

Module 13:

Garden Weeds Identification and Control

With Dr. Ron Strahan



LSU AgCenter Home Gardening Certificate Course

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Weed Basics

What is a Weed?

✓ *A plant growing out of place*



✓ *A plant whose
virtues have not yet
been discovered*

Some reasons weeds are problems?

- 1) Reduce yields of crops – harvest efficiency**
- 2) Reduce land use efficiency**
- 3) Spoil beauty of turf and ornamental areas**
- 4) Diminish enjoyment of outdoor recreation**
- 5) Can cause allergic reactions due to toxicity**

Weeds are great competitors!

- **Water**
- **Nutrients**
- **Light**



Why so many weeds? – Pigweed example

- ✓ 13,000 – 1,000,000 seed/year
- ✓ Dormancy – survive 30 years
- ✓ Don't allow seed production



How are weeds able to persist?

- 1) **Number of seed produced**
- 2) **Survival of weed seed**
- 3) **Dormancy**
- 4) **Vegetative reproduction**

How do weeds spread?

1) Nature

- ☐ Animals and birds – Chinese tallow tree
- ☐ Winds – dandelion
- ☐ Rains and flooding
- ☐ Some type of runner – rhizome, stolon

2) Humans

- ☐ Impure seed/sod – contaminated wildflower
- ☐ Compost and mulch – animal droppings
- ☐ Irrigation – wet areas for sedges
- ☐ Machinery – contaminated mowing equipment
- ☐ Contaminated soil

Types of Weeds

- **Broadleaves –**

- Netted veination
- 2 cotyledons
- Taproot
- Showy flowers



**Virginia
buttonweed**

- **Grasses –**

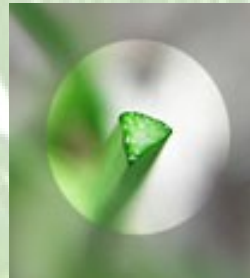
- Parallel
- 1 cotyledon
- Fibrous roots



Crabgrass

- **Sedges –**
“nutgrass”

