

# HERBICIDE ADJUVANT REFERENCE GUIDE

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A critical key to maximizing the performance of your crop protection products is correct adjuvant selection and usage. This easy-to-use guide gives recommendations for proper adjuvant and nitrogen use for UPL herbicide products.





Remember to always read and follow label instructions, and when tank mixing, follow the directions of the most restrictive label.

## HERBICIDES

Product	Active Ingredient(s)	Scenario	Adjuvants (Rates) - All adjuvants are assumed to require high quality products >80% A.I.	Nitrogen Required	Nitrogen Source (Rate)
Asulox	Asulam	Normal Use	NIS (0.25 - 0.5% v/v) OR COC (1% v/v)	No	
Audit 1:1	Thifensulfuron + Tribenuron	Normal Use	NIS (0.06 - 0.5% v/v) OR COC/MSO (1% v/v, 2% v/v under arid conditions) OR Basic Blend (1% v/v)	Optional	UAN (2 qts/A or 4 qts/A in arid conditions) OR AMS (2 lbs/A or 4 lbs/A in arid conditions)
Audit 4:1	Thifensulfuron + Tribenuron	Normal Use	NIS (0.06 - 0.5% v/v) OR COC/MSO (1% v/v, 2% v/v under arid conditions) OR Basic Blend (1% v/v)	Optional	UAN (2 qts/A or 4 qts/A in arid conditions) OR AMS (2 lbs/A or 4 lbs/A in arid conditions)
Basagran	Bentazon	Normal Use	COC (1% v/v)	Optional	UAN (1 - 2 qt/A) OR AMS (1 - 2 lbs/A)
		Peanuts; Basagran + Starfire	Always add NIS at recommended rates to this tank mix, do not use COC or an other oil-based additive		
		Peanuts; Basagran + 2,4-DB	Do not add oil concentrate, UAN, or any other additives to this tank mix; Only use amine formulations of 2,4-DB	No	
		Peanuts; Basagran + Ultra Blazer OR Poast	COC (1% v/v)	No	
		Rice; Basagran + SuperWham	Do not use COC with this tank mix		
Batalium	Bromoxynil + Flucarbazone + Fluroxypyr	Batalium alone OR With dry herbicide OR With EC herbicide <8 floz/A	Basic Blend (0.5 - 1% v/v) OR NIS (0.25 - 0.5% v/v)	Use with NIS	UAN (1 - 2 qt/A) OR AMS (1 - 2 lbs/A)
		Batalium with EC herbicide >8floz/A	NIS (0.25 - 0.5% v/v)	Yes	UAN (1 - 2 qt/A) OR AMS (1 - 2 lbs/A)
Collide	Oxyfluorfen	Normal Use	NIS (0.25% v/v)	No	
Duet	Propanil + Bensulfuron	Normal Use	NIS or COC under normal use, COC during cool weather - no rates given	No	
Everest	Flucarbazone	Everest alone; With dry herbicide; With EC herbicide <8 floz/A	Basic Blend (0.5 - 1% v/v) OR NIS (0.25 - 0.5% v/v) + Nitrogen Source OR MSO (1% v/v)	Use with NIS or MSO	UAN (1 - 2 qt/A) OR AMS (1 - 2 lbs/A)
		Everest with EC herbicide >8floz/A	NIS (0.25% v/v) + Nitrogen Source	Yes	UAN (1 - 2 qt/A) OR AMS (1 - 2 lbs/A)
Pre-Pare	Flucarbazone	Used with glyphosate	Follow the recommendations on the glyphosate label		
		Used alone	NIS (0.25% v/v) + Nitrogen Source	Yes	AMS (0.75 - 1.5 lbs/A)
ImiFlex	Imazamox	Normal Use	COC (1 - 2% v/v) OR MSO (1 - 2% v/v) OR HSOC (0.5% v/v) OR NIS (0.25% v/v)	Yes	UAN or 10-34-0 (2.5% v/v, 5% in arid conditions) OR AMS (12 - 15 lbs/100 gallons, 20 lbs/100 gallons in arid conditions)
Interline	Glufosinate	Normal Use		Yes	AMS (3 lbs/A OR 17 lbs/100 gallons)
InterMoc	S-metolachlor + Glufosinate	Normal Use		Yes	AMS (2 - 4 lbs/A OR 8.5 - 17 lbs/100 gallons)
Londax	Bensulfuron	Normal Use	NIS (0.25% v/v) OR COC (1% v/v)	No	



