Helena Chemical Co.	Proprietary blend of polyhydroxycarboxylic acids, sulfates, and polymeric deposition agents	0.5-1%	Deposition	X	X
ACCURACY	Helena Chemical Co.	Polyacrylamide polymers	See label			
ACCUZONE DC	Helena Chemical Co.	Ammonium and potassium salts plus organic polymers	1-2.5 lb/A		X	X
AFFECT GC	United Suppliers, Inc.	Polyvinyl polymer	2-4 oz/100 gal	Modified polyacrylamide		
AFFIX	Southern States Cooperative, Inc.	Proprietary blend of ammonium salts plus modified elasto DR 2000 polymer and antifoaming agents	9 lb/100 gal	Crop (quar) based, micro-homogenized	X	X
AFFIX PLUS	Southern States Cooperative, Inc.	A liquid proprietary blend of diammonium sulfate, surfactants, dimethylpolysiloxane, modified elasto polymer and antifoaming agents	1-1.25%	Crop (quar) based polymer, use when AMS and/or AMS+surfactants are needed	X	X
AMAZE GOLD	Loveland Products, Inc.	Ammonium sulfate, polyacrylamide, and dimethylpolysiloxane	See label	Water conditioning, deposition	X	X
AMS 20/10	United Suppliers, Inc.	Ammonium salts with multifunctioning polymeric dispersing agent and antifoam	10 lb/100 gal	AMS, deposition	X	X
AMS 2000	United Suppliers, Inc.	Ammonium salts and multifunctioning polymeric dispersing agents and antifoam	2-4 lb/A	AMS, drift reduction	X	X
AMS ADVANTAGE	MFA, Inc.	Ammonium sulfate, glycerol, phosphoric acid, polyacrylamide	1-3 qt/100 gal	2 lb AMS per gallon		
AMS EZ PLUS	MFA, Inc.	Ammonium sulfate, drift retardant, antifoam	See label	34% liquid ammonium sulfate with a drift retardant	X	X
AMS PLUS	Coastal Agrobusiness, Inc.	AMS plus proprietary blend of polyacrylamides and dimethylpolysiloxanes	2.50%		X	X
AMS-ALL	Drexel Chemical Co.	Ammonium sulfate, proprietary drift reduction solution, defoamer and surfactant	1-5 gal/100 gal	3.4 lb AMS per gallon	X	X
AMS-DEP	MFA, Inc.	Ammonium sulfate, polyacrylamide polymer, dimethylpolysiloxane	9-12 lb/100 gal	9 lb AMS-DEP = 8.5 lb AMS	X	X
AMSOL PLUS	United Suppliers, Inc.	Modified glycerol acid complex in nitrogen solution and siloxane, acrylamide sodium acrylate linear copolymer blend 85-15	5%	2.5% = 8.5 lb AMS/100 gal	X	X
AMS-SUPREME	Drexel Chemical Co.	Ammonium sulfate, polymeric viscosity modifier and dimethylpolysiloxane	2.5-5%		X	X
AMSURF XTRA	United Suppliers, Inc.	Proprietary blend of ammonium salts, polyol, alkylpolyoxyethylene sulfate, aryl sulfonate, polyacrylamide	1.25-5%	Multifunctioning adjuvant with AMS, deposition, surfactant	X	X

## Deposition (Drift Control) and/or Retention Agents with and without Ammonium Sulfate and/or Defoamer

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments	AMS	Defoamer
ARRAY	Rosen's, Inc.	Proprietary blend of ammonium salts plus modified elasto DR 2000 polymer and antifoaming agents	9 lb/100 gal	Crop (guar) based, micro-homogenized, WeatherMAX compatible	X	X
AVANT XTRA	KALO, Inc.	Polyoxyethylene sorbitan fatty acid ester, soybean oil ethoxylate, copolymer of alpha- and beta-pinene	2-3 floz/A in 5-25 gpa	NPE free		
BORDER 2.0	Precision Laboratories, LLC	Naturally derived galactomannan polymer, polyalkylene glycol	2-4 pt/100 gal	Turf use only		
BORDER AQ	Plant Health Technologies	Ammonium sulfate, 2-hydroxypropyl guar gum, alkyl dimethyl ammonio acetate, surfactant content is 8%	0.375-0.5% v/v	Drift reduction polymers, retention aids and surfactant	X	
BORDER AQ	Precision Laboratories, LLC	Ammonium sulfate, 2-hydroxypropyl guar gum, alkyl dimethyl ammonio acetate, surfactant content is 8%	0.375-0.5% v/v	Drift reduction polymers, retention aids and surfactant	X	
BORDER EG 250	Precision Laboratories, LLC	Dry, extruded granular nonionic HPG polymers	10 oz/100 gal	Crop (guar) based adjuvant		
BORDER MAX	Plant Health Technologies	Ammonium sulfate, HPG polymer, dimethylpolysiloxane antifoam and formulation aids	1.25%	Guar based, provides 4.25 lb AMS and optimum level of HPG polymer	X	X
BORDER MAX	Precision Laboratories, LLC	Ammonium sulfate, HPG polymer, dimethylpolysiloxane antifoam and formulation aids	1.25%	Guar based, provides 4.25 lb AMS and optimum level of HPG polymer	X	X
BORDER XTRA 4L	Precision Laboratories, LLC	Ammonium sulfate, HPG polymer, dimethylpolysiloxane antifoam and formulation aids	5%	Crop (guar) based, provides 4.25 lb AMS and optimum level of HPG polymer	X	X
BORDER XTRA 8L	Plant Health Technologies	Ammonium sulfate, HPG polymer, dimethylpolysiloxane antifoam and formulation aids	2.50%	Guar based, provides 8.5 lb AMS and optimum level of HPG polymer	X	X
BORDER XTRA 8L	Precision Laboratories, LLC	Ammonium sulfate, HPG polymer, dimethylpolysiloxane antifoam and formulation aids	2.50%	Guar based, provides 8.5 lb AMS and optimum level of HPG polymer	X	X
BORDER XTRA DF	Precision Laboratories, LLC	Ammonium sulfate, HPG polymer, dimethylpolysiloxane defoamer	18 lb/100 gal	Crop (guar) based, provides 17 lb AMS and optimum level of HPG polymer	X	X
BRANDT ONSITE	Brandt Consolidated, Inc.	Polyvinyl polymer	See label	Can reduce, but not eliminate drift		
BRANDT SUPER 7	Brandt Consolidated, Inc.	Alcohol ethoxylate, lecithin and propanoic acid	1-4 pt/100 gal	Low foam		
BRANDT TORPEDO	Brandt Consolidated, Inc.	Modified vegetable (seed) oil, lecithin and alcohol ethoxylate	1-4 pt/100 gal	Low foaming		
BRONC MAX EDT	Wilbur-Ellis Company	AMS, glycerol acid, polyacrylamide polymer blend	0.125-1%	Patented technology buffers pH		

BRONC PLUS DRY EDT	Wilbur-Ellis Company	AMS, carbonyl diamine, polyoxyethylene, polyoxypropylene, beta-hydroxy-tricarboxylic acid, polyacrylamide, dimethylsiloxane	10-20 lb/100 gal	Milled and screened for increased solubility	X	X
BRONC TRIPLE	Wilbur-Ellis Company	AMS, propane-1,2,3-triol, alkyl polyglucoside, polyacrylamide, and other ingredients	0.5-1%	For hard water >500 ppm use higher rates	X	X
BULL'S-EYE	Conklin Co., Inc.	Polyvinyl polymer (polyacrylamide)	1-8 oz/100 gal	Aerial and high pressure rates		
CERIUM ELITE	West Central	Vegetable (seed) oil ethoxylate, oleic acid, alcohol ethoxylate	1 qt/100 gal	Use rate reduced for aerial applications		
CHEMPRO CP-40	Chemorse, Ltd.	AMS, modified glycerol acid complex, polymeric copolymer, dimethylsiloxane	0.5-1%		X	
CHEM-TROL	Chemorse, Ltd.	Polyvinyl polymer, polyacrylamide	0.25-2.5%			
CHEM-TROL D	Chemorse, Ltd.	Polyvinyl polymer and dimethylpolysiloxane	0.25-2.5%			X
CHS BUCKHORN TOTAL	CHS	Soybean oil methyl ester, petroleum hydrocarbons, fatty acids of tall oil	4-6 oz/A			
CHS FIXATE PRO	CHS	Vegetable (seed) oil ethoxylate, oleic acid, alcohol ethoxylate	1 qt/100 gal	Use rate reduced for aerial applications		
CHS TRAPLINE PRO	CHS	Vegetable (seed) oil ethoxylate, oleic acid, alcohol ethoxylate	2 qt/100 gal			
CLASP	Helena Chemical Co.	Polyvinyl polymer	0.25-0.75%	Pre-dispersed		
COMPADRE	Loveland Products, Inc.	Lecithin, emulsifiers, glycols and defoamer	0.13%	Contains shear stable drift reduction agent		X
COMPLETE	Conklin Co., Inc.	Spray grade ammonium sulfate and drift retardant (polyvinyl polymer) blend	2.5-5%	3.4 lb AMS/gal, deposition, drift reduction	X	
CONDITION PLUS	GarCo Products Inc.	Ammonium sulfate, nonionic surfactant blend, and drift mitigation/deposition aid (polymer blend)	0.5-1%	Provides 1 lb AMS/qt, contains antifoam/defoamer	X	X
CONTROL	GarCo Products Inc.	Proprietary drift mitigation/deposition aid (concentrated polymer blend)	0.5-4 oz/100 gal	Low use rates		
CONTROL AMS	GarCo Products Inc.	Drift mitigation/deposition aid (polymer blend), ammonium sulfate, and antifoam/defoamer	2.5-5%	2.5% = 8.5 lb AMS/100 gal	X	X
CONTROL COMBO	GarCo Products Inc.	Nonionic surfactant blend, drift mitigation/deposition aid (polymer blend), and ammonium sulfate	1 gal/100 gal	Convenient combination	X	
CONTROL DUO	GarCo Products Inc.	Nonionic surfactant blend and drift mitigation/deposition aid (polymer blend)	1-4 pt/100 gal	Convenient combination		

## Deposition (Drift Control) and/or Retention Agents with and without Ammonium Sulfate and/or Defoamer

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments	AMS	Defoamer
CONTROL WM	GarCo Products Inc.	Drift mitigation/deposition aid (concentrated polymer blend)	0.5-4 oz/100 gal	No AMS		
CORNBELT DRI-GARD	Van Diest Supply Co.	Blend of ammonium sulfate, polyacrylamide and polysaccharide polymers and anti-foam agent	9 lb/100 gal		X	X
CORNBELT GARDIAN	Van Diest Supply Co.	Ammonium sulfate, acrylamide sodium acrylate linear copolymer, glycerol/acid (citrophosphate) and siloxane	0.25-0.75%		X	X
CORNBELT GARDIAN PLUS	Van Diest Supply Co.	Ammonium sulfate, glycerol/acid (citrophosphate), acrylamide	2.5-5%	2.5% = 8.5 lb AMS/100 gal	X	X
CORNBELT LOCKTITE	Van Diest Supply Co.	sodium acrylate linear copolymer complex and siloxane	1-2 qt/100 gal	Designed for air induction nozzles		
CORNBELT LOCKTITE MSO	Van Diest Supply Co.	Blend of fatty acid complex alkoxyolate, oligomeric resin and isomeric alcohol alkoxyolate	2-3 qt/100 gal	Designed for all nozzle types		
CORNBELT PRO-ONE XL	Van Diest Supply Co.	Blend of methylated soybean oil, fatty acid complex alkoxylates, alkyl aryl polyoxyethylene glycol, oligomeric resin and isomeric alcohol alkoxyolate	10 lb/100 gal	Deposition, drift reduction, NIS	X	X
CORNBELT VA-PORGARD	Van Diest Supply Co.	Ammonium sulfate, carbonyl diamine, polyoxyethylene-polyoxypropylene, beta-hydroxy-tricarboxylic acid, polyacrylamide, dimethylsiloxane	1-3 qt/100 gal	Designed for nozzles delivering coarse droplets		X
CORRAL POLY	Winfield Solutions, LLC	Polyvinyl polymer (polyacrylamide)	1-8 oz/100 gal			
CROSSHAIR	Wilbur-Ellis Company	Amine salts of organic acids and modified seed oils	4 oz/A	In the tank last		
CURIO	KALO, Inc.	Polyoxyethylene, sorbitan fatty acid ester, ethoxylated soybean oil	1-2 qt/100 gal	NPE free		
DIRECT	Precision Laboratories, LLC	Polyvinyl polymer (polyacrylamide)	1-4 oz/100 gal			
DIRECT DRT	Coastal Agrobusiness, Inc.	Modified vegetable oil, amine salts of organic acids and organic acid	4-6 fl oz/A	Add to the tank last		
DOUBLEDOWN	United Suppliers, Inc.	Modified glycerol acid complex in nitrogen solution and siloxane, acrylamide sodium acrylate linear copolymer blend	2.50%	2.5% = 8.5 lb AMS/100 gal	X	X

DOWNDRAFT	United Suppliers, Inc.	High-quality modified seed oil and other seed oil derivatives combined with an emulsifier	4-6 oz/A	
DRIFT-CHECK	AqXplore International, Inc.	Polyacrylamides, pathalic glycerol alkylid resins	3-5 pt/100 gal	Can reduce, but not eliminate drift
DRIFT-GARD	Rosen's, Inc.	Proprietary blend of diammonium sulfate, rheologic modifying polymer and antifoam agent	9-14 lb/100 gal	X
DROPLEX	Winfield Solutions, LLC	Modified vegetable oil and emulsifiers	4-6 oz/A	
ELITE AQUA BOOSTER	Red River Specialties, Inc.	Phosphatidylcholine, methylacetic acid and nonionic emulsifiers	1-4 pt/100 gal	Aquatic labeled, pH buffering
ELITE SECURE ULTRA	Red River Specialties, Inc.	Polymers and other active ingredients	See label	Rate depends on drift potential
EVENT	Rosen's, Inc.	A liquid proprietary blend of diammonium sulfate, surfactants, dimethylpolysiloxane, modified elasto polymer and antifoaming agents	1-1.25%	Crop (guar) based polymer, use when AMS and/or AMS+ surfactants are needed
FORMULA 1	United Suppliers, Inc.	Proprietary formulation of drift reduction polymers, water conditioning agents and antifoam	0.5-0.75%	Replaces dry AMS with glyphosate
FORTIFY	Plant Health Technologies	Alkyl polyoxyethylene ethers, polymerized resins, and triethanol amine salts of oleic acid (TOFA derived) and petroleum distillates	1 to 4 pt/100 gal	Spreader-sticker
FS AMS MAX DR	GROWMARK, Inc.	Proprietary blend of organic and mineral acids, compatibility agents, nonionic surfactant and drift reduction polymers, dimethylpolysiloxane antifoam	1-2.5%	X
FS ATTERO	GROWMARK, Inc.	Blend of alkoxyated polymers and water conditioning agents	4-6 qt/100 gal	
FS BARRIER	GROWMARK, Inc.	Polyvinyl polymer (polyacrylamide)	2-4 oz/100 gal	
FS LAYOUT	GROWMARK, Inc.	Modified triglycerides and alkoxyated esters	per GPA, see label	Deduces driftable fines
FS MAXSUPREME	GROWMARK, Inc.	Ammonium sulfate, HPG polymer, dimethylpolysiloxane antifoam and formulation aids	2.50%	Guar based adjuvant, provides 8.5 lb AMS and optimum level of HPG polymer
FS MAXTRA	GROWMARK, Inc.	Ammonium sulfate, HPG polymer, dimethylpolysiloxane antifoam and formulation aids	1.25%	Guar based adjuvant, provides 4.25 lb AMS and optimum level of HPG polymer
FS TENAX	GROWMARK, Inc.	Polyols and polysaccharide derivatives	4-8 fl oz/A	Stand-alone DRT or combine with AMS
FS TRANSFORM PLUS	GROWMARK, Inc.	Proprietary blend of drift reduction polymers, ammoniated ions, water conditioning agents and antifoam	0.25-0.75%	X

## Deposition (Drift Control) and/or Retention Agents with and without Ammonium Sulfate and/or Defoamer

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments	AMS	Defoamer
FUSION	Cannon Packaging Co. Inc.	Ammonium sulfate solution, defoamer, copolymer of sodium, acrylate, and acrylamide, polymeric viscosity modifier	2.5-5 gal/100 gal		X	X
GROUND ZERO	Helena Chemical Co.	Polyvinyl polymer	1-3 oz/100 gal			
GROUNDED	Helena Chemical Co.	Proprietary blend of aliphatic hydrocarbons, hexahydric alcohol ethoxylated and fatty acids	See label			
GUIDE-IT	Plant Health Technologies	Polyacrylamide	1-4 oz/100 gal	Concentrated		
HAF-PYNT	Drexel Chemical Co.	Alkyl polyethoxyethanol	4-8 oz/100 gal	Very low use rates		X
HEL-FIRE	Helena Chemical Co.	Aminated phosphoric, carboxylic acids, sulphurated amides, deposition aids	0.25-1%			
HOLZIT	Drexel Chemical Co.	Proprietary blend of ammonium sulfate, drift reduction polymers, humectant, and antifoam agent	9 lb/100 gal		X	X
HOOK	Atlantic Pacific Agricultural, Inc.	Alkyl oloxyethylene ethers, polymerized resins and fatty acid	1-4 pt/100 gal	Add HOOK last		
IN-PLACE	Wilbur-Ellis Company	Amine salts of organic acids, aromatic acid, aromatic and petroleum distillate	See label			
INTACT	Precision Laboratories, LLC	Polyethylene glycol, choline chloride, guar gum	4-8 pt/100 gal	Used alone or with water conditioners		
INTACT XTRA	Precision Laboratories, LLC	Dipotassium phosphate, tripotassium citrate and tamarind seed gum polymer	4-6 qt/100 gal	DRT plus non-AMS water conditioning		
INTERLOCK	Winfield Solutions, LLC	Modified vegetable oil and emulsifiers	4-6 oz/A			
I'VOD	Brewer International	Limonene related isomers, and emulsifiers	See label	Invert oil		
JUSTIFIED	Helena Chemical Co.	Modified seed oils; C15 - C40 alkanes, glucitol octadecanoate, polyethoxylated glucitol, derivatives and polydimethylsiloxane	1 qt/100 gal	Add to the tank last		
KICKER PLUS	Plant Health Technologies	Liquid ammonium sulfate/drift retardant solution and antifoam	2.50%	pH stable antifoam, 2.5% = 8.5 lb AMS/100G	X	X
KICKER PLUS DRY	Plant Health Technologies	Ammonium sulfate, polyacrylamide and dimethylpolysiloxane	9-18 lb/100 gal	Dry AMS / NIS blend	X	X
KICKER PRO	Plant Health Technologies	Ammonium sulfate, glycerol, phosphoric acid	0.5-0.75%	Equivalent of 2 lb AMS/gal	X	

