

Plant. Spray. Harvest.



Herbicide Tolerant Sunflowers

This spring has once again brought many challenges to growers from Texas to Canada, from too little to too much rain, cold temperatures and flooding have made planting as tough as ever. The good news is that market prices are strong and now it is time to protect that investment you have in the field by controlling yield robbing weeds before they affect your bottom line. Seeds 2000 is a leader in the sunflower industry offering you cutting edge technology in hybrids that yield. We are pleased to be one of the only companies that offers both CLEARFIELD® and ExpressSun® herbicide tolerant sunflowers. Using either of these technologies allows a grower to control those in season weed flushes that rob yield and ultimately affect your bottom line.

Beyond® (imazamox) is labeled for use only in CLEARFIELD sunflower hybrids. CLEARFIELD sunflower hybrids contain a gene that confers tolerance, not resistance, to Beyond herbicide. Some slight crop injury (leaf yellowing and plant stunting) may be observed following Beyond herbicide application to CLEARFIELD sunflower hybrids, especially where over application occurs such as in spray overlaps or field ends. Injured plants often recover quickly. Non-CLEARFIELD hybrids are killed if treated with Beyond herbicide.

Beyond herbicide should be applied early post-emergence at a rate of 4 fl oz (0.5 oz ai/acre) of product per acre to sunflower with two to eight leaves. Weeds should be actively growing at the time of application and broadleaf weeds should be less than 3 inches tall. Grass weeds should have no more than four to five leaves. A nonionic surfactant at 0.25 percent v/v and nitrogen-based fertilizer (UAN at 1 to 2 qt/acre) must be added to the spray solution for optimum weed control. It is recommended that a soil applied grass herbicide, such as Prowl®, be applied prior to the application of Beyond herbicide. Beyond herbicide will control many of the broadleaf weeds that are troublesome in sunflower fields including pigweed, kochia, Russian thistle, cocklebur, and nightshade. Beyond inhibits ALS-AHAS synthesis in weeds and will not effectively control ALS-resistant kochia or Russian thistle. It is recommended that a pre-emergent application of Spartan® be applied for control of ALS resistant kochia. There is also some concern about the risk of transferring the gene con-

ferring tolerance to Beyond herbicide from commercial sunflower hybrids to wild sunflower. This technology should be avoided in fields where wild sunflower is present.

Express® (tribenuron) is labeled for use only in ExpressSun sunflower hybrids. These hybrids contain a gene that confers tolerance to Express herbicide. Some slight yellowing or stunting may be observed after Express is applied to ExpressSun hybrids, particularly if over application occurs. Injured plants often recover quickly. ExpressSun hybrids are not cross-resistant to ALS herbicides or other sulfonyleurea herbicides. Application of other ALS herbicides to ExpressSun hybrids will result in serious crop injury or death.

Apply Express herbicide to sunflower at 0.25 to 0.5 oz/acre (0.188 to 0.38 oz ai/acre) anytime from the one-leaf stage but prior to bud formation when broadleaf weeds are less than three inches tall. Express does not control grass weeds or ALS-resistant weeds. Use a soil-applied or postemergence grass herbicide if grass weeds are a concern. It is recommended that a pre-emergent application of Spartan be applied for control of ALS resistant kochia. Apply Express with MSO-type oil adjuvants at 1% v/v for best results, NIS or petroleum oil adjuvants are not prohibited. Sequential applications applied prior to initial bud development are allowed but observe a 14-day interval between applications and do not exceed 1 oz/acre during any growing season. Allow a 70-day preharvest interval. Express provides control or suppression of Canada thistle. As mentioned for Beyond, this technology should be avoided in fields where wild sunflower is present.

CLEARFIELD®, Beyond® and Prowl® herbicide are trademarks of BASF. DuPont™ Express®, ExpressSun® and Spartan® are trademarks of DuPont and its affiliates.



Call the SEEDS 2000 Hotline
1-888-786-7333
for service 24/7!

Breaking Resistance

With added pressure being put on the farming community from other sectors it is more important than ever to be a good stewards for the land we farm. One of the biggest causes of concern as of late are weeds that are resistant to glyphosate, which is the active ingredient in Roundup® and many other non-selective herbicides used for Roundup Ready® crops. Following are a few suggestions that will help break the resistance cycle so we may continue to use this valuable tool for many years to come.

Glyphosate was first introduced in the 1970s and it was primarily used for burndown and perennial weed control in corn and soybeans. Using this product in this fashion limited the number of acres and number of applications that it was used on. Since the introduction of Roundup Ready crops in 1996, glyphosate has been widely used for both burndown and in-crop weed control. This has significantly increased the number of acres where glyphosate is used and greatly increased the potential for selecting glyphosate-resistant weeds. There are currently 12 species of weeds in the US that have confirmed resistance to glyphosate but this number is growing every year. It is our job as farmers and companies that supply farmers with their inputs to take the steps necessary to stop the spread of these weeds.

There is no simple solution to glyphosate-resistance but adding diversity into our weed management programs is the key. The diversity of programs adds additional benefits because many of these practices will improve the overall level and consistency of weed control, add flexibility in scheduling applications, and reduce the risk of yield loss. We must as a total industry manage the intensity of glyphosate use to reduce the potential for resistance.

These weed management guidelines avoid the continuous and exclusive use of glyphosate and lessen the potential for developing glyphosate resistant weeds.

- Rotate between Roundup Ready and conventional or crops with other types of herbicide resistance. Use Roundup Ready crops and glyphosate in your crop rotation where they have the greatest economic and management value.
- Rotate glyphosate with herbicides that have different modes of action.
- Apply a residual herbicide before glyphosate or tank mix another herbicide with glyphosate
- Avoid making more than two glyphosate applications to a field over a two-year period
- If glyphosate is used as a burndown treatment and in-crop in the same year, tank mix the glyphosate applied in the burndown treatment with an herbicide that has a different mode of action. The in-crop glyphosate application should still be rotated with other herbicides in other years.

Use cultivation and other mechanical weed management practices. In addition, growers should apply glyphosate at labeled rates and at the correct stage of weed and crop growth to reduce the risk of poor control. Also, scout fields regularly, identify the weeds present, and record their locations on maps to allow a quick response to changes in weed populations. Following these guidelines will help us as an industry to keep this tool for use long into the future.

Source: Facts about Glyphosate-Resistant Weeds; Chris Boerboom and Micheal Owen. Purdue Extension GWC-1