

2023 FS ADJUVANT GUIDE



GROWMARK CROP PROTECTION

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GROWMARK is an agricultural cooperative headquartered in Bloomington, Illinois, serving cooperatives, retailers, businesses, and customers in the U.S. and Canada. We provide customers with fuels, lubricants, crop nutrients, crop protection products, seed, construction services, equipment, and grain marketing assistance. In addition, **GROWMARK** provides a host of services from warehousing and logistics to training and marketing support. For more than 90 years, **GROWMARK** has been one of the most successful agriculture and energy suppliers in the United States, focused on the long-term goals of our customers.

GROWMARK Crop Protection offers customers a full line of herbicides, pesticides, and insecticides. We also carry starter fertilizers and a complete line of adjuvants to meet your needs. Our distribution network is well-positioned throughout the Midwest and the Eastern U.S., with warehouses in Illinois, Ohio, Kentucky, Pennsylvania, New York, North Carolina as well in Ontario, Canada.

GROWMARK Crop Protection has an excellent logistics network that strives for same-day or next-day product delivery in-season. Whether it's the early application of starter fertilizers or weed and pest management systems, **GROWMARK** has the crop protection products your business needs to succeed.

WAREHOUSE LOCATIONS





FS Crop Specialists work diligently each day to maximize their customers' crop potential. That includes getting the most out of crop inputs like herbicides and fungicides. But how do you know if your inputs are working to their highest potential given all the varying conditions that can happen at application time? That is the benefit of adding an adjuvant to your crop protection program.

Here are three things to know when using adjuvants:

1

Why use an adjuvant?

Adding an adjuvant helps maximize the effectiveness of the crop protection products you use. And, beyond efficacy, adjuvants help you manage environmental risks like drift and off-target movement.

2

Choosing the right adjuvant

Adjuvants are formulated to address specific local conditions that might hinder the efficacy of the crop protection product. And they are specifically approved for use with certain crop protection products which you will always find in the label information.

3

Managing your customers' risks

FS Crop Specialists and Custom Applicators are constantly in training to familiarize themselves with the newest application guidelines and the proper adjuvants to use with the various crop protection products. They have access to an extensive list of the latest crop protection and adjuvant choices. They are experts in matching up these products for farmers' specific needs.

PRODUCT LINEUP

DRIFT MITIGATION PREMIXES

- FS AMS MAX DR™
- FS Intention Advanced™
- FS MaxSupreme™
- FS Transform Plus™

DRIFT MITIGATION

- FS Barrier™
- FS Intention™
- FS Layout™

DRIFT MITIGATION & VOLATILITY REDUCTION AGENTS & PREMIXES

- FS Dissension™
- FS Intention™ DVA

SURFACTANTS

- FS CropStik™
- FS AquaPrime™
- FS Talent™
- FS Talyx™
- FS Task™

SOIL SURFACTANTS

- FS Captis™

CROP OILS, HIGH SURFACTANT OILS & METHYLATED SEED OILS

- FS COC Supreme™
- FS MSO Ultra™
- FS Optique™
- FS Optivix™

WATER CONDITIONERS & PREMIXES

- FS Certin™
- FS AMS MAX 2.0™

TANK PURITY

- FS Eliminator™
- FS RinseOut™
- FS TankMax™



The Council of Producers & Distributors of Agrotechnology (CPDA) certification of adjuvants assures applicators and growers that certain standards are met and the active ingredients and content are accurately identified. The use of CPDA certified adjuvants is recommended on many crop protection product labels.

Under the CPDA Certification Program, adjuvant manufacturers must provide confidential formulation information to a panel of industry experts for review and compliance to industry standards. This certification gives applicators greater assurances of the adjuvant's formulation and performance potential.

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FS AMS MAX DR™

**WATER CONDITIONING AGENT/AMS,
DRIFT REDUCTION AGENT,
NONIONIC SURFACTANT & ACTIVATOR**

FS AMS MAX DR™ is an easy to use premix of nonionic surfactant, ammonium sulfate, deposition aids, and drift retardant. FS AMS MAX DR™ is designed to enhance the performance of crop protection products that benefit from the inclusion of nonionic surfactants, ammonium ions, and the water conditioning features of ammonium sulfate, while providing better canopy penetration and drift control.

KEY BENEFITS

- » Protects glyphosate from antagonistic hard water ions that reduce performance
- » Provides real ammonium sulfate for maximum performance of glyphosate tank mix partners
- » Prevents tank mix foaming problems

USE RATE

- 1 to 2.5 gal./100 gal. of spray solution (1 - 2.5% v/v)
- Delivers 3.4 to 8.5 lb. of ammonium sulfate in 1 to 2.5 gal./100 gal. of spray solution

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 275 gal. MINIBULK
- BULK

BULK DENSITY

- 10.06 lb./gal.



