Corn Herbicide And Insecticide Precautions

DR. AARON HAGER

URBANA, ILL.

The commercialization of corn hybrids with "built-in" resistance to certain insect pests has greatly contributed to the decline in use of soil insecticides. Some farmers, however, are considering applying a soil insecticide at planting for control of "other" insect pests or for control/suppression of certain corn nematodes. Many insecticide choices are available to farmers, but several could restrict the use of certain corn herbicides. Specifically, using an organophosphate (OP) insecticide at planting or after corn emergence could restrict the use of herbicides that inhibit either the ALS or HPPD enzymes. The precautions and restrictions most often appear on the herbicide label and are due to the increased potential for corn injury following use of OP insecticides and ALS- or HPPD-inhibiting herbicides.

Why do certain combinations of OP insecticides and ALS- or HPPD-inhibiting herbicides cause injury to corn? Most of these herbicides are systemic, meaning they move extensively (translocate) from their site of uptake. Translocated compounds often accumulate in areas of the plant undergoing active cell division (meristems). Both insecticides and herbicides are compounds foreign to the corn plant. The plant tries to defend itself against any potential injury a foreign compound could cause by rendering it inert, or nonphytotoxic. This process is commonly referred to as metabolism, or breakdown, of foreign compounds. A corn plant uses several different pathways to detoxify foreign compounds, but the OP insecticides and many ALS- and HPPD-inhibiting herbicides share a common metabolic pathway. When an insecticide or herbicide is present within the plant, the plant can usually metabolize the compound before it may cause any deleterious effects. However, if both insecticide and herbicide are present, the pathway cannot effectively metabolize both compounds. When this happens, corn injury can result. Δ

DR. AARON HAGER: Extension Specialist/Weed Science, University of Illinois

Table 1. Corn herbicide label statements: Interactions with organophosphate (OP) insecticides.

	SOIL-APPLIED OP INSECTICIDES				FOLIAR OP INSECTICIDE APPLIED			
	Counter 15G				*Aztec or Fortress*			
Corn herbicide	Furrow	T-band	Thimet	Lorsban	Furrow	T-band	Days before	Days after
Mesosulfuron and rimsulfuron								
Accent Q	No	No	UCI	UCI	Yes	Yes	7	3
Basis	No	No	UCI	UCI	Yes	Yes	7	3
Prequel	No[a]	Yes	No[a]	No[a]	Yes	Yes	-	60
Requite Q	No	No	UCI	UCI	Yes	Yes	7	3
Resolve Q	No	No	UCI	UCI	Yes	Yes	7	3
Steadfast Q	No	No	UCI	UCI	Yes	Yes	7	3
Stout	No	No	UCI	UCI	Yes	Yes	7	3
Primisulfuron and prosulfuron								
Beacon	No	No	TCI	TCI	TCI	TCI	10	7
Northstar	No	No	TCI	TCI	TCI	TCI	10	7
Spirit	No	No	TCI	TCI	TCI	TCI	10	7
Pinoxsulam								
Hornet WDG (PRE)	No	No	No	TCI[b]	No[b]	TCI	-	-
Hornet WDG (POST)	No	No	No	TCI	TCI	TCI	10	10
Python	No	No	No	TCI[b]	No[b]	TCI	-	-
SureStart (PRE)	No	No	No	TCI[b]	No[b]	TCI	-	-
SureStart (POST)	No	No	No	TCI	TCI	TCI	10	10
Thifensulfuron								
Harmony GT XP	No	No	UCI	UCI	Yes	Yes	-	-
Mesotrione								
Callisto	SCI	SCI	Yes	SCI	Yes	Yes	7	7
Callisto Xtra	SCI	SCI	Yes	SCI	Yes	Yes	7	7
Canopy	No	No	TCI	TCI	TCI	TCI	7	7
Halex GT	SCI	SCI	SCI	SCI	SCI	SCI	7	7
Lexar	SCI	SCI	TCI	TCI	TCI	TCI	7	7
Lumax	SCI	SCI	TCI	TCI	TCI	TCI	7	7
Foramsulfuron								
Option	No	No	No	TCI	Yes	Yes	7	7
Thiencarbazone								
Corvus	No	No	No	No	Yes	No	7	7
Capreno	No	No	No	No	Yes	Yes	7	7
Saflufenacil								
Integrity	No	No	No	No	No	No	-	-
Sharpen	No	No	No	No	No	No	-	-

No: Do not use this herbicide on corn if this insecticide was previously applied.
Yes: This herbicide may be applied to corn previously treated with this insecticide.
UCI: unacceptable crop injury; TCI: temporary crop injury; SCI: severe crop injury; -: no information on label.
[a]Do not apply Prequel within 60 days of crop emergence where an OP insecticide was applied in-furrow.
[b]Soil-applied OP insecticides should not placed in furrow, but rather applied in a band or T-band.

Table 1 summarizes herbicide label information with respect to the potential for corn injury caused by various OP-herbicide interactions. As always, be sure to consult the most current product labels for additional information.