

HatchTrakSM



5-22-17

Preparing for “Option B”

Significant rainfall events have limited field travel the past couple weeks. Certain fields may have been planted and rained out prior to the pre herbicide application. This situation requires careful considerations for proceeding. **Starting clean is the first step to a successful 2017 growing season.**

When sprayers are not capable of keeping up with planters this may facilitate a “plant and fix” situation. Research from the University of Nebraska has demonstrated as high as 15% yield loss if weeds are allowed to compete with the crop up to V3. If escaped weeds are allowed to compete season long, yield loss will be certain. We cannot stress the importance of a planned 2 pass residual program enough in soybeans. However, certain situations may require an “Option B”, if for some reason the preemergence treatment is prohibited.

If marestalk, pigweeds, and soybeans are materialized in the same field, there are very few effective options to implement, and herbicide escapes will become season long problems. LibertyLink® and Roundup Ready 2 Xtend® traited soybeans will provide the most flexibility in recommending management plans in this situation, as long as target species have not grown beyond labeled heights at the time of application. **If soybeans are emerged and weeds listed above are larger than labeled height, the most consistent option would be to till the field and start over.**

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Post Herbicide Technology	Waterhemp (Max. Height)	Palmer Amaranth (Max. Height)	Marestail (Max. Height)
Liberty® 280 SL herbicide	5”	4”	6-12”
Xtendimax™ herbicide plus VaporGrip™ technology	4”	4”	4”
Fexapan™ herbicide plus VaporGrip™ technology	4”	4”	4”
Engenia™ herbicide	4”	4”	4”

Marestail Photos – Murphysboro, IL - May 18, 2017



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Selecting a Strategy

When developing alternative strategies for preemergence options with no plant back intervals and postemergence foliar + residual programs, weed spectrum and resistance profiles should be carefully considered. Weed removal prior to planting should remain a priority, however if weeds and crop are emerged below are a few guidelines to consider.

No plant back options: Preplant – 3 days after planting

Gramoxone[®] herbicide 48 oz. + Metribuzin 5-6 oz. (Spray 10 am – 2 pm, high light intensity, good coverage 15-20 gpa, medium sized droplets)

+ Authority[®] Maxx herbicide 5 oz, Authority[®] First DF herbicide OR Authority[®] XL herbicide 4-5 oz, Authority[®] Elite herbicide 25-30 oz, Anthem[®] MAXX herbicide 3.25-4 oz. + COC 1% v/v + AMS

Gramoxone[®] herbicide 48 oz. + Authority[®] MTZ DF herbicide 14-16 oz. + COC 1% v/v + AMS

Liberty[®] 280 herbicide 32 oz. + Metribuzin 5-6 oz. (Spray 10 am – 2 pm, high light intensity, good coverage 15-20 gpa, medium sized droplets, high quality AMS)

+ Authority Maxx herbicide 5 oz, Authority First DF herbicide OR Authority XL herbicide 4-5 oz, Authority Elite herbicide 25-30 oz. + COC 1% v/v + AMS

Liberty 280 herbicide 32 oz. + Authority MTZ DF herbicide 14-16 oz. + COC 1% v/v + AMS

Liberty 280 herbicide 32 oz. + Anthem MAXX herbicide 3.25-4 oz. + Metribuzin 5-6 oz. + COC 1% v/v + AMS

Roundup Ready[®] Xtend Crop System

Xtendimax[™] herbicide plus VaporGrip[™] technology 22 oz. + Glyphosate 0.75 lb ae – 1.125 lb ae + Authority Maxx herbicide 5 oz, Authority First DF OR XL herbicide 4-5 oz, Authority MTZ DF herbicide 14-16 oz. + Required Drift Reduction Agent.

Engenia[™] herbicide 12.8 oz. + Glyphosate 0.75 lb ae – 1.125 lb ae + Authority XL herbicide 4-5 oz, Authority[®] Assist herbicide 7-9 oz, Authority MTZ DF herbicide 14-16 oz. + Required Drift Reduction Agent.

Emerged Soybeans – POST + Residual, no preemergence applied

Roundup Ready[®] Soybeans– No pigweed or marestail emerged

Glyphosate 1.125 lb ae/a + Anthem MAXX herbicide 3-4 oz. + AMS

*Add Firstrate[®] herbicide 0.3 oz. if cocklebur or giant ragweed is of concern.