FS Intention Advanced™

**WATER CONDITIONING AGENT,
DRIFT REDUCTION AGENT &
FOLIAR RETENTION AGENT**

FS Intention Advanced™ is a concentrated premix of drift reduction technology and water conditioning agents that minimize off-target movement while protecting the performance potential of glyphosate and dicamba.

KEY BENEFITS

- » A concentrated water conditioning agent and DRA premix
- » Maximizes large droplet retention and coverage for better herbicide uptake
- » Complements a wide range of nozzles to optimize drift control

USE RATE

- 2 qt./100 gal. of spray solution (0.5% v/v) with Engenia and Tavium
- 3 qt./100 gal. of spray solution (0.75% v/v) with XtendiMax

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 275 gal. MINIBULK

BULK DENSITY

- 9.73 lb./gal.



FS MaxSupreme™

**WATER CONDITIONING AGENT &
DRIFT REDUCTION AGENT**

FS MaxSupreme™ is a patented plant-based polymer and activator adjuvant specifically formulated to maximize herbicide performance on a wide range of weed species. FS MaxSupreme™ eliminates spray particle bounce-off and optimizes adhesion of the spray solution to the leaf surface, while delivering the required amounts of ammonium and sulfate ions.

KEY BENEFITS

- » Prevents pesticide antagonism with hard water ions
- » Maximizes glyphosate performance on velvetleaf, morning glories and other tough-to-control weeds
- » Formulated with antifoam to prevent foaming
- » Improves leaf surface coverage for better uptake
- » Extends spray droplet dry-down time for more consistent performance in dry conditions

USE RATE

- 2.5 gal./100 gal. of spray solution (2.5% v/v)
- Delivers 8.5 lb. of ammonium sulfate in 2.5 gal./100 gal. of spray solution

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 275 gal. MINIBULK
- BULK

BULK DENSITY

- 9.99 lb./gal.

FS Transform Plus™

**WATER CONDITIONER AGENT/
AMS, DRIFT REDUCTION AGENT,
ACTIVATOR, & DEPOSITION AID**

FS Transform Plus™ is a convenient, low use rate premix that combines water conditioning agents, drift retardants, ammonium ions, and antifoam in a single formulation.

KEY BENEFITS

- » Economical option to tank mixing AMS and drift retardant products
- » Fewer mixing problems with convenient premix formulation
- » Low use rate, takes up less space than dry AMS
- » Easy to mix and handle liquid formula

USE RATE

- 1 to 2 qt./100 gal. of spray solution (0.25-0.5% v/v) when replacing 8.5 lb. of ammonium sulfate
- 3 to 4 qt./100 gal. of spray solution (0.75-1% v/v) when replacing 17 lb. of ammonium sulfate

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 275 gal. MINIBULK

BULK DENSITY

- 9.80 lb./gal.



FS Barrier™

DRIFT REDUCTION AGENT & DEPOSITION AID

FS Barrier™ reduces risk and maximizes pesticide performance by binding ultra small spray particles together into larger droplets, which are more capable of hitting their intended target.

KEY BENEFITS

- » Refined use rates for fewer mixing errors
- » Easy to use liquid drift retardant

USE RATE

- 1 to 4 fl. oz./100 gal. of spray solution

PACKAGE SIZE

- 12/1 qt. CONTAINERS

BULK DENSITY

- 2.15 lb./qt.



FS Intention™

DRIFT REDUCTION AGENT, FOLIAR RETENTION AGENT & DEPOSITION AID

FS Intention™ is a stand alone drift reduction and deposition aid. FS Intention™ can be used alone or in combination with water conditioning agents and other adjuvants to maximize on-target performance.

KEY BENEFITS

- » Advanced spray droplet management technology
- » Maximizes large droplet retention, coverage and drift control for better herbicide uptake
- » Complements a wide range of nozzles to enhance drift control

USE RATE

- 2 qt./100 gal. of spray solution (0.5% v/v)

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 275 gal. MINIBULK

BULK DENSITY

- 8.83 lb./gal.



FS Dissension™

VOLATILITY REDUCING AGENT

FS Dissension™, a VaporGrip® Xtra Agent, is now required by the EPA for all applications of approved dicamba formulations in dicamba-tolerant soybean traits. This is an additional tool to reduce volatility potential when tank mixed with dicamba. Use of FS Dissension™ does not replace an approved drift reduction adjuvant (DRA), such as FS Intention Advanced™ or FS Intention™. A DRA is still required for all applications.

KEY BENEFITS

- » Required for use with PRE and POST applications of Engenia®, Tavium®, and XtendiMax®
- » Maximizes stability of the dicamba salt, thereby reducing the risk of volatility
- » Use results in reduced risk of off-target movement due to volatility

USE RATE

- Minimum of 20 fl. oz./acre at 15 GPA, 26 fl. oz./acre between 16-24 GPA, 32 fl. oz./acre at 25 GPA and above

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 265 gal. MINIBULK

BULK DENSITY

- 10.67 lb./gal.



