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Agriculture News
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Current status of new herbicide-resistant crops

Starting next year, producers may have access to several new crop cultivars with resistance to a wider range of herbicides than has been available until now. These technologies are tools that will help growers combat herbicide-resistant weeds. Here is a brief summary of these new crop cultivars and when they are expected to reach the market.

Inzen grain sorghum. K-State released to sorghum breeding programs a line of grain sorghum that is resistant to ALS herbicides several years ago. DuPont assumed ownership of the technology. Two seed companies signed agreements with DuPont to develop and market "Inzen" hybrids using this technology: Pioneer and Advanta (Alta Seeds). In addition, K-State sorghum breeders have continued to develop excellent Inzen sorghum experimental inbreds that could be used to create high-yielding commercial Inzen sorghum hybrids. DuPont's Zest WDG, a 75% ai dry formulation of nicosulfuron for use on Inzen grain sorghum hybrids, was registered during October 2015. As an ALS grass herbicide, Zest WDG will provide new opportunities for postemergence annual grass weed control. A limited number of Inzen hybrids will be available from Alta Seeds in 2017. Pioneer's first Inzen hybrids likely will be available in 2018.

Enlist corn, soybeans, and cotton. Enlist traits are being developed by Dow AgroSciences. These traits confer resistance to both 2,4-D and aryloxyfenoxypropionate (the "fop" grass herbicides) in corn, and 2,4-D resistance in soybeans and cotton. Dow has developed a new formulation of 2,4-D called 2,4-D choline, which is lower in volatility than 2,4-D amine or ester. Enlist Duo is a premix of 2,4-D choline plus glyphosate. Enlist Duo has been approved for application to Enlist corn and soybean, but is still awaiting approval on Enlist cotton.

Enlist soybean and corn traits have been deregulated by the U.S. Department of Agriculture. However, certain export markets have not been approved yet, so commercial availability of Enlist corn and soybean will be limited until key markets are approved. Enlist cotton likely will be commercially available in 2017 and Enlist corn and soybeans could potentially be available for the 2017 growing season if key export markets are approved. Enlist soybeans and cotton could alleviate concerns about drift onto the crop from adjacent applications of 2,4-D. Enlist cotton and soybeans will be stacked with both glyphosate- and glufosinate-resistant genes as well, which would also allow the use of glyphosate and glufosinate herbicides on those crops.

Xtend soybeans and cotton. Xtend traits are being developed by Monsanto. These traits confer resistance to dicamba herbicide. This would allow direct application of new formulations of dicamba to soybeans and cotton to help address glyphosate-resistant weeds, as well as alleviate concerns about dicamba drift onto Xtend crops.

Monsanto, DuPont, and BASF are developing new formulations of dicamba with lower volatility and drift potential than Clarity, which already has much lower volatility than Banvel. Monsanto will sell a premix of glyphosate and a new formulation of dicamba under the product name of Roundup Xtend. New dicamba formulations will also be available under the product names of XtendiMax from Monsanto, Fexapan from Dupont, and Engenia from BASF.

Like Enlist crops, Xtend crops have been deregulated by USDA and key foreign markets, but dicamba products have not yet been approved by EPA for application to Xtend crops.

DO NOT add AMS to spray mixtures containing any of the dicamba formulations as unacceptable dicamba volatility could result.

Note: Dicamba- and 2,4-D-resistant soybeans and cotton are not cross-resistant, so application of dicamba on Enlist soybeans or cotton or 2,4-D on Xtend soybeans or cotton would still result in severe injury or plant death. As mentioned above, new formulations of dicamba and 2,4-D are being developed with reduced volatility, but spray drift will still be a concern onto susceptible or non-resistant crops.

HPPD-resistant soybeans. GMO soybeans with resistance to the HPPD-inhibiting class of herbicides are in development by both Bayer and Syngenta. No HPPD herbicides are currently available for use in soybeans, so this would provide a new mode of action and allow for greater diversification of weed control options to help manage herbicide-resistant weeds. HPPD-resistant soybeans have been deregulated by USDA, but matching herbicide and export approvals must be in place before the technologies become commercially available.