KICKER ULTRA DRY	Plant Health Technologies	Ammonium sulfate, carbonyl diamine, polyoxyethylene-polyoxypropylene, beta-hydroxy-tricarboxylic acid, dimethylsiloxane	10-20 lb/100 gal	Dry AMS / NIS blend	X	X
LIBERATE	Loveland Products, Inc.	Lecithin, methyl esters of fatty acids, and alcohol ethoxylate	0.125-1%	Penetrant, deposition, drift reduction		
LOX	Drexel Chemical Co.	Amine salts of organic acid, aromatic acid, aromatic petroleum distillate and aliphatic petroleum distillate	4-8 oz/A			
LOX PLUS	Drexel Chemical Co.	Amine salts of organic acid, aromatic acid, aromatic petroleum distillate and ammoniated salt solution	1-2%	Blend of ammoniated salt solution, deposition, drift retardant	X	
MAINSTAY	KALO, Inc.	Alkyl polyoxyethylene ethers, polymerized resins, and triethanol amine salts of oleic acid (TOFA derived), petroleum distillates	1-4 pt/100 gal	Resists washoff		X
MASTERLOCK	Winfield Solutions, LLC	Modified vegetable oil, polyoxyethylene sorbitan fatty acid ester, vegetable oil and soybean oil ethoxylated	See comments	NIS, deposition, drift reduction, 6.4 oz/a ground, 1% air		
MIST-CONTROL	Miller Chemical Co.	Polyvinyl polymer	0.25-1%			
ONE-AP XL	KALO, Inc.	AMS, block polymer of carbonyl diamine, polyoxyethylene polyoxypropylene, beta-hydroxy-tricarboxylic acid, polyacrylamide polymer, dimethylsiloxane	10-20 lb/100 gal	AMS with 0.25% v/v NPE free NIS, drift reduction, deposition, contains antifoam	X	X
ON-LINE	Helena Chemical Co.	Polyvinyl polymers and foliar nutritional	1%	Foliar nutrition		
PARACHUTE	West Central	Modified vegetable oil, oligometric terpene resin, alcohol alkoxyate	3-4 oz/A			
PAYOFF PLUS	United Suppliers, Inc.	Proprietary blend of ammonium salts, surfactant, antifoam and multifunctioning polymeric deposition agents	10 lb/100 gal	10 lb/100 gal = 8.5 lb AMS, 2 pt NIS/100 gal, deposition	X	X
PENETRATOR	Helena Chemical Co.	Light range paraffin based petroleum oil and polyol fatty acid esters, and polyethoxylated derivatives	See label			
PENETRATOR PLUS	Helena Chemical Co.	Mid-range mineral oil, polyol fatty acid esters, polyethoxylated ester thereof, ethoxylated alkyl phosphate esters	0.5-1%	Buffering		
POINTBLANK WM	Helena Chemical Co.	Proprietary polyvinyl polymer emulsion	1-2 oz/100 gal			
POLY CONTROL 2	Brewer International	Polyacrylamide copolymer	3-8 oz/100 gal			
POLYAN	Brewer International	Polyacrylamide copolymer	3-8 oz/100 gal	Aquatic sinking and drift control agent		
POWERLOCK	Winfield Solutions, LLC	Modified vegetable oil, alkylphenol ethoxylate, sodium salts of fatty acids.	5-8 oz/A	NIS, deposition, drift reduction		
POWERSHOT!	MFA, Inc.	Polyoxyethylene sorbitan fatty acid ester, soybean oil ethoxylate, copolymer of alpha- and beta-pinene	See label	Powershot will not eliminate all drift		

## Deposition (Drift Control) and/or Retention Agents with and without Ammonium Sulfate and/or Defoamer

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments	AMS	Defoamer
REIGN	Loveland Products, Inc.	Polyvinyl polymer (polyacrylamide)	0.25-2.5%			
REIGN LC	Loveland Products, Inc.	Polyvinyl polymer (polyacrylamide)	1-4 oz/100 gal			
RRS1 1% SOLUTION DRIFT CONTROL AGENT	Red River Specialties, Inc.	Polyacrylamide	See label			
RUSH	Winfield Solutions, LLC	Ammonium sulfate, modified glycerol acid complex, polymeric copolymer, and dimethylpolysiloxane	0.5-1%	Contains antifoam	X	X
SEDITE MAX	West Central	Modified vegetable oil, petroleum oil, alkyl phenol ethoxylate	4-6 oz/A			
SOY-DEX PLUS	Helena Chemical Co.	Proprietary blend of vegetable oil, polyol fatty acid ester, poly-ethoxylated esters thereof, ethoxylated alkylaryl phosphate ester	0.25-2%	Buffering activity at 2%		
SPECTRA AMS	KALO, Inc.	Ammonium sulfate, glycerol, phosphoric acid, polyacrylamide, dimethylpolysiloxane	2.5-5 gal/100 gal	Full load AMS with drift suppression, enhanced deposition	X	X
SPECTRA MAX TANK MIX	KALO, Inc.	Ammonium sulfate, glycerol, phosphoric acid, polyacrylamide, polydimethylsiloxane	2-3 qt/100 gal	Water conditioning, drift reduction, deposition aid, humectant, antifoam	X	X
SPRAY-START	KALO, Inc.	Dry ammonium sulfate, polyacrylamide polymers and anti-foam agent	9-12 lb/100 gal	Dry Water conditioning	X	X
SPRINT ADT	United Suppliers, Inc.	Proprietary blend of nonionic surfactants, water conditioning agents and deposition aids/drift control agents	0.75%	Water conditioner, drift reduction, NIS	X	
STAYDOWN	Rosen's, Inc.	Proprietary blend of diammonium sulfate, rheologic modifying polymer, sequestering and antifoam agent	5-9 lb/100 gal		X	X
STRIKE FORCE	Loveland Products, Inc.	Lecithin, lactic acid and derivatives, polyethoxylated esters and alcohols	2 qt/100 gal	Non-AMS water conditioning		X
STRIKE ZONE DF	Helena Chemical Co.	Saccharide and polysaccharide ethers and alkyl polyethoxylated alcohols	See label	Dry concentrate		
STRIKE ZONE MXD	Helena Chemical Co.	Ammonium and potassium salts and organic polymers	9 lb/100 gal	AMS replacement	X	
SUN CONTROL	Brewer International	Blend of methylated seed oil, wetter, organosilicone, and buffer	See label	Buffering, deposition, sticker, wetting		
SUREWET	Chemorse, Ltd.	Polyvinyl polymer and nonionic surfactant	0.5-0.75%	30% dry		



SYNDETC	Chemorse, Ltd.	Polyvinyl polymer, polyacrylamide 30%	4-64 oz/100 gal		
TACTIC	Loveland Products, Inc.	Synthetic latex plus organosilicone surfactant fluid	See label		
THRUST	Loveland Products, Inc.	Proprietary blend of milled ammonium sulfate, drift reduction/deposition polymers and antifoaming agents.	9-17 lb/100 gal	X	X
TRANSLATE	United Suppliers, Inc.	Lecithin, esters of fatty acids and phosphate and alcohol ethoxylate	0.125-1%	For use with glyphosate	
TRANSPORT PLUS	Precision Laboratories, LLC	Proprietary blend of drift reduction polymers, ammoniated ions, water conditioning agents and antifoam	0.25-0.75%	X	X
V-DRIFT	Innkvictis Crop Care, LLC	Polyacrylamide polymer	0.5-1%	Compatible with K salt glyphosate	
VECTOR	Rosen's, Inc.	Proprietary blend of diammonium salts, crop-based elasto polymer and polysiloxane	2 lb/100 gal	X	X
VELOMAX	Innkvictis Crop Care, LLC	Methyl esters of fatty acids, paraffinic hydrocarbons and fatty acids	0.25-0.5%		
VENTURI	Innkvictis Crop Care, LLC	Paraffinic oil, castor oil ethoxylate, fatty acids, $\alpha$ , $\beta$ pinene copolymer	0.5-1% v/v	Add to the tank last	
VERACITY	West Central	Water conditioners, surfactants, and drift control agents	3 qt/100 gal		
VERACITY ELITE	West Central	Vegetable (seed) oil ethoxylate, oleic acid, alcohol ethoxylate	2 qt/100 gal		
VERIMAX	Innkvictis Crop Care, LLC	Ammonium sulfate, glycerol acid complex, acrylamide sodium acrylate linear copolymer and siloxane	0.25-0.75%	X	X
VERIMAX DRY	Innkvictis Crop Care, LLC	Ammonium sulfate, polyacrylamide, dimethylpolysiloxane	10-20 lb/100 gal	X	X
VOLARE DC	Plant Health Technologies	Phytobland base oil, tall oil fatty acids, N,N-bis-2-(omega-hydroxypolyoxyethylene/polyoxypropylene) ethyl alkylamine, surfactant content is 35.3%	0.25-0.5%	Resists wind-stream shear	
VOLARE DC	Precision Laboratories, LLC	Phytobland base oil, tall oil fatty acids, N,N-bis-2-(omega-hydroxypolyoxyethylene/polyoxypropylene) ethyl alkylamine, surfactant content is 35.3%	0.25-0.5%	Resists wind-stream shear	
WEATHER GARD COMPLETE	Loveland Products, Inc.	Lecithin, phosphate ester, methyl esters of fatty acid and polydimethylsiloxane	0.25-0.5%	Contains shear stable drift reduction agent	
WILLOWOOD DRIFTGUARD	Willowood USA	Anionic polyacrylamide	1-2.5 oz/100 gal		
ZENITH	Rosen's, Inc.	Proprietary blend of diammonium salts, surfactants, crop-based elasto polymer and polysiloxane	1.5-2.25 lb/A	X	X

## Compatibility Agents

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
ASSIST	GarCo Products Inc.	Nonionic surfactant blend, water conditioner and compatibility agent	1 qt/100 gal	Convenient combination
BLENDEXVHC	Helena Chemical Co.	Proprietary blend of alkylarylpolyethanol phosphate esters and other ethoxylated derivatives	0.5-5 pt/100 gal	Non-flammable, wetter
BRANDT INSURE	Brandt Consolidated, Inc.	Alkylaryl polyether phosphate and organophosphates and proprietary water conditioning agents	0.25%	High pH and hard water may require higher rate
CO-MIX	Coastal Agrobusiness, Inc.	Alkylaryl polyoxyethylene glycol phosphate esters	0.125-0.375%	Includes buffers
COMP-AD	Plant Health Technologies	Alkylaryl polyoxyethylene phosphate esters and ethoxylated derivatives	See label	Compatibility agent for pesticide/liquid fertilizer
COMP-AD ES	Plant Health Technologies	Aliphatic phosphate ester, isopropanol and glycol ethers along with product enhancing agents	See label	Compatibility agent for pesticide/liquid fertilizer
COMPEX	KALO, Inc.	Alcohol sulfates	1-2 pt/100 gal	Compatibility, preventative and curative
COMPEX EXTRA	KALO, Inc.	Alkylpolyglycoside, alcohol sulfates	1-2 pt/100 gal	For pesticides, liquid fertilizer, curative, preventative
COMPLETE COMPATIBILITY	Winfield Solutions, LLC	Alkylaryl polyethoxy ethanol phosphates and organic phosphoric acids	0.125-0.375%	
CONVERT	Precision Laboratories, LLC	Proprietary blend of alkyl phenol polyether phosphate esters and glycol esters	0.125-0.5%	Use high rates to solubilize existing incompatibilities
CORNBELT	Van Diest Supply Co.	Alkylaryl polyethoxy ethanol phosphate, and other ethoxylated derivatives	0.125-0.375%	
COMPATIBILITY AGENT				
ENVELOP	Innervictis Crop Care, LLC	Aliphatic phosphate ester, isopropanol and glycol ethers	0.0625-0.5%	
E-Z MIX	Loveland Products, Inc.	Esters of alkylpolyoxyethylene ethers	0.125-0.25%	
FSTANKMAX	GROWMARK, Inc.	Alkylaryl polyoxyethylene glycol phosphate ester	0.125-0.5%	
HI-COMP	United Suppliers, Inc.	Proprietary blend of aliphatic phosphate esters and inert compounds	0.19-0.63%	
JUSTICE	Jay-Mar, Inc.	Phosphate esters of polyoxyethanol alcohol and phosphoric acids	2-20 oz/100 gal	Compatibility, buffering
KOMBIND	Conklin Co., Inc.	Isopropyl alcohol, phosphate esters	1-24 oz/100 gal	Buffering, acidifier, compatibility
LEAF AID II	Cannon Packaging Co. Inc.	Poly-ethoxylated alkylamines, alkyl polyoxyethylene glycols and organic acids	0.25-1%	Adjusts pH
LINE-UP	KALO, Inc.	Tall oil fatty acid, ammonium carbamates, dimethylpolysiloxane	3.2-12.8 fl oz/A	Stabilizing agent for liquid fertilizers and EC pesticides
LINKE	AqXplore International, Inc.	Phosphate esters of alkylaryl polyoxyethanol and alcohol	See label	Rate depends on water hardness

MICRIMIX PLUS	Plant Health Technologies	Ammonia and ammoniated salts of alkyl phenyl polyoxyethylene phosphate esters, alkyl polyoxalkylene glycols and alkanolamides, dimethylpolysiloxane	1% v/v	For micro rate herbicide applications, with antifoam
MIX	Drexel Chemical Co.	Alkylaryl polyoxyethylene glycol phosphate ester surfactants	0.125-0.5%	Use with chemical mixtures in liquid fertilizer or water
MIX-ALL COMPATIBILITY AGENT	Rosen's, Inc.	Proprietary blend of alkylaryl polyethoxy ethanol phosphate esters and ethoxylated derivatives	0.125-0.5%	Approved by Syngenta
SPRAY AIDE	Miller Chemical Co.	Polyethylene glycol alkyl phosphate ester	4-16 oz/100 gal	
<b>Buffering Agents and/or Acidifiers</b>				
<b>Product Name</b>	<b>Mfg/Distributor</b>	<b>Principal Functioning Agent</b>	<b>Use Rate</b>	<b>Comments</b>
AD-BUFF	Plant Health Technologies	Phosphatidyl choline, propionic acid and alkylphenol ethoxylate	See label	NIS, acidifier
ADURO	Winfield Solutions, LLC	Ethoxylated fatty amine-glycerol acid complex, polyoxyethylene ether blend, pH adjusting agents and deposition agents	0.125-0.5%	All in 1 glyphosate additive
AERO DYNE-AMIC	Helena Chemical Co.	Proprietary blend of ethoxylated alkyl phosphate esters, polyalkylene modified polydimethylsiloxane, nonionic emulsifiers and methylated vegetable oils	0.25-1%	For aerial use only
AMS ADVANTAGE	MFA, Inc.	Ammonium sulfate, glycerol, phosphoric acid, polyacrylamide	1-3 qt/100 gal	2 lb AMS per gallon
AQUA-KING PLUS	Winfield Solutions, LLC	Nonylphenol polyoxyethylene glycol ether, free fatty acids, organic phosphatic acids, dimethylpolysiloxane	0.125-0.5%	Aquatic labeled, pH buffering
BB5	Plant Health Technologies	Phosphoric acid, blend of surfactant and dye agents	See label	Contains color indicator showing pH
BRANDT INDICATE5	Brandt Consolidated, Inc.	Blend of alkyl aryl ethoxylates and water conditioning agents	See label	Contains color indicator showing pH
BRANDT PH ADJUST	Brandt Consolidated, Inc.	Citric acid, potassium hydroxide and potassium nitrate	See label	Citric acid based
BRANDT SUPER 7	Brandt Consolidated, Inc.	Alcohol ethoxylate, lecithin and propanoic acid	1-4 pt/100 gal	Low foam
BREEZE	Winfield Solutions, LLC	High fructose corn syrup, ammonium sulfate, water conditioning, buffering, coupling and antifoam agents	4-96 oz/100 gal	Rate depends on desired function; see label
BRIMSTONE	Wilbur-Ellis Company	Monocarbamide dihydrogen sulfate (AMADS) and surfactants	2-8 pt/A	28% surfactant
BS-500	Drexel Chemical Co.	Blend of the ammonium salts of polyacrylic, hydroxy carboxylic and phosphoric acid	1-4 pt/100 gal	Spray within 36 hours of mixing
BUFFER EXTRA-STRENGTH	Helena Chemical Co.	Proprietary blend of alkylaryl polyethoxyethanol phosphates and organic	4-32 oz/100 gal	Phosphatic acids
BUFFER PS	Helena Chemical Co.	Alkylaryl polyethoxyethanol phosphates and organic phosphatic acids	0.063-0.5%	

## Buffering Agents or Acidifiers

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
BUFFER X-TRA	Custom Agricultural Formulators	Alkylaryl/polyoxyethylene glycols isopropanol, phosphoric acid	1-2 qt/100 gal	Add to the tank first
CHEMPRO CP-20	Chemorse, Ltd.	Ammonium sulfate, hydroxy carboxylic and phosphoric acid	0.125-0.625%	
CHEMPRO CP-35	Chemorse, Ltd.	Ammonium sulfate, specialized acid blend, and nonionic surfactant	0.19-0.94%	
CHEM-STIK LpH	Precision Laboratories, LLC	Proprietary blend of alkylaryl polyoxyethanol glycol ether, alkylphenolic resin, alkylaryl polyoxyethanol phosphate esters, tricarboxylic acid and formulation aids	0.125-0.5%	Nonionic spreader-sticker, pH buffer
CHS WHEELHOUSE PRO	CHS	Sodium tricarballylate, alkyl polyglucoside, tallow amine ethoxylate, urea	2 qt/100 gal	Rate depends on water hardness
CITRIPHASE	Coastal Agrobusiness, Inc.	Aliphatic polycarboxylate	0.25-0.5%	Liquid formulation
CLIMB	Wilbur-Ellis Company	Carbonic acid, dipotassium salt	See label	Alkalinity agent, raises pH
CONSTANT BUPHER-ER	Brandt Consolidated, Inc.	Citric acid and vinegar	0.25-0.5%	Organic buffer, contains antifoam
CONVERT	Precision Laboratories, LLC	Proprietary blend of alkyl phenol polyether phosphate esters and glycol esters	0.125-0.5%	Use high rates to solubilize existing incompatibilities
CORNBELT N-TENSE	Van Diest Supply Co.	Monocarbamide dihydrogen sulphate, amide phosphates, viscosity reducing agents	0.25-1%	Use higher rates as NIS replacement
CORNBELT VAPORGARD	Van Diest Supply Co.	Beta-hydroxy tricarballylate, alkyl polyglucoside, monocarbamide dihydrogen sulfate and acrylamide sodium acrylate linear copolymer	1-3 qt/100 gal	Designed for nozzles delivering coarse droplets
DENALI-EA	Wilbur-Ellis Company	Polyoxyalkylene polyol fatty acid ester, alcohol ethoxylate and 2-hydroxy-1,2,3-propanetricarboxylic acid	1-4 pt/100 gal	NPE free, aquatic approved
ELITE ALLURE	Red River Specialties, Inc.	Ammonium salts of sulfuric acid, tricarboxylic acid and carbamide nitrate	0.25-1%	Moderate-pH
ELITE AMPLIFY	Red River Specialties, Inc.	Proprietary mixture of surfactants, buffering agents and dimethylpolysiloxane	0.0625-0.5%	Low foam
ELITE AQUA BOOSTER	Red River Specialties, Inc.	Phosphatidylcholine, methylacetic acid and nonionic emulsifiers	1-4 pt/100 gal	Aquatic labeled, pH buffering
ELITE IMPERIAL	Red River Specialties, Inc.	Proprietary blend of hydroxy carboxylic acid, phosphoric acids and ammonium sulfate	0.125-0.5%	
ENVELOP	Innervictis Crop Care, LLC	Aliphatic phosphate ester, isopropanol and glycol ethers	0.0625-0.5%	
EXPEDITE	MFA, Inc.	Monocarbamide dihydrogen sulfate, 1,2,3-trihydroxypropane, and proprietary blend of surfactants	1-8 pt/100 gal	AMS replacement
FASTRACK	United Suppliers, Inc.	Proprietary blend of water conditioning agents, ammonical nitrogen and nonionic surfactant	0.25-1%	Minimum of 0.5% with glyphosate mixtures
FRACTION	KALO, Inc.	Ammonium sulfate, tricarboxylic acid	3-4 lb/100 gal	Dry, low use rate ammonium sulfate replacement