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Metricor DF, Metricor 4F, Tricor DF, Tricor 4F	Metribuzin	Corn Post-Emergence Application; Metribuzin + 2,4-D	Do not use adjuvants	No	
		Corn Post-Emergence Application; Metribuzin + Atrazine	NIS (0.25% v/v)	No	
		Corn Post-Emergence Application; Metribuzin + Dicamba	NIS (0.25% v/v) in dry/stressed conditions	No	
		Corn Post-Emergence Application; Metribuzin + Bentazon	NIS (0.25% v/v)	Alternative to NIS	UAN (0.5 - 1 gal/A) OR AMS (17 lbs/100 gallons)
		Corn Post-Emergence Application; Metribuzin + Bromoxynil	Do not use adjuvants	No	
		Corn Post-Emergence Application; Metribuzin + Bromoxynil + Atrazine	Do not use adjuvants	No	
		Corn Post-Emergence Application; Metribuzin + Bentazon + Atrazine		Optional	UAN (0.5 - 1 gal/A)
		Corn Post-Emergence Application; Metribuzin + Dicamba + Atrazine	Do not use adjuvants	No	
		Corn Post-Emergence Application; Metribuzin + Imazethapyr	NIS (0.25% v/v)	Yes	UAN (1 - 2 qts/A)
		Corn Post-Emergence Application; Metribuzin + Flumiclorac	NIS (0.25% v/v)	Alternative to NIS	AMS (2.5 lbs/A)
		Corn Post-Emergence Application; Metribuzin + Pyridate	NIS (0.25% v/v)	No	
		Corn and Soybean Burndown; Metribuzin + Glyphosate	NIS (0.5% v/v)	Yes	AMS (17 lbs/100 gallons)
		Corn and Soybean Burndown; Metribuzin + Glyphosate + 2,4-D	NIS (0.5% v/v), Do not use COC	Yes	AMS (17 lbs/100 gallons)
		Corn and Soybean Burndown; Metribuzin + 2,4-D	COC (1% v/v)	No	
		Corn and Soybean Burndown; Metribuzin + Paraquat	NIS (0.25% v/v) OR COC (1% v/v)	No	
		Corn and Soybean Burndown; Metribuzin + Paraquat + 2,4-D	NIS (0.25% v/v) OR COC (1% v/v)	No	
		Soybean Burndown; Metribuzin + 2,4-DB	NIS (0.5% v/v)	No	
		Soybean Burndown; Metribuzin + Fluazifop + Fenoxaprop + 2,4-D	COC (1% v/v) OR NIS (0.25 - 0.5% v/v)	No	
		Soybean Burndown; Metribuzin + Sethoxydim + 2,4-D	COC (1% v/v) OR Dash HC (1 pt/A)	No	
		Soybean Burndown; Metribuzin + Clethodim + 2,4-D	COC (1% v/v)	Yes	UAN (1 - 2 qt/A)



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Moccasin, Moccasin II Plus	S-metolachlor	When used post-emergence to the crop	Use of adjuvants or nitrogen source increase the risk of crop injury	No	
		Soybeans; mixed with Interline or other Glufosinate products	Follow tank-mix partner label		
Moccasin MTZ	S-metolachlor + Metribuzin	Soybeans Burndown	Refer to tank-mix partner label		
Motif	Mesotrione	Corn Post-Emergence or Pre-Emergence use in other crops; Motif alone	COC (1% v/v) OR NIS (0.25% v/v)	Yes	UAN (2.5% v/v) OR AMS (8.5 lbs/100 gallons)
		Corn Post-Emergence Application; Motif + S-metolachlor + Atrazine	To reduce injury, replace COC with NIS (0.25% v/v)	No	
		Corn Post-Emergence Application; Motif + Glufosinate	Do not use COC	Yes	AMS (3 lbs/A)
		Corn Post-Emergence Application; Motif + Glyphosate	NIS (0.25 - 0.5% v/v)	Yes	AMS (8.5 - 17 lbs/100 gallons)
Next Step NG	Clodinafop-propargyl	Normal Use	MSO (0.25% v/v)	No	
RiceBeaux	Propanil + Thiobencarb	Normal Use	Do not mix with liquid fertilizers, zinc, or surfactants	No	
		Tank-mixed with Imazethapyr for Clearfield Rice	Follow surfactant recommendations on Imazethapyr label		
RiceOne CS	Pendimethalin + Clomazone	Applications prior to weed emergence	Adjuvants have little to no effect	No	
		Tank-mixtures applied Delayed PRE or Early POST to emerged weeds	Follow tank-mix partner label for adjuvants		
RiceShot, Stam	Propanil	Normal Use	Tank mix applications with other herbicides, insecticides, spray adjuvants, or liquid fertilizer may reduce crop tolerance	No	
SuperWham!	Propanil	When used alone	Low viscosity COC or surfactant may be used	No	
Satellite 3.3, Satellite Flex, Satellite HydroCap	Pendimethalin	Normal Use	Adjuvants have little to no effect on Satellite efficacy; If used in tank mix with other products, refer to the label	No	
Shadow 3EC, Trizenta 3EC	Clethodim	Normal Use - Refer to tank mix partner for specific adjuvant recommendations	COC (1% v/v) OR MSO (1% v/v) OR NIS (0.25 - 0.5% v/v)	Yes, not recommended for all crops	AMS (8.5 - 17 lbs/100 gallons) for improved control of difficult grasses OR UAN (1 - 2 qt/A) when AMS is not available