FS Intention™ DVA

WATER CONDITIONING AGENT, DRIFT REDUCTION & VOLATILITY REDUCING AGENT, FOLIAR RETENTION AGENT

FS Intention™ DVA is an activator adjuvant premix specifically designed for use with dicamba-containing tank mixes.

KEY BENEFITS

- » New all-in-one premix of required DRA and VRA
- » Unique surfactant system with a plant-based, shear-resistant, polymer that increases deposition and retention
- » Includes a non-AMS based water conditioner that is safe for use with dicamba

USE RATE

- 1.25% v/v (5 qt. per 100 gal. of spray solution) or a minimum of 24 fl. oz./acre for Engenia®, Tavium®, or Xtendimax®

PACKAGE SIZE

- 2x2.5 gal. JUGS
- 275 gal. MINIBULK
- BULK

BULK DENSITY

- 10.01 lb./gal.



FS Layout™

**DRIFT REDUCTION AGENT
& DEPOSITION AID**

FS Layout™ is formulated to enhance pesticide performance by improving spray solution deposition and coverage while reducing driftable fines. FS Layout™ has low use rates and mixes quickly with minimal agitation, making it convenient and easy to use.

KEY BENEFITS

- » Improves spray pattern
- » Low use rate

USE RATE

- 4 to 6 fl. oz./acre in 5-20 GPA applications
- 6 to 8 fl. oz./acre in 20-40 GPA applications
- 8 to 10 fl. oz./acre in >40 GPA applications

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 275 gal. MINIBULK

BULK DENSITY

- 7.74 lb./gal.



FS CropStik™

SPREADER & STICKER

FS CropStik™ is a nonionic spreader-sticker designed to improve leaf surface coverage of spray solutions, while providing wash-off protection from untimely rainfall. FS CropStik™ increases the wetting, adhesion, and endurance of pesticide sprays when used as directed.

KEY BENEFITS

- » Increases wetting, adhesion, and endurance of pesticide sprays
- » Improves spray solution coverage on leaf surface
- » Easy-to-use formulation that won't gum up sprayers
- » Low use rates

USE RATE

- 4 to 8 fl. oz./100 gallons of spray solution
- Higher rates may be used when additional adhesion is needed.

PACKAGE SIZE

- 4/1 gal. JUGS

BULK DENSITY

- 8.68 lb./gal.



FS AquaPrime™

NONIONIC SURFACTANT

FS AquaPrime™ is formulated for applicators expected to deliver the best performance possible, and want the associated assurance of complying with pesticide labels that state a preference for a CPDA-certified surfactant. With a higher true surfactant load than most surfactants on the market, FS AquaPrime™ maximizes pesticide performance by improving spray solution wetting, coverage and penetration of target leaf surfaces.

KEY BENEFITS

- » Higher surfactant load than ordinary surfactants
- » Provides more consistent pesticide performance
- » Enhances performance of a wide range of pesticides

USE RATE

- 0.5 to 4 pt./100 gal. of spray solution (0.0625-0.5% v/v)

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 275 gal. MINIBULK

BULK DENSITY

- 9.08 lb./gal.



FS Talent™

DRIFT REDUCTION AGENT, NONIONIC SURFACTANT, & DEPOSITION AID

FS Talent™ is a fully-loaded nonionic surfactant with built-in deposition and drift reduction technology. The unique APE/NPE-free formula provides a high level of crop safety, making it ideal for fungicide applications in corn and soybeans. FS Talent™ delivers more spray solution on target with improved canopy penetration and leaf surface coverage.

KEY BENEFITS

- » APE/NPE-free formulation provides improved crop safety
- » Built-in drift reduction technology reduces the risk of off-target movement
- » Creates more optimally-sized spray droplets to increase canopy penetration and dwell time
- » True 90% surfactant load

USE RATE

- Ground: 0.125-0.5% v/v (1 pt./100 gal. of spray solution is recommended)
- Aerial: 0.25-0.5% v/v (2 pt./100 gal. of spray solution is recommended)

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 275 gal. MINIBULK

BULK DENSITY

- 8.66 lb./gal.



FS Talyx™

NONIONIC SURFACTANT & ACTIVATOR

FS Talyx™ is a unique, nonionic activator adjuvant specifically formulated to enhance the performance of a wide range of both systemic and contact fungicides and related tank mixes. FS Talyx™ improves fungicide droplet spreading and coverage, resulting in healthier plants and improved yields.

KEY BENEFITS

- » Maximizes fungicide performance against a wide range of leaf diseases including rust, septoria, and gray leaf spot
- » Manages the complex interaction between host plant, fungus, fungicide active ingredients, and formulation for optimized efficacy and crop safety
- » Flexibility to be used on a wide variety of crops, including corn, soybeans, and wheat

USE RATE

- 1 pt./100 gal. of spray solution (0.125% v/v)
- 1 qt./100 gal. of spray solution for aerial applications (0.25% v/v)

PACKAGE SIZE

- 4/1 gal. JUGS
- 2/2.5 gal. JUGS
- 275 gal. MINIBULK

BULK DENSITY

- 8.74 lb./gal.



