



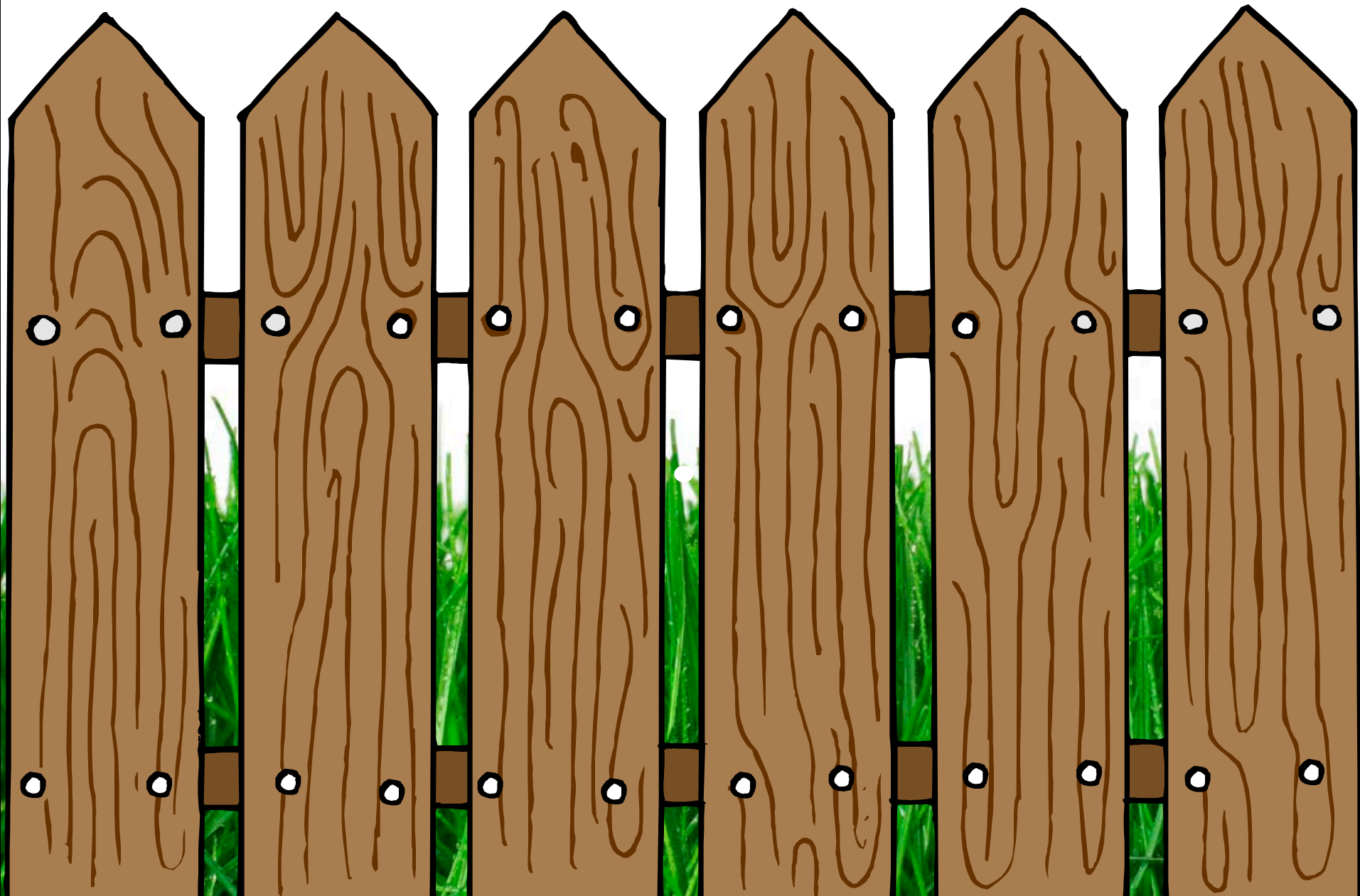
Establishing Boundaries: Management Tools for Edible Crops and Why

Cristi Palmer



The image is a collage of various plants and a greenhouse structure. In the top left, there are rows of plants with bright yellow and green foliage. Below that, there are plants with dark purple and orange leaves. In the bottom left, there are several black pots containing green plants with small purple flowers. In the top right, there is a large structure covered with black mesh, likely a greenhouse or shade house, with a white building visible in the background. In the bottom right, there are large, vibrant red and purple leaves. The central text "What are boundaries?" is overlaid on a white rounded rectangle.

