

Identification of Unknown Herbicides

2nd National Weed Contest
20-22 July, 2015; Ohio



Pre-emergence Herbicide Identification

1. Common name: Dithiopyr

Trade name: Dimension

Herbicide Family: pyridazine

Site of Action/Group (#): Microtubule Inhibitors (3)

Application Timing: PRE

Dimension is a pre-emergence herbicide that will control germinating weeds. It will not control weeds that are established. Dimension is labeled to control **broadleaves and grasses in established lawns, commercial sod farms, noncropland and industrial sites, ornamental turf (including golf course fairways, roughs, tee boxes) and landscape ornamentals.**

- excellent control of crabgrass;
- barnyardgrass;
- brome;
- foxtail;
- ryegrass;
- redroot pigweed;
- wild oat;

Symptoms: **leaf crinkling, leaf distortion, leaf stacking, stunting.**



UC Statewide IPM Project
Copyright 2014 Regents, University of California



UC Statewide IPM Project
Copyright 2014 Regents, University of California

2. Common name: Pendimethalin

Trade name: Prowl H₂O

Herbicide Family: dinitroaniline (in contest guide; usually dinitroaniline)

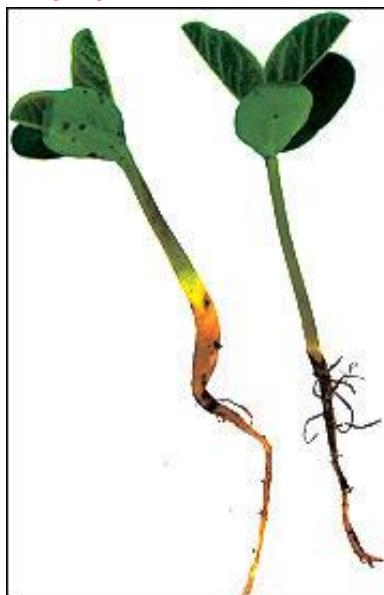
Site of Action/Group (#): Microtubule Inhibitor (3)

Application Timing: PRE

Crop uses: alfalfa, corn, grain sorghum, soybean, sunflower, wheat.

Weeds controlled: barnyardgrass, crabgrass, yellow foxtail, kochia, Ipomoea spp., Amaranthus spp., shattercane, and velvetleaf.

Pendimethalin **cannot be used in preplant incorporated applications in corn** because of the potential for severe root injury. Planting corn too shallow and followed by preemergence pendimethalin can also cause **root clubbing and injury**.



3. Common name: Atrazine

Trade name: AAtrax 4L

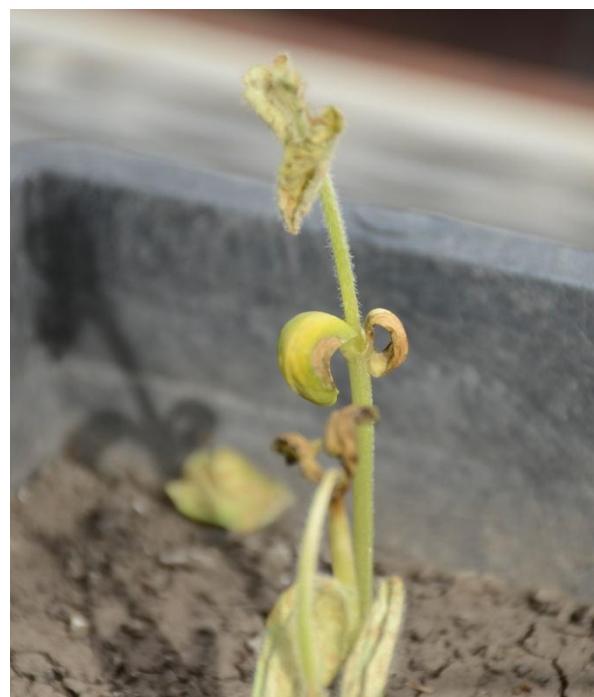
Herbicide Family: triazine

Site of Action/Group (#): Photosystem II Inhibitor (5)

Application Timing: PRE

Herbicide description and symptoms:

- Used to **control mainly annual broadleaf weeds and few annual grasses to some extent** in crops such as **corn and sorghum**
- **Translocated herbicide** inhibits photosynthesis
- Exhibits symptoms on **older leaf first**: yellowing between the leaf veins or in the veins; and **yellowing of the leaf margin that eventually turn brown (necrosis)** and die
- Usually **starting at leaf margin and tip**
- It can control **barnyardgrass and foxtails** but it is little **weak on morningglories**
- **Symptoms are more common on sandy soil or high pH** where an excessive rate was applied.
- **Carryover** of Atrazine a problem in Soybean



4. Common name: Metribuzin

Trade name: Metribuzin 75 DF

Herbicide Family: triazine (in contest guide; usually 'triazinone')

Site of Action/Group (#): Photosystem II inhibitor (5)

Application Timing: PRE

Metribuzin is registered for control of broadleaf weeds and grasses in **soybeans, potatoes, barley, winter wheat, dormant established and sainfoin fields, asparagus, sugarcane, tomatoes, lentils, peas, and non-cropland**. Types and methods of application include Metribuzin may be soil-incorporated, surface applied, or applied foliarly, broadcast or band with ground equipment. It can be applied by aerial equipment or sprinkler irrigation (potatoes).

General Injury Symptoms: Photosynthesis inhibitors do not prevent seedlings from germinating or emerging. Injury symptoms only occur after the cotyledons and first leaves emerge. Initial injury symptoms include yellowing of the leaf margins or tips. In broadleaf plants, **yellowing between the leaf veins (interveinal chlorosis)** may occur. Older and larger leaves will be affected first because they take up more of the herbicide-water solution and they are the primary photosynthetic tissue of the plant. Injured leaf tissue will eventually turn brown and

die.



5. Common name: Diuron

Trade name: Karmex

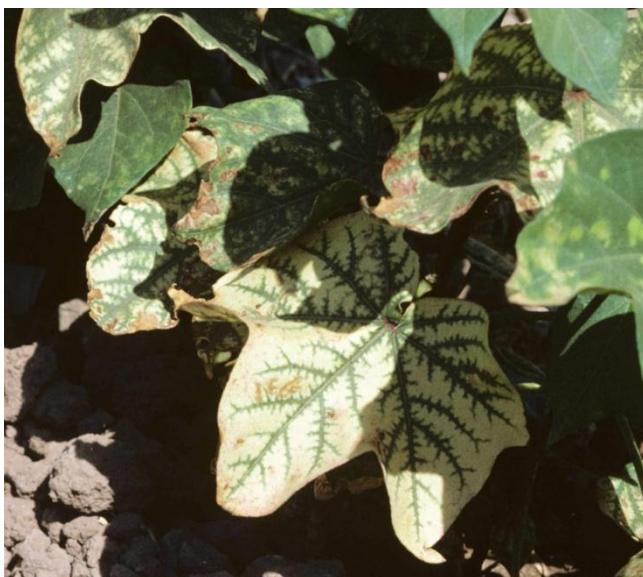
Herbicide Family: substituted urea

Site of Action/Group (#): Photosystem II inhibitor (8) (in contest guide; usually '7')

Application Timing: PRE

Herbicide description and symptoms:

- Used to control weeds in **alfalfa (established), corn, cotton and sorghum**
- **Translocated herbicide** inhibits photosynthesis
- Exhibits symptoms on **older leaf first**: yellowing between the leaf veins or in the veins; and **yellowing of the leaf margin that eventually turn brown (necrosis)** and die
- Usually **starting at leaf margin and tip**
- **Cocklebur, morning glory and quackgrass can be partially controlled** by this herbicide



6. Common name: Clomazone

Trade name: Command 3ME

Herbicide Family: isoxazolidinone

Site of Action/Group (#): Diterpene Synthesis Inhibitor (13)

