

# Weed Control.... What Master Gardeners Need to Know

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# Questions from Weeds

- What is the weed, or what is the target plant (s)?
- What level of weed control is wanted or desired?
- What kind and level of control is:
  - Acceptable
  - Manageable
  - Affordable





Lawn, yard or  
flowers.....





# Proper Weed Identification

- Type of weed - broadleaf, grass, sedge
- Growth habit - upright, prostrate, vine
- Life cycle - annual, biennial, perennial
- Type of area - perennial plant bed, annual beds, turf (type of grass), vegetable garden, natural setting, raised bed, etc.

# Chamber Bitter

- Fast growing annual
- Lots of seeds
- Disturbed areas - high light
- Often found in containerized plants





# Smilax - Greenbriar

- Slow growing perennial
- Produces underground bulbs/corms
- Low light area
- Undisturbed areas





Turf=grass  
....right?



# The Key Strategies

- Prevention
- Timing
- Persistence

# Cultural Weed Management

- Proper plant selection - most ornamentals and grasses are highly competitive and will prevent and suppress many weeds
- Proper mowing height, frequency
- Proper watering and fertility are crucial factors

# Prevention is Key



# Hand Weeding?



- Hand pulling, rousing
- labor intensive, non-economical, *therapeutic??*
- fairly effective on annual weeds
- generally temporary for perennials
- can be injurious or impossible

# Plastic / Fabric Mulches

- plastic mulches - impermeable to water
- fabric mulches - permeable to water & air, but very low light transmission
- generally covered with an organic mulch
- NEVER permanent weed control
- clear plastic for warming, sterilization

# Weed Block

PREMIUM  
LANDSCAPE  
FABRIC

STOPS WEEDS  
FOR YEARS™

Use on  
permanent  
landscape and



# NEVER Permanent!!



# Mechanical Weed Control

- Millions of dollars spent every year
- be wary of “wonder tools” that do it all
- basically an extension of the hand
- one tool is not for all situations,  
collection of several lesser expensive  
tools may work better overall



# Mechanical Weed Control

- mowing is highly effective in turf
- vigorous and repeated tillage will reduce problems with perennial weeds
- cultivation is also effective, but limited to "row-crops"
- although good weed control may be observed, may stimulate some weeds

# Proper Mowing



# Chemical Weed Control

- Millions \$\$ spent on “miracle products”
- constantly changing and adding of products
- familiarize with the active ingredients
- *READ THE LABEL!*

ENFORCER<sup>®</sup>

# ROOTS & ALL<sup>™</sup>

Grass and Weed Killer II

Ready-To-Use  
Premixed & Premeasured  
No Waiting, Replant Spot Treated  
Areas the Next Day

**ACTIVE INGREDIENTS:**

Picloric Acid	1.72%
Isopropyl Fatty Acid (C <sub>12</sub> -C <sub>14</sub> )	0.11%
2,4-Dichlorophenoxyacetic acid, dimethylamine salt*	0.20%
3-(2-Methyl-4-chlorophenoxy) propionic acid, dimethylamine salt**	0.20%
Fluazifop-butyl (Butyl (E)-2-[4-(5-chloromethyl)- 2-pyridinyl]oxy) propionate	0.10%

**INERT INGREDIENTS:**

TOTAL	100.00%
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\* 2,4-Dichlorophenoxyacetic acid equivalent: 0.100%

\*\* 3-(2-Methyl-4-chlorophenoxy) propionic acid equivalent: 0.100%

KEEP OUT OF REACH OF CHILDREN  
CAUTION

8069A

See Back Panel for Precautionary Statements  
NET CONTENTS 24 fl. oz. (710 ml)