FS Task™

WATER CONDITIONING AGENT/AMS, ACIDIFIER, NONIONIC SURFACTANT, ACTIVATOR & SPREADER

FS Task™ is a multi-functional adjuvant formulation designed to enhance the performance of a wide range of crop protection products. FS Task™ contains surfactants, water conditioning agents and acidifiers to enhance spray solution coverage and penetration, tie-up antagonistic hard water ions, and reduce spray solution pH to protect certain fungicides and insecticides from premature deactivation.

KEY BENEFITS

- » Multi-functional formulation for fewer products to handle
- » Protects spray solution from premature breakdown by adjusting pH to optimum range
- » Conditions water to prevent ion antagonism and improve uptake
- » Reduces surface tension to improve coverage on leaf surfaces and penetration

USE RATE

- 4 to 48 fl. oz./100 gal. for acidification and water conditioning
- 12 to 48 fl. oz./100 gal. for spreading and wetting
- 4 to 6 pt./100 gal. as a surfactant
- 6 to 8 pt./100 gal. as a penetrant

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 275 gal. MINIBULK

BULK DENSITY

- 9.40 lb./gal.

ABOUT SOIL SURFACTANTS

Soil residual herbicides don't have a chance in coarse textured soils. Many herbicides are readily leached through the soil column and quickly diluted to sub-lethal levels after a significant rainfall or irrigation event. This results in shorter periods of performance and faster breakthrough of tough-to-control weeds. FS Captis™ can help stretch the performance of residual herbicides by improving their adsorption and activation in the weed germination zone. By increasing the adsorption of soil residual herbicides in the upper soil profile, FS Captis™ better maintains the required concentration of active ingredients in the germination zone and root zone of emerging weeds.

FS Captis™ is compatible with a wide range of tank mix partners and won't reduce the performance of contact or systemic herbicides included for burndown of existing weeds. In fact, a university study showed that FS Captis™ enhanced the speed of performance of Gramoxone® on palmer amaranth (pigweed).



FS Captis™ ACTIVATOR, SOIL RETENTION AGENT, & DEPOSITION AID

FS Captis™ is technology designed to maximize effectiveness of herbicides applied to the soil. FS Captis™ can help stretch the performance of residual herbicides by improving the adsorption and activation of the herbicide active ingredient in the weed germination zone.

KEY BENEFITS

- » Compatible with a wide range of tank mix partners
- » Won't reduce the performance of contact or systemic herbicides included for burndown of existing weeds

USE RATE

- 1 pt./acre across all soil types

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 275 gal. MINIBULK

BULK DENSITY

- 7.84 lb./gal.





FS COC Supreme™

HIGH SURFACTANT OIL CONCENTRATE

FS COC Supreme™ is a low use rate, high load crop oil concentrate replacement adjuvant that enhances pesticide performance when compared to ordinary crop oil concentrates. Use FS COC Supreme™ at half the rate of ordinary crop oil concentrates for better performance and less product to handle.

KEY BENEFITS

- » Advanced surfactant technology with proven crop safety
- » Excellent spreading and coverage provides consistent control

USE RATE

- 10 to 12 fl. oz./acre (use higher rates under stressful growing conditions)

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 275 gal. MINIBULK

BULK DENSITY

- 7.32 lb./gal.



FS MSO Ultra™

MODIFIED VEGETABLE OIL

FS MSO Ultra™ is a proprietary methylated soy oil blend formulated to enhance pesticide performance under a wider range of weather conditions and weed species compared to ordinary MSOs and COCs.

KEY BENEFITS

- » Excellent crop safety
- » Will not deteriorate sprayer hoses and check valves
- » Freeze/thaw stable makes it easy to store
- » Mixes easily in all water conditions

USE RATE

- 20 to 24 fl. oz./acre (use higher rates under stressful growing conditions)

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 275 gal. MINIBULK

BULK DENSITY

- 7.45 lb./gal.



FS Optique™

MODIFIED VEGETABLE OIL

FS Optique™ is a unique methylated canola oil and surfactant blend that optimizes pesticide performance and mixing characteristics with a wide range of tank mix partners. FS Optique™ has been proven to out-perform ordinary methylated seed oils in enhancing the biological performance of Kixor® herbicide technology and certain HPPD inhibitors such as Laudis®, Impact™, and Armezon® on hard-to-control weed species.

KEY BENEFITS

- » Improves pesticide performance over ordinary MSOs and COCs
- » Will not deteriorate sprayer hoses and check valves
- » Will not settle out overnight in spray tanks
- » Freeze/thaw stable for easy storage

USE RATE

- 20 to 24 fl. oz./acre (use higher rates under stressful growing conditions)

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 275 gal. MINIBULK

BULK DENSITY

- 7.48 lb./gal.