Application Timing: PRE

Herbicide description and symptoms

- Used for broadleaf control in soybeans, peppers, pumpkins and peas
- Sensitive weeds - Annual grasses and BLW (broadleaf weeds): barnyard grass, *Panicum* spp., crabgrasses, velvetleaf, common ragweed, lambsquarters
- Readily absorbed by roots and emerging shoots (grass coleoptile and broadleaf hypocotyl) and is translocated to foliage via xylem
- Symptoms - Susceptible seedlings typically emerge from treated soil, but are **bleached white and become necrotic after a few days**



7. Common name: Isoxaflutole

Trade name: Balance Pro

Herbicide Family: isoxazole

Site of Action/Group (#): HPPD inhibitor (27)

Application Timing: PRE

Herbicide description: Inhibition of p-hydroxy phenyl pyruvate dioxygenase. **Controls annual grasses and broadleaf weeds.** Primarily used for soil activity and has medium soil persistence. **Isoxaflutole injury on soybean is similar to atrazine but isoxaflutole causes more chlorosis and some bleaching will be seen. Isoxaflutole injury on corn causes chlorosis on leaf tips and ends.**

General Symptoms: Plant tissue turns **white, chlorotic, and then necrotic.** Subsequent rainfall events will result in plants taking up more herbicide and showing injury symptoms in **newly developed tissues.** Injury can be severe in sandy soils, in high-pH soils, in combination with high application rates of atrazine, and under cool, wet-weather conditions.



8. Common name: Flumioxazin

Trade name: Valor SX

Herbicide Family: N-phenylphthalimide

Site of Action/Group (#): PPO Inhibitors (14)

Application Timing: PRE

Labeled crops: **corn, dry beans and soybeans**

Controlled weeds: common lambsquarters, *Amaranthus* spp.

Suppressed weeds: barnyardgrass, large crabgrass, velvetleaf, *Ipomoea* spp (not on fine textured soils or soils with OM greater than 3%

- Provides residual control
- cause susceptible emerging plants to turn necrotic and die shortly after exposure to sunlight



9. Common name: Saflufenacil

Trade name: Sharpen

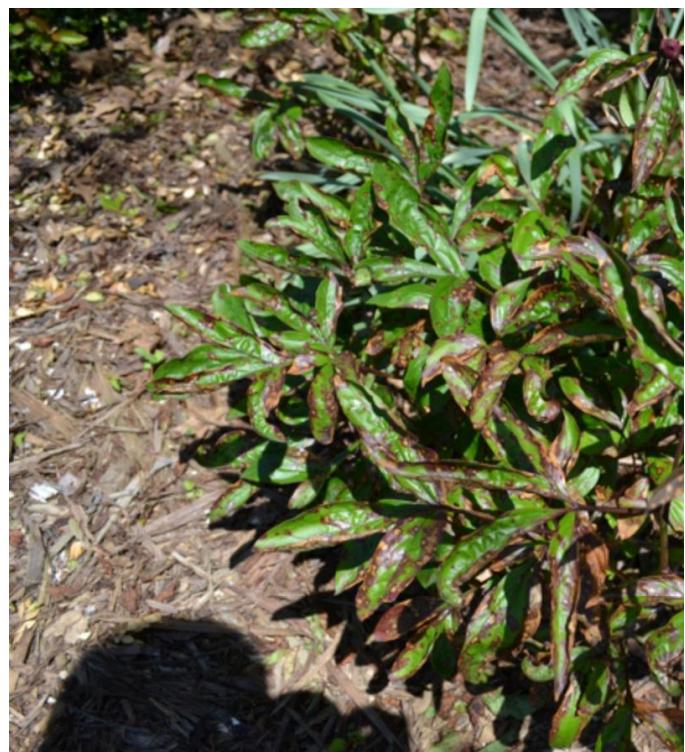
Herbicide Family: pyrimidinedione

Site of Action/Group (#): PPO Inhibitor (14)

Application Timing: PRE

Herbicide Description and Symptoms:

- A selective herbicide developed for the control of **broadleaf weeds** by pre-plant and pre-emergence applications to cereal **small grains, corn, chickpeas, cotton, edible beans, edible peas, lentils, lupine, sorghum, soybeans and sunflowers.**