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Shadow, Trizenta	Clethodim	Normal Use	COC (1% v/v)	Yes, not recommended for all crops	AMS (2.5 - 4 lbs/A) OR UAN/10-34-0 (1 - 2 qt/A)
		Cotton; Trizenta + Glyphosate with built in adjuvant	NIS (0.125 - 0.25% v/v)	Yes	AMS (8.5 - 17 lbs/100 gallons)
		Cotton; Trizenta + Glyphosate without built in adjuvant	COC (1 pt/A)	Yes	AMS (8.5 - 17 lbs/100 gallons)
		Soybean Burndown; Trizenta + 2,4-D	COC (1 qt/A)	Yes	UAN (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
		Soybean; Trizenta + Cobra	COC (0.5 - 1% v/v for ground, 1% v/v for air)		
		Soybean; Trizenta + Basagran	COC (1% v/v for ground or air)		
		Soybean; Trizenta + Glyphosate	COC (0.5 - 1% v/v for ground, 1% v/v for air) if no built in adjuvant system, NIS (0.125% v/v) if built in adjuvant system	Yes	AMS (2.5 lbs/A)
		Soybean; Trizenta + Flexstar HL	COC (1% v/v for ground or air)		
		Soybean; Trizenta + Classic	COC (1% v/v for ground or air)		
		Soybean; Trizenta + Pursuit	COC (1% v/v for ground or air)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
		Soybean; Trizenta + Cobra + Classic	COC (0.5% v/v for ground, 1% v/v for air)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
		Soybean; Trizenta + Cobra + Basagran	COC (0.5% v/v for ground, 1% v/v for air)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
		Soybean; Trizenta + Cobra + Pursuit	COC (0.5% v/v for ground, 1% v/v for air)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
		Soybean; Trizenta + Storm	COC (0.5% v/v for ground, 1% v/v for air)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
		Soybean; Trizenta + Resource + Pursuit	COC (1% v/v for ground or air)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
		Soybean; Trizenta + Resource + Basagran	COC (1% v/v for ground or air)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
		Soybean; Trizenta + Resource + Classic	COC (1% v/v for ground or air)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
		Soybean; Trizenta + Cobra + Resource	COC (0.5% v/v for ground, 1% v/v for air)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
		Soybean; Trizenta + Firstrate	COC (1% v/v for ground)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
		Soybean; Trizenta + Firstrate + Cobra	COC (1% v/v for ground)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
		Soybean; Trizenta + ImiFlex	COC (1% v/v for ground)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
		Soybean; Trizenta + Cobra + ImiFlex	COC (1% v/v for ground)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
		Soybean; Trizenta + Synchrony	COC (1 qt/A for ground)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
		Soybean; Trizenta + Cobra + Synchrony	COC (1 pt/A for ground)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
		Soybean; Trizenta + Resource	COC (1 qt/A for ground)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)
Soybean; Trizenta + Frontrow	COC (1% v/v for ground)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)		
Soybean; Trizenta + Firstrate + Flexstar HL	COC (1% v/v for ground)	Yes	UAN/10-34-0 (1 - 2 qt/A) OR AMS (2.5 - 4 lbs/A)		