KILLS  
THE  
ROOTS

Visible  
Results  
in just

# 6 Hours



WITH  
**WEED  
MARKER™**  
COLORANT

LETS YOU SEE WHERE YOU SPRAY! DETAILS ON BACK

**Safer®**  
BRAND

**Weed-Away®**

**LAWN WEED KILLER** READY TO USE

- Kills over 60 weeds
- Won't harm your lawn

When used according to label directions

**Active Ingredients**

Disulfoton (Salt of 2-Methyl-4-Chlorophenylmethyl Acid)	11.7%
Disulfoton (Salt of 2-(2-Methyl-4-Chlorophenyl)propionic Acid)**	1.0%
Disulfoton (Salt of 2-(2-Methyl-4-Chlorophenyl)acetic Acid)**	0.3%
<b>NET INGREDIENTS</b>	<b>13.0%</b>
<b>TOTAL</b>	<b>13.0%</b>

By Water Spray: A/C Method: 1.000oz/gal. \*\*2-Methyl-4-Chlorophenylmethyl Acid 0.25%, 0.140 lb./gal. \*\*\*2-(2-Methyl-4-Chlorophenyl)propionic Acid 0.25%, 0.140 lb./gal. \*\*\*\*2-(2-Methyl-4-Chlorophenyl)acetic Acid 0.25%, 0.140 lb./gal.

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

See back panel for additional Precautionary Statements and Statement of Practical Treatment

**NET CONTENTS**





CONTROLS IN 24 HOURS

# NO-PEST GRASS & WEED KILLER<sub>2</sub>

**KILLS**  
grass & weeds along  
fences, in cracks of walks,  
drives & patios



**KEEP OUT OF REACH OF CHILDREN**  
**CAUTION**  
NET CONTENTS 1 GALLON/3.78L



**25%**  
**MORE FREE**

**RAIN-PROOF** IN TWO HOURS  
AND CONTROL THAT WON'T WASH AWAY

**Kills The Root**

**Roundup**<sup>®</sup>  
**WEED & GRASS KILLER**  
**Ready-To-Use**

KEEP OUT OF REACH OF CHILDREN

**CAUTION**  
See instructions on back panel.  
NET 30 FL. OZ (1 PT 14 FL. OZ)

Active Ingredient: Glyphosate  
EPA Reg. No. 227-10-01  
EPA Est. No. 227-10-01-0000



# Herbicide Basics

- Herbicides are chemicals that are used to control weeds
- grouped by the way they work in plants
  - selective vs. non-selective
  - soil applied vs. foliar applied (pre/post)
  - contact vs. systemic

# Contact Herbicides

- require minimal time on leaves to show activity
- rain-free – less than 1 hour
- will not go to roots, only where the spray contacts
- plant growth condition not a major factor in level of control

# Systemic Herbicides

- require some time on leaves to show activity
- rain-free – ideally > than 4 hours
- will move to roots, other parts
- \*\*plant growth condition critical for good control

# Systemic Herbicides

“Plant growth condition critical for good control”

- Drought stress – poor control
- Plant flowering – poor control
- Perennial plant just beginning to regrow – poor control
- Perennial plant beginning to form tubers, rhizomes – good control
- Plant growing vigorously – good control

# Herbicide Basics

- Step I – weed ID
- Step II – where to control
- Step III – herbicide selection
- Step IV – proper application
- *application rate is everything, especially with soil applied herbicides*

# Specimen Label

 Dow AgroSciences

**Gallery**<sup>\*</sup>  
75 Dry Flowable

## Specialty Herbicide

\*Trademark of Dow AgroSciences LLC

A selective preemergence herbicide for control of certain broadleaf weeds in:

- Established turf
- Landscape ornamentals
- Container grown ornamentals
- Field grown ornamentals
- Ground covers / Perennials
- Non-cropland
- Ornamental bulbs
- Non-bearing fruit and nut trees and non-bearing vineyards
- Christmas tree/Conifer plantations

### Active Ingredient:

isoxaben: N-[3-(1-ethyl-1-methylpropyl)-5-isoxazoly]-2,6-dimethoxybenzamide and isomers

isoxaben: N-[3-(1-ethyl-1-methylpropyl)-5-isoxazoly]-2,6-dimethoxybenzamide and isomers	75%
Inert Ingredients	25%
Total	100%