- Triangular stems
- Leaves in 3’s

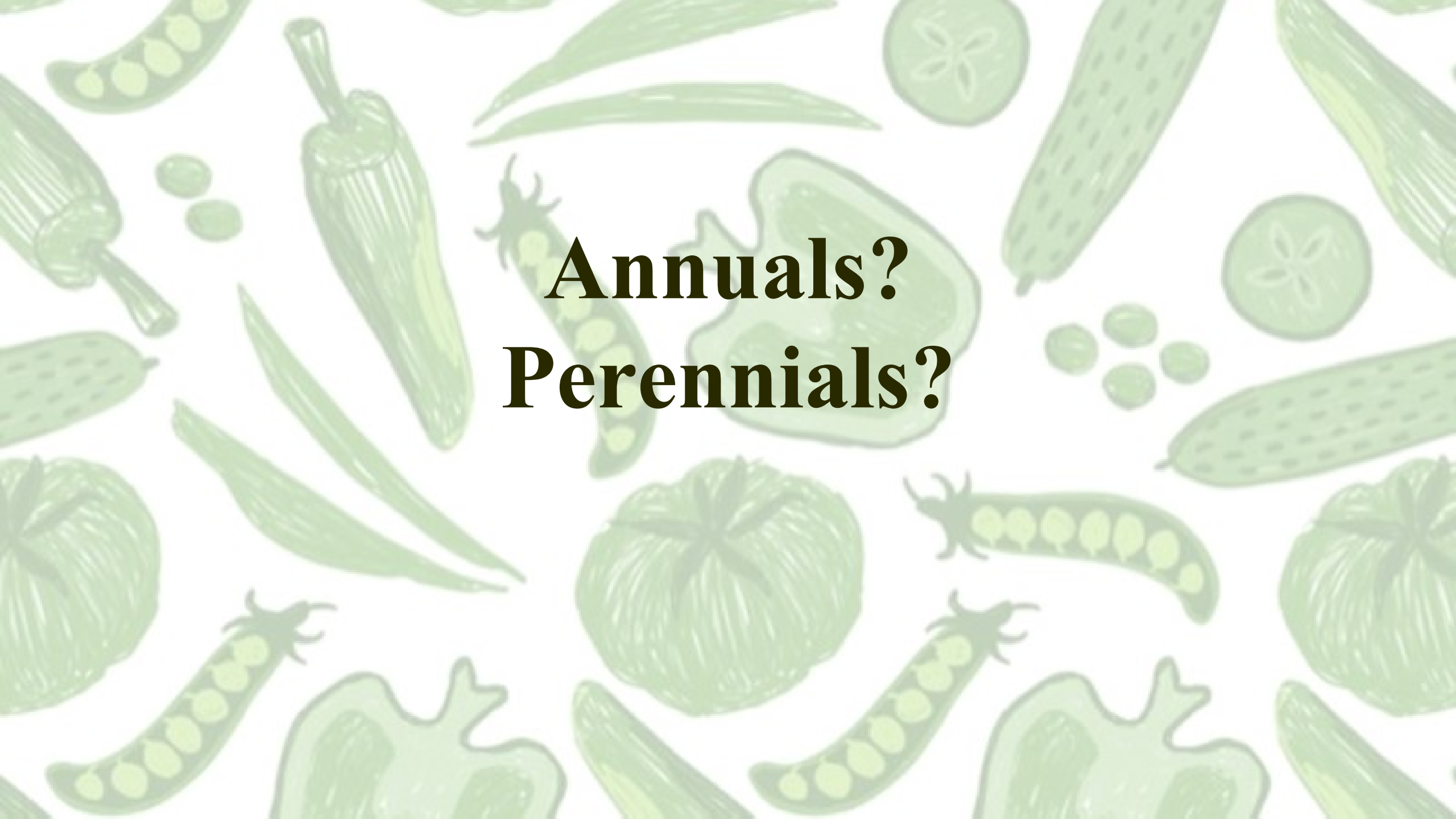


purple nutsedge

Broadleaf vs Grass Leaf



Broadleaf leaf veins (netted) VS grass leaf veins (parallel)



**Annuals?
Perennials?**

Types of Weeds

- **Annual and perennial summer weeds**



Crabgrass (a)



Goosegrass (a)



Virginia buttonweed (p)

- **Annual and perennial winter weeds**



Annual
bluegrass (a)



Burweed (a)



dandelion (p)



Methods of Weed Control

Options for Weed Control

- **Use Mulch to block weeds and prevent them from germinating.**
- **Physical removal**
 - Hand pulling**
 - Hoeing**
 - Other weed pulling gadgets**
 - Tilling**
- **Herbicides**
 - **Pre and Post Emergent**



There are plenty of weed pulling gadgets available.



The background of the slide is a repeating pattern of various green vegetables, including tomatoes, cucumbers, and pea pods, rendered in a light green, sketchy style. A solid blue rectangular box is centered on the slide, containing the title text in yellow.

Weed Management Options - Mulch

Mulch – 2 weed management purposes

- **Physical barrier to emerging seedling**
- **Blocks sunlight – several weeds need sunlight for germination**



Chris Dunaway spreads cypress leaves as mulch.

Mulch – information

- **Many options available**
 - Pine Straw
 - Shredded Leaves
 - Shredded pine Bark
 - Cypress Tree Leaves
 - Plus More...
- **Shredded bark, pine straw are better than large wood chips**
- **Reapply mulch periodically**
- **Check your mulch source - could be weed seeds in mulch**
- **Don't expect perennial plant control**



Brief Herbicide School Session



What is an herbicide?

A chemical which injures or kills a plant.