Not effective on ALS resistant populations

Roundup Ready Soybeans– Pigweed emerged, no PPO resistance. If PPO-resistance exists no post options are available; till the field and start over.

Glyphosate 1.125 lb ae/a + Anthem MAXX herbicide 3-4 oz. + Flexstar[®] herbicide 14-16 oz, or Ultra Blazer[®] herbicide 16 oz. + AMS

Glyphosate 1.125 lb ae/a + Marvel[™] herbicide 7.25 oz. + Warrant[®] herbicide 3 pt. + AMS

*Add Firstrate herbicide 0.3 oz. if cocklebur or giant ragweed is of concern.

Not effective on ALS resistant populations

LibertyLink[®] Soybean Trait–

Liberty[®] 280 herbicide 29 oz. + Anthem MAXX herbicide 3 – 4 oz. + AMS (Spray 10 am – 2 pm, high light intensity, good coverage 15-20 gpa, medium sized droplets, high quality AMS)

*Add Firstrate herbicide 0.3 oz. if cocklebur or giant ragweed is of concern.

Not effective on ALS resistant populations

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Influence of Excessive Moisture on Herbicide Persistence

The recent rainfall and prolonged saturation as well as flooding this could influence the amount of herbicide residue still available for weed uptake. Herbicides are degraded primarily by microbial (soil microbes) and chemical processes (i.e. hydrolysis). Estimating the amount of herbicide residue remaining in the soil after recently transpired weather events is difficult (near impossible). The complexity lies in the multitude of factors that can influence persistence including but not limited to: soil organic matter content, soil texture, Cation Exchange Capacity CEC, soil temperature, microbial activity, soil movement, runoff, herbicide characteristics (i.e. water solubility) etc. Excessive rainfall could move treated soil, or leach water soluble herbicides through the soil profile. On the other hand, certain herbicides may degrade slower in anaerobic conditions due to reduced microbial breakdown if they were allowed to bind prior to excessive rainfall events. Regardless, there is likely still some level of herbicide residue remaining in the soil.

Below are a few guidelines to consider when making decisions this season.

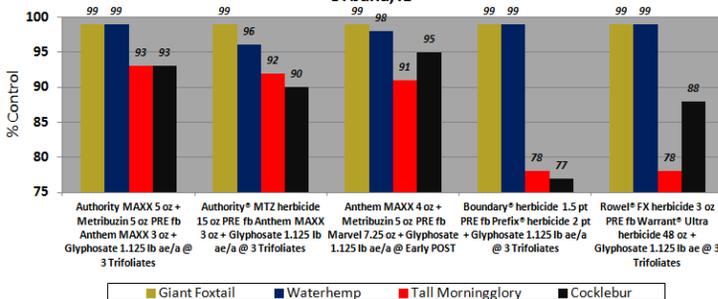
If utilizing an overlapping residual strategy, stay the course.

Consider applying the in crop residual earlier than originally planned to employ the next layer of residual prior to new weed emergence. Since a portion of the preplant/preemergence treatment has likely diminished, increasing the POST residual rate will maximize in season activity. For example, if Anthem[®] MAXX herbicide @ 3 oz. in the POST treatment was planned increasing the rate to 3.25-4 oz. will improve in season residual. This will be even more important for wide row spacing (i.e. 30" rows) that will be slower to reach canopy.

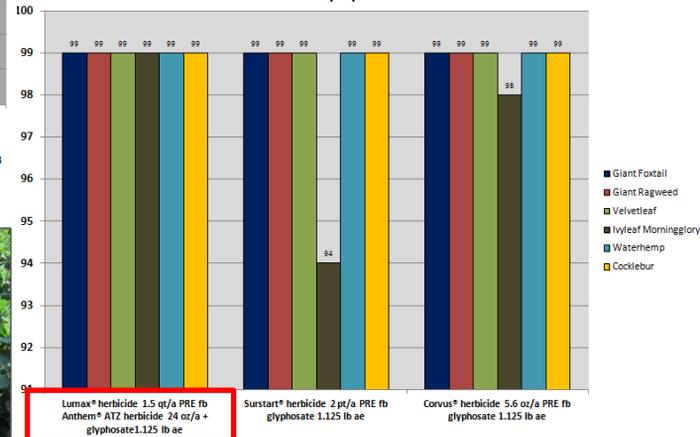
If an in-crop residual treatment wasn't in the original plan, it is strongly recommended to maintain efficacy on species with extended germination intervals including pigweeds.