Contains 0.75 pound active ingredient per pound.  
U.S. Patent Nos. 5,086,184 and 4,636,243

EPA Reg. No. 62719-145

Keep Out of Reach of Children

**CAUTION**                      **PRECAUCION**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

- Isoxaben
- 75% active



# Calibration/Application

- One of the most important factors in good weed control is applying the right rate
- rate = amount of product per area
- water is the carrier for the product, so accurate placement of a defined amount of spray per a defined area is the real issue
- generally the area is 1000 ft<sup>2</sup>

# Calibration/Application

- Practice spraying with water - calibrate yourself
- driveways are a good spot to practice
- use a fine spray, but not a mist
- in an undefinable area, apply until the spray droplets just begin to run

# Calibration Basics



# Calibration Basics



Poor Spray Pattern



Good Spray Pattern

# Herbicides for Homeowners

## “Roundup”

- a wide range of products sold, various marketers, various concentrations
- applied to the foliage of weeds, moves within the plant to roots and shoots
- will kill any plant contacted by the spray
- accurate placement of the spray is key
- not active in the soil

**RAIN-PROOF** IN TWO HOURS  
For Control That Won't Wash Away

Kills The Root

**Roundup**<sup>®</sup>  
WEED & GRASS KILLER

Ready-To-Use

Active Ingredient: Glyphosate, isopropylamine salt 3.91%  
Other Ingredients: 96.09%

KEEP OUT OF REACH OF CHILDREN  
**CAUTION** Read precautions and directions on back label.  
NET 64 FL. OZ. (1/2 GAL)



1. Remove the cap and pull out ALL THE WEEDS OUT.
2. Insert green plug into spray gun cap) until it clicks. THEN flip spray up.
3. Spray inside of end of sprayer.

# Herbicides for Homeowners

## “Weed and Feeds”

- Variety of products - fertilizer + herbicide
- herbicides -- 2,4-D, dicamba, atrazine
- mainly used for broadleaf weed control in turfgrasses - be careful on which turf
- uniformity of application is the key issue

Scotts

# Bonus S

## WEED AND FEED

LAWN FERTILIZER AND WEED CONTROL

For use on St. Augustinegrass (including Floratam), centipede, zoysia, and carpetgrass lawns only

- Builds thick, green turf from the roots up without burning your lawn\*
- Kills dollarweed and 24 other common lawn weeds
- For best results, apply a Scotts annual program (see back for details)

Do not apply to lawns or mixed lawns of bahiagrass, bermudagrass, bluegrass, fescue, bentgrass, ryegrass, and other cool season grasses.



ACTIVE INGREDIENT

Azinphos

RELATED COMPOUNDS

OTHER INGREDIENTS

EPA Reg. No. 536-18  
EPA Est. No. 24336-01-1 (PA)  
EPA Est. No. 536-00-1 (CA)  
EPA Est. No. 38676-12-1 (TX)  
EPA Reg. No. 536-18

KEEP OUT OF REACH OF CHILDREN

CAUTION

See back for additional precautionary statements

# 29-3-4

Made in U.S.A.

NET WEIGHT 20 LBS



Ready to use...  
Simply attach to a garden hose  
and spray!



## Lawn Weed & Feed 25-1-2

For use on turfgrass lawns.