10. Common name: S-Metolachlor

Trade name: Dual II Magnum

Herbicide Family: chloroacetamide

Site of Action/Group (#): Long-chain fatty acid inhibitor (15)

Application Timing: PRE

****Nearly identical symptomology and selectivity as acetochlor (Warrant, Harness, Breakfree)****

Labeled Crops: **Corn, Cotton, Pod Crops, Sorghum, and Soybean**

Symptomology: *"Injury may occur to crops other than corn following the use of Dual II Magnum under abnormally high soil moisture conditions during early development of the crop."*

- Corn leafing out underground – (Picture 1.)
- Buggy-whipping (improper leaf unfurling) – (Picture 2.)
- Leaf cupping **DOWN** (PGR's cup leaves up) – (Picture 3.)
- Causes "draw-string" effect in soybean – (Picture 4.)

Selectivity: S-metolachlor controls grass weed species, however will also control small seeded broadleaves (i.e. pigweeds, lambsquarters, galinsoga, etc.)

Some partially controlled weeds include: common purslane, sandbur, and shattercane.



1.



2.



3.



4.

11. Common name: Isoxaben

Trade name: Gallery

Herbicide Family: benzamide

Site of Action/Group (#): Cellulose synthase inhibitor (21)

Application Timing: PRE

Herbicides in this group **prevent cell division primarily in developing root tips and are only effective on some germinating broadleaves and selected grasses.**

Injury symptoms: Symptoms on grass species include **short, swollen coleoptiles**. Injured broadleaf plants often have **swollen hypocotyls**. Consequently, the plants may be stunted. Seeds of treated broadleaved plants germinate, but they either fail to emerge or emerge as severely stunted seedlings.

As a preemergence herbicide, isoxaben inhibits germination and growth of susceptible broadleaf weeds. As susceptible weed seeds germinate, isoxaben prevents growth by interfering with cellulose biosynthesis. Plant growth is stopped and the seedlings gradually die. Susceptible broadleaf weeds will not usually emerge from the soil after being treated with efficacious rates of isoxaben. Susceptible broadleaf weeds growing in treated soil generally display symptomology similar to that of dinitroaniline herbicides. These symptoms include: Growth inhibition (stunting); Reduced root growth; Root clubbing (swelling of meristemic and elongation zones); Root hair distortions

A key attribute of isoxaben is the excellent preemergence, residual weed control activity of glyphosate-susceptible and resistant maretail/horseweed (*Conyza canadensis*) and hairy fleabane (*Conyza bonariensis*); common lambsquarters, and common ragweed are susceptible; kochia is moderately susceptible; Large crabgrass, Wild oat, Downy brome, Yellow nutsedge are tolerant to this herbicide



Symptoms: chlorosis, leaf margin chlorosis, leaf margin necrosis, necrosis

Post-emergence Herbicide Identification

1. Common name: Chlorimuron

Trade name: Classic

Herbicide Family: sulfonylurea

Site of Action/Group (#): ALS inhibitor (2)

Application Timing: POST

Herbicide description: for POST broadleaf control in **soybean**. Good control of common

cocklebur, giant ragweed, *Amaranthus* spp., morningglories, sunflower, and velvetleaf.

Moderate control of waterhemp.

General symptoms: A systemic herbicide that causes susceptible plants rapidly stop growing following application causing stunted plant growth and lack of apical dominance. Corn can become chlorotic in the whorl and lower parts of the leaves or have interveinal chlorosis. Leaf edge near chlorotic tissue may crinkle similar to imidazolines. Symptoms take 1-2 weeks to develop. Has some soil activity.



2. Common name: Halosulfuron methyl

Trade name: Sandea/Sedgehammer

Herbicide Family: sulfonylurea

Site of Action/Group (#): ALS inhibitor (2)

Application Timing: POST

Injury Symptoms:

- Stunted growth and restricted development of internodes
- Interveinal yellowing (chlorosis) or purple coloration
- Corn plants may show stunted growth and root inhibition like trimming of lateral roots
- In corn the foliage may not unfurl correctly and may be translucent or yellow
- Soybeans also show stunting, necrosis of terminal growing tissues
- Soybean leaves also show yellowing and leaf veins may appear red or purple

Characteristics: For selective control of **broadleaf weeds and nutsedge in field and seed corn, grain sorghum, dry beans and fallow ground**. Not very good on eastern black nightshade, kochia, lambsquarters, and marestail. Good on yellow nutsedge.



