



## Turfgrass Herbicides

January 2009

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Herbicide group	Active Ingredient	Example Products§	Physical mode of action	Biochemical mode of action*	Selectivity	Notes
Phenoxycarboxylic acids	2, 4-D	Depitox, Headland Staff 500	Systemic	Synthetic Auxin	Selective	First selective herbicides to give control of broadleaved weeds in cereals. They are described as 'auxin-type herbicides' as their effect mimics that of auxins in the plant. Auxins can increase or inhibit plant growth, depending on the dose. These herbicides overdose the plant with auxins causing increased cell division leading to twisted, crumpled growth. The membranes within the plant are disrupted and organelles break down causing death.
	Dichloprop-P	Renovator2				
	MCPA	Nocweed, Headland Spear				
	Mecoprop-P	Re-Act, Supertox 30, Clovotox				
Benzoic acid	Dicamba	Outrun, Re-Act	Systemic	Synthetic Auxin	Selective	First selective herbicides to give control of broadleaved weeds in cereals. They are described as 'auxin-type herbicides' as their effect mimics that of auxins in the plant. Auxins can increase or inhibit plant growth, depending on the dose. These herbicides overdose the plant with auxins causing increased cell division leading to twisted, crumpled growth. The membranes within the plant are disrupted and organelles break down causing death.
Pyridine carboxylic acid	Clopyralid	Esteem, Greenor				
	Fluroxypyr	Bastion T, Holster, Praxys				
Hydroxybenzoxitrile	Ioxynil	Astalavista, Swipe-P	Contact	Inhibits photosynthesis at photosystem II	Selective	Absorbed by foliage with limited translocation. Prevent electron transfer creating active oxygen species that damage membranes within the plant causing death
	Bromoxynil					
Benzamide	Isoxaben	Flexidor 125, Knot out	Systemic	Inhibits cell wall biosynthesis	Selective	Absorbed mostly by roots and translocated to stems and leaves. Used pre-emergence to prevent seedling growth
bipyridyliums	Diquat	Weedol 2	Contact	Photosystem I electron diversion	Non-selective	Active oxygen species are created damaging the membranes causing death. Their activity is enhanced by light.
Phosphinic acid	Glufosinate-ammonium	Finale	Contact	Inhibition of glutamine synthase	Non-selective	Photosynthesis is inhibited resulting in quick death of the plant
Glycines	Glyphosate	No Mix G, Proliance Quattro	Systemic	Inhibition of EPSP synthase	Non-selective	Affects the shikimic acid pathway preventing synthesis of tryptophan and tyrosine. Plants may die slowly due to the plant having reserves of the amino acids

§ This is NOT an exhaustive list of available products for each active ingredient

\* The modes of action has been taken from the Herbicide Resistance Action Committee Classification of Herbicides According to Mode of Action (1998) – <http://www.plantprotection.org/HRAC/MOA.html> .

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