### The Scotts Difference.

- Controls dandelions, clover, chickweed, ground ivy, and other weeds listed on back
- Treats your lawn quickly PLUS contains patented slow release nitrogen for extended feeding
- Guaranteed not to burn your lawn when used as directed
- Scotts No Quibble Guarantee

#### ACTIVE INGREDIENTS\*

Dimethylamine Salt of 2, 4-Dichlorophenoxyacetic Acid <sup>†</sup>	2.29%
Dimethylamine Salt of 2-(2-Methyl-4-Chlorophenoxy)propionic Acid <sup>††</sup>	2.30%

Dimethylamine Salt of 2-(2, 4-Dichlorophenoxy)propionic Acid <sup>†††</sup>	2.26%
<b>INERT INGREDIENTS</b>	<b>95.15%</b>
<b>TOTAL</b>	<b>100.00%</b>

† Turf Specific AICAC Method No. 6.321, equivalent to 2, 4-Dichlorophenoxyacetic Acid 1.9%, 0.18 lbs./gal.  
 †† 2-(2-Methyl-4-Chlorophenoxy)propionic Acid 1.9%, 0.18 lbs./gal.  
 ††† 2-(2, 4-Dichlorophenoxy)propionic Acid 1.9%, 0.18 lbs./gal.  
 † Turfmark is a trademark of Fluorfen Chemical Company Patent pending.

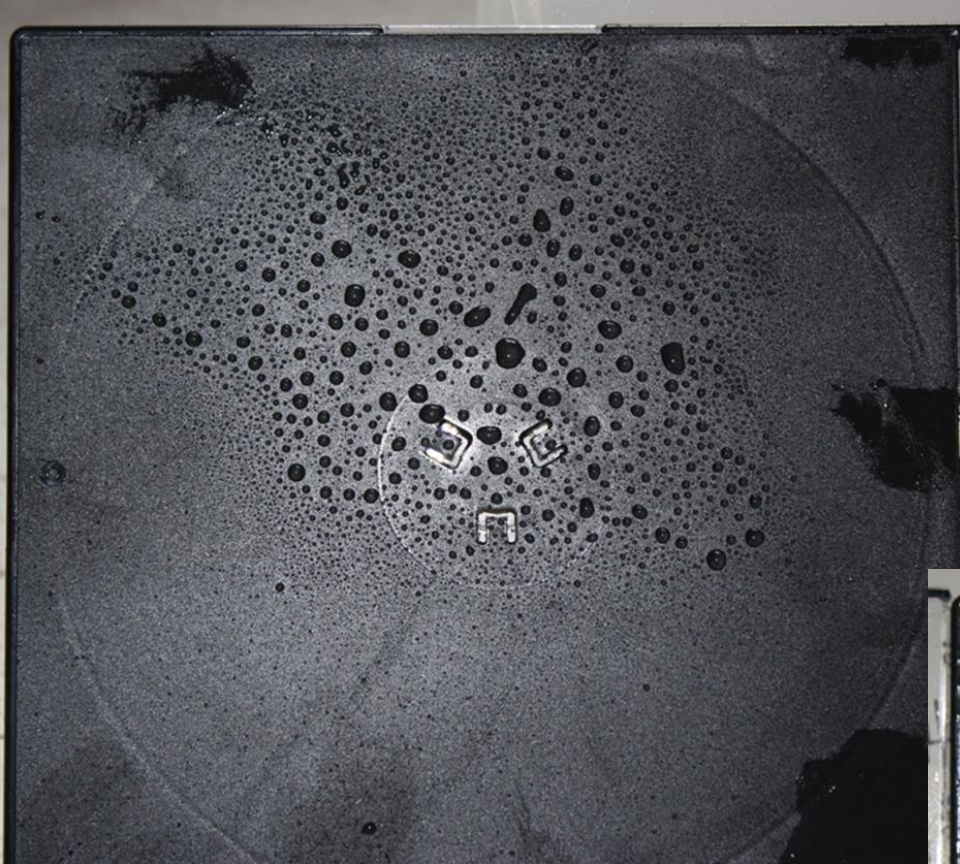
**KEEP OUT OF REACH OF CHILDREN. CAUTION**

See back panel for additional precautionary statements and statements of practical treatment. Treats 2,500 to 3,000 sq. ft.  
 Net Contents: 32 fl. oz. (1 qt.) (946 ml) Net Weight: 2.63 lb. (1.19 kg)