Staying within herbicide limitations per crop year will be important so as not to exceed legal residue limits. In many cases corn herbicide chemistries were applied and more water soluble components of these premixes have diminished. If Anthem[®] MAXX herbicide has not yet been applied, it is a great option to add a different active ingredient for an additional layer on top of originally planned 1 pass programs. Post sequential treatments of Anthem MAXX herbicide @3-4 oz. in combination with the post herbicide technology will provide an additional layer of residual on grasses and small seeded broadleaves.

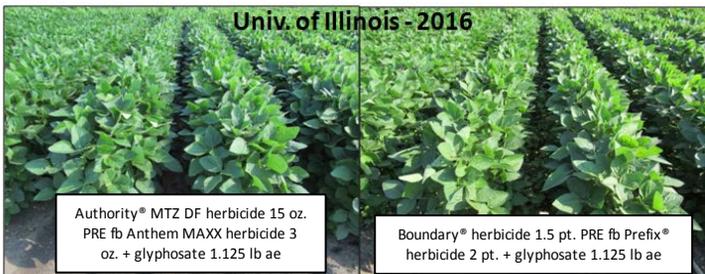
Herbicide Program Effectiveness in Glyphosate Systems
Univ. of Illinois – 2016
Urbana, IL



Herbicide Concepts in GT Corn
Southern Illinois University – Belleville, IL 2014
8/2/14



Univ. of Illinois - 2016



Authority[®] MTZ DF herbicide 15 oz. PRE fb Anthem MAXX herbicide 3 oz. + glyphosate 1.125 lb ae

Boundary[®] herbicide 1.5 pt. PRE fb Prefix[®] herbicide 2 pt. + glyphosate 1.125 lb ae

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Early Fungicide Applications in Corn

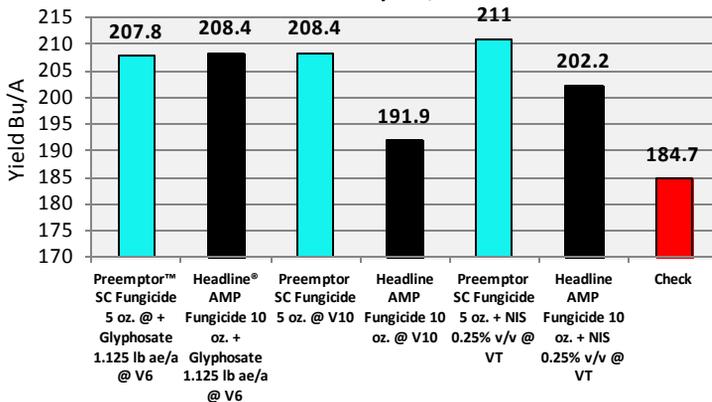
Research has demonstrated variability with early vegetative fungicide applications in corn. However, the overlap in disease triangle factors determines the level of severity when disease epidemics occur. In general early fungicide treatments facilitate plant health and activity against early infecting pathogens including Anthracnose. However, readily mobile fungicides can provide in season activity with early applications. Both components of PreemptorTM SC fungicide offer systemic movement with translaminar and xylem mobility. Corn roots may also absorb the triazole component and move it up the plant offering activity on later disease infections. If a heavy disease epidemic materializes later in the growing season, VT-R1 applications have exhibited greatest consistency in reducing disease incidence/severity and providing greatest corn yield particularly on susceptible hybrids. If early infecting diseases are present, research has demonstrated V5-V8 applications of Preemptor SC fungicide provides protection and increased corn yields.

Warm moist environments are conducive for pathogen development and later planted corn is susceptible to disease infection prior to VT. With replant acres facilitating young corn plants later in the growing season and recent weather events, protecting plants from diseases early in the season will optimize yield potential by keeping the plant healthy at critical ear development stages.

