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1. Postemergence weed control in ExpressSun and Clearfield sunflowers

Broadleaf weed control in sunflowers has long been a challenge for producers in Kansas. Tillage was a primary option for broadleaf weed control until the introduction of Spartan herbicide several years ago. Spartan is a soil-applied herbicide that can be effective in controlling pigweeds, kochia, Russian thistle, and certain other broadleaf weeds. Spartan needs to be activated by rainfall to be effective. It can sometimes injure sunflowers, especially when applied preemergence to coarse-textured, high-pH, low-organic soils. On these soils, Spartan should be used at the lowest labeled rates and applied at least 7 to 14 days prior to planting. On other soil types, Spartan has been used very effectively when applied from two weeks prior to planting until three days after planting.

Recently, two new types of sunflowers have been developed that allow for postemergence broadleaf weed control: Clearfield and ExpressSun.

Clearfield. With Clearfield sunflower hybrids, producers can apply Beyond herbicide for both broadleaf weed and grass control. Beyond is an ALS-inhibitor herbicide, and will not control ALS-resistant Palmer amaranth, waterhemp, kochia, Russian thistle, and other weeds. Beyond should not be used on non-Clearfield hybrids, as it can cause severe injury.

ExpressSun. This is a new type of sunflower hybrid that is just now coming onto the market. Producers can apply Express TotalSol herbicide postemergence to ExpressSun hybrids. Express TotalSol should not be applied to any other type of sunflower, including Clearfield and conventional hybrids, as it can cause severe injury. Like Beyond, Express TotalSol is an ALS-inhibitor herbicide and will not control ALS-resistant weeds.

What are the main differences between Clearfield and ExpressSun sunflower hybrids?

- * There are more Clearfield than ExpressSun hybrids on the market at the moment, giving producers a wider range of Clearfield hybrids to choose from.
- * Using Beyond in Clearfield sunflowers will cost about twice as much as using Express TotalSol.
- * Beyond provides some grass control, and Express TotalSol does not.
- * Beyond provides some short residual control, and Express TotalSol does not.
- * Express TotalSol has been somewhat more effective than Beyond in controlling puncturevine in Kansas trials.
- * Both products are effective in controlling tumble pigweed and redroot pigweed.
- * Producers should plan on using a preemergence application of Prowl H₂O or Dual II Magnum for grass control in ExpressSun sunflower hybrids.
- * Neither one of these products will control ALS-resistant Palmer amaranth, kochia, waterhemp, and Russian thistle. Many populations of Palmer amaranth, kochia, and waterhemp in Kansas now are ALS-resistant, so this could be a limitation for both of these herbicide programs.

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2. New herbicide products for 2008

There are several new herbicide products coming onto the market in 2008. Most are simply new premixes of existing herbicides, but which offer some new uses. The following charts summarize the main points of the new products. For more details of some of these products, see the 2008 Update at:

<http://www.oznet.ksu.edu/weedmanagement/updates.asp>

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New Herbicides for Corn				
Product name	Manufacturer / Active ingredients	Mode of action	Target use	Comments
Autumn	Bayer CropScience / iodosulfuron	ALS Inhibitor	Burndown of broadleaf weeds after fall harvest; or in spring at least 30 days prior to corn planting.	Highly effective for dandelion and alfalfa control. Tank mixing with 2,4-D is highly recommended. Do not apply to frozen soil.
Breakfree ATZ and Breakfree ATZ Lite	DuPont / acetochlor (Surpass) + atrazine	Seedling growth inhibitor + Photosynthesis inhibitor	Preplant and preemergence residual. Grasses and small-seeded broadleaf weeds.	Similar activity to products such as FulTime and Harness Xtra.
Halex GT	Syngenta / Callisto + Dual Magnum + glyphosate	Pigment inhibitor + Seedling growth inhibitor + EPSP inhibitor	Postemergence to glyphosate-tolerant corn. Grass and broadleaf control.	Apply to weeds less than 4 inches tall. At the 3.6 pt/A rate, contains 3 fl oz Callisto, 1 pt Dual Magnum, and 0.94 lb K-glyphosate acid.
Impact	AMVAC / topramezone	Pigment inhibitor	Postemergence broadleaf weed control and grass suppression.	Mode of action is similar to Callisto and Balance Pro. Tank mix with atrazine, plus COC or MSO and nitrogen source.
Laudis	Bayer CropScience/ tembotrione	Pigment inhibitor	Postemergence control of grasses and broadleaf weeds.	Label approved in November 2007. Pigment inhibitor like Callisto and Impact, but with more grass activity. Contains isoxadifen safener, which permits higher rates and MSO for improved grass control.
Rage D-Tech	FMC / Aim + 2,4-D ester	Cell membrane disruptor + growth regulator	Preplant burndown with 3-14 day preplant interval; postemergence; harvest aid. For broadleaf weeds.	Quick-acting control plus systemic activity. Can be tank mixed with glyphosate to broaden the weed control spectrum and to accelerate burndown.
Require Q	DuPont / Resolve + dicamba	ALS-inhibitor + growth regulator	Postemergence, V2 through V6 stages. Residual control of shattercane; enhanced control of morningglory, <i>Amaranthus</i> , smartweed, and others.	Usually tank mixed with glyphosate and used on glyphosate-tolerant corn. Contains isoxadifen safener, which safens against both ALS-inhibitor and dicamba injury.
Starane NXT	Dow AgroSciences / Starane + bomoxylnil	Growth regulator + Photosynthesis inhibitor	Apply from corn emergence up to and including V5 stage. For control of kochia and other broadleaf weeds.	Can increase rates from V4 to V5 stage where susceptible weeds are growing under less-than-optimum conditions.
Status	BASF / Distinct (dicamba + diflufenpyr)	Growth regulators	Postemergence on 4- to 36-inch corn.	Contains isoxadifen safener, which safens against both ALS-inhibitor and dicamba injury. Less crop injury potential than Distinct, but doesn't totally eliminate the possibility of injury.
Surestart	Dow AgroSciences / acetochlor + Stinger + Python	Seedling growth inhibitor + Growth regulator + Amino acid inhibitor	Preplant, preemergence, or early postemergence. Grass and broadleaf control.	For use only on herbicide-tolerant corn such as Roundup Ready or Liberty Link. Provides some residual control.

New Herbicides for Grain Sorghum				
Product name	Manufacturer / Active ingredients	Mode of action	Target use	Comments
Rage D-Tech	FMC / Aim + 2,4-D ester	Cell membrane disruptor + growth regulator	Preplant burndown with 10-day preplant interval; postemergence from 5 inches tall to V6 stage.	Quick-acting control plus systemic activity. For preplant burndown, may be tank mixed with glyphosate to broaden weed control spectrum and accelerate burndown.

New Herbicides for Soybeans				
Product name	Manufacturer / Active ingredients	Mode of action	Target use	Comments
Authority Assist	FMC / Authority/Spartan + Pursuit	Cell membrane disruptor + ALS-inhibitor	Preplant and preemergence. Pigweeds, morningglory, velvetleaf, copperleaf, black nightshade, and others.	Foundation treatment in RR soybeans.
Authority First, Sonic	FMC, Dow / Authority/Spartan + FirstRate	Cell membrane disruptor + ALS inhibitor	Preplant and preemergence. Pigweeds, morningglory, cocklebur, velvetleaf, copperleaf, black nightshade, and others.	Use low rate as foundation treatment in RR soybeans.
Authority MTZ	FMC / Authority/Spartan + Sencor	Cell membrane disruptor + Photosynthesis inhibitor	Fall, preplant, and premerge. Pigweeds, morningglory, velvetleaf, copperleaf, black nightshade, and others.	Foundation treatment in RR soybeans. Can also be used as a fall treatment.
Enlive	DuPont / Valor + Classic + Harmony GT	Cell membrane disruptor + ALS-inhibitor	Fall, preplant, and premerge.	Burndown, and some residual control of broadleaf weeds. Can be tankmixed with Banvel, 2,4-D, or glyphosate.
Envive	DuPont / Valor + Classic + Harmony GT	Cell membrane disruptor + ALS-inhibitor	Fall, preplant, and premerge.	Burndown, and some residual control of broadleaf weeds. Can be tankmixed with Banvel, 2,4-D, or glyphosate. Compared to Enlive, Envive contains a higher percentage of Classic, and lower percentage of Valor and Harmony GT.
Prefix	Syngenta / Dual Magnum + Reflex	Seedling growth inhibitor + Cell membrane disruptor	14 days preplant to premerge. Annual grass and broadleaf weeds, including waterhemp and Palmer amaranth.	May be a good option in fields with suspected glyphosate-resistant waterhemp.
Valor XLT	Valent / Valor + Classic	Cell membrane disruptor + ALS-inhibitor	Fall, preplant, and preemergence. Pigweeds, morningglory, cocklebur, velvetleaf, copperleaf, black nightshade, and others	Use low rate as foundation treatment in RR soybeans.