FS Optivix™

HIGH SURFACTANT OIL CONCENTRATE

FS Optivix™ combines the performance of a premium quality methylated canola oil with a proprietary surfactant system to deliver higher levels of biological performance at lower use rates than traditional oil based adjuvants.

KEY BENEFITS

- » Use at half the rate of ordinary MSOs and COCs
- » Additional surfactant increases utility across a wide range of products
- » Protects yield potential with better performance than ordinary MSOs or COCs

USE RATE

- 10 to 12 fl. oz./acre (use higher rates under stressful growing conditions)

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 275 gal. MINIBULK

BULK DENSITY

- 7.74 lb./gal.



FS Certin™

WATER CONDITIONING AGENT

FS Certin™ is a pH-neutral and AMS-free water conditioning agent that protects the performance potential of glyphosate, dicamba, and 2,4-D from antagonistic metal ions found in hard water and leaf tissue.

KEY BENEFITS

- » Provides AMS-replacement technology to block antagonistic hard water ions that reduce herbicide performance
- » Complements a wide range of drift reduction nozzles
- » pH-neutral

USE RATE

- 2 to 4 qt./100 gal. of spray solution (0.5-1% v/v)

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 275 gal. MINIBULK

BULK DENSITY

- 9.44 lb./gal.



FS AMS MAX™ 2.0

WATER CONDITIONING AGENT/ AMS, NONIONIC SURFACTANT, ACTIVATOR & SPREADER

FS AMS MAX™ 2.0 is a convenient premix of a corn-based surfactant system and ammonium sulfate. FS AMS MAX™ 2.0 enhances the performance of glyphosate and other herbicides by tying up antagonistic hard water cations and improving leaf surface coverage for maximum herbicide absorption.

KEY BENEFITS

- » Can be used instead of ordinary surfactants, AMS tank mixes, or AMS replacement products
- » Mixes quickly and easily in cold, hard water conditions

USE RATE

- 1.25 to 5 gal./100 gal. of spray solution (1.25 - 5% v/v)
- Delivers 4.25-17 lb. of ammonium sulfate in 1.25-5 gal./100 of spray solution

PACKAGE SIZE

- 2/2.5 gal. JUGS
- 250 gal. MINIBULK
- BULK

BULK DENSITY

- 10.06 lb./gal.



FS Eliminator™

DEFOAMING AGENT

FS Eliminator™ is the strongest, fastest working defoaming agent available. FS Eliminator™ aggressively suppresses initial foam build up under agitation and quickly neutralizes established foam in the widest possible range of pesticide and/or fertilizer tank mixes, including Liberty® and Enlist® formulations.

KEY BENEFITS

- » More than three times stronger than ordinary defoamers
- » Superior foam suppression under agitation
- » Flexible formulation can be used as either a defoamer or an antifoam

USE RATE

- 2 to 4 fl. oz./100 gal. of spray solutions

PACKAGE SIZE

- 12/1 qt. CONTAINERS
- 4/1 gal. JUGS
- 30 gal. DRUM

BULK DENSITY

- 2.08 lb./qt.
- 8.30 lb./gal.



FS RinseOut™

SPRAY SYSTEM CLEANER

FS RinseOut™ is a next generation spray system cleaner, proven to be more efficient at removing pesticide residues than ordinary tank cleaners. Many new herbicide formulations often have limited compatibility or easily settle out in sprayer lines and hoses. FS RinseOut™ removes both dried-on residues and oily residues to prevent cross contamination in future sprays.

KEY BENEFITS

- » Penetrates and removes dried-on residues left behind from incompatible tank mixes
- » Emulsifier technology is designed to solubilize oily residue buildup for easier purging of the system
- » Stronger alkalinity builders help maximize rinsate solution pH levels to rapidly accelerate the breakdown of vulnerable pesticides
- » Anti-corrosion inhibitors protect equipment pumps, seals, and plumbing

USE RATE

- 2 qt./100 gal. of rinsate

PACKAGE SIZE

- 4/1 gal. JUGS

BULK DENSITY

- 10.39 lb./gal.

TANK MIX COMPATIBILITY GUIDE

UAN Carrier Post Add ATS

	SL	EC	SC	SE	FC	ZC	ME	LC
SL								
EC								
SC								
SE								
FC								
ZC								
ME								
LC								

UAN Carrier Only

	SL	EC	SC	SE	FC	ZC	ME	LC
SL								
EC								
SC								
SE								
FC								
ZC								
ME								
LC								

Water Carrier Only

	SL	EC	SC	SE	FC	ZC	ME	LC
SL								
EC								
SC								
SE								
FC								
ZC								
ME								
LC								

KEY

OK, No Compatibility Agent Needed

FS TankMax™ Required

FS TankMax™ Reduced Rate Option

Do Not Batch Mix

SL = Soluble Liquid

EC = Emulsifiable Concentrate

SC = Suspension Concentrate

SE = Suspoemulsion

FC = Flowable Concentrate

ZC = Zeta Concentrate (CS & SC hybrid)

ME = Microemulsion

LC = Liquid Concentrate

TANK MIXING SEQUENCE GUIDELINES

General Recommendations

It is recommended that a compatibility test be done prior to mixing any combination of pesticides. If using a mixing vat or inductor, make sure there is adequate agitation and a minimum of 20% of the desired finished spray volume carrier in the mixing vessel prior to diluting the pesticides. If the mixing vessel cannot hold the required minimum volume, open the valve and add the pesticides in the recommended order.