Average Yield Increase With Preemptor SC Fungicide – Data Pooled Across University Trials in IL/IN 2015-2016

Fungicide	V6 Treatment – AVG. Yield Bu/A	V8 Treatment – AVG. Yield Bu/A	VT Treatment – AVG. Yield Bu/A	Check – AVG. Yield Bu/A
Preemptor SC Fungicide	221.3	224.25	226.75	214.25

Evaluation of Foliar Fungicides for Disease Control and Yield
Purdue Univ.
West Lafayette, IN - 2016



Preemptor SC Fungicide Use Recommendations --

- V5 to V8 - 5 oz
- V9 – Prior to VT - 5 oz, No Adjuvants
- VT to R2 - 4 – 5 oz

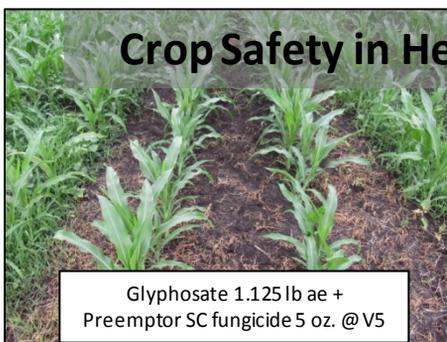
Diseases Controlled:

Anthracnose, GLS, NCLB, Common and Southern Rust, Northern Corn Leaf Spot, Southern Corn Leaf Blight, Eyespot.

5 day REI for detasselling, REI for all other activities is 12 hours, 30 day PHI (grain, seed, forage or stover)

Apply using nozzles providing thorough coverage to facilitate adequate disease control. For ground application, apply a minimum of 10 gal/A; aerial application, minimum 2 gal/A.

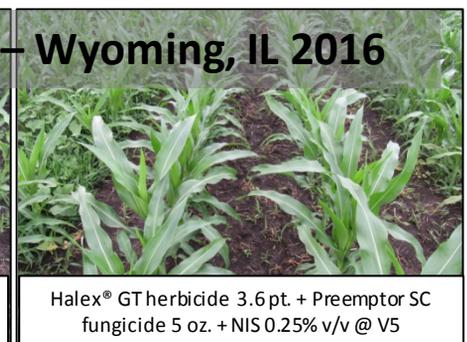
Crop Safety in Herbicide Tank-Mixtures – Wyoming, IL 2016



Glyphosate 1.125 lb ae +
Preemptor SC fungicide 5 oz. @ V5



Glyphosate 1.125 lb ae + Solstice[®] herbicide
3 oz. + Preemptor SC fungicide 5 oz. @ V5



Halex[®] GT herbicide 3.6 pt. + Preemptor SC
fungicide 5 oz. + NIS 0.25% v/v @ V5

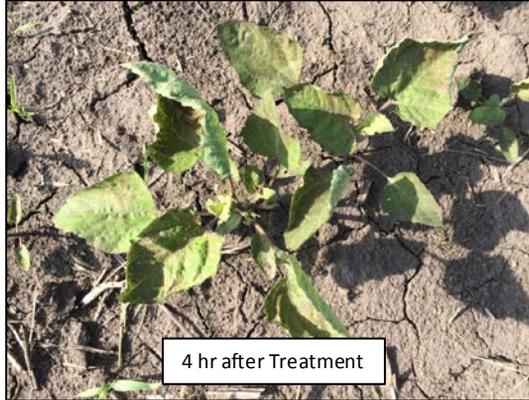
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Solstice[®] Herbicide

Solstice herbicide offers two modes of action (Group 27, Group 14) providing complimentary activity allowing rapid removal of materialized vegetation. Solstice herbicide controls over 35 weed species and has a flexible application window from emergence to V8. Speed and spectrum are critical components of management programs when targeting weeds in emerged corn. Fast removal of weed competition will preserve crop yield, and 2 modes of action will provide resistance management.