FS INFIX	GROWMARK, Inc.	Monocarbamide dihydrogen sulfate, proprietary blend of amine phosphates, viscosity reducers, antifoam and formulation aids	0.25-1% v/v	Maximizes micronutrient uptake with glyphosate
FS INTERFACE	GROWMARK, Inc.	Proprietary blend of amine phosphates, viscosity reducers, monocarbamide dihydrogen sulfate	0.25-1%	Acidic activator adjuvant blend, oil plus surfactant
FS TRANSFORM	GROWMARK, Inc.	Proprietary blend of carboxylic acids, phosphoric acids, ammoniated ions, and formulation aids	0.25-0.5%	
FS TRANSFORM ULTRA	GROWMARK, Inc.	Proprietary blend of nonionic surfactants, ammoniated ions, water conditioning agents and antifoam	0.25-0.5%	Contains antifoam
FUSION D	Cannon Packaging Co. Inc.	Dry AMS	2-4 lb/A	
GUARD	GarCo Products Inc.	Buffering and wetting agents, and nonionic surfactant	2-8 oz/100 gal	
GULFSTREAM	Winfield Solutions, LLC	Nonylphenol polyethylene glycol ether, free fatty acids,	8 oz - 4 pints	Spreader, activator and buffering
GUNSMOKE	Loveland Products, Inc.	Glycerol urea-acid complex, alkyl amine phosphate, alkyl polyoxyethylene glycol	See label	Water conditioning, pH adjustment
HEL-FIRE	Helena Chemical Co.	Aminated phosphoric, carboxylic acids, sulphurated amides, deposition aids	0.25-1%	
IMPETRO	MFA, Inc.	Sodium tricarbalylate, alkylpolyglucoside, monocarbamide dihydrogen sulfate	2-4 qt/100 gal	Do not exceed 2.5% v/v
IMPORT	Precision Laboratories, LLC	Monocarbamide dihydrogen sulfate, tallow amine ethoxylate, polyoxyethylene tridecyl ether phosphate	1-4 qt/100 gal	AMS replacement for glyphosate
JACKHAMMER ELITE	West Central	Trisodium citrate dihydrate, alkyl polyglucoside, monocarbamide dihydrogen sulfate, tallow amine ethoxylate	2 qt/100 gal	Rate depends on water hardness
JUSTICE	Jay-Mar, Inc.	Phosphate esters of polyoxyethanol alcohol and phosphoric acids	2-20 oz/100 gal	Compatibility, buffering
KICKER PRO	Plant Health Technologies	Ammonium sulfate, glycerol, phosphoric acid	0.5-0.75%	Equivalent of 2 lb AMS/gal
KOMBIND	Conklin Co., Inc.	Isopropyl alcohol, phosphate esters	1-24 oz/100 gal	Buffering, acidifier, compatibility
LEAF AID II	Cannon Packaging Co. Inc.	Poly-ethoxylated alkylamines, alkyl polyoxyethylene glycols and organic acids	0.25-1%	Adjusts pH
LEEWAY	KALO, Inc.	Trisodium citrate dihydrate, alkyl polyglucoside, monocarbamide dihydrogen sulfate	2-4 qt/100 gal	Ammonium free water conditioner, NPE Free NIS
LEVEL 7	Winfield Solutions, LLC	High fructose corn syrup, ammonium sulfate, water conditioning, buffering, coupling and antifoam agents	See label	Contains antifoam
LI-700	Loveland Products, Inc.	Phosphatidylcholine, methylacetic acid, and alkylpolyoxyethylene ether	0.25-4 pt/100 gal	Acidifier, penetrant, drift reduction
LINE-UP	KALO, Inc.	Tall oil fatty acid, ammonium carbamates, dimethylpolysiloxane	3.2-12.8 floz/A	Stabilizing agent for liquid fertilizers and EC pesticides
LINKE	AgXplore International, Inc.	Phosphate esters of alkylaryl polyoxyethanol and alcohol	See label	Rate depends on water hardness
MICRIMIX PLUS	Plant Health Technologies	Ammonia and ammoniated salts of alkyl phenyl polyoxyethylene phosphate esters, alkyl polyoxyalkalene glycols and alkanolamides, dimethylpolysiloxane	1% v/v	For micro rate herbicide applications, with antifoam

## Buffering Agents or Acidifiers

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
MIC-RO-PAC	Atlantic Pacific Agricultural, Inc.	Liquid foliar fertilizer containing nitrogen, phosphorus, potash and seven micro-nutrients	See label	Add MIC-RO-PAC first
NEW BALANCE	Precision Laboratories, LLC	Proprietary blend of alkyl polyethoxy ether and 2-hydroxy-1,2,3 propane tricarboxylic acid	8-32 oz/100 gal	Contains antifoam
NEWTONE	Winfield Solutions, LLC	Surfactant blend and ammoniated salts	1%	Less than 5 GPA use 2%, do not exceed 5%
NO FOAM B	Brandt Consolidated, Inc.	Octyl phenoxy polyethoxy ethanol, linear alkyl sulfonates, ethanalamine	See label	
NUTRIENT BUFFER 0-10-0	Plant Health Technologies	Phosphoric acid	See label	Acidifier, foliar nutrient
NUTRIENT BUFFER 0-10-0 PLUS	Plant Health Technologies	Phosphoric acid	See label	Acidifier, foliar nutrient
NUTRIENT BUFFER 10-12-0	Plant Health Technologies	Phosphoric acid	See label	Acidifier, foliar nutrient
OPTIMA	Helena Chemical Co.	Proprietary blend of polyethoxylated alkyl amines, alkyl polyoxyethylene glycols and organic acids	0.25-1%	Translocation aid, surfactants, buffering
OVERIDE	MFA, Inc.	Ammonium sulfate, hydroxy carboxylic acid, phosphoric acid, and dispersing agents	1-5 pt/100 gal	Does not replace COC or NIS
PAS-800	Drexel Chemical Co.	Phosphatidylcholine, methylacetic acid and alkyl polyoxyethylene ether	0.25-4 pt/100 gal	Penetrant, acidifier, surfactant
PENETRATOR PLUS	Helena Chemical Co.	Mid-range mineral oil, polyol fatty acid esters, polyethoxylated ester thereof, ethoxylated alkyl phosphate esters	0.5-1%	Buffering
PHUSE	AgXplore International, Inc.	Alkyl polyethoxy esters and derivatives, carboxylic acids and phospholipids	See label	Nonionic, multi-functional adjuvant to prevent alkaline hydrolysis by lowering pH
RESTORE	KALO, Inc.	AMS, 1,2,3-trihydroxy propane, phosphoric acid	2-3 qt/100 gal	Water conditioner, spray retention, acidifier
SAPHEN	Plant Health Technologies	Tricarboxylic acid	See label	Organic acidifier
SEQUEL	Helena Chemical Co.	Blend of hydroxy carboxylic and phosphoric acids, and ammonium sulfate	0.125-0.75%	AMS replacement, proprietary blend
SEQUESTRA	Drexel Chemical Co.	Blend of polyacrylates, polyhydroxy-tricarboxylic acid, dipotassium phosphate and formulation acids	1-5 pt/100 gal	AMS replacement
SOIL BOOST PLUS	SO-IL Service, Inc.	Proprietary blend of penetration, translocation, water buffering, and chelating agents, along with liquid AMS	1-3 pt/A	Water conditioning, AMS, liquid
SOY-DEX PLUS	Helena Chemical Co.	Proprietary blend of vegetable oil, polyol fatty acid ester, polyethoxylated esters thereof, ethoxylated alkylaryl phosphate ester	0.25-2%	Buffering activity at 2%

SPECTRA MAX TANK MIX	KALO, Inc.	Ammonium sulfate, glycerol, phosphoric acid, polyacrylamide, polydimethylsiloxane	2-3 qt/100 gal	Water conditioning, drift reduction, deposition aid, humectant, antifoum
SPEEDWAY	United Suppliers, Inc.	Proprietary blend of potassium salts of hydroxyl carboxylic, phosphoric and poly-acrylic acids and amine phosphate	0.125-0.75%	
SPRAY PREP	KALO, Inc.	Urea, glycerin, polyoxyethylene, tallow amine, sulfuric acid	1-4 qt/100 gal	pH modifier, water conditioner
SUN CONTROL	Brewer International	Blend of methylated seed oil, wetter, organosilicone, and buffer	See label	Buffering, deposition, sticker, wetting
SUPER SPREAD 7000	Wilbur-Ellis Company	Alkylaryl polyoxyethylene ethoxylated alcohols, aliphatic polycarboxylate	0.25-4 pt/100 gal	
SURFACT 50	Brandt Consolidated, Inc.	Yucca schidigera and citric acid	1-4 pt/100 gal	Low foaming
SURFACTANT PH	Brewer International	Alkylaryl polyethoxy ethanol phosphates and organic phosphate acids	0.25%	Buffering agent
SURFACTANT PH WITH NITROGEN	Brewer International	Nonionic buffering and conditioning agent containing nitrogen	See label	Acidifier
TRANSPORT IpH	Precision Laboratories, LLC	Proprietary blend of ammoniated ions, carboxylic acids, phosphoric acid and formulation aids	0.25-0.5%	Water conditioning agent for glyphosate
TRANSPORT ULTRA	Precision Laboratories, LLC	Proprietary blend of nonionic surfactants, ammoniated ions, water conditioning agents and antifoam	0.25-0.5%	For use with glyphosate formulations
TRAVERSE	Innvictis Crop Care, LLC	Monocarbamide dihydrogen sulfate, nonionic surfactants, humectants, chelating agents, antifoaming agent	0.25-0.5%	AMS replacement for glyphosate tank-mixes, antifoam
TRI-FOL	Wilbur-Ellis Company	Aliphatic polycarboxylate, calcium chloride	0.063-0.5%	
UNIFAST-B	Custom Agricultural Formulators	Alkylaryl polyoxyethylene glycols isopropanol, phosphoric acid	0.5-4 pt/100 gal	Add to the tank first
VADER	Loveland Products, Inc.	Phosphatidylcholine, methylated vegetable oil, alcohol ethoxylate	See label	Penetrant, acidifier, deposition
VIN-KICK	Brewer International	D'limonene, and acetic acid	See label	
VIXEN AC-D	Innvictis Crop Care, LLC	Ammonium sulfate, 2-hydroxytricarboxylic acid, phosphoric acid, diammonium salt	2-4 lb/100 gal	pH reduction for insecticides, 0.25-1.0 lb/100 gal
VIXEN AC-L	Innvictis Crop Care, LLC	Ammonium salt of sulfuric acid, 2-hydroxy-1,2,3-tricarboxylic acid, triphosphoric acid, pentasodium salt	1-2 qt/A	1-4 pt/A if volume exceeds 15 gal/A
VIXEN D	Innvictis Crop Care, LLC	Sodium and ammonium salts of sulfuric acid, 2-hydroxy-1,2,3-tricarboxylic acid	2-4 lb/100 gal	pH reduction for insecticides, 0.25-1.0 lb/100 gal
WATER FX	KALO, Inc.	Ammonium sulfate, 2-hydroxy-1,2,3-propanetricarboxylic acid	0.5-4 lb/100 gal	Water conditioner, acidifier
WILLOWOOD BUFFER	Willowood USA	Phosphoric acid	0.125-0.25%	Low foam
WILLOWOOD BUFFER SPREADER	Willowood USA	Alkylaryl polyoxyethylene glycols, isopropanol, phosphoric acid	0.5-4 pt/100 gal	Low foam
ZAAR	Helena Chemical Co.	Proprietary blend of methylated oils and nonionic surfactant	1% v/v	Compatibility agent

## Water Conditioning Agents

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
34-PLUS	Chemorse, Ltd.	Ammonium sulfate, drift retardant, antifoam	2.5-5%	
ACQUUEST WM	Helena Chemical Co.	Proprietary blend of polyhydroxycarboxylic acids, sulfates, and polymeric deposition agents	0.5-1%	Deposition
ACCUZONE DC	Helena Chemical Co.	Ammonium and potassium salts plus organic polymers	1-2.5 lb/A	
ADURO	Winfield Solutions, LLC	Ethoxylated fatty amine-glycerol acid complex, polyoxyethylene ether blend, pH adjusting agents and deposition agents	0.125-0.5%	All-in-1 glyphosate additive
AFFIX	Southern States Cooperative, Inc.	Proprietary blend of ammonium salts plus modified elasto DR 2000 polymer and antifoaming agents	9 lb/100 gal	Crop (guar) based, micro-homogenized
AFFIX PLUS	Southern States Cooperative, Inc.	A liquid proprietary blend of diammonium sulfate, surfactants, dimethylpolysiloxane, modified elasto polymer and antifoaming agents	1-1.25%	Crop (guar) based polymer
AIRTECH	Winfield Solutions, LLC	Ammonium sulfate, high fructose corn syrup, substituted fatty alkylammonium alkylcarboxylate, alkyl poly glucoside	1-4%	20% surfactant
ALLIANCE	Winfield Solutions, LLC	AMS and a proprietary blend of water conditioning, coupling and antifoam agents	0.5-0.75%	Contains antifoam
AMAZE GOLD	Loveland Products, Inc.	Ammonium sulfate, polyacrylamide, and dimethylpolysiloxane	See label	Water conditioning, deposition
AMS 20/10	United Suppliers, Inc.	Ammonium salts with multifunctioning polymeric dispersing agent and antifoam	10 lb/100 gal	AMS, deposition
AMS 2000	United Suppliers, Inc.	Ammonium salts and multifunctioning polymeric dispersing agents and antifoam	2-4 lb/A	AMS, drift reduction
AMS ADVANTAGE	MFA, Inc.	Ammonium sulfate, glycerol, phosphoric acid, polyacrylamide	1-3 qt/100 gal	2 lb AMS per gallon
AMS EZ	MFA, Inc.	Ammonium sulfate solution	See herbicide label	3.4 lb AMS per gallon
AMS EZ PLUS	MFA, Inc.	Ammonium sulfate, drift retardant, antifoam	See label	34% liquid ammonium sulfate with a drift retardant
AMS PLUS	Coastal Agrobusiness, Inc.	AMS plus proprietary blend of polyacrylamides and dimethylpolysiloxanes	2.50%	
AMS/NIS	KALO, Inc.	Ammonium sulfate, alkyl polyglycoside, polydimethylsiloxane	1.25-5.0 gal/100 gal	3.4 lb AMS per gal and 20% NIS, NPE Free
AMS-ALL	Drexel Chemical Co.	Ammonium sulfate, proprietary drift reduction solution, defoamer and surfactant	1-5 gal/100 gal	3.4 lb AMS per gallon
AMS-DEP	MFA, Inc.	Ammonium sulfate, polyacrylamide polymer, dimethylpolysiloxane	9-12 lb/100 gal	9 lb AMS-DEP = 8.5 lb AMS
AMSOL	United Suppliers, Inc.	34% liquid ammonium sulfate	5%	2.5% = 8.5 lb AMS/100 gal
AMSOL DRY	United Suppliers, Inc.	Ammonium sulfate, polydimethylsiloxane	1-2% w/v	Includes antifoam



AMSOL PLUS	United Suppliers, Inc.	Modified glycerol acid complex in nitrogen solution and siloxane, acrylamide sodium acrylate linear copolymer blend 85-15	5%	2.5% = 8.5 lb AMS/100 gal
AMS-SUPREME	Drexel Chemical Co.	Ammonium sulfate, polymeric viscosity modifier and dimethylpolysiloxane	2.5-5%	AMS, deposition, surfactant
AMSURF XTRA	United Suppliers, Inc.	Proprietary blend of ammonium salts, polyol, alkylpolyoxyethylene sulfate, aryl sulfonate, polyacrylamide	1.25-5%	AMS, deposition, surfactant
AMS-XTRA	Drexel Chemical Co.	Ammonium sulfate solution, dimethylpolysiloxane	1-2.5%	Contains antifoam
AQUABUPH	Brewer International	Blend of nonionic surfactant, phosphoric acid, sequestering agent, and nitrogen	0.25-0.5%	
ARRAY	Rosen's, Inc.	Proprietary blend of ammonium salts plus modified elasto DR 2000 polymer and antifoaming agents	9 lb/100 gal	Crop (guar) based, micro-homogenized, WeatherMAX compatible
BB5	Plant Health Technologies	Phosphoric acid, blend of surfactant and dye agents	See label	Contains color indicator showing pH
BLAZIN-FIRE	AgXplore International, Inc.	Phosphoric and carboxylic acids, sulphurated amides, and spray-deposition aids, blend of ammoniated salts	1-2 qt/100 gal	
BORDER AQ	Plant Health Technologies	Ammonium sulfate, 2-hydroxypropyl guar gum, alkyl dimethyl ammonio acetate, surfactant content is 8%	0.375-0.5% v/v	Drift reduction polymers, retention aids and surfactant
BORDER AQ	Precision Laboratories, LLC	Ammonium sulfate, 2-hydroxypropyl guar gum, alkyl dimethyl ammonio acetate, surfactant content is 8%	0.375-0.5% v/v	Drift reduction polymers, retention aids and surfactant
BORDER MAX	Plant Health Technologies	Ammonium sulfate, HPG polymer, dimethylpolysiloxane antifoam and formulation aids	1.25%	Guar based, provides 4.25 lb AMS and optimum level of HPG polymer
BORDER MAX	Precision Laboratories, LLC	Ammonium sulfate, HPG polymer, dimethylpolysiloxane antifoam and formulation aids	1.25%	Guar based, provides 4.25 lb AMS and optimum level of HPG polymer
BORDER XTRA 4L	Precision Laboratories, LLC	Ammonium sulfate, HPG polymer, dimethylpolysiloxane antifoam and formulation aids	5%	Crop (guar) based, provides 4.25 lb AMS and optimum level of HPG polymer
BORDER XTRA 8L	Plant Health Technologies	Ammonium sulfate, HPG polymer, dimethylpolysiloxane antifoam and formulation aids	2.50%	Guar based, provides 8.5 lb AMS and optimum level of HPG polymer
BORDER XTRA 8L	Precision Laboratories, LLC	Ammonium sulfate, HPG polymer, dimethylpolysiloxane antifoam and formulation aids	2.50%	Guar based, provides 8.5 lb AMS and optimum level of HPG polymer
BORDER XTRA DF	Precision Laboratories, LLC	Ammonium sulfate, HPG polymer, dimethylpolysiloxane defoamer	18 lb/100 gal	Crop (guar) based, provides 17 lb AMS And optimum level of HPG polymer
BRANDT INDICATE5	Brandt Consolidated, Inc.	Blend of alkyl aryl ethoxylates and water conditioning agents	See label	Contains color indicator showing pH
BRANDT INSURE	Brandt Consolidated, Inc.	Alkylaryl polyether phosphate and organophosphates and proprietary water conditioning agents	0.25%	Extremely alkaline and hard water may require additional amounts