Mixing Sequence

1. Sulfonylurea Herbicides

*Add before reducing pH, or preslurry in 5 gallons of water at pH 8.5-9.5, and add once completely dissolved. Use 2-4 ounces of household ammonia in 5 gallons of water to raise pH to desired level.

2. Compatibility Agents, Defoamers, and Volatility Reduction Agents (FS TankMax™, FS Eliminator™, FS Dissension™)

*Compatibility agents will reduce spray solution pH.

3. Ammonium Sulfate (liquid or dry)

4. Dry Formulations

- A. WP, DF, WDG, SP Formulations
- B. Dry Drift Retardants
- C. Dry Soluble Fertilizers/Micronutrients

5. Liquid Formulations

- A. Suspension Fertilizers/Micronutrients
- B. Liquid Drift Retardants (FS AMS MAX DR™, FS Barrier™, FS Intention™, FS Intention Advanced™, FS Intention™ DVA, FS MaxSupreme™, or FS Transform Plus™)
- C. Suspoemulsions (SE) and Flowables (F or FL)
- D. Suspension Concentrates (ACS or SC)
- E. Micro Encapsulated (ME or ZC)
- F. Emulsifiable Concentrates (EC)
- G. Capsule Suspensions (CS)
- H. Solutions and Soluble Liquids (S or SL), Liquid Fertilizers, Chelated Micronutrients, and Growth Hormones
- I. Adjuvants
 - i. Crop Oil Concentrates
 - ii. High Surfactant Oil Concentrates (FS Optimix™, FS COC Supreme™, FS Layout™, or FS Captis™)
 - iii. Methylated Seed Oils (FS MSO Ultra™ or FS Optique™)
 - iv. Surfactants (FS AquaPrime™, FS AquaSupreme™, FS CropStik™, FS Task™, FS Talent™, FS Talyx™)
- J. Water Conditioning Agents (FS AMS MAX 2.0™, FS Certin™)

WHY IS CLEAN-OUT SO IMPORTANT?

Applicators are faced with a number of challenges that can make sprayer and nurse equipment clean-out more difficult. Increased use of multiple component tank mixes to fight resistant weeds, incompatibility problems, the complexity of modern spray equipment, and the introduction of a wider range of crop protection formulations all contribute to making sprayer cleanout more challenging.

Reducing the risk of cross contamination in sprayers and nurse equipment is a season-long process of using “best management practices” that include:

- » Preventing compatibility issues and residue build-up through the use of compatibility agents like FS TankMax™
- » End-of-day flushing of spray booms with clean rinse water
- » Using advanced spray system cleaner technology like FS RinseOut™
- » Allowing spray system cleaners to dwell in the system overnight for maximum contact with internal surfaces
- » Draining the spray system dry after the final clean water rinse

By adopting these best management practices and following label instructions, the risk and expense that cross contamination has on your company and customers can be greatly reduced.

Cleanout Procedures

- 1.** Empty Sprayer.
- 2.** Pre-rinse system. Add 150-200 gal. (or minimum 10% of tank capacity) of clean water. Agitate and recirculate through sparge system and inductor system for 10-15 minutes.
 - A.** Set controller to manual and use increase/decrease switch to open valve to wide open position.
 - B.** Turn on tank wash nozzles and inductor wash system.
 - C.** Field apply 50-100 gal. on labeled crop if possible.
- 3.** Using the remaining 100-150 gal. of clean water, add 2 qts of FS RinseOut™ per 100 gal. to the tank or through inductor. Recirculate through sparge and inductor system for 20 minutes.
 - A.** Remove boom end cap, flush booms with 50-75 gal. (half the remaining solution).
 - B.** Remove all strainers, screens, multiple nozzle bodies, diaphragms, spray tips, and caps and use soft brush to remove residue. Allow parts to soak in bucket of cleaner solution.
- 4.** Reinstall end caps, nozzle bodies and nozzles, diaphragms, screens, and strainers and spray out the tank balance (last 50-75 gal.).
- 5.** Refill unit with 75-100 gal. of clean water, recirculate through system for 10 minutes and field apply until system is empty.
- 6.** Drain remaining liquid from booms and liquid system including sumps, pumps, strainer, and filter cups as well as the spray boom.