Solstice herbicide 2.5 oz. + Atrazine 16 oz. + Glyphosate 1 lb ae



4 hr after Treatment

Glyphosate-Resistant Waterhemp 5 DAT



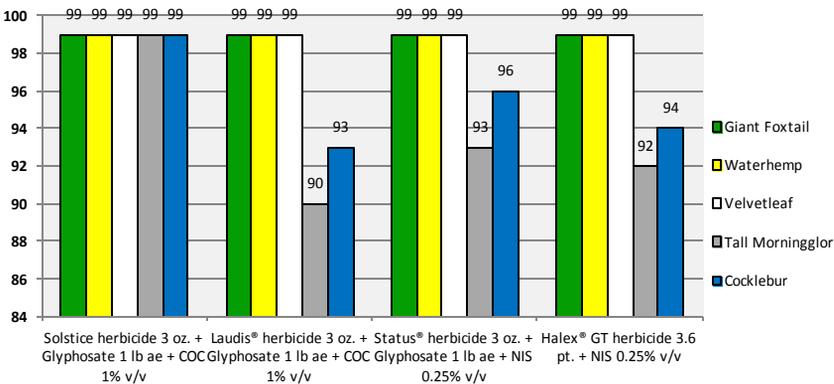
Mesotrione 3 oz./A + Glyphosate 0.75 lb ae

Solstice herbicide 3 oz./A + Glyphosate 0.75 lb ae

Time-lapse Trial

Link: <https://www.youtube.com/watch?v=Zlwtll7vlQ>

Solstice Herbicide Comparisons
Univ. of Illinois – Champaign, IL 2015
7 DAT



888-59-FMC-AG FMCCROP.COM

Always read and follow label directions. NOTE REGARDING RESTRICTED USE PESTICIDES: Anthem ATZ herbicide; Athena insecticide, Brigade 2EC Insecticide/Miticide, Brigade WSB Insecticide/Miticide, Brigadier Insecticide Capture 3RIVE 3D insecticide, Capture LFR Insecticide, Declare insecticide, Hero Insecticide, Mustang Insecticide, Mustang Maxx Insecticide, Pounce 25WP Insecticide, Stallion Brand Insecticide, Temity LFR Insecticide/Fungicide, Triple Crown Insecticide, Ethos XB Insecticide/Fungicide and Gladiator Insecticide/Miticide are **Restricted Use Pesticides**. NOTE FOR CALIFORNIA: Accurate Extra herbicide, Aim herbicide, Aim EC herbicide, Aim EW herbicide, Anthem herbicide, Anthem ATZ herbicide, Anthem Flex herbicide, Anthem MAXX herbicide, Authority Assist herbicide, Authority Elite herbicide, Authority First DF herbicide, Authority MAXX herbicide, Authority MTZ DF herbicide, Authority XL herbicide, Cadet herbicide, Chisum Herbicide, Command 3ME microencapsulated herbicide, Crusher Herbicide, Edition Broadspec herbicide, Edition Tankmix Herbicide, Marvel herbicide, Nimble Herbicide, Nuance Herbicide, Preemptor SC fungicide, Report Extra Herbicide, Solstice herbicide, Spartan 4F herbicide, Spartan Charge herbicide, Spartan Elite herbicide, Temity LFR Insecticide/Fungicide, Topguard EQ fungicide, Zeus Prime XC herbicide, Zeus XC herbicide, Capture 3RIVE 3D insecticide, Ethos XB Insecticide/Fungicide, Hero Insecticide, Mustang Maxx Insecticide, Display cotton harvest aid, Zoro Miticide and VGR Soil Amendment **are not registered for sale or use in California**. VGR Soil Amendment is not a pesticide. Beleaf and Carbine are trademarks of Ishihara Sangyo Kaisha, Ltd. Cercobin is a trademark of Nippon Soda Co., LTD. Sovran is a registered trademark of BASF. FMC, 3RIVE 3D, Accurate, Aim, Anthem, Athena, Authority, Brigade, Brigadier, Cadet, Capture, Chisum, Command, Crusher, Declare, Display, Edition, Ethos, Preemptor, Fracture, Fyfanon, Gladiator, Hero, Koverall, LFR, Marvel, Mustang, Nimble, Obey, Pounce, Report, Rhyme, Rovral, Shark, Solida, Solstice, Spartan, Stallion, Temity, Topguard, Topguard Terra, VGR and Zeus are trademarks and HatchTrak and Investing in farming's future are service marks of FMC Corporation or an affiliate. ©2016 FMC Corporation. All rights reserved. 11/16

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