What are boundaries?

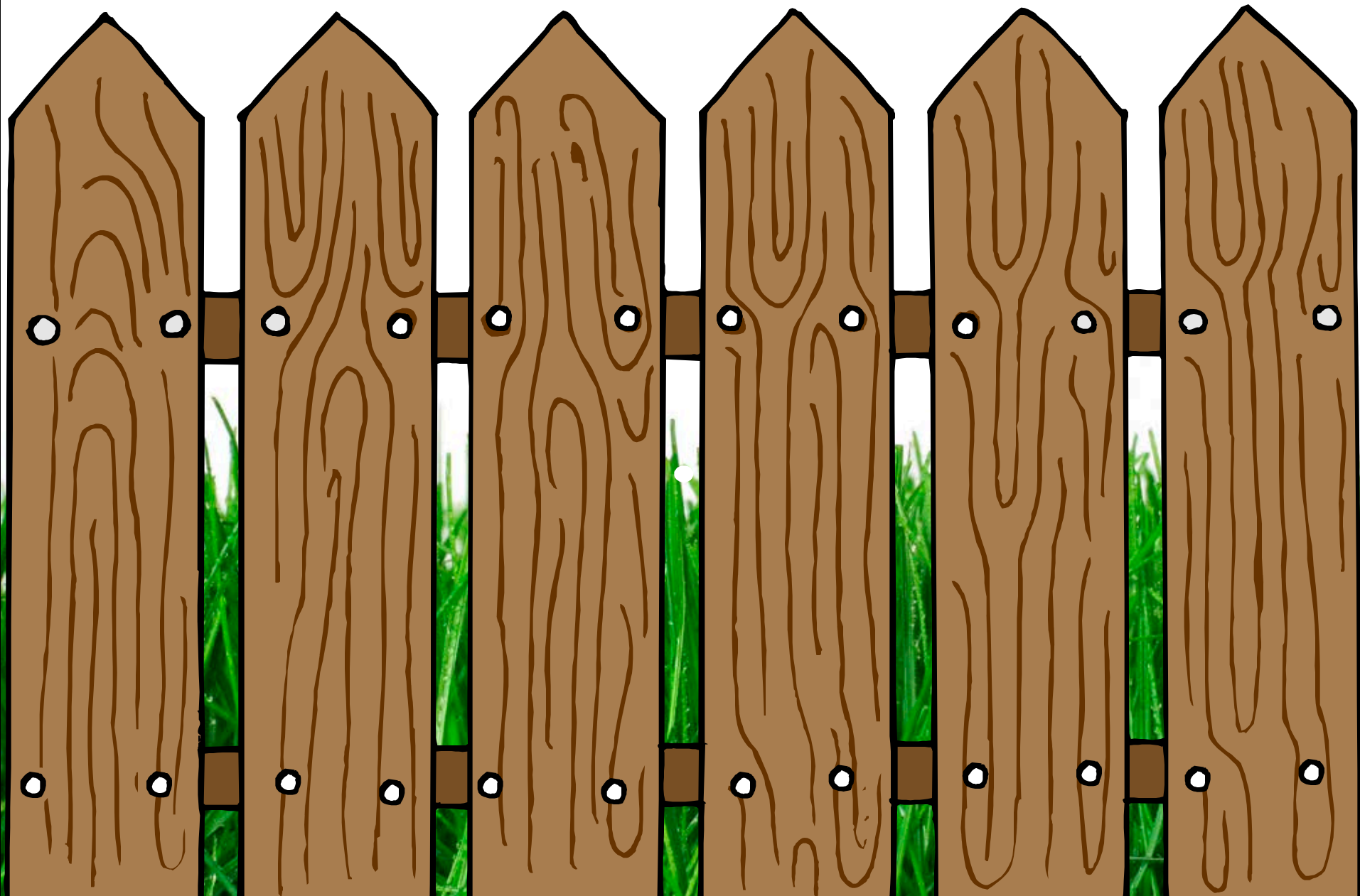


A cartoon-style illustration of a wooden fence with six vertical posts and horizontal rails. The fence is brown with a wood grain texture. A light blue sign with a wavy bottom edge is attached to the fence. The sign has a pattern of concentric circles and contains the text "The grass is always greener ...". Green grass is visible through the gaps in the fence.