WEIGHT & STORAGE GUIDELINES

	Pack-out	Unit of Measure	"Pure Product Weight" (lb. per unit of measure)	Shipping Weight (lb. per unit of measure)	Shipping Weight (per pack-out)	Storage Guideline
FS AMS LDF™	2 x 2.5	gal.	10.13	10.99	55	
	275 gal. mini	gal.	10.13	10.63	2,924	
	bulk	gal.	10.13	10.13		
FS AMS MAX™	2 x 2.5	gal.	10.11	10.97	55	
	275 gal. mini	gal.	10.11	10.61	2,918	
FS AMS MAX™ 2.0	2 x 2.5	gal.	10.06	10.92	55	
	275 gal. mini	gal.	10.06	10.56	2,904	
	bulk	gal.	10.06	10.06		
FS AMS MAX DR™	2 x 2.5	gal.	10.06	10.92	55	
	275 gal. mini	gal.	10.06	10.56	2,904	
	bulk	gal.	10.06	10.06		
FS AquaLight™	4 x 1	gal.	8.21	8.95	36	
	2 x 2.5	gal.	8.21	9.07	45	
	275 gal. mini	gal.	8.21	8.71	2,396	
FS AquaPrime™	2 x 2.5	gal.	9.08	9.94	50	
	275 gal. mini	gal.	9.08	9.58	2,635	
FS AquaSupreme™	4 x 1	gal.	8.45	9.19	37	
	2 x 2.5	gal.	8.45	9.31	47	
	275 gal. mini	gal.	8.45	8.95	2,463	
FS Barrier™	12 x 1	qt.	2.15	2.52	30	
FS Captis™	2 x 2.5	gal.	7.84	8.71	44	
FS Certin™	2 x 2.5	gal.	9.44	10.30	52	DO NOT ALLOW TO FREEZE
	275 gal. mini	gal.	9.44	9.94	2,734	
FS COC Supreme™	2 x 2.5	gal.	7.32	8.18	41	
	275 gal. mini	gal.	7.32	7.82	2,151	
FS CropStik™	4 x 1	gal.	8.68	9.42	38	> 40° F
FS Dissension™	2 x 2.5	gal.	10.67	11.53	58	
	265 gal. mini	gal.	10.67	11.17	2,960	
FS Eliminator™	12 x 1	qt.	2.08	2.45	29	
	4 x 1	gal.	8.30	9.04	36	
	30 gal. drum	gal.	8.30	8.77	263	
FS Intention™	2 x 2.5	gal.	8.83	9.69	48	
	275 gal. mini	gal.	8.83	9.33	2,566	
FS Intention™ DVA	2 x 2.5	gal.	10.01	10.87	54	
	275 x mini	gal.	10.01	10.51	2,890	
	bulk	gal.	10.01	10.01		
FS Intention™ Advanced	2 x 2.5	gal.	9.73	10.59	53	
	275 gal. mini	gal.	9.73	10.23	2,813	
FS Layout™	2 x 2.5	gal.	7.74	8.60	43	
	275 gal. mini	gal.	7.74	8.24	2,266	
FS MaxContact™	bulk	gal.	9.96	9.96		

*Always check product density on mini-bulk label for greatest accuracy.

Do not allow to freeze. Product must be stored above certain temperatures or with specific temperature ranges.

Protect product from freezing. If product freezes, warm to room temperature and shake or recirculate before use.

This product does not require heated storage.

WEIGHT & STORAGE GUIDELINES

	Pack-out	Unit of Measure	"Pure Product Weight" (lb. per unit of measure)	Shipping Weight (lb. per unit of measure)	Shipping Weight (per pack-out)	Storage Guideline
FS MaxSupreme™	2 x 2.5	gal.	9.99	10.85	54	
	275 gal. mini	gal.	9.99	10.49	2,885	
	bulk	gal.	9.99	9.99		
FS MSO Ultra™	2 x 2.5	gal.	7.45	8.31	42	
	275 gal. mini	gal.	7.45	7.95	2,187	
FS Optique™	2 x 2.5	gal.	7.48	8.34	42	
	275 gal. mini	gal.	7.48	7.98	2,195	
FS Optivix™	2 x 2.5	gal.	7.74	8.60	43	
	275 gal. mini	gal.	7.74	8.24	2,266	
FS RinseOut™	4 x 1	gal.	10.39	11.06	44	
FS Talent™	2 x 2.5	gal.	8.66	9.52	48	
	275 gal. mini	gal.	8.66	9.16	2,519	
FS Talyx™	4 x 1	gal.	8.74	9.48	38	
	2 x 2.5	gal.	8.74	9.60	48	
	275 gal. mini	gal.	8.74	9.24	2,541	
FS Talyx Aerial™	275 gal. mini	gal.	7.34	7.84	2,155	
FS TankMax™	4 x 1	gal.	8.70	9.44	38	
	2 x 2.5	gal.	8.70	9.56	48	
	250 gal. mini	gal.	8.70	9.25	2,313	
FS Task™	2 x 2.5	gal.	9.40	10.26	51	
	275 gal. mini	gal.	9.40	9.99	2,722	
FS Transform Plus™	2 x 2.5	gal.	9.80	10.66	53	
	275 gal. mini	gal.	9.80	10.30	2,833	
FS Vivid Pink™	12 x 1	qt.	2.16	2.53	30	
Aventer™ NIS	2 x 2.5	gal.	8.63	9.49	47	
	275 gal. mini	gal.	8.63	9.13	2,511	
Elicit™ Elite	2 x 2.5	gal.	9.56	10.42	52	
	275 gal. mini	gal.	9.56	10.06	2,767	
Elicit™ WC	2 x 2.5	gal.	10.04	10.90	55	
	275 gal. mini	gal.	10.04	10.54	2,899	
Enduron PSI™	4 x 1	gal.	8.34	9.08	36	
Quickin™	2 x 2.5	gal.	8.38	9.24	46	
Stretta™	2 x 2.5	gal.	9.26	10.12	51	
Tolero™	2 x 2.5	gal.	8.66	9.52	48	
Vigor™	2 x 2.5	gal.	7.13	7.99	40	
	275 gal. mini	gal.	7.13	7.63	2,098	
Zenture™ HS-MSOC	2 x 2.5	gal.	7.74	8.60	43	
	275 gal. mini	gal.	7.74	8.24	2,266	