Definitions

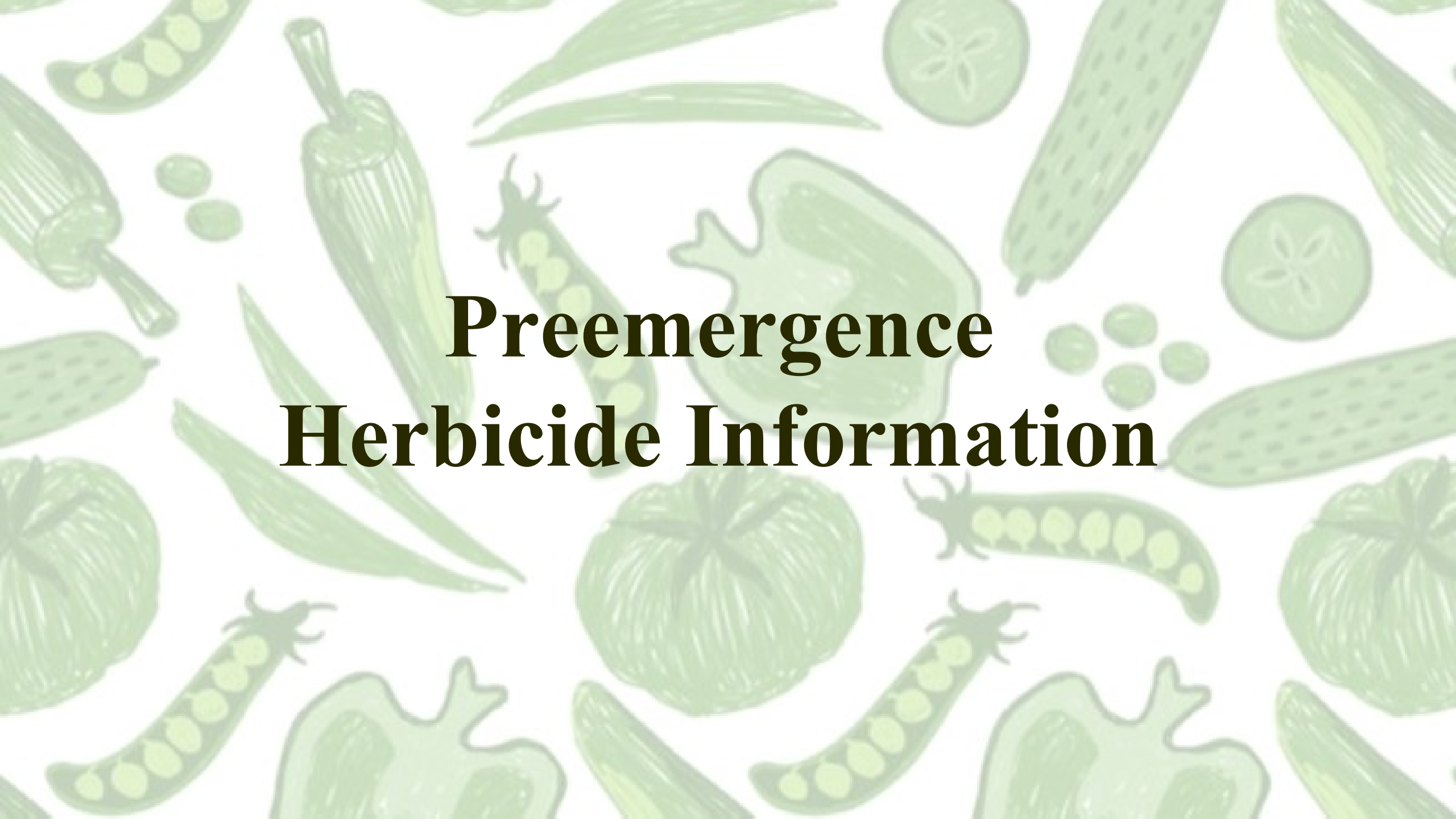
- **Active ingredient – molecule that provides herbicidal action**
 - Glyphosate – Roundup, Eraser etc
 - Trifluralin – some versions of Preen, Treflan
- **Mode of action – physiological process that leads to negative plant effects**
 - Photosynthesis inhibitor - Atrazine
 - Mitosis disruptor – Preen
 - Amino acid production disrupted - Roundup