3. Common name: Imazethapyr

Trade name: Pursuit 2 AS

Herbicide Family: imidazolinone

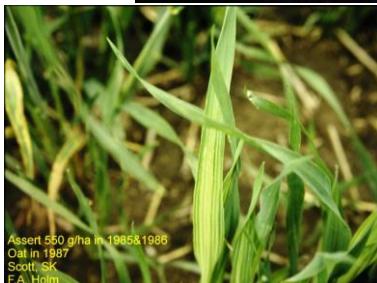
Site of Action/Group (#): ALS inhibitor (2)

Application Timing: POST

Injury Symptoms:

- Stunted growth and restricted development of internodes
- Interveinal yellowing (chlorosis) or purple coloration
- Corn plants may show stunted growth and root inhibition like trimming of lateral roots
- In corn the foliage may not unfurl correctly and may be translucent or yellow
- Soybeans also show stunting, necrosis of terminal growing tissues
- Soybean leaves also show yellowing and leaf veins may appear red or purple

Characteristics: For PP, PRE or POST control of **broadleaf and grass weeds in alfalfa, pea, dry bean, Clearfield corn, and soybean.** Not good on lambsquarters, marestail, morningglories, and Russian thistle. **Not very good on fall panicum and field sandbur.**



4. Common name: Mesosulfuron

Trade name: Osprey

Herbicide Family: sulfonylurea

Site of Action/Group (#): ALS inhibitor (2)

Application Timing: POST

OSPREY® Herbicide is a postemergent herbicide with best results being obtained when applications are made to young actively growing weeds. This herbicide is recommended for the control of **annual grass and broadleaf weeds (cool and early season species) in triticale and wheat.** For control or suppression of labeled grasses, the weed application timing is from 1-leaf to the 2-tiller stage of growth.



Stunted mustard plants with pale new growth. Residual in the soil cause reddened cotyledons.

General Injury Symptoms: mesosulfuron is a systemic herbicide that causes susceptible plants to stop growing following application. Symptoms take 1-2 weeks to develop. **Susceptible plants may be stunted, with interveinal chlorosis or purpling** (general symptomatology of ALS-inhibiting herbicides).

5. Common name: Nicosulfuron

Trade name: Accent 75WG

Herbicide Family: sulfonylurea

Site of Action/Group (#): ALS inhibitor (2)

Application Timing: POST

Nicosulfuron is a herbicide for **maize, and forage maize in particular**. Nicosulfuron is a broad spectrum herbicide that controls a wide range of maize weeds, both annual weeds and perennial weeds. Nicosulfuron is a systemic selective herbicide, displaying genera-selectivity, therefore ensuring it is effective at killing other plants growing near the maize. This selectivity is achieved by the maize plants ability to metabolise nicosulfuron into harmless compounds. This compound works by being absorbed through the leaves (it is a foliar application) and travelling through the xylem to the meristematic regions.

General Injury Symptoms: **Grass plants may be stunted, with interveinal yellowing (chlorosis) or purpling.** Corn plants may be stunted and show symptoms of root inhibition such as pruning of lateral roots. Leaves emerging from the corn whorl may not unfurl properly and may be yellow to translucent in appearance. Broadleaf plants may be stunted and chlorotic or purple. **Soybean injury can range from stunting to death of the terminal growing point.** Soybean leaves may be yellow in appearance and leaf veination may appear red or purple in color.



6. Common name: Trifloxsulfuron

Trade name: Envoke

Herbicide Family: sulfonylurea

Site of Action/Group (#): ALS inhibitor (2)

Application Timing: POST

Selective POST herbicide for control certain **broadleaf, sedges and grass weeds in cotton, sugarcane and transplanted tomato.**

Trifloxsulfuron (sold under the trade name **Monument**) is registered for use only on bermudagrass and zoysiagrass (warm season grasses) on golf courses, sod farms, athletic fields and other non-crop areas such as commercial sites, including airports and cemeteries. It is most effective on **yellow and purple nutsedge**.

