



Plant Enhancement Activity—KS-PLT19

Herbicide resistant weed management

Kansas Criteria for National Plant Enhancement Activity—PLT19

Herbicide Mode of Action

Herbicides can be classified into “families” on the basis of chemical similarities and mode of action. The mode of action is the process by which a chemical kills or suppresses plant growth. Herbicides of the same chemical family usually have the same mode of action. Different chemical families of herbicides also may have the same mode of action. Repeated use of the same herbicide, herbicides of the same family, or herbicides having the same mode of action eventually can lead to enhanced degradation, weed species shifts, herbicide resistance, increased carryover, and crop injury. Using herbicides of different modes of action in tank mixes and in rotation along with other cultural weed control practices will help prevent these problems from occurring. Refer to the following list for the various herbicide families and modes of action.

Amino Acid Inhibitors

ALS-AHAS inhibitors:

Imidazolinone family—Arsenal, Plateau, Pursuit, Raptor, Scepter, Contain, Beyond
Sulfonylurea family—Accent, Affinity, Ally, Amber, Basis, Beacon, Cimarron, Classic, Escort, Express, Finesse, Glean, Harmony SG, Harmony Extra, Maverick, Option, Oust, Peak, Permit, Spirit, Steadfast, Synchrony, Telar
Sulfonamide family—Python, FirstRate, PowerFlex
Sulfonylaminocarbonyl-triazolinone family—Olympus, Olympus Flex, Osprey, thiencazone

EPSP inhibitors:

Amino acid derivative family—glyphosate, Roundup, Touchdown, and others

Cell Membrane Disrupters

Bipyridilium family—Gramoxone Inteon, Diquat
Diphenylether family—Ultra Blazer, Cobra, Phoenix, Reflex, Flexstar, ET, Vida
N-Phenylphthalimide family—Resource, Cadet
Aryl-Triazolinone family—Spartan, Aim, Valor, Encompass
Pyrimidinedione family—Sharpen, Kixor

Growth Regulators

Benzoic acid family—Banvel, Clarity, Sterling, Distinct, dicamba, Status
Phenoxy family—2,4-D, 2,4-DB, MCPA, MCPP, 2,4-DP
Pyridine family—Tordon, Stinger, Remedy, Garlon, Starane, Milestone

Lipid Synthesis Inhibitors

Aryloxyphenoxypropionate family—Fusilade DX, Assure II, Fusion, Targa
Cyclohexanedione family—Poast, Poast Plus, Select, Volunteer, Section

Nitrogen Metabolism Inhibitors

Phosphorylated amino acid family—Liberty, Ignite

Photosynthetic Inhibitors

Triazine family—Atrazine, Sencor, Princep, Evik, Pramitol

Phenylurea family—Lorox, Karmex, Spike

Uracil family—Sinbar, Hyvar

Nitrile family—Buctril, Moxy, Bromox, Brox

Benzothiadiazole family—Basagran

Pigment Inhibitors

Isoxazolidinone family—Command

Isoxazole family—Balance, Huskie

Pyridazinone family—Zorial

Triketone family—Callisto, Impact, Laudis

Seedling Growth Inhibitors

Carbamothioate family—Eradicane, Eptam, Sutan+

Acid amide family—Lasso, Micro-Tech, Dual II Magnum, Define, Outlook, Propel, Surpass, Harness, Degree, Topnotch, Intro, Warrant

Dinitroaniline family—Treflan, Trust, Prowl, Acumen, Sonalan, Balan