# Herbicides for Homeowners

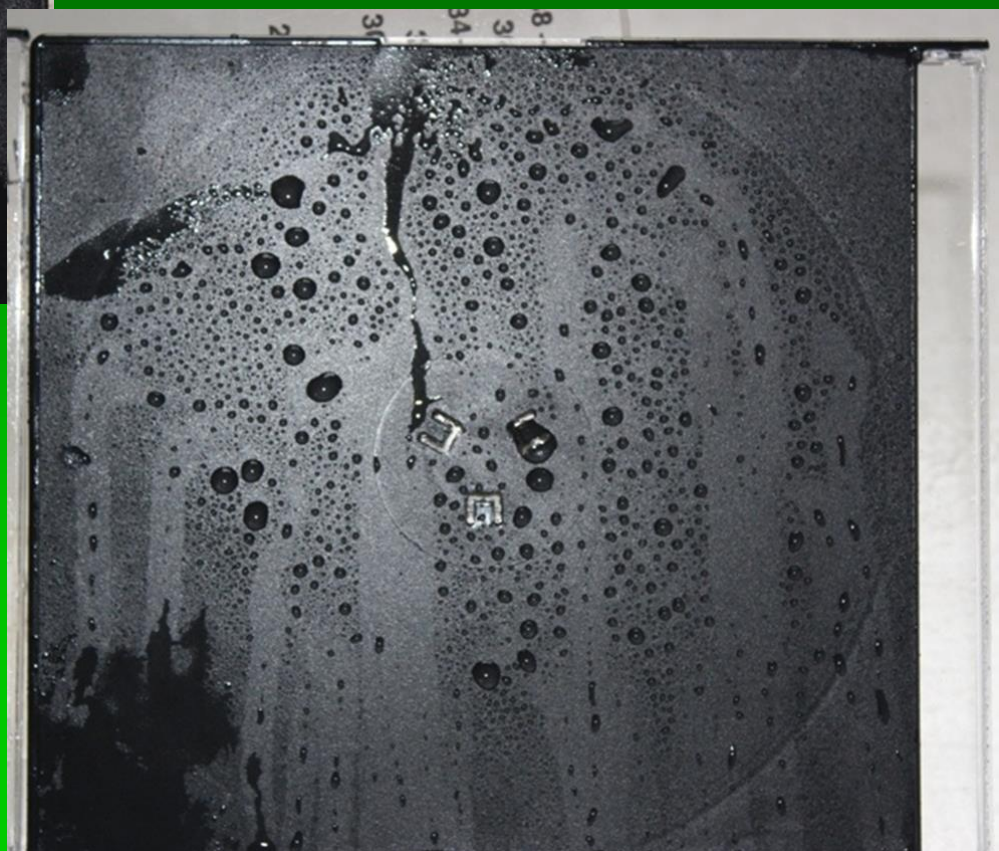
## “kills within 24 hours”

- Various products and compounds
- generally a mixture of materials
- contact activity, limited movement in plant
- thorough coverage is key, but don't over do
- pelargonic acid, diquat, fatty acids



← One spray

Three sprays →



**KILLS ALL MAJOR  
BROADLEAF WEEDS!**

**CLEAR-VIEW**  
measuring window

**Spectracide**

**WEED STOP**

**WEED KILLER FOR LAWNS**  
Concentrate

**Overnight Results!**

**Kills the Weeds, Not the Lawn**  
Kills 66+ Types of Weeds!  
Treats up to 16,000 sq. ft.



Active ingredients:  
1. Spectracide herbicide (2,4-Dichlorophenoxyacetic acid) 7.10%  
2. Spectracide herbicide (2,4-Dichlorophenoxyacetic acid) 2.50%  
3. Spectracide herbicide (2,4-Dichlorophenoxyacetic acid) 5.39%  
Inert ingredients 85.01%  
\* 8.343 lb. 7.4 pounds of active ingredient per gallon of 4.3%  
16.76 lb. 7.47 pounds of active ingredient per gallon of 4.3%  
16.814 lb. 7.47 pounds of active ingredient per gallon of 4.3%