**The grass is
always
greener ...**

A cartoon-style illustration of a wooden fence with six vertical posts and horizontal rails. The posts are brown with a wood grain texture and pointed tops. A light blue sign with a wood grain pattern is attached to the fence, featuring the text "Good fences make good neighbors." in bold black font. The background shows green grass and a white sky.

**Good fences
make good
neighbors.**





Why are Food Crops Different?







National Research Council's Four Steps to Characterize Risk

- Step 1: Hazard Identification
- Step 2: Dose Response Assessment
- Step 3: Exposure Assessment
- Step 4: Risk Characterization

Research Common to Food and Orn Hort Crops

- Acute Mammalian Toxicity on Active Ingredient
- Chronic Mammalian Toxicity
- Sublethal Affects
- Bioaccumulation
- Degradation in Water and Light
- Degradation in Hydrolysis or by Soil Microbes
- Soil Dissipation
- Water solubility
- Carcinogenicity
- Endocrine Disruption
- Immunotoxicity
- Non target organism impacts (Pollinators, Endangered Species, etc)

Research for just Orn Hort Crops

- Acute toxicity for formulation product
- Dislodgable foliar residues
- Efficacy & Phytotoxicity

Research for just Food Crops

- Acute toxicity for formulation product
- Dislodgable foliar residues
- Efficacy & Phytotoxicity
- **Residue Studies**