Growth of susceptible weeds is inhibited soon after application. The leaves of susceptible plants normally turn yellow, red, or purple after several days, followed by necrosis and death of the growing point. Complete plant death generally occurs 1-3 weeks after application, depending upon weed species and growing conditions.

Some pictures of ALS injury

1. chlorosis, leaf distortion, leaf whorl distortion (nicosulfuron injury)
2. chlorosis, internode shortening, leaf purpling, lower side, leaf stacking, stunting (prosulfuron injury)

7. Common name: Clopyralid

Trade name: Stinger

Herbicide Family: pyridinecarboxylic acid

Site of Action/Group (#): T1R1 Auxin Receptors (4)

Application Timing: POST

Herbicide description: Broadleaf control in **canola, sugarbeets, sweet corn, and popcorn. No activity on grasses.**

General symptoms: similar to 2,4-D and dicamba (curling and twisting, cupping, etc.). **Common waterhemp and kochia may be less injured than other weeds (same family as sugarbeet).**

Death usually comes within a few days or weeks. Other clopyralid is very persistent in composts and manures and is largely unaffected by the composting process (might be useful on farmers problem)



8. Common name: 2,4-D

Trade name: 2,4-D L.V. 4 ester

Herbicide Family: phenoxy

Site of Action/Group (#): T1R1 Auxin Receptors (4)

Application Timing: POST

Herbicide description and symptoms:

- Widely used to **control broadleaf weeds in grass** crops such as wheat, corn, sorghum
- **Translocated herbicide** causes hormonal imbalance and regulates cell division processes; cell enlargement resulting in **abnormal root and shoot growth**
- In broadleaf plants stems **curl, twist and droop**, while **leaves are cupped, crinkled** or have a “drawstring” appearance.
- Ill-timed application or over-application can cause **leaf-rolling and crinkling**, brace root malformation and missing grain (blasting) in corn; and **malformed seedhead** with blasting in wheat.
- Vapor from this product can easily **drift** to desirable crop plants. So it must be applied carefully.



9. Common name: Dicamba

Trade name: Clarity

Herbicide Family: benzoic acid

Site of Action/Group (#): T1R1 Auxin Receptors (4)

Application Timing: POST

Herbicide description and symptoms:

- Same as 2,4- D; dicamba is little hard on kochia, Russian thistle, smartweed, sunflower and little weak on velvetleaf than 2,4-D
- Widely used to **control broadleaf weeds in grass** crops such as corn, sorghum and small grains
- processes; cell enlargement resulting in **abnormal root and shoot growth**
- In broadleaf plants stems **curl, twist and droop**, while **leaves are cupped, crinkled** or have a “drawstring” appearance.
- Ill-timed application or over-application can cause **leaf-rolling and crinkling**, brace root malformation and missing grain (blasting) in corn
- Vapor from this product can easily **drift** to desirable crop plants. So it must be applied carefully.



10. Common name: Quinclorac

Trade name: Drive

Herbicide Family: quinolone carboxylic acid

Site of Action/Group (#): T1R1 Auxin Receptors (4)

Application Timing: POST

Action in Plant: Not fully understood. In broadleaves, similar to indole acetic acid. In grasses, inhibits cell wall synthesis.

Timing: POST emergence

Labeled crops: common bermudagrass, Kentucky bluegrass, annual bluegrass, buffalograss, tall fescue, annual ryegrass, perennial ryegrass, zoysiagrass, creeping bentgrass, hybrid bermudagrass, fine fescue, red fescue, hard fescue, chewing's fescue, rough bluegrass

Herbicide description and symptoms: absorbed by foliage and roots and translocated throughout the plant. The control symptoms exhibited by broadleaf weeds include **leaf and stem curl or twisting, and chlorosis**. Susceptible grasses demonstrate stunting, chlorosis, and gradual reddening followed by necrosis and death.