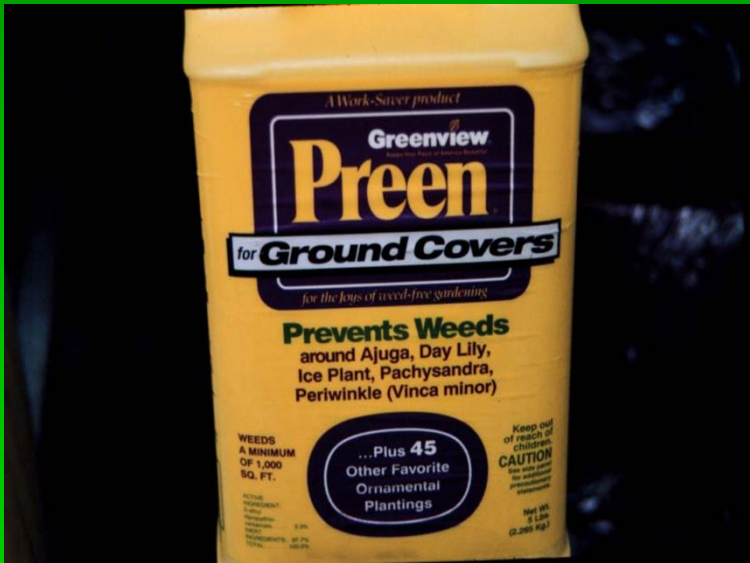
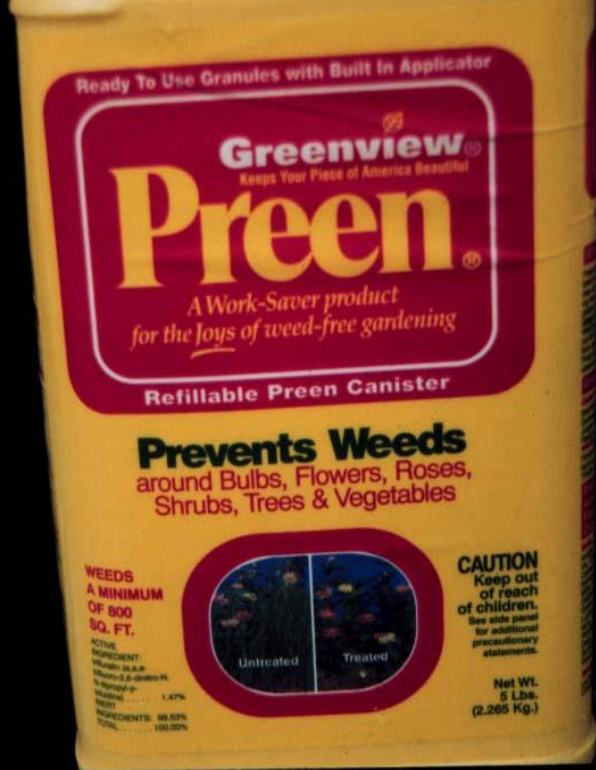
**KEEP OUT OF REACH OF CHILDREN**  
**CAUTION** See back for additional  
precautionary statements

**NET CONTENTS 1 QT**

# Herbicides for Homeowners

## “Preen” products

- soil applied, before the weeds emerge
- kills grasses & certain broadleaf weeds
- prevents the roots and shoots from growing
- placement is the key issue
- need to be mixed with soil, watered and covered