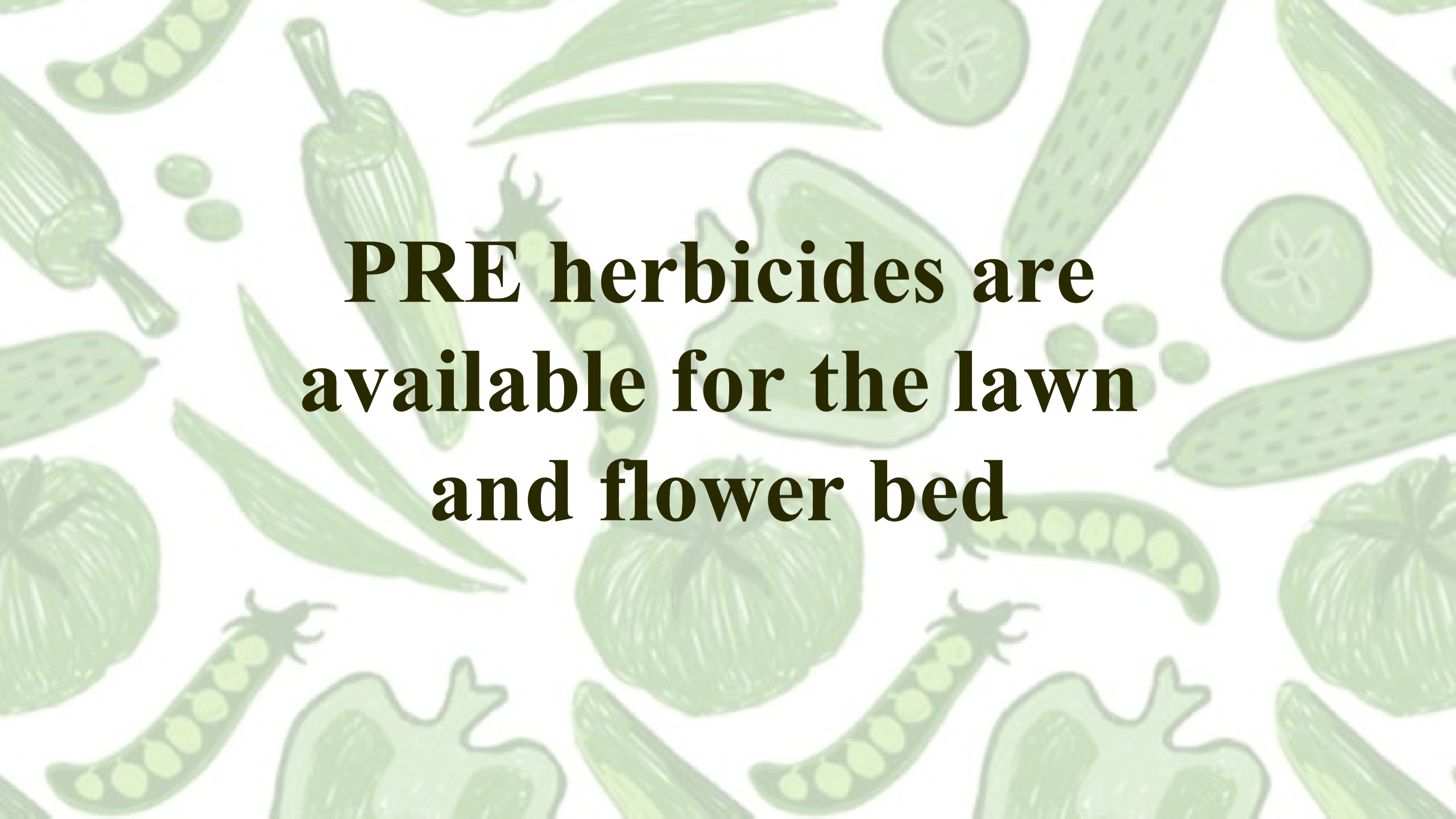
**Preemergence?
Postemergence?**

Types of Herbicides

- **Preemergence – Weed preventor/residual herbicides – controls weeds before you see them.**
- **Postemergence – kills weeds that are actively growing.**



Preemergence Herbicide Information



**PRE herbicides are
available for the lawn
and flower bed**

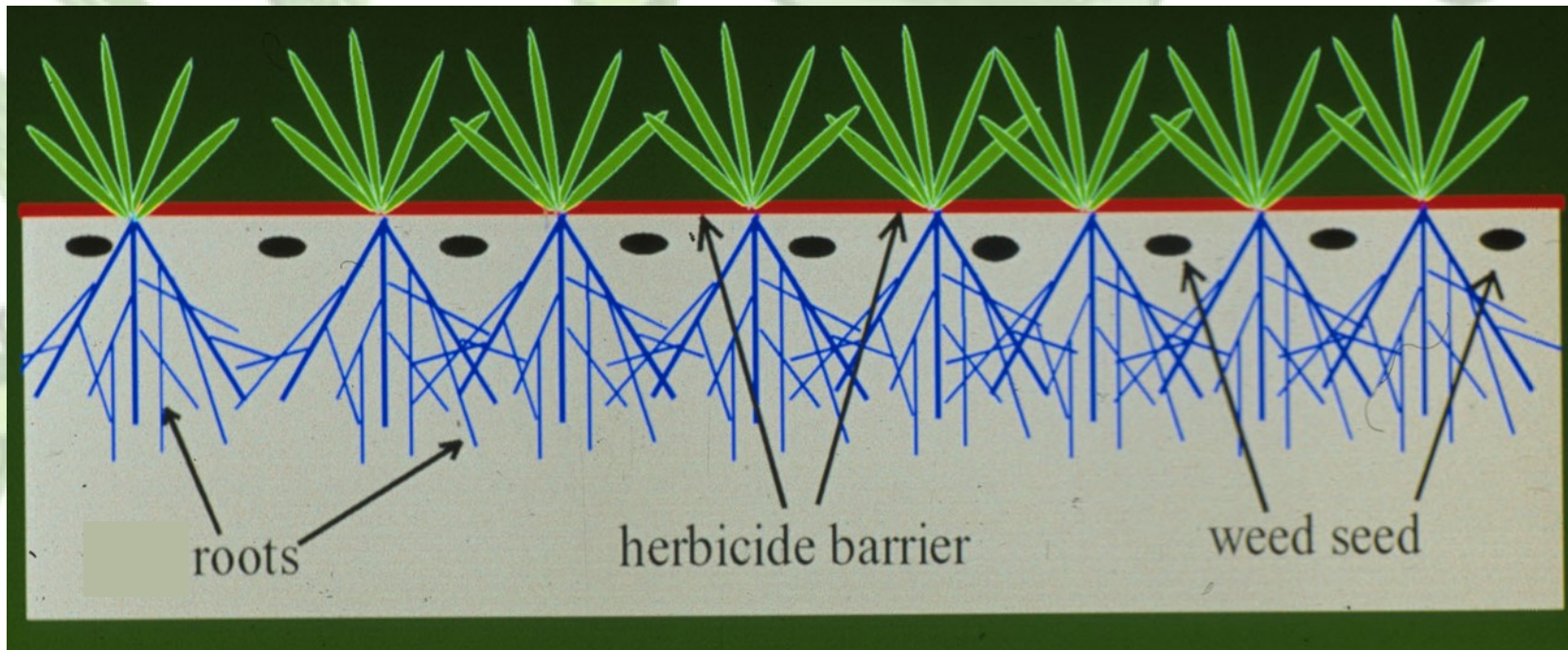


Effective Preemergence Application

- **Apply before weeds germinate**
- **Adequate rainfall or irrigation is needed**
- **Do not expect all season control - reapply**