Broadleaves: field bindweed, black medic, hop clover, red clover, white clover, common dandelion, English daisy, dollarweed, Carlina geranium, morningglory spp., common speedwell, slender speedwell, thymeleaf speedwell, wild violet

Grasses: barnyardgrass, large crabgrass, smooth crabgrass, giant foxtail, green foxtail, yellow foxtail, kikuyugrass, broadleaf signalgrass, torpedograss.

11. Common name: Glufosinate

Trade name: Liberty 280 SL

Herbicide Family: organophosphorus

Site of Action/Group (#): Glutamine Synthesis Inhibitor (10) (in contest guide; usually 'Synthetase')

Application Timing: POST

Description: Nonselective, may see some grasses survive. Activity faster than Roundup, bronze coloration of plants with a little bleaching. Inhibitors of glutamine synthase are nonspecific and will kill plants that have not been modified to express 42 resistance to them. Symptomology will range from **light speckling on leaves and yellowing to plant death, depending on the degree and intensity of drift or spray contamination.** Top leaves turns chlorotic then necrotic; plants die in 7-14 days; activity faster in hot weather. Glufosinate symptoms appear more quickly than those of glyphosate in cool weather and typically include more yellowish green strips or patches followed by necrosis (glufosinate has more of a contact-nature than glyphosate).

Injury Symptoms: Pale, yellow or purplish leaves, water soaked lesions.



Canola

12. Common name: Glyphosate

Trade name: Power Max

Herbicide Family: organophosphorus

Site of Action/Group (#): EPSPS Synthase Inhibitor (9)

Application Timing: POST

Description: This non-selective foliar-applied herbicides is translocated and interfere with amino acid synthesis. If spray drift reaches corn, leaves wilt, turn brown, and die. Sublethal rates can cause phenoxy-like symptoms. Glyphosate applications that occur too late to corn with Roundup Ready® 2 Technology can result in poor kernel set. Labeled for almost any crop. Most say to avoid contact with green foliage. Can be sprayed to control cool season grasses or annual weeds in a warm season grass patch. Can be directly applied to cut stumps to kill the root system. Applied POST to weeds, and PRE to crop except in the case of transgene crops. Is absorbed across the cuticle and translocated to the roots. Translocated in the symplast (**systemic herbicide**). Engineered tolerance in several crops including: Corn, Soybean, Carrot, Chicory, Cotton, Canola, Tobacco, Tomato, Petunia

Exposure causes: Inhibited growth shortly after application. Plant foliage, especially new growth, will first yellow and then turn brown and die within 10 to 14 days after herbicide application. General necrosis in 4-7 days for susceptible specie and 10-20 days in less susceptible. Foliage may turn reddish or purple.



13. Common name: Paraquat

Trade name: Gramoxone

Herbicide Family: bipyridilium

Site of Action/Group (#): Photosystem I electron diverter (22)

Application Timing: POST

Crops used*: alfalfa, corn, grain sorghum

* Preplant, burndown, PRE, Band, desiccation.

Non selective weed control; Very little translocation; Foliar activity.



14. Common name: Fomesafen

Trade name: Reflex

Herbicide Family: Diphenylether

Site of Action/Group (#): PPO Inhibitors (14)

Application Timing: POST

Labeled crops: Snap beans and soybeans

Controlled weeds: common cocklebur, common lambsquarters, *Ipomoea* spp., *Amaranthus* spp., velvetleaf and yellow nutsedge

Suppressed weeds: barnyardgrass, large crabgrass, yellow foxtail

- Most effective through contact
- Bronzing, crinkling or spotting of soybeans can occur



15. Common name: Clethodim

Trade name: Select Max

Herbicide Family: cyclohexanedione

Site of Action/Group (#): ACCASE inhibitor (1) (in contest guide; usually 'ACCase')

Application Timing: POST

Herbicide description: Control of **grasses** in alfalfa, soybeans, sunflowers, and other broadleaf crops Very effective on all grasses but no broadleaf activity.

General symptoms: Reddening of leaves and stems, necrotic at nodes, newer leaf tissue will be chlorotic or necrotic and **leaves in whorl can be easily separated from rest of plant**. Symptoms appear 3-7 days after application.