# Corn Gluten Meal

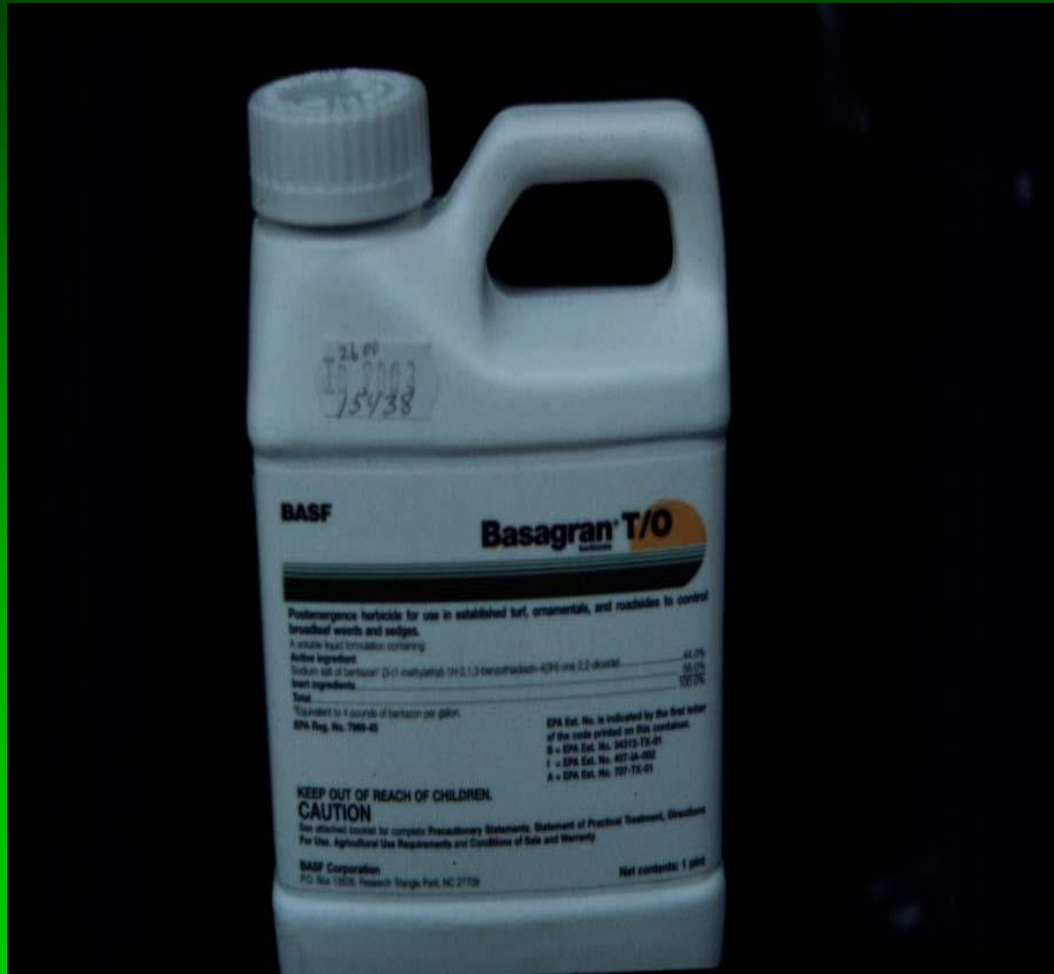
- derived from the gluten fraction of corn
- provides good control of many annual weeds, will not harm established plants
- Works similar to “Preen” products
- will not control perennial weeds
- potential uses - annual flower beds, vegetable transplants
- limited availability? (*organic*)

# Herbicides for Homeowners other products

- Basagran T/O - mainly nutsedges in turf
- Brush-B-Gone (triclopyr) - effective on vines, brush, woody plants
- Vegetation killer - soil active, no selectivity (imazapyr, prometon, cacodylic acid)