## Water Conditioning Agents

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
BRANDT MAGNIFY	Brandt Consolidated, Inc.	Alkyl polyglycoside, ammonium sulfate and ammonium nitrate	1-4 qt/100 gal	2 lb AMS/gal, contains antifoam
BREEZE	Winfield Solutions, LLC	High fructose corn syrup, ammonium sulfate, water conditioning, buffering, coupling and antifoam agents	4-96 oz/100 gal	Rate depends on desired function; see label
BRIMSTONE	Wilbur-Ellis Company	Monocarbamide dihydrogen sulfate (AMADS) and surfactants	2-8 pt/A	28% surfactant
BRONC	Wilbur-Ellis Company	Ammonium sulfate	2.5-5%	Liquid AMS
BRONC MAX	Wilbur-Ellis Company	AMS/ammonium alkylaryl sulfonates, polycarboxylic acid	0.125-1%	AMS replacement
BRONC MAX EDT	Wilbur-Ellis Company	AMS, glycerol acid, polyacrylamide polymer blend	0.125-1%	Patented technology buffers pH
BRONC PLUS DRY	Wilbur-Ellis Company	AMS, surfactants and anti-foam	12 lb/100 gal	12 lb/100 gal = 8.5 lb AMS + 2 qt 80% NIS, contains antifoam
BRONC PLUS DRY EDT	Wilbur-Ellis Company	AMS, carbonyl diamine, polyoxyethylene, polyoxypropylene, beta-hydroxy-tricarboxylic acid, polyacrylamide, dimethylsiloxane	10-20 lb/100 gal	Milled and screened for increased solubility
BRONC TRIPLE	Wilbur-Ellis Company	AMS, propane-1,2,3-triol, alkyl polyglucoside, polyacrylamide, and other ingredients	0.5-1%	For hard water >500 ppm use higher rates
BS-500	Drexel Chemical Co.	Blend of the ammonium salts of polyacrylic, hydroxy carboxylic and phosphoric acid	1-4 pt/100 gal	Spray within 36 hours of mixing
CAVUSE PLUS	Wilbur-Ellis Company	AMS, alcohol ethoxylates, ammonium nitrate	1-1.5%	
CHEMPRO CP-20	Chemorse, Ltd.	Ammonium sulfate, hydroxy carboxylic and phosphoric acid	0.125-0.625%	
CHEMPRO CP-35	Chemorse, Ltd.	Ammonium sulfate, specialized acid blend, and nonionic surfactant	0.19-0.94%	
CHEMPRO CP-40	Chemorse, Ltd.	AMS, modified glycerol acid complex, polymeric copolymer, dimethylsiloxane	0.5-1%	
CHOICE TRIO	Loveland Products, Inc.	Poly(oxy-1,2-ethanediyl), alpha-phenyl-omega-hydroxy-phosphate, tris(2-hydroxyethyl)amine, 2-hydroxy-1,2,3-propanetricarboxylic acid	1-2 qt/100 gal	AMS replacement
CHOICE WEATHER MASTER	Loveland Products, Inc.	Blend of salts of polyacrylic, hydroxy carboxylic, propionic acids,	0.25-0.5%	AMS, water conditioner phosphate ester, ammonium sulfate
CHS AXON	CHS	Urea ammonium nitrate, alcohol ethoxylate, and propionic acid	1%	
CHS FIXATE	CHS	Monocarbamide dihydrogen sulfate, glycerine and alcohol alkoxyolate	1-3 qt/100 gal	
CHS LIQUID AMS	CHS	Ammonium sulfate 34%	2.5-5 gal/100 gal	1 gal = 3.4 lb AMS
CHS TRAPLINE PRO	CHS	Vegetable (seed) oil ethoxylate, oleic acid, alcohol ethoxylate	2 qt/100 gal	
CHS WHEELHOUSE	CHS	Ammonium sulfate, glycerin and sodium xylene sulfonate	2.5 gal/100 gal	2.5 gal/100 gal = 8.5 lb AMS + 0.5% surfactant

CHS WHEELHOUSE PRO	CHS	Sodium tricarballlylate, alkyl polyglucoside, tallow amine ethoxylate, urea	2 qt/100 gal	Rate depends on water hardness
CLASS ACT FLEX	Winfield Solutions, LLC	Ammonium sulfate, high fructose corn syrup, substituted fatty alkylammonium alkylcarboxylate, alkyl poly glucoside	1-4%	20% surfactant
CLASS ACT NG	Winfield Solutions, LLC	Corn based nonionic surfactant plus ammonium sulfate	2.5-5%	
CO-ACTION WC PLUS	Southern States Cooperative, Inc.	Di-ammonium sulfate, and dimethylpolysiloxane, alkyl (C 12-C 16) dimethyl ammonium acetate	5-10 qt/100 gal	20% surfactant, includes antifoam
COMBUST	AgXplore International, Inc.	Phosphate ester of polyglycols, diols, defoamers, and blend of ammonium salts	See label	Includes defoamers and antidruff
COMPLETE	Conklin Co., Inc.	Spray grade ammonium sulfate and drift retardant (polyvinyl polymer) blend	2.5-5%	3.4 lb AMS/gal, deposition, drift reduction
COMPOUND	Precision Laboratories, LLC	Blend of surfactants, water conditioning agents and phytobland base oil	1-3 pt/A	Turf and ornamentals
CONDITION	GarCo Products Inc.	Concentrated ammonium sulfate, blend of water conditioning agents, and defoamer/antifoam system	0.125-0.75%	Contains 1 lb AMS/qt and antifoam
CONDITION CONCENTRATE	GarCo Products Inc.	Ammonium sulfate, proprietary water conditioning agents, and antifoam/defoamer system	0.125-0.5%	
CONDITION EXTRA	GarCo Products Inc.	Ammonium sulfate and water conditioning agents	0.5-1%	AMS replacement
CONDITION MAX	GarCo Products Inc.	Concentrated ammonium sulfate and nonionic surfactant blend	0.5-1%	
CONDITION ND	GarCo Products Inc.	Concentrated ammonium sulfate, blend of water conditioning agents	0.125-0.5%	Contains almost 1 lb AMS per qt
CONDITION PLUS	GarCo Products Inc.	Ammonium sulfate, nonionic surfactant blend, and drift mitigation/deposition aid (polymer blend)	0.5-1%	Provides 1 lb AMS/qt, contains antifoam/defoamer
CONTROL AMS	GarCo Products Inc.	Drift mitigation/deposition aid (polymer blend), ammonium sulfate, and antifoam/defoamer	2.5-5%	2.5% = 8.5 lb AMS/100 gal
CONTROL COMBO	GarCo Products Inc.	Nonionic surfactant blend, drift mitigation/deposition aid (polymer blend), and ammonium sulfate	1 gal/100 gal	Convenient combination
CORN BELT DBI-GARD	Van Diest Supply Co.	Blend of ammonium sulfate, polyacrylamide and polysaccharide polymers and anti-foam agent	9 lb/100 gal	
CORN BELT GARDIAN	Van Diest Supply Co.	Ammonium sulfate, acrylamide sodium acrylate linear copolymer, glycerol/acid (citrophosphate) and siloxane	0.25-0.75%	
CORN BELT GARDIAN PLUS	Van Diest Supply Co.	Ammonium sulfate, glycerol/acid (citrophosphate), acrylamide sodium acrylate linear copolymer complex and siloxane	2.5-5%	2.5% = 8.5 lb AMS/100 gal
CORN BELT N-TENSE	Van Diest Supply Co.	Monocarbamide dihydrogen sulphate, amide phosphates, viscosity reducing agents	0.25-1%	Use higher rates as NIS replacement
CORN BELT PREMIUM AMS	Van Diest Supply Co.	Sprayable ammonium sulfate	17 lb/100 gal	

## Water Conditioning Agents

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
CORBELT PRO-ONE XL	Van Diest Supply Co.	Ammonium sulfate, carbonyl diamine, polyoxyethylene-polyoxypropylene, beta-hydroxy-tricarboxylic acid, polyacrylamide, dimethylsiloxane	10 lb/100 gal	Deposition, drift reduction, NIS
CORBELT VAPOGARD	Van Diest Supply Co.	Beta-hydroxy tricarballiyate, alkyl polyglucoside, monocarbamide dihydrogen sulfate and acrylamide sodium acrylate linear copolymer	1-3 qt/100 gal	Designed for nozzles delivering coarse droplets
CUT-RATE	Wilbur-Ellis Company	Ammonium sulfate, 2-hydroxy-1,2,3-propanetricarboxylic acid	3-4 lb/100 gal	AMS
DELIVER	Precision Laboratories, LLC	Proprietary blend of nonionic surfactants and ammonium sulfate	2.50%	Provides 8.5 lb AMS, plus 2 qt NIS, contains antifoam
DELUX	Precision Laboratories, LLC	Proprietary blend of nonionic surfactant and formulation aids, ammonium sulfate	0.5-1.25%	
DOUBLEDOWN	United Suppliers, Inc.	Modified glycerol acid complex in nitrogen solution and siloxane, acrylamide sodium acrylate linear copolymer blend 70-30	2.50%	2.5% = 8.5 lb AMS/100 gal
DRIFT-GARD	Rosen's, Inc.	Proprietary blend of diammonium sulfate, rheologic modifying polymer and antifoam agent	9-14 lb/100 gal	
ELITE ALLURE	Red River Specialties, Inc.	Ammonium salts of sulfuric acid, tricarboxylic acid and carbamide nitrate	0.25-1%	Moderate-pH
ELITE IMPERIAL	Red River Specialties, Inc.	Proprietary blend of hydroxy carboxylic acid, phosphoric acids and ammonium sulfate	0.125-0.5%	
ENACT	Rosen's, Inc.	Proprietary blend of sequestrants, chelating agents, ammonium sulfate and polysiloxane	0.125-0.5%	2 pt/100 gal <300 ppm water hardness, 4 pt/100 gal >300 ppm
ESCALATE	Plant Health Technologies	Ammonium sulfate, phosphoric acid and tricarboxylic acid	0.125-0.625%	Water conditioning
EVENT	Rosen's, Inc.	A liquid proprietary blend of diammonium sulfate, surfactants, dimethyl/poly siloxane, modified elasto polymer and antifoaming agents	1-1.25%	Crop (guar) based polymer
EXPEDITE	MFA, Inc.	Monocarbamide dihydrogen sulfate, 1,2,3-trihydroxypropane, and proprietary blend of surfactants	1-8 pt/100 gal	AMS replacement
FASTRACK	United Suppliers, Inc.	Proprietary blend of water conditioning agents, ammonical nitrogen and nonionic surfactant	0.25-1%	Minimum of 0.5% with glyphosate mixtures
FLAME	Loveland Products, Inc.	Blend of alkyl polyglucoside, paraffinic oil, and ammonium sulfate	See label	Water conditioning, NIS
FORMULA 1	United Suppliers, Inc.	Proprietary formulation of drift reduction polymers, water conditioning agents and antifoam	0.5-0.75%	Replaces dry AMS with glyphosate
FRACTION	KALO, Inc.	Ammonium sulfate, tricarboxylic acid	3-4 lb/100 gal	Dry, low use rate AMS replacement
FS AMS LDF	GROWMARK, Inc.	Liquid AMS	2.5-5%	3.4 lb AMS/gal plus contains antifoam

FS AMS MAX	GROWMARK, Inc.	Ammonium sulfate, nonionic surfactants and humectants	1.25-5%
FS AMS MAX DR	GROWMARK, Inc.	Proprietary blend of organic and mineral acids, compatibility agents, nonionic surfactant and drift reduction polymers, dimethylpolysiloxane antifoam	1-2.5%
FS ATTERO	GROWMARK, Inc.	Blend of alkoxyated polymers and water conditioning agents	4-6 qt/100 gal
FS CERTIN	GROWMARK, Inc.	Dipotassium ethylenediamtetraacetic acid and dimethylpolysiloxane	2-4 qt/100 gal
FS INFIX	GROWMARK, Inc.	Monocarbamide dihydrogen sulfate, proprietary blend of amine phosphates, viscosity reducers, antifoam and formulation aids	0.25-1% v/v Maximizes micronutrient uptake with glyphosate
FS INTERFACE	GROWMARK, Inc.	Proprietary blend of amine phosphates, viscosity reducers, monocarbamide dihydrogen sulfate	0.25-1% Acidic activator adjuvant blend, oil plus surfactant
FS MAXSUPREME	GROWMARK, Inc.	Ammonium sulfate, HPG polymer, dimethylpolysiloxane antifoam and formulation aids	2.50% Guar based adjuvant, provides 8.5 lb AMS and optimum level of HPG polymer
FS MAXTRA	GROWMARK, Inc.	Ammonium sulfate, HPG polymer, dimethylpolysiloxane antifoam and formulation aids	1.25% Guar based adjuvant, provides 4.25 lb AMS and optimum level of HPG polymer
FS TALYX	GROWMARK, Inc.	Proprietary blend of hydrocarbyl polyalkylene oxides and glycol ethers, dimethylpolysiloxane antifoam	0.125-0.25% Activator adjuvant for fungicides
FS TRANSFORM	GROWMARK, Inc.	Proprietary blend of carboxylic acids, phosphoric acids, ammoniated ions, and formulation aids	0.25-0.5%
FS TRANSFORM PLUS	GROWMARK, Inc.	Proprietary blend of drift reduction polymers, ammoniated ions, water conditioning agents and antifoam	0.25-0.75%
FS TRANSFORM ULTRA	GROWMARK, Inc.	Proprietary blend of nonionic surfactants, ammoniated ions, water conditioning agents and antifoam	0.25-0.5% Contains antifoam
FUSION D	Cannon Packaging Co. Inc.	Dry AMS	2-4 lb/A
GUNSMOKE	Loveland Products, Inc.	Glycerol urea-acid complex, alkyl amine phosphate, alkyl polyoxyethylene glycol	See label Water conditioning, pH adjustment
HEL-FIRE	Helena Chemical Co.	Aminated phosphoric, carboxylic acids, sulphurated amides, deposition aids	0.25-1%
HOLZIT	Drexel Chemical Co.	Proprietary blend of ammonium sulfate, drift reduction polymers, humectant, and antifoam agent	9 lb/100 gal
IMPERIAL AMS	Rosen's, Inc.	Spray grade ammonium sulfate	8.5-17 lb/100 gal Highly soluble granule
IMPETRO	MFA, Inc.	Sodium tricarballylate, alkylpolyglucoside, monocarbamide dihydrogen sulfate	2-4 qt/100 gal Do not exceed 2.5% v/v
IMPORT	Precision Laboratories, LLC	Monocarbamide dihydrogen sulfate, tallow amine ethoxylate, polyoxyethylene tridecyl ether phosphate	1-4 qt/100 gal AMS replacement for glyphosate

## Water Conditioning Agents

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
INTACT XTRA	Precision Laboratories, LLC	Dipotassium phosphate, tripotassium citrate and tamarind seed gum polymer	4-6 qt/100 gal	DRT plus non-AMS water conditioning
INTERACTIVE	Helena Chemical Co.	Surfactants, ammoniated nitrogen salts, polydimethylsiloxane, polyacrylates	0.25-1%	Use rate dependent on glyphosate surfactant content
JACKHAMMER	West Central	Urea, ammonium nitrate, alcohol ethoxylate, and propionic acid	1-3 qt/100 gal	
JACKHAMMER ELITE	West Central	Trisodium citrate dihydrate, alkyl polyglucoside, monocarbamide dihydrogen sulfate, tallow amine ethoxylate	2 qt/100 gal	Rate depends on water hardness
KICKER	Plant Health Technologies	Low foam liquid ammonium sulfate solution blend	0.25-5%	AMS solution, contains antifoam
KICKER PLUS	Plant Health Technologies	Liquid ammonium sulfate/drift retardant solution and antifoam	2.50%	pH stable antifoam, 2.5% = 8.5 lb AMS/100G
KICKER PLUS DRY	Plant Health Technologies	Ammonium sulfate, polyacrylamide and dimethylpolyisioxane	9-18 lb/100 gal	Dry AMS / NIS blend
KICKER PRO	Plant Health Technologies	Ammonium sulfate, glycerol, phosphoric acid	0.5-0.75%	Equivalent of 2 lb AMS/gal
KICKER ULTRA DRY	Plant Health Technologies	Ammonium sulfate, carbonyl diamine, polyoxyethylene-polyoxypropylene, beta-hydroxy-tricarboxylic acid, dimethylsiloxane	10-20 lb/100 gal	Dry AMS / NIS blend
LAS-34	Chemorse, Ltd.	34% liquid ammonium sulfate	2.5-5%	
LEEWAY	KALO, Inc.	Trisodium citrate dihydrate, alkyl polyglucoside, monocarbamide dihydrogen sulfate	2-4 qt/100 gal	Ammonium free water conditioner, NPE Free NIS
LEVEL 7	Winfield Solutions, LLC	High fructose corn syrup, ammonium sulfate, water conditioning, buffering, coupling and antifoam agents	See label	Contains antifoam
LINKAGE	West Central	Urea, ammonium nitrate, alcohol ethoxylate, and propionic acid	1%	
LIQUID AMS	West Central	Ammonium sulfate 34%	2.5-5 gal/100 gal	1 gal = 3.4 lb AMS
LOAD UP	Plant Health Technologies	Tallow amine ethoxylate, ammonium sulfate, sulfuric acid	0.25-0.75%	
LOX PLUS	Drexel Chemical Co.	Amine salts of organic acid, aromatic acid, aromatic petroleum distillate and ammoniated salt solution	1-2%	Ammoniated salt solution, deposition, drift retardant
MILLED AMS	United Suppliers, Inc.	Ammonium sulfate polydimethylsiloxane	8-20 lb/100 gal	Contains antifoam
MIX-IT	Plant Health Technologies	Alcohol ethoxylate phosphate ester, 2-butoxyethanol	1-4 pt/100 gal	3-6 pt/100 gal to correct incompatibilities
NEW BALANCE	Precision Laboratories, LLC	Proprietary blend of alkyl polyethoxy ether and 2-hydroxy-1,2,3 propane tricarboxylic acid	8-32 oz/100 gal	Contains antifoam
N-PAK AMS LIQUID	Winfield Solutions, LLC	Ammonium sulfate solution	1.25-5%	2.5% = 8.5 lb AMS/100 gal