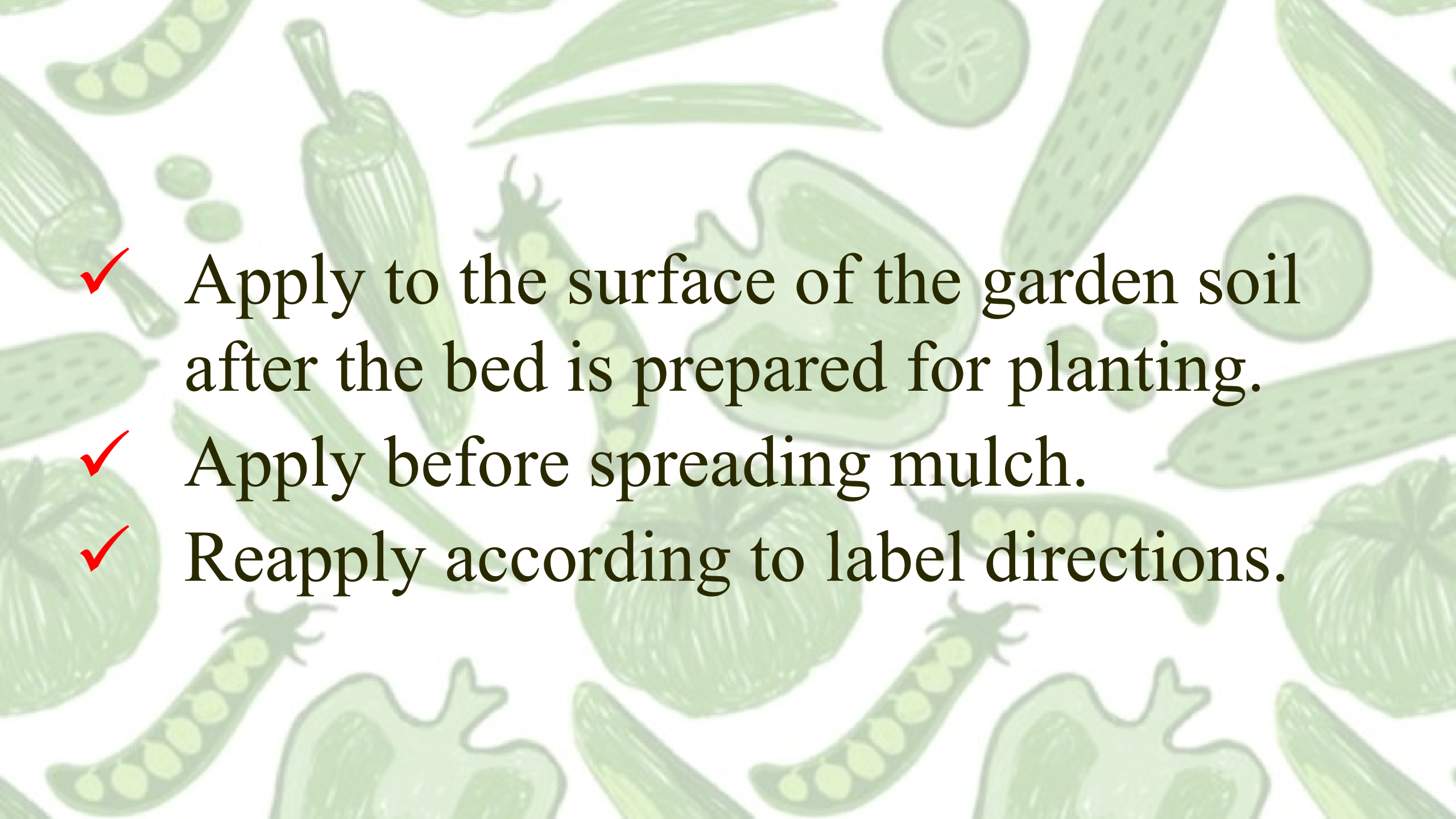
How do preemergence herbicides work?