New Herbicides for Sunflowers				
Product name	Manufacturer / Active ingredients	Mode of action	Target use	Comments
Express TotalSol	DuPont / Express	ALS-inhibitor	Postemergence broadleaf control	New water soluble formulation of Express herbicide. For use only on Express Sun hybrids. Apply from 1-leaf to bud stage. Controls small actively growing weeds. Will not control ALS-resistant weeds. May cause temporary yellowing of crop.
Spartan Advance	FMC / Spartan + glyphosate	Cell membrane disruptor + EPSP inhibitor	Preplant and preemergence	For burndown plus residual control of broadleaf weeds.
Roundup WeatherMax, OriginalMax, and PowerMax	Monsanto / glyphosate	EPSP inhibitor	Preharvest treatment	These three Roundup products have recently been labeled for preharvest treatments in sunflowers as a harvest aid. Apply after sunflowers are physiologically mature and grain moisture levels are less than 35%. Allow at least 7 days between application and harvest.

New Herbicides for Wheat				
Product name	Manufacturer / Active ingredients	Mode of action	Target use	Comments
Affinity BroadSpec	DuPont / Harmony + Express	ALS-inhibitor	Postemergence broadleaf control	A premix of Harmony and Express, targeted for western Kansas. Can be applied from 2-leaf stage to flag leaf.
Affinity TankMix	DuPont / Harmony + Express	ALS-inhibitor	Postemergence broadleaf control	A premix of Harmony and Express, targeted for central and eastern Kansas. Can be applied from 2-leaf stage to flag leaf.
Agility TotalSol	DuPont / Harmony + Express + Ally + Banvel	ALS-inhibitor + Growth regulator	Postemergence broadleaf control	Premix of herbicides with two modes of action. Can be applied from 2-leaf stage to jointing.
Express TotalSol	DuPont / Express	ALS-inhibitor	Postemergence broadleaf control	New water soluble formulation of Express herbicide. Product use rates 1.5X higher than Express 75DF.
Harmony ExtraTotal Sol	DuPont / Harmony GT + Express	ALS-inhibitor	Postemergence broadleaf control	New water soluble formulation of Harmony Extra. Product use rates 1.5X higher than Harmony Extra 75DF.
Huskie	Bayer CropScience / pyrasulfotole + bromoxynil	Pigment inhibitor + Photosynthesis inhibitor	Postemergence broadleaf control	Can be applied from 1-leaf stage to flag leaf. Apply when weeds and crop are actively growing.
PowerFlex	Dow AgroSciences / pyroxsulam	ALS-inhibitor	Postemergence cheatgrass and broadleaf control	Similar to Olympus in activity. Can be applied from 3-leaf stage to jointing. Minimal crop rotation restrictions. Expected to receive registration this spring.

These e-Updates are a regular weekly item from K-State Extension Agronomy and Steve Watson, Agronomy e-Update Editor. All of the Research and Extension faculty in Agronomy will be involved as sources from time to time. If you have any questions or suggestions for topics you'd like to have us address in this weekly update, contact Steve Watson, 785-532-7105 swatson@ksu.edu, or Jim Shroyer, Research and Extension Crop Production Specialist and State Extension Agronomy Leader 785-532-0397 jshroyer@ksu.edu