The
IR-4
Project 

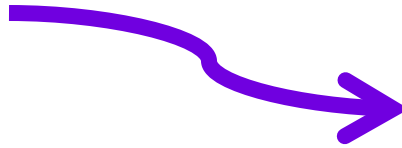




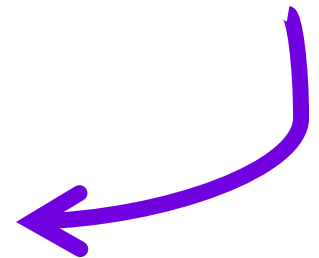
Establishment of Field Research



Under GLP



Collection of Sufficient Sample



Analysis of Residues



Storage of Samples in Freezer Pending Shipment



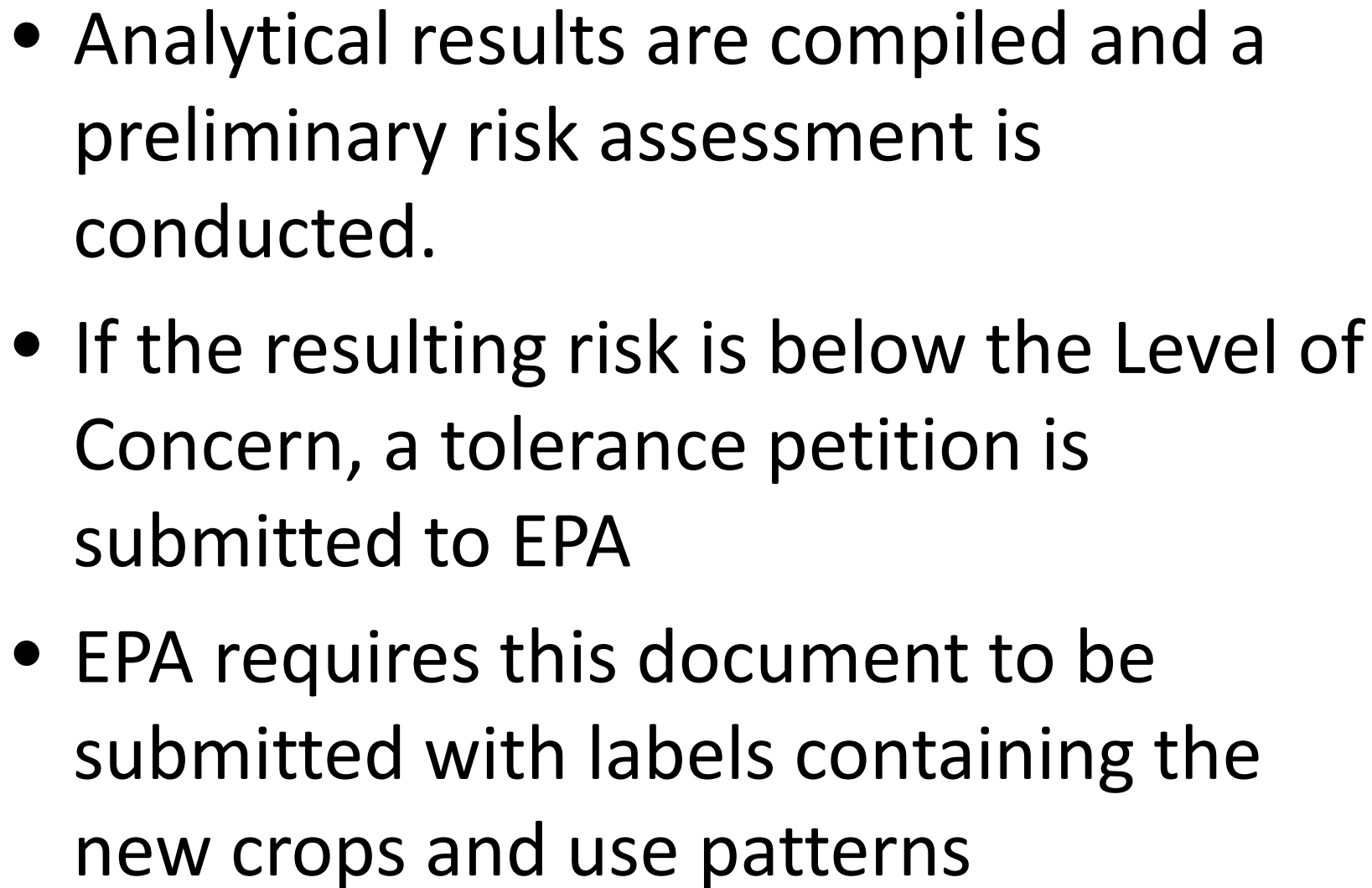


- Analytical results are compiled and a preliminary risk assessment is conducted.

Risk

Toxicity X Exposure = Risk

Risk and minimizing risk contributes to how labels are written

- 
- Analytical results are compiled and a preliminary risk assessment is conducted.
 - If the resulting risk is below the Level of Concern, a tolerance petition is submitted to EPA
 - EPA requires this document to be submitted with labels containing the new crops and use patterns

Sale, use and distribution of this product in Nassau and Suffolk counties in the state of New York is prohibited.

PULL HERE TO OPEN ►

GROUP 4A INSECTICIDE



syngenta.

Insecticide

Active Ingredient:

Thiamethoxam ¹	25.0%
Other Ingredients:	75.0%
Total:	100.0%

¹CAS No. 153719-23-4

Actara is a water-dispersible granule.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use in booklet.

EPA Reg. No. 100-938 EPA Est. 67545-AZ-1

Product of India
Formulated in the USA

SCP 938A-L2L 0810
322026

**7 pounds,
8 ounces (120 oz.)**
Net Weight

TM

Sale, use and distribution of this product in Nassau and Suffolk counties in the state of New York is prohibited.

GROUP 4A INSECTICIDE



Insecticide

For foliar and systemic control of insect pests in ornamental plants, fruit and nut trees (non-bearing) Christmas trees, forest seedlings and listed vegetables grown for transplant.

Active Ingredient:

Thiamethoxam (CAS No. 153719-23-4)	25.0%
Other Ingredients:	75.0%
Total:	100.0%

Flagship® 25WG is a water-dispersible granule that contains 4 oz. of active ingredient per lb. of formulated product.