16. Common name: Mesotrione

Trade name: Callisto

Herbicide Family: triketone

Site of Action/Group (#): HPPD Inhibitors (27)

Application Timing: POST

Herbicide Description: Inhibition of p-hydroxy phenyl pyruvate dioxygenase. **Controls annual broadleaf plants and some grass weeds.** Soil and foliar activity present with medium soil persistence. Injury from residual activity will appear similar to isoxaflutole and atrazine injury with initial chlorosis of first true leaves and trifoliates, but some signs of **bleaching** should eventually appear. Soybean injury can occur as a result of mesotrione carryover. This will appear as partially bleached trifoliates with some degree of **leaf strapping**. Injury from drift on soybean plants ranges from slight bleaching of the leaf margins to severe chlorosis and bleaching of the newest trifoliates, depending on the severity of drift or contact with the foliage.

General Symptoms: Plant tissue turns **white (bleaching)** then necrotic within three to five days. Herbicide translocates in both the xylem and phloem. Injury can be worse under cool, wet weather condition.



17. Common name: Tembotrione

Trade name: Laudis

Herbicide Family: triketone

Site of Action/Group (#): HPPD Inhibitors (27)

Application Timing: POST

Herbicide description: for POST broadleaf and grass control in **corn**. Good control of common **cocklebur**, **common lambsquarters**, ***Amaranthus* spp.**, and **velvetleaf**. Moderate control of kochia, *Ipomea* spp., and yellow nutsedge. Moderate control of large crabgrass and shattercane **(CALLISTO is very weak on shattercane and harder on crabgrass – that's how you should differentiate LAUDIS from CALLISTO)**

Laudis should not injure corn but will injure soybeans and sunflowers.

General symptoms: plant tissue turns white first (bleaching) then necrotic. **Systemic herbicide**; translocates in xylem and phloem. Injury can be worse under cool, wet weather conditions. Bleaching will only be observed on the growing points (new tissue).



18. Common name: Bentazone

Trade name: Basagran

Herbicide Family: benzothiadiazole

Site of Action/Group (#): Photosystem II Inhibitors (6)

Application Timing: POST

Labelled crops: soybean, beans, peas, peanuts, corn, sorghum, rice, established turf, ornamentals.

Weed control: mainly broadleaves (velvetleaf, cocklebur, wild mustard, ragweed) and sedges

Symptomology: Chlorosis begins 3-5 d after application, foliar desiccation and necrosis; Foliar bronzing on soybean may also be seen.



19. Common name: Bromoxynil

Trade name: Buctril

Herbicide Family: nitrile

Site of Action/Group (#): Photosystem II Inhibitors (6)

Application Timing: POST

Labelled crops: **corn, sorghum, wheat, seedling alfalfa.****Injury symptoms:**

- Burning of leaves
- Plant injury is confined to foliage that has come in contact with the herbicide.
- Foliage that has been thoroughly covered with the herbicide will turn yellow, then turn brown and die.
- Contact of a low rate of herbicide with leaves may result in spotting or speckling of the leaf surface.
- Crop oil concentrates and other additives may intensify injury symptoms.
- **Condition:** Herbicide applied postemergence on days with high temperatures and humidity; misapplication.

Weeds controlled: Broadleaf weeds

- Most susceptible: Common cocklebur, common lambsquarters
- Susceptible: Ivyleaf morning glory, pitted morning glory, velvetleaf
- kochia, redroot pigweed and tall waterhemp should not exceed 4 leaf stage or 2" height.



Good luck for the Weed Contest...



All the information and photographs are web-based and collected by Graduate Students at the University of Nebraska-Lincoln.

Contact:

Rodrigo Werle, Weed Science Graduate Student: rwerleagro@gmail.com

Josh Miller, Graduate Student: joshua.miller@huskers.unl.edu

Debalin Sarangi, Weed Science Graduate Student: debalin.sarangi@huskers.unl.edu

Dr. Greg Kruger, Assistant Professor: gkruger2@unl.edu