OMNIX	Precision Laboratories, LLC	Ammonium sulfate	8.5-17 lb/100 gal	Spray grade AMS
OMNIX LDF	Precision Laboratories, LLC	34% liquid ammonium sulfate and dimethylpolysiloxane defoamer	2.5-5%	2.5% = 8.5 lb AMS/100 gal
ONE-AP XL	KALO, Inc.	AMS, block polymer of carbonyl diamine, polyoxyethylene polyoxypropylene, beta-hydroxy-tricarboxylic acid, polyacrylamide polymer, dimethylsiloxane	10-20 lb/100 gal	AMS with 0.25% v/v NPE free NIS, drift reduction, deposition, contains antifoam
ON-LINE	Helena Chemical Co.	Polyvinyl polymers and foliar nutritional	1%	Foliar nutrition
OVERIDE	MFA, Inc.	Ammonium sulfate, hydroxy carboxylic acid, phosphoric acid, and dispersing agents	1-5 pt/100 gal	Does not replace COC or NIS
PAYOFF PLUS	United Suppliers, Inc.	Proprietary blend of ammonium salts, surfactant, antifoam and multifunctioning polymeric deposition agents	10 lb/100 gal	10 lb/100 gal = 8.5 lb AMS, 2 pt NIS/100 gal, deposition, contains antifoam
POWERHOUSE	Rosen's, Inc.	Diammonium sulfate, surfactants and dimethylpolysiloxane	1.25-2.5%	Use when AMS and/or AMS+surfactants are needed
PRECINCT	West Central	Ammonium sulfate, sorbitol, sodium xylene sulfonate	2.5 gal/100 gal	Rate depends on water hardness
QUEST	Helena Chemical Co.	Proprietary blend of hydroxycarboxylic acid, phosphoric acids, ammonium sulfate, and polyacrylic acid	0.125-0.5%	Water conditioner, AMS replacement, buffer
REDUCE	Helena Chemical Co.	Ammonium sulfate, nonionic surfactants, and water conditioners	1-2.5%	Provides: 8.5 lb AMS and NIS at 2.5%
RENDEZVOUS CTM	Innvictis Crop Care, LLC	A proprietary blend of ammonium salts, alkylpolyglycoside, phosphatidyl choline, paraffinic oil, formulation aids	0.75-1.5%	
REQUEST	Helena Chemical Co.	Proprietary blend of ammonium acrylates, hydroxycarboxylates, and sulfates	0.125-0.5%	Water conditioner, AMS replacement, no buffer
RESTORE	KALO, Inc.	AMS, 1,2,3-trihydroxy propane, phosphoric acid	2-3 qt/100 gal	Water conditioner, spray retention, acidifier
REVEL	Rosen's, Inc.	Diammonium sulfate, surfactants and dimethylpolysiloxane	0.25-0.5%	Use when AMS and/or AMS+surfactants are needed
RUSH	Winfield Solutions, LLC	Ammonium sulfate, modified glycerol acid complex, polymeric copolymer, and dimethylpolysiloxane	0.5-1%	Contains antifoam
SEQUEL	Helena Chemical Co.	Blend of hydroxy carboxylic and phosphoric acids, and ammonium sulfate	0.125-0.75%	AMS replacement, proprietary blend
SEQUESTRA	Drexel Chemical Co.	Blend of polyacrylates, polyhydroxy-tricarboxylic acid, dipotassium phosphate and formulation aids	1-5 pt/100 gal	AMS replacement
SIMPLYX	Precision Laboratories, LLC	Proprietary blend of surfactants, water conditioning agents and mineral oil	0.5-0.75%	For use with glyphosate
SMOKE	Helena Chemical Co.	Trihydroxy carboxylic acid, alkyl amine alkoxyate, alkyl alkoxyated phosphate amine, urea sulfuric acid complex	0.25-0.5%	
SOIL BOOST PLUS	SO-IL Service, Inc.	Proprietary blend of penetration, translocation, water buffering, and chelating agents, along with liquid AMS	1-3 pt/A	Water conditioning, AMS, liquid
SPECTRA AMS	KALO, Inc.	Ammonium sulfate, glycerol, phosphoric acid, polyacrylamide, dimethylpolysiloxane	2.5-5 gal/100 gal	Full load AMS with drift suppression, enhanced deposition

## Water Conditioning Agents

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
SPECTRA MAX TANK MIX	KALO, Inc.	Ammonium sulfate, glycerol, phosphoric acid, polyacrylamide, polydimethylsiloxane	2-3 qt/100 gal	Water conditioning, drift reduction, deposition aid, humectant, antifoum
SPEEDWAY	United Suppliers, Inc.	Proprietary blend of potassium salts of hydroxyl carboxylic, phosphoric and poly-acrylic acids and amine phosphate	0.125-0.75%	
SPRAY PREP	KALO, Inc.	Urea, glycerin, polyoxyethylene, tallow amine, sulfuric acid	1-4 qt/100 gal	pH modifier, water conditioner
SPRAY-START	KALO, Inc.	Dry ammonium sulfate, polyacrylamide polymers and anti-foam agent	9-12 lb/100 gal	Dry water conditioning
SPRINT ADT	United Suppliers, Inc.	Proprietary blend of nonionic surfactants, water conditioning agents and deposition aids/drift control agents	0.75%	Water conditioner, drift reduction, NIS
STAYDOWN	Rosen's, Inc.	Proprietary blend of diammonium sulfate, rheologic modifying polymer, sequestering and antifoam agent	5-9 lb/100 gal	
STRIKE FORCE	Loveland Products, Inc.	Lecithin, lactic acid and derivatives, polyethoxylated esters and alcohols	2 qt/100 gal	Non-AMS water conditioning
STRIKE ZONE MXD	Helena Chemical Co.	Ammonium and potassium salts and organic polymers	9 lb/100 gal	AMS replacement
SURFATE	Loveland Products, Inc.	Nonionic surfactant and ammonium sulfate	1%	1.25 gal/100 gal = 0.25% NIS and 4.25 lb AMS
SYNRGIZE	AgXplore International, Inc.	Alkyl poly glycosides, defoamers, nonionic coupling agents and a blend of ammonium salts	0.25-0.5%	AMS replacement
THRUST	Loveland Products, Inc.	Proprietary blend of milled ammonium sulfate, drift reduction/deposition polymers and antifoaming agents	9-17 lb/100 gal	
TRANSPORT	Precision Laboratories, LLC	Proprietary blend of ammoniated salts of polycarboxylic amphoteric, sulfates and acids	0.25-0.75%	pH neutral for more tank mixing options
TRANSPORT LpH	Precision Laboratories, LLC	Proprietary blend of ammoniated ions, carboxylic acids, phosphoric acid and formulation aids	0.25-0.5%	Water conditioning agent for glyphosate
TRANSPORT PLUS	Precision Laboratories, LLC	Proprietary blend of drift reduction polymers, ammoniated ions, water conditioning agents and antifoam	0.25-0.75%	
TRANSPORT ULTRA	Precision Laboratories, LLC	Proprietary blend of nonionic surfactants, ammoniated ions, water conditioning agents and antifoam	0.25-0.5%	For use with glyphosate formulations
TRAVERSE	Innervic Crop Care, LLC	Monocarbamide dihydrogen sulfate, nonionic surfactants, humectants, chelating agents, antifoaming agent	0.25-0.5%	AMS replacement for glyphosate tank-mixes, antifoam
ULTRA-LITE	United Suppliers, Inc.	Nonionic surfactant and ammonium sulfate 90-10	2.5-5%	Liquid AMS, NIS



ULTRASURF AMS	United Suppliers, Inc.	Nonionic surfactant and ammonium sulfate 80-20	1.25-5%	Liquid AMS, NIS
VECTOR	Rosen's, Inc.	Proprietary blend of diammonium salts, crop-based elasto polymer and polysiloxane	2 lb/100 gal	
VERACITY	West Central	Water conditioners, surfactants, and drift control agents	3 qt/100 gal	
VERACITY ELITE	West Central	Vegetable (seed) oil ethoxylate, oleic acid, alcohol ethoxylate	2 qt/100 gal	
VERIMAX	Innkvictis Crop Care, LLC	Ammonium sulfate, glycerol acid complex, acrylamide sodium acrylate linear copolymer and siloxane	0.25-0.75%	AMS replacement for glufosinate, antifoam
VERIMAX DRY	Innkvictis Crop Care, LLC	Ammonium sulfate, polyacrylamide, dimethylpolysiloxane	10-20 lb/100 gal	10 lb = 1% AMS, aerial: 18 to 20 lb/100 gal
VIXEN AC-D	Innkvictis Crop Care, LLC	Ammonium sulfate, 2-hydroxytricarboxylic acid, phosphoric acid, diammonium salt	2-4 lb/100 gal	pH reduction for insecticides, 0.25-1.0 lb/100 gal
VIXEN AC-L	Innkvictis Crop Care, LLC	Ammonium salt of sulfuric acid, 2-hydroxy-1,2,3-tricarboxylic acid, triphosphoric acid, pentasodium salt	1-2 qt/A	1-4 pt/A if volume exceeds 15 gal/A
VIXEN D	Innkvictis Crop Care, LLC	Sodium and ammonium salts of sulfuric acid, 2-hydroxy-1,2,3-tricarboxylic acid	2-4 lb/100 gal	pH reduction for insecticides, 0.25-1.0 lb/100 gal
WATER FX	KALO, Inc.	Ammonium sulfate, 2-hydroxy-1,2,3-propanetricarboxylic acid	0.5-4 lb/100 gal	Water conditioner, acidifier
WAYPOINT	MFA, Inc.	Ammonium sulfate, hydroxy carboxylic acid, phosphoric acid, alkyl polyoxyethylene glycol blend, and dispersing agents	1-4 qt/100 gal	Refer to pesticide label for crops/rates
WEATHER GARD COMPLETE	Loveland Products, Inc.	Lecithin, phosphate ester, methyl esters of fatty acid and polydimethylsiloxane	0.25-0.5%	Contains shear stable drift reduction agent
ZAAR	Helena Chemical Co.	Proprietary blend of methylated oils and nonionic surfactant	1% v/v	Compatibility agent
ZENITH	Rosen's, Inc.	Proprietary blend of diammonium salts, surfactants, crop-based elasto polymer and polysiloxane	1.5-2.25 lb/A	

## Basic Blends

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
CORNBELT BASE	Van Diest Supply Co.	Alkaline buffered methylated seed oil, nitrogen-based fertilizer solution, nonionic surfactant and antifoam agent	1%	Increases water pH
ENTRO	KALO, Inc.	Methylated seed oil, nitrogen based fertilizer solution, surfactant blend, alkali buffer and antifoam	1-2.5%	Buffers pH to minimize acid hydrolysis, retention aid
NEWTONE	Winfield Solutions, LLC	Surfactant blend and ammoniated salts	1%	Less than 5 GPA use 2%, do not exceed 5%
QUAD 7	Loveland Products, Inc.	Proprietary blend of ammonium salt, nonionic surfactant, and buffering agent	1%	May be used for micro-rate herbicide applications
TRANSACTIVE HC	Helena Chemical Co.	Ammonium salts, 1,2,3 propanetriol, polyalkoxylates, and alkaline buffering agents	0.75-2%	Do not use with ASSERT

## Sticker-Spreaders and/or Extenders

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
ADHERE	GarrCo Products Inc.	Film forming polymer blend	3-12 oz/100 gal	Spreader-sticker
AD-HERE SP	Plant Health Technologies	Pinene (terpene) polymers, petrolatum, alkyl amine ethoxylate	4-16 oz/100 gal	OMRI listed
BINDE	AgXplore International, Inc.	Polymeric terpenes	1 pt/A	Extender nonionic sticker-spreader
BIO-FILM EXTRA	KALO, Inc.	Alkylphenyl, hydroxyl-polyoxyethylene, polymerized resins and fatty acids, paraffin base petroleum oil	4-16 oz/100gal	Spreader-sticker, for fungicides and insecticides
BOND MAX	Loveland Products, Inc.	Synthetic latex and alcohol ethoxylate	See label	Spreader-sticker, deposition aid
BRANDT AQUASURF	Brandt Consolidated, Inc.	Polaxalene, propylene glycol and n-butanol	1-4 pt/100 gal	Approved for aquatic use
BRANDT ORGANICS	Brandt Consolidated, Inc.	Bentonite, lactose, casein	1-2 lb/100 gal	OMRI listed
SKH STICKER				
CHAMELEON	Jay-Mar, Inc.	Alkylpolyoxyethylene esters, reacted amines and aromatic petroleum solvents	4-48 oz/100 gal	Spreader-sticker
CHEM-STIK	Precision Laboratories, LLC	Emulsifiable polyethylene and polyethoxy ethanol	4-32 oz/100 gal	Nonionic spreader-sticker
CHEM-STIK LpH	Precision Laboratories, LLC	Proprietary blend of alkylaryl polyoxyethanol glycol ether, alkylphenolic resin, alkylaryl polyoxyethanol phosphate esters, tricarboxylic acid and formulation aids	0.125-0.5%	Nonionic spreader-sticker, pH buffer
COFILM	Coastal Agrobusiness, Inc.	di-1-p-menthene	See label	Low molecular weight terpenic polymer
COMPLEX	Winfield Solutions, LLC	Alkylphenol ethoxylate, alkylphenol polymerized resin, linoleic diethanolamide	0.125-0.375%	Spreader-sticker
DENALI-EA	Wilbur-Ellis Company	Polyoxyalkylene polyol fatty acid ester, alcohol ethoxylate and 2-hydroxy-1,2,3-propanetricarboxylic acid	1-4 pt/100 gal	NPE free, aquatic approved
DURATION II	Cannon Packaging Co. Inc.	Polymeric terpenes	1 pt/A	Retention aid, sticker-spreader, extender
FORTIFY	Plant Health Technologies	Alkyl polyoxyethylene ethers, polymerized resins, and triethanol amine salts of oleic acid (TOFA derived) and petroleum distillates	1 to 4 pt/100 gal	Spreader-sticker
FS CROPS-TIK	GROWMARK, Inc.	Emulsifiable polyethylene and alkyl phenoxy polyethoxy ethanol	4-8 oz/100 gal	Nonionic spreader-sticker
GRIP	Plant Health Technologies	Beta-pinene polymer	See label	Nonionic sticker-spreader with a UV inhibitor, beta-pinene (pine trees)
HOOK	Atlantic Pacific Agricultural, Inc.	Alkyl polyoxyethylene ethers, polymerized resins and fatty acid	1-4 pt/100 gal	Add HOOK last
LATRON B-1956	Plant Health Technologies	Modified phthalic glycerol alkylid resin	See label	Resin-based nonionic surfactant

MAINSTAY	KALO, Inc.	Alkyl polyoxyethylene ethers, polymerized resins, and triethanol amine salts of oleic acid (TOFA derived), petroleum distillates	1-4 pt/100 gal	Resists washoff
MIX-IT	Plant Health Technologies	Alcohol ethoxylate phosphate ester, 2-butoxyethanol	1-4 pt/100 gal	3-6 pt/100 gal to correct incompatibilities
NU FILM 17	Miller Chemical Co.	Pinene (diterpenes) polymers, hydrocarbon resin, petrolatum $\alpha$ -(p-dodecylphenyl)- $\omega$ - $\omega$ -hydroxypoly (oxyethylene)	1 pt/A	Sticker, extender, add Nu Film 17 last
NU FILM P	Miller Chemical Co.	Pinene (polyterpenes) polymers, $\alpha$ -(p-dodecylphenyl)- $\omega$ - $\omega$ -hydroxypoly (oxyethylene)	4-16 oz/A	Spreader-sticker, add Nu Film P last
NU-FILM-IR	Miller Chemical Co.	Poly-1-p-menthene	4-16 oz/A	Nonionic sticker-spreader, premix Nu Film IR with water before adding to tank mix
PINENE II	Drexel Chemical Co.	Polymeric terpenes	See label	Extender and sticker
POLY FILM-R	Brewer International	Proprietary blend of polymeric terpene, methylated seed oil and other ingredients	0.5-1 pt/A	Spreader-sticker
POWERSHOT!	MFA, Inc.	Polyoxyethylene sorbitan fatty acid ester, soybean oil ethoxylate, copolymer of alpha- and beta-pinene	See label	Powershot! will not eliminate all drift
PRO-LONG	United Suppliers, Inc.	Pinene polymers	4-6 oz/A	Sticker and extender
R-AGENT DL	Chemurgic Agricultural Chemicals, Inc.	Isoparaffinic hydrocarbons, d-limonene and ethoxylated octylphenols	1-4 qt/100 gal	Includes citrus extract
SUSTAIN	Miller Chemical Co.	Pinene (terpene) polymers, petrolatum, $\alpha$ -(p-dodecylphenyl)- $\omega$ - $\omega$ -hydroxypoly (oxyethylene)	4-16 oz/100 gal	Spreader-sticker
TRANSFIX	Winfield Solutions, LLC	Pinene polymer, alkylphenol ethoxylate	4-6 oz/A	Spreader-sticker
UMBRELLA	Brandt Consolidated, Inc.	Terpene resins. Tall oil fatty acids and alkyl phenol ethoxylate	4-8 floz/100 gal	Includes NIS
WETCIT	ORO Agri, Inc.	Alcohol ethoxylate	See label	Penetrant and wetting agent
WILLOWOOD STICKER	Willowood USA	Alkylaryl/polyoxyethylene glycol, glycol ethers, combined fatty acids, bis (2-ethylhexyl) benzene dicarboxylate, isopropanol	0.25-2 pt/100 gal	Sticker-spreader, protectant

## Adjuvants plus Foliar Fertilizer

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
ON-LINE	Helena Chemical Co.	Polyvinyl polymers and foliar nutritionals	1%	Foliar nutrition