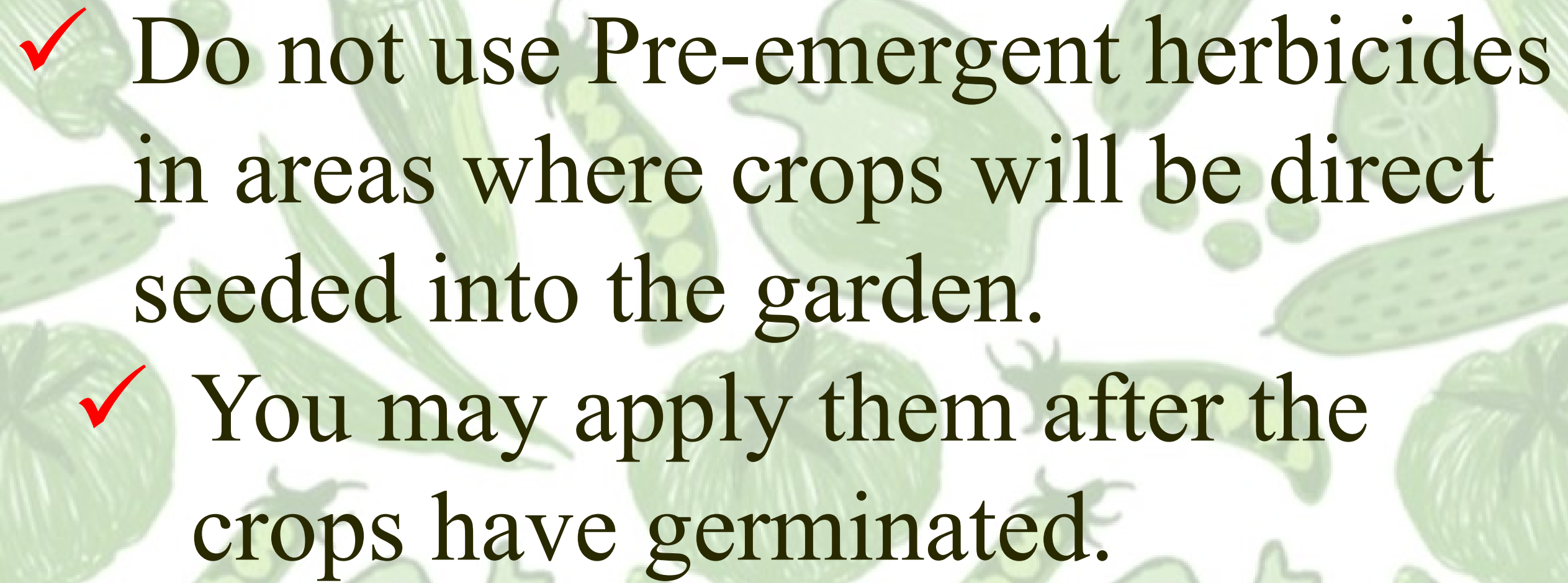
- ✓ Herbicides provide a barrier at or just below soil surface