# Herbicides for Homeowners



## Basagran T/O

mainly for  
nutsedges in  
turf, some  
broadleaf weed  
control

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# Herbicides for Homeowners



Brush-B-Gone  
(triclopyr)

effective on vines,  
brush, woody  
plants

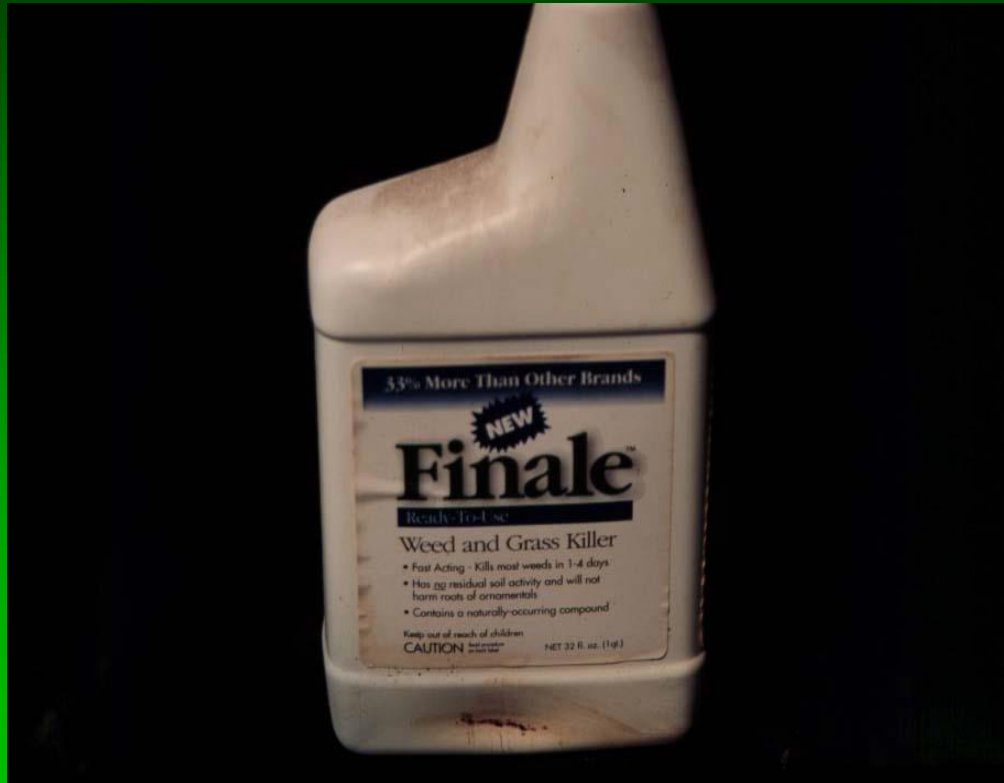
# Herbicides for Homeowners



Vegetation killer  
(imazapyr, prometon  
cacodylic acid)

- soil active, no  
selectivity

# Herbicides for Homeowners



Finale (glufosinate)

Non-selective, kills both grass and broadleaf weeds

Not the same as glyphosate (Roundup)

# Herbicides for Homeowners



Image - imazaquin

Use in turf for  
sedges, broadleaf  
weeds

Foliar and soil  
active

# Herbicides for Homeowners



## Grass Control Herbicides --

fluazifop, sethoxydim

foliar active, kills all  
grasses, systemic

# Pesticide Safety and Sense

- Never use a material from commercial setting - illegal and dangerous
- always leave materials in original containers with the label attached
- keep pesticides locked in a dry, secure area
- never store mixed chemicals
- **READ THE LABEL BEFORE USE!**

# Equipment



Use separate sprayers for different types of treatments



# Perennial Weed Management

- The key to successful perennial weed management is persistence and timing
- perennial weeds take a long time to grow and thus a long time to control
- may take a combination of methods - hand weeding, mechanical, chemical





Pull vines down (do not cut), then spray leaves while on ground



One plant twined within another



Pull branch (do not cut) and place inside bag



Spray leaves within the bag, shake off excess and remove

# The Key Strategies

- Prevention
- Timing
- Persistence