## Antifoam Agents

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
AEROSOL DEFOAMER	KALO, Inc.	Octamethylcyclotetrasiloxane, heptane	2-4 oz/100 gal	Aerosol propellant for quick foam suppression
ANTI-FOAM	Rosen's, Inc.	Dimethylpolysiloxane	1-2 oz/100 gal	Use prior to foam
ANTI-FOAM	KALO, Inc.	Polydimethylsiloxane, silicon dioxide	1-2 oz/100 gal	Curative and preventative foam suppression
BREWER DEFOAMER	Brewer International	Dimethyl-polysiloxane	1-2 oz/100 gal	
BUFFER X-TRA	Custom Agricultural Formulators	Alkylaryl/polyoxyethylene glycols isopropanol, phosphoric acid	1-2 qt/100 gal	Add to the tank first
CHEMPRO A-10	Chemorse, Ltd.	Dimethylpolysiloxane	1-2 oz/100 gal	
CHEMURGIC'S DEFOAMER OR-10	Chemurgic Agricultural Chemicals, Inc.	Silica filled polydimethylsiloxane	See label	Add to the tank first
CHEMURGIC'S FOAM ANNIHILATOR	Chemurgic Agricultural Chemicals, Inc.	Silica filled polydimethylsiloxane, polypropylene glycol, and siloxane polyalkyleneoxide copolymer	See label	Add to the tank first
COMBAT PLUS	Helena Chemical Co.	Methylated silicone	1-2 oz/100 gal	Effective in defoaming organosilicones
CORNBELT DEFOAMER	Van Diest Supply Co.	Dimethylpolysiloxane	See label	
DEFOAMER	Rosen's, Inc.	Silicone fluid	1-2 oz/100 gal	
ELIMINO	Plant Health Technologies	Polydimethylsiloxane	1-10 floz/100 gal	OMRI listed
ELIMINO	Precision Laboratories, LLC	Polydimethylsiloxane	1-10 floz/100 gal	OMRI listed
ELITE KNOCKDOWN	Red River Specialties, Inc.	Blend of silica filled polydimethylsiloxane	0.25-0.5 floz/ 300-500 gal	Next generation antifoam product
FASTBREAK	Winfield Solutions, LLC	Dimethylpolysiloxane	1-4 oz/100 gal	
FOAM ARREST	Plant Health Technologies	Emulsifiers and formulation aids, dimethylpolysiloxane and other antifoaming agents	1-4 floz/100 gal	Add to tank before or after foam
FOAM BREAKER	United Suppliers, Inc.	10% silicone fluid emulsion	0.5-2 oz/100 gal	
FOAMBUSTER	Helena Chemical Co.	Dimethylpolysiloxane	1 oz/100 gal	Approved for food grade applications
FOAM BUSTER MAX	Helena Chemical Co.	Polydimethylsiloxanes	1-2 oz/100 gal	
FOAM CUTTER	Jay-Mar, Inc.	Silicone fluid emulsion	0.5-4 oz/100 gal	Will not precipitate

FOAM EATER	Coastal Agrobusiness, Inc.	Dimethylpolysiloxane	1-4 oz/100 gal	Squeeze container and 2.5 gal jug
FOAM FIGHTER	Miller Chemical Co.	Dimethyl silicone fluid emulsion	See label	
FOAM FIGHTER TURBO	Miller Chemical Co.	Dimethylpolysiloxane, silicon dioxide	1-3 squirts/100 gal	30% active
FOAM FREE	AgXplore International, Inc.	Dimethylpolysiloxane	1-4 oz/100 gal	Add to tank before or after foam
FOAMGARD AG-10	MFA, Inc.	Dimethylpolysiloxane	1-2 floz/100 gal	Added prior to fertilizers or pesticides
FOAMINATOR DRY	Winfield Solutions, LLC	Polysiloxane and proprietary foam suppression aids	See label	
FOAME-KIL	Drexel Chemical Co.	Dimethylpolysiloxane	1 oz/100 gal	Defoams NIS and fertilizer solutions
FS ELIMINATOR	GROWMARK, Inc.	Dimethylpolysiloxane	2-4 oz/100 gal	
FTF DEFOAMER	Wilbur-Ellis Company	Silica filled polydimethylsiloxane, polypropylene glycol and siloxane polyalkyleneoxide copolymer	See label	Highly concentrated
GUNDOWN MAX	Precision Laboratories, LLC	Proprietary dimethylpolysiloxane emulsion	2-4 oz/100 gal	For N containing spray solutions
JOHN DEERE ULTRA DEFOAMER	John Deere Des Moines Works	Proprietary dimethylpolysiloxane emulsion	1-4 oz/100 gal	Fast acting, Roundup WeatherMax compatible
KNOCKDOWN	Precision Laboratories, LLC	Proprietary dimethylpolysiloxane emulsion	2-4 oz/100 gal	
KNOCK-OUT	Conklin Co., Inc.	Polydimethylsiloxane	1-2 oz/100 gal	Highly effective with high-foaming chemicals
PREVENT	GartCo Products Inc.	Silicone antifoam/defoamer	0.5-2 oz/100 gal	Add before foam
RRSI DEFOAMER	Red River Specialties, Inc.	Polydimethylsiloxane, silica	0.5-2 oz/100 gal	Add before foam
SUPPRESSION	Chemorse, Ltd.	Polysiloxane and proprietary foam suppressing aids	See label	
TRIPLELINE FOAM-AWAY	Brandt Consolidated, Inc.	Polydimethylsiloxane	0.5-2 oz/100 gal	
ULTRA DEFOAM-IT	Plant Health Technologies	Proprietary antifoam/defoamer	0.5-2 oz/100 gal	Concentrated, nontoxic
UNFOAMER	Loveland Products, Inc.	Dimethylpolysiloxane, polypropylene glycol, and methylated silicone	See label	
UNIFAST-B	Custom Agricultural Formulators	Alkylary/polyoxyethylene glycols isopropanol, phosphoric acid	0.5-4 pt/100 gal	Add to the tank first

## Foam Markers

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
ALIGN	Helena Chemical Co.	Nonionic and anionic surfactants, fatty alcohol, and butoxy ethanol	1%	
BENCHMARK	KALO, Inc.	Proprietary blend of active foam agents	1:160 use ratio	Highly visible foam
BENCHMARK HT	KALO, Inc.	Proprietary blend of active foam agents and formulation aids	1:100 use ratio	Heat and humidity resistant, long lasting
CORNBELT FOAM MARKER	Van Diest Supply Co.	Proprietary blend of active foam agents	1.25%	
CORNBELT FOAM MARKER DYE	Van Diest Supply Co.	Highly concentrated colorant	10 oz/100 gal	Marking foam dye, red, blue
CORNBELT ULTRA-MARK	Van Diest Supply Co.	Proprietary blend of active foam agents and formulation aids	See label	Heat and wind resistant
DYNAMARK UV RED FOAM COLORANT	Winfield Solutions, LLC	Red foam colorant	10 oz/100 gal	Marking foam dye, red
ENDURON PSI	Precision Laboratories, LLC	Proprietary blend of nonionic and anionic surfactants	1%	Long-lasting marking foam
EVERLAST - ALL WEATHER FOAM MARKER	Rosen's, Inc.	Proprietary surfactant blend	0.63-1%	Concentrated, high expansion foam with wind and heat resistance
F.M.-160	Drexel Chemical Co.	Concentrate blend of foaming agents	See label	Foam marker concentrate
FOAM MARKER	Coastal Agrobusiness, Inc.	Nonionic and anionic surfactants, fatty alcohol and butoxyethanol	See label	Performs in hard water and bad weather
FOAM MASTER	AgXplore International, Inc.	Proprietary blend of surfactants and stabilizers	See label	Soft or hard water
FOAMER	Helena Chemical Co.	Sodium alpha-olefin sulfonate	1-2%	
FOMARK	KALO, Inc.	Proprietary blend of active foam agents	1:80 use ratio	Contains water conditioner for hard water use
HEAT WAVE	Winfield Solutions, LLC	Surfactant blend, 2-butoxyethanol and ethanol	0.63-1.25%	Foam marker
HOT N' DRY	United Suppliers, Inc.	Solvent, surfactant blend with nonionic stabilizers	0.8-1.6%	Resists dry, hot conditions
IMPRINT	Chemorse, Ltd.	Alkyl sulfates, alkyl ether sulfates, and alkyl sulfonates	1%	
INNVICTIS HIGHFOAM MARKER	Innvictis Crop Care, LLC	Foam concentrate	See comment	100:1 dilution or 12-13 oz/10 gal
JOHN DEERE DEEP BLUE	John Deere Des Moines Works	Proprietary	10-20 oz/100 gal	Marking foam dye for use on small grain stubble
JOHN DEERE ECONOMY FOAM CONC	John Deere Des Moines Works	Proprietary blend of nonionic and anionic surfactants	1.25%	Early season marking foam for use < 80 degrees F

JOHN DEERE FOAM TANK CLEANER	John Deere Des Moines Works	Proprietary	3.33%	Degreaser to remove foam residue from foam-marking tanks
JOHN DEERE PREMIUM FOAM CONC	John Deere Des Moines Works	Proprietary blend of nonionic and anionic surfactants	See label	Suitable for mid- to late-season application in hot and dry conditions
LANDMARK	United Suppliers, Inc.	Base surfactants, carrier solvents and foam boosting additives	1%	Resists wind and heat
PROMARK	Winfield Solutions, LLC	Blend of anionic and nonionic surfactant	1%	
RRSI FOAM MARKER	Red River Specialties, Inc.	Proprietary blend of active foam agents and formulation aids	1%	Hard or soft water
STABLE	GartCo Products Inc.	Proprietary blend of high foaming surfactants, stabilizers, and optical brighteners	See label	Concentrated, heat and freeze storage stable
TRACER COOL BLUE	Precision Laboratories, LLC	Proprietary blend of water-soluble dyes and formulation aids	1-2 oz/10 gal	Marking foam dye for use on small grain stubble
TRACK-IT	Plant Health Technologies	Not provided	100:1 dilution	Tolerant to hard water
TREKKER TRAX	Loveland Products, Inc.	Anionic and nonionic surfactant and alcohols	0.83%	
TUFF TRAX	Loveland Products, Inc.	Alkyl sulfonate 4-methyl-2, 4 pentane-diol	1.25%	
X-MARK	Precision Laboratories, LLC	Proprietary blend of synthetic foaming agents and stabilizers	0.83- 1.25%	

## Scents

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
BUBBLEGUM MASKING FRAGRANCE	United Suppliers, Inc.	Bubblegum fragrance	See label	Used to mask objectionable odors

## Tank Cleaners and/or Neutralizers

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
ALL CLEAR	Loveland Products, Inc.	Surfactants, sequestrants, degradants	0.25-0.5%	Cleans and decontaminates
BRANDT PESTICIDE EQUIPMENT CLEANER	Brandt Consolidated, Inc.	Potassium hydroxide, anticorrosion compounds, sequestering agents, nonionic and ionic surfactants, polydimethylsiloxane	1-2 pt/50 gal	
CHEMPRO TN-610	Chemorse, Ltd.	Surfactants, dispersants and emulsifiers	0.25%	
CORBELL TANK CLEANER-DRY	Van Diest Supply Co.	Complex phosphates, sodium silicate, sodium hydroxide, sodium carbonate, monocyclic terpenes, and nonionic surfactant	0.25-1 lb/100 gal	

## Tank Cleaners and/or Neutralizers

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
CORNBELT TANK CLEANER-LIQUID	Van Diest Supply Co.	Complex phosphates, sodium silicate, sodium hydroxide, sodium carbonate, monocyclic terpenes, and nonionic surfactant	0.25%	
DELETE-IT	Plant Health Technologies	Not provided	2 qt/100 gal	Elevates rinsate pH
ELITE VIGOR	Red River Specialties, Inc.	Anionic surfactants, ammonia and sequestering agents	0.25%	
ERASE	Precision Laboratories, LLC	Proprietary blend of alkalinity builders, emulsifiers, surfactants and formulation aids	2 qt/100 gal clean water	Elevates rinsate pH to degrade vulnerable crop protection products
FS CLEANSUPREME	GROWMARK, Inc.	Proprietary blend of alkalinity builders and detergents	0.25%	
FS RINSEOUT	GROWMARK, Inc.	Blend of alkalinity builders, emulsifiers, surfactants and formulation aids	2 qt/100 gal	May require anti-foam
INCIDE-OUT	Precision Laboratories, LLC	Proprietary blend of alkalinity builders, detergents and anti-redeposition agents	0.25%	DuPont and Syngenta approved
INNICTIS PREMIUM TANK CLEANER	Innvictis Crop Care, LLC	Organic amine, inorganic hydroxides, surfactants and formulation aids	1 qt/100 gal	
K-KLEAN	KALO, Inc.	Cleaning agents in a proprietary transparent emulsion	1 qt/100 gal	Economical liquid tank cleaner
KLEEN - UP LIQUID TANK CLEANER	Rosen's, Inc.	Nonionic and amphoteric surfactants, chelating and emulsifying agents, monoethanolamine, inorganic hydroxides, and formulation aids	0.25%	Approved for cleaning all pesticides and pesticide residues
PROTANK LIQUID CLEANER	Winfield Solutions, LLC	Proprietary blend	0.13%	
PURGE	AgXplore International, Inc.	Sodium metasilicate, inorganic hydroxides, surfactants, and formulation aids	1 pt/100 gal	
PURUS	United Suppliers, Inc.	Blend of alkalinity builders, emulsifiers, surfactants and formulation aids	2 qt/100 gal	Elevates rinsate pH
REMOVE	GarCo Products Inc.	Proprietary, concentrated blend of buffering agents, detergents, and functioning cleaners	0.25-1%	Allow sufficient time for the cleaning solution to penetrate the residue
TANK & EQUIPMENT CLEANER	Brewer International	Solvent type detergent and other ingredients	8-16 oz/100 gal	High pH
TANK AND EQUIPMENT CLEANER	Loveland Products, Inc.	Detergent mixture	1 lb/100 gal	Cleans and neutralizes equipment
TANK AND EQUIPMENT CLEANER	Rosen's, Inc.	Complex phosphates, sodium silicate, sodium hydroxide, sodium carbonate, monocyclic terpenes, and nonionic surfactant	1-2 lb/100 gal	Approved by Syngenta



TANK CLEANER	KALO, Inc.	Complex phosphates, sodium sulfate, sodium carbonate, sodium hydroxide, monocyclic terpenes, NIS	1 lb/100 gal	Dry Tank Cleaner with dye to identify rinsate
WARSH-OUT	Drexel Chemical Co.	Alkalinity builders, surfactants, anti-redeposition aid, corrosion inhibitor, formulation aids	1-2 qt/100 gal	Low use rates
WIPE OUT	Helena Chemical Co.	Blend of proprietary surfactants	0.125-0.25%	Effective for sulfonyleurea herbicide tank cleaning
WORK-HORSE	Atlantic Pacific Agricultural, Inc.	Not provided	1 qt/100 gal	Use up to 4 qt for difficult chemical build-up

## Other Products

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
AD-SORB RST	Plant Health Technologies	Poloxalene, alkyl polyglucoside, vegetable oil ethoxylate	See label	Soil surfactant
ATTACH	Loveland Products, Inc.	Pinene (terpene) polymers, petrolatum, <i>a</i> -( <i>p</i> -dodecylphenyl)- $\omega$ -omega-hydroxypoly (oxyethylene)	1-2 pt/A	For use with soil applied pesticides
AVANT XTRA	KALO, Inc.	Polyoxyethylene sorbitan fatty acid ester, soybean oil ethoxylate, copolymer of alpha- and beta-pinene	2-3 fl oz/A in 5-25 gpa	NPE free
BIG WET	Brewer International	A concentrated blend of nonionic wetting agents and other ingredients	6 oz/100 gal	Concentrated wetting agent
BLUE ALERT	Brewer International	Blue spray indicator	See label	Spray indicator, turf, blue
BRANDT BIG FOOT	Brandt Consolidated, Inc.	Concentrated temporary colorant	16 fl oz/100 gal	Also helps to indicate drift
BRANDT BIG FOOT SS	Brandt Consolidated, Inc.	Super concentrated temporary blue colorant	6-10 fl oz/100 gal	Also helps to indicate drift
BRANDT MARK-IT-RED	Brandt Consolidated, Inc.	Concentrated red colorant	1 qt/100 gal	Also helps to indicate drift
DLZ	Helena Chemical Co.	Methylated seed and paraffin oil, nonionic surfactants	0.5-1%	Deposition agent
DOWNPOUR	Brewer International	Nonionic polyol	1-2 qt/A	Soil surfactant
DUPLEX	Precision Laboratories, LLC	Alcohol ethoxylates, alkyl aryl sulfonate, ethylenediaminetetraacetic acid	See label	Turf infiltration
DYNAMARK UV	Winfield Solutions, LLC	Blue spray indicator	6-24 oz/100 gal	Spray indicator, blue
BLUE SPRAY INDICATOR				
ELITE AQUA	Red River Specialties, Inc.	Blue and yellow dyes	See label	Dry formulation
ELITE EMERALD	Red River Specialties, Inc.	Green dye	See label	Dry formulation

## Other Products

Product Name	Mfg/Distributor	Principal Functioning Agent	Use Rate	Comments
ELITE INFILTRATOR	Red River Specialties, Inc.	D'limonene and related isomers plus selected emulsifiers	0.125-0.25%	Wetting agent, activator, penetrator, low viscosity oil, 15% surfactant
ELITE JADE	Red River Specialties, Inc.	Green dye	See label	Dry formulation
ELITE MIRROR	Red River Specialties, Inc.	Black dye	See label	Dry formulation
ELITE NATURAL	Red River Specialties, Inc.	Modified vegetable oil and nonionic emulsifiers	See label	Basal diluent
ELITE NATURAL RED	Red River Specialties, Inc.	Modified vegetable oil and nonionic emulsifiers	See label	Basal diluent, red dye
ELITE PREMIER	Red River Specialties, Inc.	Paraffin oil, surface active compounds and coupling agents	See label	Basal diluent, low temperature
ELITE PREMIER BLUE	Red River Specialties, Inc.	Paraffin oil, surface active compounds and coupling agents	See label	Basal diluent, low temperature, blue dye
ELITE PREMIER RED	Red River Specialties, Inc.	Paraffin oil, surface active compounds and coupling agents	See label	Basal diluent, low temperature, red dye
ELITE RADIANT	Red River Specialties, Inc.	Di-1-p-menthene, nonionic surfactant, paraffinic hydrocarbons	6-8 oz/A	Pinene based sticker, film forming, UV inhibitor
ELITE SAPPHIRE	Red River Specialties, Inc.	Blue dye	See label	Dry formulation
ELITE SPLENDOR	Red River Specialties, Inc.	Acid blue 9	0.04-0.08%	Also a foam colorant
ENTRY	Plant Health Technologies	Methyl esters of fatty acids, N, N-Bis 2-(omega-hydroxypolyoxyethylene) ethyl) alkyllamine, tall oil fatty acids	0.25-1%	NIS and COC replacement
FOAM DYE	KALO, Inc.	Concentrated dye agent	1 oz/10 gal	Red or blue colorant for foam concentrates
FS CAPTIS	GROWMARK, Inc.	Blend of solvents, ethoxylated nonionic and anionic surfactants	4-16 floz/A	Rate depends on soil texture
FS VIVID BLUE	GROWMARK, Inc.	Concentrated dye agent	1-2 oz/10 gal	Marking foam colorant
FS VIVID PINK	GROWMARK, Inc.	Pink dye	1-2 floz/10 gal	Rate depends on many factors
GREEN ALERT	Brewer International	Green spray indicator	See label	Spray indicator, turf
GREEN DOCTOR	Canon Packaging Co. Inc.	Blended surfactants	2-4 qt/A	Soil surfactant
GULFSTREAM	Winfield Solutions, LLC	Nonylphenol polyethylene glycol ether, free fatty acids,	8 oz - 4 pints	Spreader, activator and buffering
H20 MAXIMIZER	KALO, Inc.	Carbohydrate surfactant, poloxanlene, poly (2-propanamide)	16 oz/A	Soil surfactant and polymer resin blend
H-45	West Central	Proprietary blend of co-polymers of polyethylene & polypropylene glycols	1-6 qt/100 gal	Injectable soil surfactant
HYDRO-WET INJECTABLE	KALO, Inc.	Poloxyalkylene glycol	12-24 oz/A	NPE free soil surfactant
HYDRO-WET PELLETS	KALO, Inc.	Polyoxyethylenepolypropoxypropanol, glycol butyl ether	See label	NPE free soil surfactant