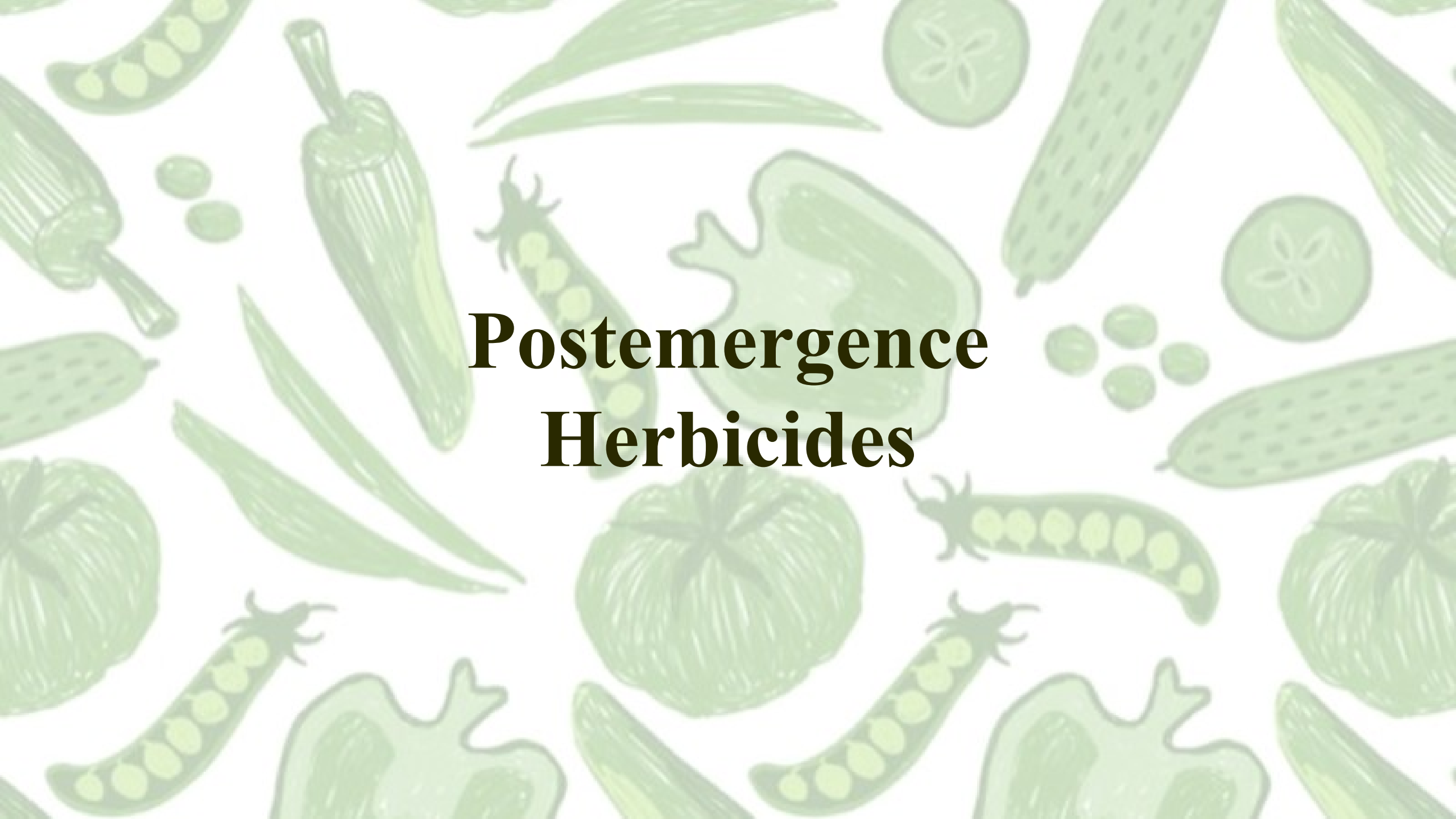




When Should I Apply Preemergence Herbicides in My Garden?

- 
- ✓ Apply to the surface of the garden soil after the bed is prepared for planting.
 - ✓ Apply before spreading mulch.
 - ✓ Reapply according to label directions.

- 
- ✓ Do not use Pre-emergent herbicides in areas where crops will be direct seeded into the garden.
 - ✓ You may apply them after the crops have germinated.



Postemergence Herbicides

Types of Herbicides

- **Nonselective – kills everything - Roundup, Finale**
- **Selective – controls certain plants and releases other species – Weed-B-Gone, Vantage, Atrazine**

What determines selectivity?

- **Time of application**
- **Rate of application**
- **Chemical, biochemical, morphological or physiological differences**
- **Knowledge of when and how to use herbicides**

Types of Herbicides

- **Contact – burns back what only what it hits - Diquat, Finale**
- **Translocating (systemic) – move throughout plant – Weed-B-Gone, Vantage, Roundup**



Postemergence Herbicide Examples

Roundup

- **Active ingredient – glyphosate**
- **Will kill or injure most plants**
- **A systemic herbicide – good on perennial weeds**
- **Totally deactivated when it hits soil**
- **Visual symptoms in 2-4 days in growing points**
- **Find everywhere**

Weed B Gon

- **Ortho**
- **3 way herbicides**
- **Low % of 2,4-D**
- **Excellent for winter broadleaves**

Grass B Gon

- **Ortho**
- **Fluazifop**
- **Ready to use product**
- **Excellent for summer grasses**

Homeowner Weed Killers





**Always Read the Label
and Follow All of the
Directions Carefully**

Before you apply a Herbicide



Read the Label!

What's on Label

- 1) **Type of formulation – L, DG, WP, DF**
- 2) **Use classification – general use vs restricted use**
- 3) **Common and chemical name**
- 4) **Precautionary statements**

Proper Herbicide Use

- 1) **Read label – label tells how to use and precautions**
- 2) **Store properly**
- 3) **Never eat or smoke near chemicals**
- 4) **Wear protective clothing**
- 5) **Use correct rate (calibrate)**
- 6) **Avoid drift and water contamination**
- 7) **Triple rinse containers**

Common preemergence herbicides for flower beds

- ▣ Surflan -Oryzalin - homeowner
- ▣ Preen – Trifluralin, dithiopyr - homeowner
- ▣ Hi-Yield Weed Stopper – dithiopyr - homeowner
- ▣ Pendimethalin - Pendulum/Pre M - professional
- ▣ Prodiamine – Barricade – professional
 - ▣ Many others like Snapshot, Free Hand etc.

Preemergence Herbicides – great on annual grasses
and small seeded broadleaves like...



Common Purslane



Spurge



Pigweed

Preemergence Herbicides – Will not work on

- Bermudagrass
- Torpedograss
- Florida Betony
- Chamberbitter



Florida Betony



Chamberbitter



Grass Control in Vegetable Gardens

Did you know that you don't have to hand pull bermudagrass!!!!