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Shutdown	Sulfentrazone	Burndown applications to emerged weeds with tank-mix partner	COC or MSO; Refer to tank-mix partner label		
Storm	Acifluofen + Bentazon	Normal Use; Storm Alone	COC (1 - 2 pt/A for ground, 1 pt/A for air) OR NIS (0.125% - 0.25% v/v for ground and air)	Optional, in place of NIS or COC	AMS (2.5 lbs/A for ground or air) OR UAN (2 - 8 pts/A for ground, 4 pts/A for air)
		Soybean; Storm mixed with Basagran OR Frontier 6.0 (Option 1)	NIS (0.125 - 0.25% v/v)	No	
		Soybean; Storm mixed with Basagran OR Frontier 6.0 (Option 2)		Yes	AMS (2.5 lbs/A) OR UAN (4 - 8 pts/A)
		Soybean; Storm mixed with Basagran, Frontier 6.0, OR Resource	COC (1 - 2 pts/A)	No	
		Soybean; Storm mixed with Assure II, Classic, Concert SP, FirstRate, Fusilade DX, Fussion, Matador, Pinnacle, Pursuit, ImiFlex, Reliance, Scepter, OR Skirmish	NIS (0.125 - 0.25% v/v)	Yes	AMS (1 - 2 lbs/A) OR UAN (2 - 4 pts/A)
		Soybean; Storm mixed with Assure II, Fusilade DX, Fusion, Matador, Poast, Poast HC, Select 2EC, OR Synchrony	COC (1 pt/A)	Yes	AMS (1 - 2 lbs/A) OR UAN (2 - 4 pts/A)
		Peanut; Storm mixed with Frontier 6.0	NIS (0.125 - 0.25% v/v) OR COC (1 - 2 pts/A)	No	
		Peanut; Storm mixed with Starfire OR 2,4-DB	NIS (0.125 - 0.25% v/v)	No	
		Rice; Storm mixed with Basagran, Facet 75 DF, OR SuperWham	NIS (0.125 - 0.25% v/v)	No	
Supremacy	Fluroxypyr + Thifensulfuron + Tribenuron	Supremacy alone or with amine water soluble herbicides	Basic Blend (0.5 - 1% v/v) OR NIS (0.25 - 0.5% v/v) + Nitrogen Source OR MSO (1% v/v) + Nitrogen Source	Yes, with NIS or MSO	UAN (1 - 2 qt/A) OR AMS (1 - 2 lbs/A)
		Supremacy applied with ester or EC based herbicides	No adjuvants required if EC rate is > 8 fl oz; If EC rate is < 8 fl oz or under stressed conditions, use NIS (0.25% v/v)	No	
Tripzin ZC	Pendimethalin + Metribuzin	Normal Use	No adjuvants, surfactants listed/needed for PRE applications		



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Ultra Blazer	Acifluorfen	Normal Use; Ultra Blazer alone	NIS (1 - 2 pts/A for ground or air) OR COC (1 - 2 pts/A for ground or air)	Optional, in place of NIS or COC	AMS (2.5 lbs/A for ground or air) OR UAN (4 - 8 pts/A for ground or 4 pts/A for air)
		Peanuts; Ultra Blazer + Basagran, Cadre, Dual 8E, Frontier 6.0, Lasso 4E, OR 2,4-DB	NIS (1 - 2 pts/100 gallons)	No	
		Peanuts; Ultra Blazer + Basagran, Poast, Poast HC, OR 2,4-DB	COC (1 - 2 pts/A)	No	
		Soybean; Ultra Blazer + Assure II, Basagran, Classic, Frontier 6.0, Fusilade DX, Fusion, Matador, Pinnacle, Scepter, OR 2,4-DB	NIS (1 - 2 pts/100 gallons)	No	
		Soybean; Ultra Blazer + Basagran, Poast, Poast HC, Poast Plus, Resource, OR Select 2EC,	COC (1 - 2 pts/A)	No	
		Soybean; Ultra Blazer + Concert SP, First Rate, Pinnacle, Pursuit, ImiFlex, Reliance, OR Skirmish	NIS (1 - 2 pts/100 gallons)	Yes	AMS (1 - 2 lbs/A) OR UAN (2 - 4 pts/A)
		Soybean; Ultra Blazer + Synchrony	COC (1 pt/A)	Yes	AMS (1 - 2 lbs/A) OR UAN (2 - 4 pts/A)
		Soybean; Ultra Blazer + Glyphosate		Yes	AMS (8.5 - 17 lbs/100 gallons)
		Rice; Ultra Blazer + Basagran, Facet 75 DF, OR SuperWham	NIS (1 - 2 pts/100 gallons)	No	
Up-Stage 3EC	Clomazone	Normal Use	No adjuvants, surfactants listed/needed	No	





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