IMPROVED JLB OIL PLUS	Brewer International	Blend of all natural vegetable oils and limonene oils	See label	Basal oil, eliminates diesel and kerosene
INFUSE	Loveland Products, Inc.	Modified vegetable oil, esters, fatty acids and ethoxylated derivatives	1-4 pt/A	Soil penetration varies by soil type
JLB OIL PLUS	Brewer International	Blend of aliphatic hydrocarbon oils and limonene oils	See label	Basal oil, eliminates diesel and kerosene
LOVERT	Brewer International	Hydrocarbon constituents, and selected emulsifiers	See label	Drift control, penetrator, sticker
MEDALIST	KALO, Inc.	Proprietary blend of nonionic carbohydrate surfactants, polyoxyethylene-polyoxypropylene glycol, polydimethylsiloxane	16-24 oz/A	NPE Free NIS for irrigation injection
MULTI-SPRED	Custom Agricultural Formulators	Organosilicone, methylated vegetable oil, poly fatty acid esters, polyethoxylated esters, non ionic surfactants	3-5 pt/100 gal	Multi-purpose
MYSTIC BLUE	Winfield Solutions, LLC	Blue spray indicator	6-32 oz/100 gal	Spray indicator, blue
MYSTIC GREEN	Winfield Solutions, LLC	Green spray indicator	6-32 oz/100 gal	Spray indicator, green
MYSTIC HC	Winfield Solutions, LLC	Blue spray indicator	6-25 oz/100 gal	Spray indicator, blue
ORGANIC-KICK	Brewer International	D'limonene, and emulsifiers	See label	Wetter, sticker, activator, penetrant
ORO RZ	ORO Agri, Inc.	Alcohol ethoxylate orange oil (cold pressed)	See label	Soil surfactant
ROYAL CONDITIONER	Brewer International	Blend of inorganic phosphates, phosphoric acid	See label	Line flush for irrigation systems
ROYAL FLUSH	Brewer International	Phosphoric acid, blend of inorganic phosphates	See label	Line flush for irrigation systems
RRS1 FORESTRY OIL	Red River Specialties, Inc.	Petroleum oils and surfactants	0.125-0.5%	Paraffin based
RRS1 IVM MARKING DYE	Red River Specialties, Inc.	Proprietary	5-10 oz/100 gal	Also a foam colorant
SORBYX	Precision Laboratories, LLC	Petroleum oil, ethoxylated soybean oil, tall oil fatty acids	4-16 fl oz/A	Rate depends on soil texture
SUNSTREAM	Brewer International	Blend of all natural vegetable oils and special emulsifiers	15-20%	Provides a heavy emulsified spray pattern
TOPFILM	Biosorb, Inc.	Proprietary blend of patented BIOCAR biological carriers derived from grain materials that have coating and film forming properties as well as natural organic nitrogen	0.25- 1 pt/A	Binder, film forming suspoemulsion derived from grain by-products
TOURNAMENT-READY PELLETS	KALO, Inc.	Alkylpolyglycoside, polyalkoxylate, siloxane	16-24 oz/A	NPE Free NIS soil wetting agent
TOURNAMENT-READY PELLETS	KALO, Inc.	Blend of carbohydrate and polymeric surfactants, binders and antifoam agents	1 pellet/12,000 sqft	NPE Free NIS soil wetting agent
W.E.B OIL	Wilbur-Ellis Company	Mineral oil	See label	Basal applications
WATERMAXX 2	Loveland Products, Inc.	Alkoxylated polyols, glucoethers	See label	Soil surfactant
WATER-RITE	KALO, Inc.	Poloxalene, alkylpolyglycoside, vegetable oil ethoxylate	1-8 pt/A	NPE free NIS, AG adjuvant, soil surfactant
WATER-RITE FC	KALO, Inc.	Alkylglucoside, 1,2,3-trihydropropane, polydimethylsiloxane	1-4 pt/A	NPE free NIS, AG adjuvant, soil surfactant
WICK	Winfield Solutions, LLC	Proprietary blend of polyoxyalkylene alkyl ethers	0.50%	Indoor/outdoor NIS adjuvan

# ADJUVANTS FOR EACH MANUFACTURER OR DISTRIBUTOR

## AgXplore International, Inc.

BINDE  
BLAZIN-FIRE  
COMBUST  
DRIFT-CHECK  
FOAM FREE  
FOAM MASTER  
JAGGE  
JETTE 80/20  
LANDLOCK  
LINKE  
METHSOYOIL  
PHUSE  
PURGE  
SPREDDE 90/10  
SURSIL  
SYNURGIZE  
TRIPLE PLAY  
TYRANT CSOC

## Amway Global

APSA-80

## Atlantic Pacific Agricultural, Inc.

HOOK  
MIC-RO-PAC  
WORK-HORSE

## Biosorb, Inc.

TOPFILM

## Brandt Consolidated, Inc.

38-F  
41-A  
BRANDT AQUASURF  
BRANDT BIG FOOT  
BRANDT BIG FOOT SS  
BRANDT INDICATE 5  
BRANDT INSURE  
BRANDT M.S.O.  
BRANDT MAGNIFY  
BRANDT MARK-IT-RED  
BRANDT ONSITE  
BRANDT ORGANICS SKH STICKER  
BRANDT PESTICIDE EQUIPMENT CLEANER  
BRANDT PH ADJUST  
BRANDT SIDEKICK  
BRANDT SILICONE SPREADER  
BRANDT SUPER 7  
BRANDT SUPER WETTER  
BRANDT TORPEDO  
CMR HERBICIDE ACTIVATOR  
CONSTANT BUPHER-ER  
GREEN CYPRESS AG AIDE  
GREEN CYPRESS ECOSPREADER  
MONTERY CROP OIL  
NO FOAM A  
NO FOAM B  
SURFACT 50  
TRIPLELINE FOAM-AWAY  
ULTRA 90-NF  
UMBRELLA

## Brewer International

AQUABUPH  
BIG SUR 90  
BIG WET  
BLUE ALERT

BREWER 80-20  
BREWER 83-17  
BREWER 90-10  
BREWER DEFOAMER  
CIDE-KICK  
CIDE-KICK II  
DOWNPOUR  
GREEN ALERT  
IMPROVED JLB OIL PLUS  
I'VOD  
JLB OIL PLUS  
LOVERT  
ORGANIC-KICK  
POLY CONTROL 2  
POLY FILM-R  
POLYAN  
ROYAL CONDITIONER  
ROYAL FLUSH  
SIL ENERGY  
SILKICK  
SILNET 200  
SUN CONTROL  
SUN ENERGY  
SUN WET  
SUNSTREAM  
SURFACTANT PH  
SURFACTANT PH WITH NITROGEN  
TANK & EQUIPMENT CLEANER  
VIN-KICK

## Cannon Packaging Co. Inc.

2% MIST CONTROL  
CARRIER-PLUS  
CROPOIL  
DURATION II  
ENHANCER  
FUSION  
FUSION D  
GREEN DOCTOR  
LEAF AID II  
METHALATED SEED OIL  
PREMIUM 60/40  
RAPID SPREAD  
SURF-80  
SURF-90

## Chemorse, Ltd.

34-PLUS  
60-40 CROP OIL  
60-40 MSO  
CHEM SPRAY  
CHEMPRO A-10  
CHEMPRO CP-20  
CHEMPRO CP-35  
CHEMPRO CP-40  
CHEMPRO S-163  
CHEMPRO S-172  
CHEMPRO TN-610  
CHEMSURF 80  
CHEMSURF 90  
CHEM-TROL  
CHEM-TROL D  
CONQUER  
IMPRINT  
LAS-34  
SUPPRESSION  
SUREWET  
SYNETIC

## Chemurgic Agricultural Chemicals, Inc.

CHEMURGIC'S DEFOAMER OR-10  
CHEMURGIC'S MVO  
CHEMURGIC'S OR-100 SUPER SPREADER  
CHEMURGIC'S FOAM ANNIHILATOR  
CHEMURGIC'S NEXT GEN SPREADER  
R-AGENT DL

## CHS

CHS AXON  
CHS BUCKHORN TOTAL  
CHS LIQUID AMS  
CHS EMULATE  
CHS FIXATE PRO  
CHS FIXATE  
CHS HYPERTONIC  
CHS SITKA  
CHS TRAPLINE PRO  
CHS WHEELHOUSE PRO  
CHS WHEELHOUSE  
CHS WOODSIDE

## Coastal Agrobusiness, Inc.

AMS PLUS  
CHEM-OIL 83  
CHEMWETT PLUS  
CITRIPHASE  
COFLM  
CO-MIX  
COVERALL  
DIRECT DRT  
EXCEL 2000  
FOAM EATER  
FOAM MARKER  
MATRIX  
SPECTRUM  
SYNERGY  
SYNTACT

## Conklin Co., Inc.

BULL'S-EYE  
COMPLETE  
HOME RUN  
KNOCK-OUT  
KOMBIND  
RAIN-FAST  
SATURALL 85  
WEX

## Custom Agricultural Formulators

BROADSPRED  
BROADSPRED GREEN  
BUFFER X-TRA  
DEPLOY  
INTAKE  
MSO COMPLETE  
MULTI-SPRED  
NEW CENTURY OIL SPREADER  
UNIFAST-B

## Drexel Chemical Co.

AMS-ALL  
AMS-SUPREME  
AMS-XTRA  
BEANOIL  
BS-500  
CITRU-SHIELD  
F.M.-160

FOME-KIL  
HAF-PYNT  
HOLZIT  
HOT MES  
HUM-AC 820  
LOX  
LOX PLUS  
MES-100  
MIX  
NITRO-SURF  
PAS-800  
PEPTOIL  
PINENE II  
PRIMARY  
SEQUESTRA  
SIL-FACT  
SIL-MES 100  
SURF-AC 820  
SURF-AC 910  
VEGETOIL  
WARSH-OUT

#### Evonik Corporation

BREAK-THRU

#### GarrCo Products Inc.

ADHERE  
ASSIST  
BLAZE  
CONDITION  
CONDITION CONCENTRATE  
CONDITION EXTRA  
CONDITION MAX  
CONDITION ND  
CONDITION PLUS  
CONTROL  
CONTROL AMS  
CONTROL COMBO  
CONTROL DUO  
CONTROL WM  
DRENCH  
GUARD  
IMPROVE  
PREMIUM MSO  
PREVENT  
REMOVE  
STABLE

#### GROWMARK, Inc.

FS AMS LDF  
FS AMS MAX  
FS AMS MAX DR  
FS AQUALIGHT  
FS AQUAPRIME  
FS AQUASUPREME  
FS ATTERO  
FS BARRIER  
FS CAPTIS  
FS CERTIN  
FS CLEANSUPREME  
FS COC PLUS SURFACTANT  
FS COC SUPREME  
FS CROPSIK  
FS ELIMINATOR  
FS INFIX  
FS INTERFACE  
FS LAYOUT  
FS MAXSUPREME  
FS MAXTRA  
FS MSO ULTRA  
FS OPTIQUE  
FS RINSEOUT  
FS TALYX

FS TANKMAX  
FS TENAX  
FS TRANSFORM  
FS TRANSFORM PLUS  
FS TRANSFORM ULTRA  
FS VIVID BLUE  
FS VIVID PINK

#### Helena Chemical Co.

ACCUQUEST WM  
ACCURACY  
ACCUZONE DC  
AD-SPRAY 101  
AD-SPRAY 80  
AD-SPRAY 90  
AERO DYNE-AMIC  
AGRI-DEX  
ALIGN  
BLENDX VHC  
BUFFER EXTRA STRENGTH  
BUFFER PS  
CIDE WINDER  
CITRUFILM  
CLASP  
COMBAT PLUS  
CONTINGENT  
CROP OIL CONCENTRATE  
DLZ  
DUCE  
DYNE-AMIC  
DYNE-A-PAK  
FIRE ZONE  
FOAM BUSTER MAX  
FOAMBUSTER  
FOAMER  
GROUND ZERO  
GROUNDED  
HEL-FIRE  
INDUCE  
INDUCE PH  
INTERACTIVE  
JOINT VENTURE  
JUSTIFIED  
KAMMO PLUS  
KINETIC  
KINETIC HV  
MSO  
ON-LINE  
OPTIMA  
PATROL  
PENETRATOR  
PENETRATOR PLUS  
POINTBLANK WM  
QUEST  
REDUCE  
REQUEST  
SEQUEL  
SILWET L-77  
SMOKE  
SOY-DEX PLUS  
STRIKE ZONE DF  
STRIKE ZONE MXD  
TRANSACTIVE HC  
VEGETABLE OIL CONCENTRATE  
WIPE OUT  
ZAAR

#### Innvictis Crop Care, LLC

AG-ADVANTAGE  
ENVELOP  
INNVICTIS HIGHFOAM MARKER  
INNVICTIS PREMIUM TANK CLEANER  
INVADE

INVADE HC  
INVADE RST  
INVADE X-TRA  
NAVIGATOR  
NAVIGATOR HC  
NAVIGATOR PLUS  
RENDEZVOUS CTM  
TRAVERSE  
V-DRIFT  
VELOMAX  
VENTURI  
VERIFACT  
VERIMAX  
VERIMAX DRY  
VIXEN AC-D  
VIXEN AC-L  
VIXEN D  
VOYAGER 80/20  
VOYAGER 90/10

#### Jay-Mar, Inc.

CHAMELEON  
FOAM CUTTER  
HORIZON  
IMPACT  
JUSTICE  
METH-N-OIL  
SPIRIT  
VOLT

#### John Deere Des Moines Works

JOHN DEERE DEEP BLUE  
JOHN DEERE ECONOMY FOAM CONC  
JOHN DEERE FOAM TANK CLEANER  
JOHN DEERE PREMIUM FOAM CONC  
JOHN DEERE ULTRA DEFOAMER

#### KALO, Inc.

90% NONIONIC SURFACTANT  
AEROSOL DEFOAMER  
AMS/NIS  
ANTI-FOAM  
AVANT XTRA  
BENCHMARK  
BENCHMARK HT  
BIO-90  
BIO-FILM EXTRA  
CADENCE  
CLARION  
COMPLEX  
COMPLEX EXTRA  
CROP OIL CONCENTRATE  
CURIO  
DRI NONIONIC SURFACTANT  
ENTRO  
FOAM DYE  
FOMARK  
FRACTION  
H2O MAXIMIZER  
HI-SURF COC  
HYDRO-WET INJECTABLE  
HYDRO-WET PELLETS  
K-KLEAN  
LEEWAY  
LINE-UP  
MAINSTAY  
MEDALIST  
MODIFIED VEGETABLE OIL  
MOMENTA  
ONE-AP XL  
REGULAID  
RESTORE  
SPECTRA AMS

SPECTRA MAX TANK MIX  
SPRAY PREP  
SPRAY-START  
TANK CLEANER  
TOURNAMENT-READY  
TOURNAMENT-READY PELLETS  
TRONIC  
WATER FX  
WATER-RITE  
WATER-RITE FC

#### Loveland Products, Inc.

ACTIVATOR 90  
ALL CLEAR  
AMAZE GOLD  
AMIGO  
ATTACH  
BOND MAX  
CHOICE TRIO  
CHOICE WEATHER MASTER  
COMPADRE  
E-Z MIX  
FLAME  
FRANCHISE  
FREEWAY  
GUNSMOKE  
HERBIMAX  
HI-WETT  
INFUSE  
LI-700  
LIBERATE  
MAXIMIZER  
MSO CONCENTRATE WITH LECITECH  
PHASE  
PHASE II  
QUAD 7  
REIGN  
REIGN LC  
SCANNER  
SPREADER 90  
STRIKE FORCE  
SURFATE  
TACTIC  
TANK AND EQUIPMENT CLEANER  
THRUST  
TREKKER TRAX  
TUFF TRAX  
UNFOAMER  
VADER  
WATERMAXX 2  
WEATHER GARD COMPLETE  
WIDESPREAD MAX

#### MFA, Inc.

AMS ADVANTAGE  
AMS EZ  
AMS EZ PLUS  
AMS-DEP  
ASTUTE  
ASTUTE LITE  
ASTUTE XTRA  
EXPEDITE  
FOAMGARD AG-10  
HAWKER  
IMPETRO  
OVERRIDE  
POWERSHOT!  
RELAY  
SOY PLUS  
WAYPOINT  
XPOND

#### Miller Chemical Co.

EXIT  
FOAM FIGHTER  
FOAM FIGHTER TURBO  
HYBRID  
MIST-CONTROL  
NU FILM 17  
NU FILM P  
NU-FILM-IR  
SPRAY AIDE  
SUSTAIN

#### ORO Agri, Inc.

ORO HSMO  
ORO RZ  
WETCIT

#### Plant Health Technologies

AD-BUFF  
AD-HERE SP  
AD-MAX 90  
AD-SORB RST  
AD-WET 90  
AD-WET 90 CA  
AD-WET 90 PLUS  
ASCENT 90  
BBS  
BORDER AQ  
BORDER MAX  
BORDER XTRA 8L  
COMP-AD  
COMP-AD ES  
CROP OIL CONCENTRATE  
DELETE-IT  
ELIMINO  
ENTRY  
ESCALATE  
FASTSTRIKE  
FOAM ARREST  
FOAM ARREST  
FORTIFY  
GRIP  
GUIDE-IT  
KICKER  
KICKER PLUS  
KICKER PLUS DRY  
KICKER PRO  
KICKER ULTRA DRY  
LATRON B-1956  
LOAD UP  
MICRIMIX PLUS  
MIX-IT  
NUTRIENT BUFFER 0-10-0  
NUTRIENT BUFFER 0-10-0  
NUTRIENT BUFFER 0-10-0 PLUS  
NUTRIENT BUFFER 10-12-0  
PERSIST ULTRA  
QUARK  
SAPHEN  
TRACK-IT  
ULTRA DEFOAM-IT  
VESTIS  
VOLARE DC