You can control bermudagrass in gardens



Control Grasses in the Vegetable Gardens

- **Hi-Yield Grass Killer- sethoxydim – up to 3 oz/gallon – can be used in vegetable gardens**
- **Ferti-lome Over the Top II – is now sethoxydim – also can be used in vegetable gardens**



**Using Roundup/glyphosate
safely in beds**



Glyphosate with 41% active

- **Roundup, Hi-Yield Killzall, Eraser, Eliminator etc.**
- **Will kill or injure most plants**
- **A systemic herbicide – good on perennial weeds**
- **deactivated when it hits soil**
- **Visual symptoms in 2-4 days in growing points**

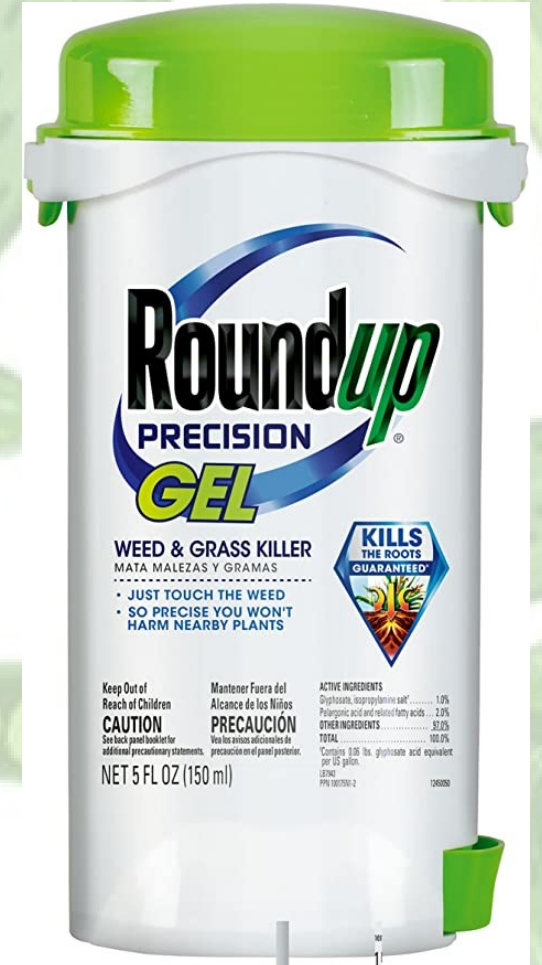
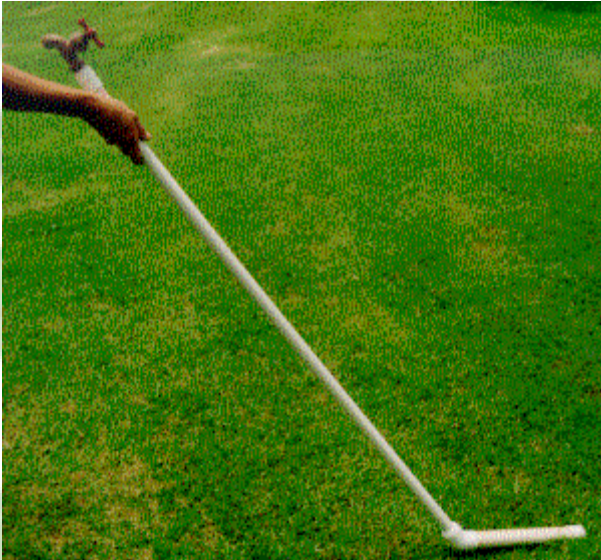
Roundup Brands

- **18%, 41%, 50% glyphosate**
- **Ready to use products also – usually < 2%**
- **Prone to drift with high pressure and windy conditions**



Roundup damage to a tomato plant.

Weed Wipers on the market



Weed wipers and products like Roundup Gel allow the application of non-selective herbicides growing near other desirable plants.



Rubber/Cotton Glove Method

Rubber Glove/Cotton Glove

- ▣ 3 oz of glyphosate in 32 oz. of water
- ▣ Rubber glove inside cotton glove
- ▣ Dip and squeeze off excess
- ▣ Gently wipe weed leaves



Use wipe method for hard to control weeds like...



Florida betony (rattlesnake)

- ▣ Translocates to underground storage organs
- ▣ Paint brush, sponge mop etc.



torpedograss



bush killer vine



Organic Weed Control

Perfectly Natural - Organic

- **90% vinegar and 8% clove oil**
- **RTU – no mixing**
- **Smells good**
- **Tried it – works ok on very small annuals**

Scythe – fatty acid

- **Non-selective – pelargonic acid**
- **Works well on tender annuals – 5% solution**
- **Poor on perennials**
- **Overall, a pretty good performer**



Ortho Elementals


- Non-selective
- iron based and soybean oil
- Works well on small annual broadleaves and grasses
- Poor on perennials



Preen Organic Corn Gluten

- 100% granulated corn gluten meal
- Apply 5 lbs. per 250 sq. ft. (25' x 10') to vegetable bed.
- gluten releases an enzyme that interferes with germinating seeds
- Gave fairly good weed control for 15 days in an experiment





Please post all your questions and results to the message board:

<https://www.facebook.com/groups/538153443545779/>

More resources for this module can be found at the following link:

https://www.lsuagcenter.com/topics/lawn_garden/master%20gardener/home-gardening-certificate-course