*Always check product density on mini-bulk label for greatest accuracy.

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This product does not require heated storage.

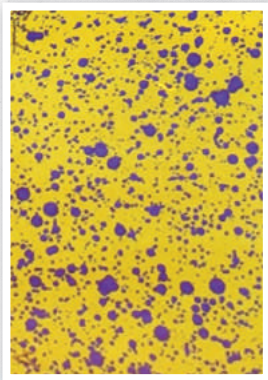
TRAIT & CHEMISTRY TECHNOLOGY APPROVALS*

FS Adjuvant	Engenia®	Enlist Duo®	Enlist One®	Tavium®	XtendiMax®
FS AMS LDF™	N/A	✓	✓	N/A	N/A
FS AMS MAX DR™	N/A			N/A	N/A
FS AMS MAX™ 2.0	N/A	✓	✓	N/A	N/A
FS AquaLight™		✓	✓		
FS AquaPrime™	✓			✓	✓
FS AquaSupreme 2.0™	✓	✓	✓	✓	✓
FS Certin™	✓	✓	✓	✓	✓
Elicit WC™			✓		
Elicit Elite™	✓	N/A	N/A	✓	✓
FS Eliminator™	✓	✓	✓	✓	✓
FS Intention™	✓		✓	✓	✓
FS Intention™ Advanced	✓	N/A	N/A	✓	✓
FS Intention™ DVA	✓			✓	✓
FS Layout™	✓	✓	✓	N/A	✓
FS COC Supreme™	✓		✓	✓	✓
FS MaxSupreme™	N/A	✓	✓	N/A	N/A
FS Optique™	✓	✓	✓	✓	
FS Optivix™	✓		✓	✓	
FS Talent™	✓	✓	✓	✓	✓
FS MSO Ultra™	✓			✓	✓
Zenture HS-MSO™	✓	✓	✓	✓	✓

*Products approved as of May 2022. Always check appropriate websites to ensure compliance prior to use.
DO NOT rely strictly on this table as a guide.

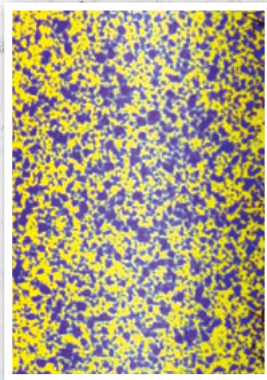
Nozzles for **In-Crop** Applications

**Glyphosate
PPO**



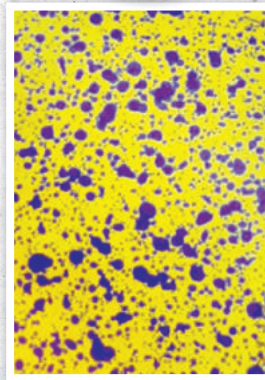
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Tee Jet**

Liberty



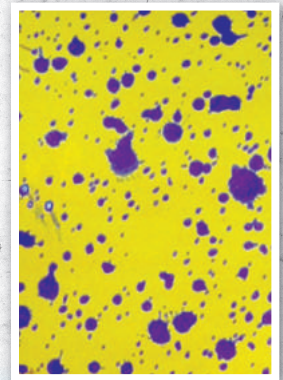
**Turbo
Twin**

Enlist



AIXR

Dicamba



TTI



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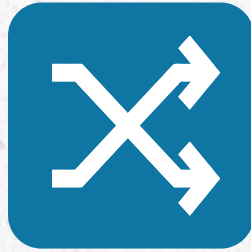
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