

## Crops

# Herbicides offer control diversity

By JEFF COULTAS

**T**HE number of herbicides registered for use in sunflowers is limited, but there is enough diversity to effectively reduce yield losses from weeds. Attention to the weed spectrum in a field, plus application information and conditions, is requisite for success.

Spartan controls many annual broadleaf weeds, particularly kochia and pigweed species, but buckwheat, marshelder, mustard, ragweed, nightshade and foxtail are only partially controlled. Spartan and other residual herbicides require varying amounts of moisture for activation and effective weed control, so plan preplant application timing accordingly to take advantage of early-season rainfall. Based on historical and forecast information, applications may not be applied prior to planting to ensure Spartan gets the ½ to 1 inch of rainfall for activation and soil placement to reach germinating weeds and minimize the risk of crop injury.

Apply Spartan before sunflower seed germinates to avoid crop injury. Spartan enters the plant via root absorption and inhibits protoporphyrinogen oxidase (PPO inhibition) enzyme, which is necessary for chlorophyll formation and, ultimately, causes cell membrane disruption, leakage and death. Weeds emerging from the soil become necrotic and die after exposure to sunlight. The PPO enzyme in weeds is more susceptible to Spartan than sunflowers, which provides a margin of crop safety. Sunflower tolerance to Spartan is good on medium- to fine-textured soils with more than 3% organic matter, but may be compromised on low-organic-matter soils or soils with a pH greater than 7.5.

Beyond herbicide for use in the Clearfield Production System provides contact and residual control of key grass and broadleaf weeds, including foxtails,

marshelder, cocklebur, pigweed species and nightshade. Beyond is absorbed through leaves and roots, and will provide residual control of susceptible weeds when adequate soil moisture is present.

Express herbicide, for use in ExpressSun herbicide, controls many broadleaf weeds, including Canada thistle, but should be tank mixed with Assure II or related chemistry for grass control. It is absorbed through foliage and does not have adequate soil residual activity to control weeds germinating after application.

Neither Beyond nor Express will control ALS-resistant weeds and are not stand-alone products for kochia.

### Herbicide-resistant weeds

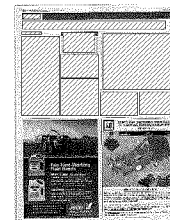
Herbicide-resistant weeds can complicate weed control in sunflowers, making it important to address those species in crops grown prior to sunflowers. Repeated use of specific herbicides eliminates susceptible plants, while resistant plants become more prevalent in the population. A good tactic for sunflower and other crops for weed management and stewardship is the use of soil residual herbicides at planting, followed by postemergence products for full-spectrum weed control.

Successful weed management in 2011 will include sound crop management and herbicide stewardship, coupled with knowledge of the weed situation in each field for sunflowers and rotation crops.

*Coultas is a consulting agronomist with Seeds 2000.*

### Key Points

- New sunflower herbicides offer enough diversity to control losses.
- Spartan, Beyond and Express each have their best fit.
- Soil residual herbicides are needed to combat weed resistance.



## Crop rotation restrictions for selected sunflower herbicides and crops

Crops	Spartan	Beyond*	Express
	Interval in months prior to planting		
Barley	4	18	0
Oats	12	9	1.5
Rye	4	4	1.5
Wheat	4	3	0
Field corn	10	8.5	0.5
Alfalfa	12	9	1.5
Dry beans	12	0	1.5
Dry peas	0	9	1.5
Soybeans	0	0	0.5
Sugarbeets	36	18	2
Canola	24	18	2

\* Plant Clearfield wheat, lentil, canola anytime  
 Consult each product label for specific instructions

SOURCES: 2010 NDSU WEED CONTROL GUIDE AND PESTICIDE LABELS.