Herbicide Site of Action Key

for Crop Injury Symptoms

To help you determine which herbicide(s) may be responsible for suspected injury on crops, this key uses the herbicide's site of action (SoA) and respective Weed Science Society of America group number; herbicides within the same SoA can cause similar symptoms. After reaching a specific SoA, you can check if any of the herbicides from that group are the source of crop response. Herbicide control (selectivity) is specified for broadleaf and/or grass weed species and remember to also observe weeds for injury symptoms.

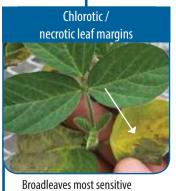
This key is based on two traits of injury symptoms that can be used to distinguish different herbicide SoA:

Injured at emergence. The plant absorbs the herbicide from the soil either as soil-applied herbicide or carryover. The roots are normal with damaged shoots or the roots are damaged resulting in stunted plants.

Injured after emergence. The herbicide has contact activity with the older leaves, resulting in injury, or the herbicide translocates (systemic activity) to the growing points (root tips or meristems) with new tissue showing injury.

INJURED AT EMERGENCE: SOIL-APPLIED HERBICIDE OR CARRYOVER





Photosynthesis II Inhibitor (5&7) Atrazine, Diuron, Metribuzin, etc.



Grasses and/or broadleaves affected

HPPD Inhibitor (27), Balance, Callisto, Laudis, etc. Diterpene Synthesis Inhibitor (13), Command, etc.

Note that a low rate of glyphosate can also cause white, bleached leaves on seedling corn.

Burning / interveinal chlorosis

Burned cotyledon / hypocotyl



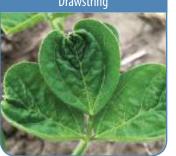
Broadleaves more sensitive than grasses PPO Inhibitor (14)

Authority, Flexstar, Valor, etc.

Deformed leaves



Drawstring



Grasses more sensitive than broadleaves Long-chain Fatty Acid Inhibitor (15) Dual, Outlook, Zidua, etc.



Grasses and/or broadleaves affected HPPD Inhibitor (27)

Balance, Callisto, Laudis, etc.

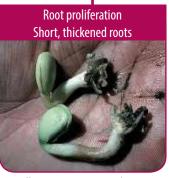


Broadleaves more sensitive than grasses Synthetic Auxin (4) 2,4-D, Dicamba, Status, Stinger, etc.

ROOTS DAMAGED, STUNTED PLANTS



Microtubule Inhibitor (3) Prowl H20, Treflan, etc.



Broadleaves more sensitive than grasses Synthetic Auxin (4) 2,4-D, Dicamba, Status, Stinger, etc.

Pruned roots Short, slender lateral roots

Grasses and/or broadleaves affected ALS Inhibitor (2) Accent, Classic, FirstRate, Pursuit, Resolve, etc.



Note that the nematicide/fungicide Fluopyran (ILevo) can mimic PPO injury symptoms (halo effect) on soybean cotyledons.

INJURED AFTER EMERGENCE: POSTEMERGENCE APPLICATION, TANK CONTAMINATION, DRIFT

CONTACT ACTIVITY: Older leaves injured, new leaves not injured



Photosynthesis II Inhibitor (5,6 & 7) Atrazine, Basagran, Buctril, etc.



PPO Inhibitor (14) Aim, Cobra, Flexstar, etc.



Glutamine Synthesis Inhibitor (10) Glufosinate, Liberty, etc.



Photosystem I Electron Diverter (22) Diquat, Gramoxone, etc.

TRANSLOCATING HERBICIDE WITH SYSTEMIC ACTIVITY: New leaves (meristem) injured, older leaves not injured





Broadleaves more sensitive than grasses Synthetic Auxin (4) 2,4-D, Dicamba, Status, Stinger, etc.



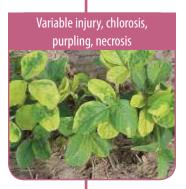
New leaves chlorotic/reddish, plants stunted



Chlorosis, reddened veins



Grasses and/or broadleaves affected ALS Inhibitor (2) Accent, Classic, Harmony, Resolve, Pursuit, etc.





Nonselective **EPSP Synthase Inhibitor (9)** Glyphosate, Roundup, etc.



Grasses and/or broadleaves affected **HPPD Inhibitor (27)** Callisto, Impact, Laudis, etc.



Only grasses affected ACCase Inhibitor (1) Assure, Poast, Select, etc.



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