#### Precision Laboratories, LLC

BORDER 2.0  
BORDER AQ  
BORDER EG 250  
BORDER MAX  
BORDER XTRA 4L  
BORDER XTRA 8L  
BORDER XTRA DF

CHEM-STIK  
CHEM-STIK LpH  
COMPOUND  
CONVERT  
DELIVER  
DELUX  
DIRECT  
DUPLEX  
ELIMINO  
ENDURON PSI  
ERASE  
EXCHANGE  
GUNDOWN MAX  
IMPORT  
INCIDE-OUT  
INTACT  
INTACT XTRA  
KIXYT  
KNOCKDOWN  
MICROYL  
MSO ULTRA  
NEW BALANCE  
NIS 80-20  
NIS 90-10  
OMNIX  
OMNIX LDF  
PEN-A-TRATE II  
PERSIST ADVANCED  
PERSIST ULTRA  
PRECISION SPREADER  
PROTYX  
SIMPLYX  
SORBYX  
SPEED  
SYNC  
TRACER COOL BLUE  
TRANSPORT  
TRANSPORT LpH  
TRANSPORT PLUS  
TRANSPORT ULTRA  
VERTEX  
VESTIS  
VIGOR  
VOLARE DC  
X-MARK

#### Red River Specialties, Inc.

ELITE ALLURE  
ELITE AMPLIFY  
ELITE AQUA  
ELITE AQUA BOOSTER  
ELITE CHAMPION  
ELITE EMERALD  
ELITE IMPERIAL  
ELITE INFILTRATOR  
ELITE JADE  
ELITE KNOCKDOWN  
ELITE MARVEL  
ELITE MIRROR  
ELITE NATURAL  
ELITE NATURAL RED  
ELITE PINNACLE  
ELITE PLATINUM  
ELITE PREMIER  
ELITE PREMIER BLUE  
ELITE PREMIER RED  
ELITE RADIANT  
ELITE SAPPHIRE  
ELITE SECURE ULTRA  
ELITE SPLENDOR  
ELITE SUPREME  
ELITE VIGOR

RRSI 1% SOLUTION DRIFT CONTROL AGENT  
RRSI DEFOAMER  
RRSI FOAM MARKER  
RRSI FORESTRY OIL  
RRSI IVM MARKING DYE  
RRSI NIS  
RRSI PACER  
RRSI SUNRISE  
RRSI SUNSET

#### Rosen's, Inc.

ANTIFOAM  
ARRAY  
DEFOAMER  
DIPLOMAT  
DRIFT-GARD  
ENACT  
EVENT  
EVERLAST - ALL WEATHER FOAM MARKER  
IMPERIAL AMS  
IMPRESSIVE DB  
KLEEN - UP LIQUID TANK CLEANER  
MIX-ALL COMPATIBILITY AGENT  
POWERHOUSE  
REVEL  
R-WAY  
STAYDOWN  
SUNDANCE II  
TANK AND EQUIPMENT CLEANER  
TRADITION 93  
VECTOR  
ZENITH

#### SO-IL Service, Inc.

LANDOIL  
SOIL BOOST PLUS

#### Southern States Cooperative, Inc.

ADEPT  
AFFIX  
AFFIX PLUS  
CO-ACTION WC PLUS  
MEZO  
RELIABLE

#### United Suppliers, Inc.

AFFECT GC  
AIRFORCE  
AMS 20/10  
AMS 2000  
AMSOL  
AMSOL DRY  
AMSOL PLUS  
AMSURF XTRA  
BETWEEN  
BUBBLEGUM MASKING FRAGRANCE  
CHEM-N  
CHEM-SURF 80  
CHEM-SURF 90  
DOUBLEDOWN  
DOWNDRAFT  
EXURO  
FASTRACK  
FOAM BREAKER  
FORMULA 1  
HI-COMP  
HOT N' DRY  
LANDMARK  
MILLED AMS  
PAYOFF PLUS  
PREMIUM CROP OIL CONCENTRATE  
PRO-LONG

PURUS  
SOY OIL SPRAY CONCENTRATE  
SPEEDWAY  
SPRINT ADT  
SUCCEED  
SUCCEED ULTRA  
SUR-PLUS  
TRANSLATE  
ULTRA-LITE  
ULTRASURF AMS

#### Van Diest Supply Co.

CORNBELT BASE  
CORNBELT COMPATIBILITY AGENT  
CORNBELT CROP OIL CONCENTRATE  
CORNBELT DEFOAMER  
CORNBELT DRI-GARD  
CORNBELT FOAM MARKER  
CORNBELT FOAM MARKER DYE  
CORNBELT GARDIAN  
CORNBELT GARDIAN PLUS  
CORNBELT LOCKTITE  
CORNBELT LOCKTITE MSO  
CORNBELT METHYLATED SOY-STIK  
CORNBELT N-TENSE  
CORNBELT PREMIER 90  
CORNBELT PREMIUM AMS  
CORNBELT PREMIUM CROP OIL CONC.  
CORNBELT PRO-ONE XL  
CORNBELT SPRAY ACTIVATOR 85  
CORNBELT TANK CLEANER-DRY  
CORNBELT TANK CLEANER-LIQUID  
CORNBELT TROPHY GOLD  
CORNBELT ULTRA-MARK  
CORNBELT VAPORGARD

#### West Central

CERIUM ELITE  
H-45  
JACKHAMMER ELITE  
JACKHAMMER  
K-TONE  
LINKAGE  
LIQUID AMS  
PARACHUTE  
PRECINCT  
PREFER 90  
SAVVY  
SEDAT MAX  
STAKE  
UPLAND MSO  
VERACITY ELITE  
VERACITY  
CROP OIL  
WHITEWATER NIS  
WHITEWATER 90

#### Wilbur-Ellis Company

BRIMSTONE  
BRONC  
BRONC MAX  
BRONC MAX EDT  
BRONC PLUS DRY  
BRONC PLUS DRY EDT  
BRONC TRIPLE  
CAYUSE PLUS  
CLIMB  
CROSSHAIR  
CUT-RATE  
DENALI-EA  
FTF DEFOAMER  
GLACIER-EA

HASTEN-EA  
HIGH LOAD  
IN-PLACE  
INSIST 90  
MOR-ACT ADJUVANT  
MSO HIGH LOAD  
R.O.C.  
R-11  
R-56  
RAINER-EA  
RENEGADE-EA  
SUPER SPREAD 7000  
SUPER SPREAD 90  
SUPER SPREAD MSO  
SYL-COAT  
SYL-TAC-EA  
TRI-FOL  
W.E.B OIL

#### Willowood USA

WILLOWOOD BUFFER  
WILLOWOOD BUFFER SPREADER  
WILLOWOOD COC  
WILLOWOOD DRIFTGUARD  
WILLOWOOD SPREADER  
WILLOWOOD STICKER

#### Winfield Solutions, LLC

ACTIVATE PLUS  
ADURO  
AIRCOVER  
AIRTECH  
ALLIANCE  
AQUA-KING PLUS  
ATMOS  
BREEZE  
CLASS ACT FLEX  
CLASS ACT NG  
COMPLETE COMPATIBILITY  
COMPLEX  
CORRAL POLY  
DESTINY HC  
DROPLEX  
DYNAMARK UV BLUE SPRAY INDICATOR  
DYNAMARK UV RED FOAM COLORANT  
FASTBREAK  
FOAMINATOR DRY  
GULFSTREAM  
HEAT WAVE  
INERGY  
INTERLOCK  
LEVEL 7  
MASTERLOCK  
MYSTIC BLUE  
MYSTIC GREEN  
MYSTIC HC  
NEWTONE  
NOBLE  
N-PAK AMS LIQUID  
POWERLOCK  
PREFERENCE  
PRIME OIL  
PROMARK  
PROTANK LIQUID CLEANER  
RUSH  
SILKIN  
SUPERB HC  
TOPSURF  
TRANSFIX  
TURBULENCE  
WICK

# CPDA ADJUVANT CERTIFICATION PROGRAM

Some of the products listed in this *Compendium* have been certified through the Council of Producers & Distributors of Agrotechnology (CPDA) voluntary Adjuvant Certification Program.



The CPDA says of the program:

The CPDA voluntary Adjuvant Certification Program is the first of its kind. Since its launch in 2001, it has quickly gained industry recognition as an innovative tool for encouraging product stewardship in the manufacture of agricultural adjuvants. Prior to this program, end users had little, if any, scientifically accepted standards by which they could effectively judge the quality of a tank-mix adjuvant.

Members of the CPDA Adjuvants and Inerts Committee developed the program to bring a level of consistency in product performance for adjuvants used with agricultural pesticide formulations. Products certified under the program must meet 17 separate benchmarks that are based on technologically and scientifically derived definitions and standards adopted by the American Society for Testing and Materials, now known as ASTM International, and certain requirements of the U.S. Environmental Protection Agency (EPA), the U.S. Department of Transportation, and the U.S. Occupational Health and Safety Administration. Agricultural spray adjuvants are not subject to federal regulation by the EPA.

The products listed below are included in this *Compendium* and have been approved by the CPDA Adjuvant Certification Committee as of the time this publication was printed. Refer to the CPDA website ([cpda.com/cpda-certified-adjuvant-products/](http://cpda.com/cpda-certified-adjuvant-products/)) for the most recent list of products that have been certified.

Agri-Dex	Destiny HC	LockDown	R-11
Air Force	Diplomat	Magnify	Renegade-EA
Alliance	Double Down	Monterey Crop Oil	R-Way
AMSol Plus	Downdraft	MSO Concentrate	Soy Plus
AmSurf Xtra	Droplex	with Leci-Tech	Speed
Array	Enact	MSO Ultra	Speedway
Atmos	Exchange	MSO Xtreme	Sprint ADT
Aurora COC	Fastrack	OROBOOST	Succeed
Aurora ETA	Formula 1	Ortech	Sundance II
Aurora MSO	FS Maxtra	Penetrator Plus	Superb HC
Aurora NIS	FS Optique	Persist Ultra	Super Spread 7000
Backdrop	FS Talyx	PHT Crop Oil	Super Spread MSO
Between	FS AquaPrime	Concentrate	Swift
Border AQ	FS COC Supreme	PHT Entry	Syl-Tac
Border Max	FS MaxSupreme	PHT Persist Ultra	Tradition 93
Border Xtra 8l	Groove	PHT Volare DC	Twister HL
Breeze	Humectant	Powerhouse	Ultra-Lite
Bronc Max	Hybrid	PowerLock	UltraSurf AMS
Cayuse Plus	Hasten	Premium Crop Oil	Vegetable Oil
ChemSurf 80	Induce	Concentrate	Concentrate
ChemSurf 90	In-Place	Pro AMS Plus	VINTRE
Choice Weather Master	Interlock	Pro Crop Oil	Volare DC
Class Act NG	Intrigue	Promote	WETCIT
CNI Response	Kinetic	Protyx	
Competitor	Kixyt	Purity 100	
Crop Oil Concentrate	Level 7	Quest	

*Please note that all products listed are currently certified, but in commerce, some of these products might not yet bear the mark of certification.*



*American Society for Testing and Materials (ASTM International)*  
**STANDARD TERMS AND DEFINITIONS**

**Acidifier** A material that can be added to spray mixtures to lower the 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.

**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.

**Attractant** A material that attracts specific pests.

**Basic Blend** (*Definition from the Editor*) An adjuvant that raises the pH of the solution and contains a nitrogen source.

**Buffer or 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.

**Canopy Penetrating Agent** An adjuvant that increases the penetration of the spray material into the crop canopy. See *deposition aid*.

**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.

**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** An emulsifiable, petroleum oil-based product containing 15% to 20% w/w surfactant and a minimum of 80% w/w phytoabland oil.

**Crop Oil (Emulsifiable)** An emulsifiable, petroleum oil-based product containing up to 5% w/w surfactant and the remainder of a phytoabland oil.

**Crop Oil (Nonemulsifiable)**  
See *phytoabland oil*.

**Defoaming Agent** A material that eliminates or suppresses foam in the spray tank.

**Deposition Aid** A material that improves the ability of agrichemical sprays to deposit on target surfaces.

**Dormant Oil** A horticultural spray oil applied during the dormant phase of the targeted plant.

**Drift Control Agent** A material used in liquid spray mixtures to reduce spray drift.

**Emulsifier** A surfactant that promotes the suspension of one immiscible liquid in another.

**Esterification** The process of reacting fatty acids with an alcohol. Although methanol is the most commonly used alcohol (methylated), ethanol (ethylated), n-butanol and isopropyl alcohol could be used.

**Evaporation Reduction Agent**

A material that reduces the evaporation rate of a spray mix during, after, or both during and after, application.

**Extender** A material that increases the effective life of an agrichemical after application.

**Foam Suppressant** See *defoaming agent*.

**Foaming Agent** A material that increases the volume or stability of the foam formed in a spray mixture.

**High Surfactant Oil Concentrate** An emulsifiable oil based product containing 25-50% w/w surfactant and a minimum of 50% w/w oil.

**Humectant** A material which increases the equilibrium water content and increases the drying time of an aqueous spray deposit.

**Modified Vegetable Oil** 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.

**Naphtha-Based Oil** A petroleum oil containing a majority of the naphtha fraction.

**Nonionic Surfactant** A surface-active agent having no ionizable polar end groups but comprised of hydrophilic and lipophilic segments.

**Oil** See *petroleum, vegetable, paraffinic* and so forth.

**Paraffinic 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.

**Petroleum Oil** Oil derived from petroleum: contains a mixture of hydrocarbons that are broadly classified as paraffins, naphthenes, aromatics, or other unsaturates, or combinations thereof.

**Phytobland Oil** A highly refined paraffinic material with minimum unsulfonated residue of 92% v/v.

**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 Agent** A material that when added to a liquid agent medium, modifies the properties of the medium at a surface or interface. This is a general term that includes soluble detergents in liquid medium, dispersing agents, emulsifying agents, foaming agents, penetrating agents and wetting agents.

**Surfactant** See *surface agent*.

**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.

**Wetting Agent** Wetting agents can be considered synonymous with spreading agents in function.

# NAMES AND ADDRESSES OF MANUFACTURERS / DISTRIBUTORS

## **AgXplore International, Inc.**

7035 State Hwy D  
PO BOX 638  
Parma, MO 63870  
www.agxplore.com

## **Amway Global**

attn. Business to Business  
Marketing Group  
7575 Fulton St  
Ada, MI 49355

## **Atlantic Pacific Agricultural, Inc.**

2828 S. McCall Rd.  
32, PMB #82  
Englewood, FL 34224  
atlantic-pacificag.com

## **Biosorb, Inc.**

St. Charles, MO 63304  
www.biosorb-inc.com

## **Brandt Consolidated, Inc.**

2935 S. Koke Mill Road  
Springfield, IL 62711  
www.brandtconsolidated.com

## **Brewer International**

605 90th Ave  
Vero Beach, FL 32968  
www.brewerint.com

## **Cannon Packaging Co. Inc.**

2862 N. Central Ave.  
PO BOX 862  
Humboldt, TN 38343  
www.cannonpackaging.net

## **Chemorse, Ltd.**

1596 NE 58th Avenue  
Des Moines, IA 50313  
www.chemorse.com

## **Chemurgic Agricultural Chemicals, Inc.**

PO Box 2106  
Turlock, CA 95381  
www.chemurgic.net

## **CHS**

5500 Cenex Drive  
Inver Grove Heights, MN 55077  
<http://www.chsinc.com/>

## **Coastal Agrobusiness, Inc.**

3702 Evans St  
Greenville, NC 27834  
www.coastalagro.com

## **Conklin Co., Inc.**

Research & Development,  
AgroVantage  
Marketing Division  
551 Valley Park Drive  
PO BOX 155  
Shakopee, MN 55379-1874  
www.conklin.com

## **Custom Agricultural Formulators**

3430 S. Willow Ave.  
P.O. Box 26104  
Fresno, CA 93725

## **Drexel Chemical Co.**

PO BOX 13327  
Memphis, TN 38113-0327  
www.drexchem.com

## **Evonik Corporation**

Agro Department  
914 East Randolph Road  
PO BOX 1299  
Hopewell, VA 23860-1299

## **GarrCo Products, Inc.**

PO BOX 619  
Converse, IN 46919-0619  
www.garrco.com

## **GROWMARK, Inc.**

1701 Towanda Avenue  
Bloomington, IL 61701  
www.growmark.com

## **Helena Chemical Co.**

225 Schilling Blvd  
Collierville, TN 38017  
www.helenachemical.com

## **Innvictis Crop Care, LLC**

4850 Hahns Peak Drive #200  
Loveland, CO 80538  
www.innvictis.com

## **Jay-Mar, Inc.**

Hwy B  
Plover, WI 54467  
www.jay-mar.com

## **John Deere Des Moines Works**

attn. Dave Hogan  
825 SW Irvinedale Drive  
Ankeny, IA 50023  
www.johndeere.com

## **KALO, Inc.**

13200 Metcalf Ave. Ste. 250  
Overland Park, KS 66213  
www.kalo.com

## **Loveland Products, Inc.**

aka Crop Production Services  
3005 Rocky Mountain Ave  
Loveland, CO 80538  
www.cpsagu.com

## **MFA, Inc.**

201 Ray Young Drive  
Columbia, MO 65201  
www.mfa-inc.com

## **Miller Chemical Co.**

PO BOX 333  
Hanover, PA 17331  
www.millerchemical.com

## **ORO Agri, Inc.**

3816 S. Willow Ave., Suite 101  
Fresno, CA 93725  
www.oroagri.com

## **Plant Health Technologies**

PO Box 27  
Boise, ID 83707  
www.simplot.com

## **Precision Labs, Inc.**

1429 S. Shields Drive  
Waukegan, IL 60085  
www.precisionlab.com

## **Red River Specialties, Inc.**

1324 N. Hearne Ave  
Shreveport, LA 71107  
www.rrsi.com

## **Rosen's, Inc.**

700 S.W. 291 Hwy. Ste. 204  
Liberty, MO 64068  
www.aginfotoday.com

## **SO-IL Service, Inc.**

91 South Adams  
Carthage, IL 62321  
www.so-ilservice.com

## **Southern States**

**Cooperative, Inc.**  
6606 W Broad Street  
Richmond, VA 23230  
www.southernstates.com

## **United Suppliers, Inc.**

PO BOX 538  
Eldora, IA 50627  
www.unitedsuppliers.com

## **Van Diest Supply Co.**

PO BOX 610  
Webster City, IA 50595-0610  
www.vdsc.com

## **West Central**

2700 Trott Avenue SW  
PO Box 897  
Willmar, MN 56201  
www.westcentralinc.com

## **Wilbur-Ellis Company**

345 California St., 27th Floor  
San Francisco, CA 94104  
www.wilburellis.com

## **Willowood USA**

1600 NW Garden Valley Blvd.  
Suite 120  
Roseburg, OR 97471  
www.willowoodusa.com

## **Winfield Solutions, LLC**

Information  
1080 Cty. Rd. F West  
PO BOX 64281  
Shoreview, MN 55164  
www.winfield.com

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