PULL HERE TO OPEN ►

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use in booklet.

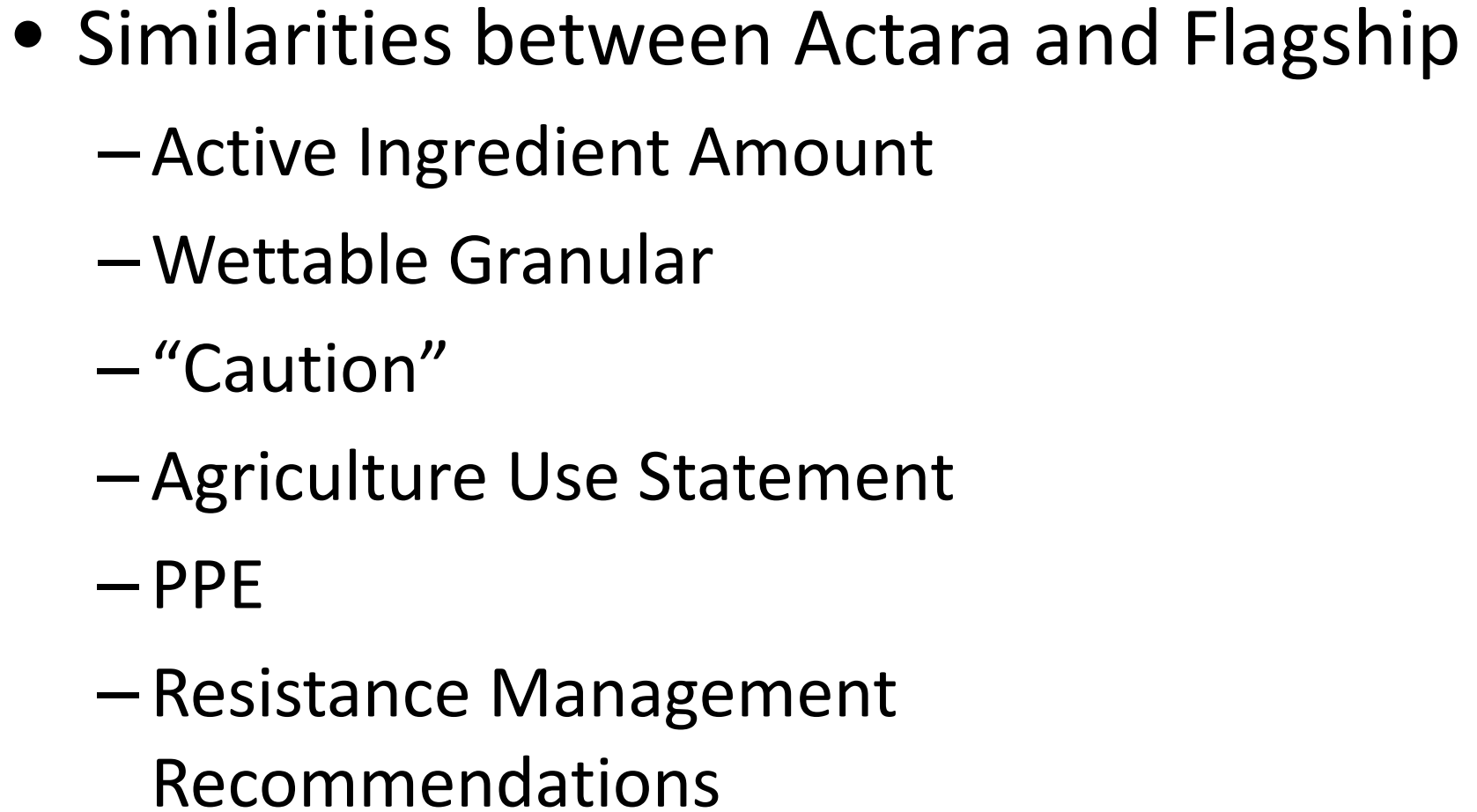
EPA Reg. 100-955
EPA Est. 67545-AZ-1

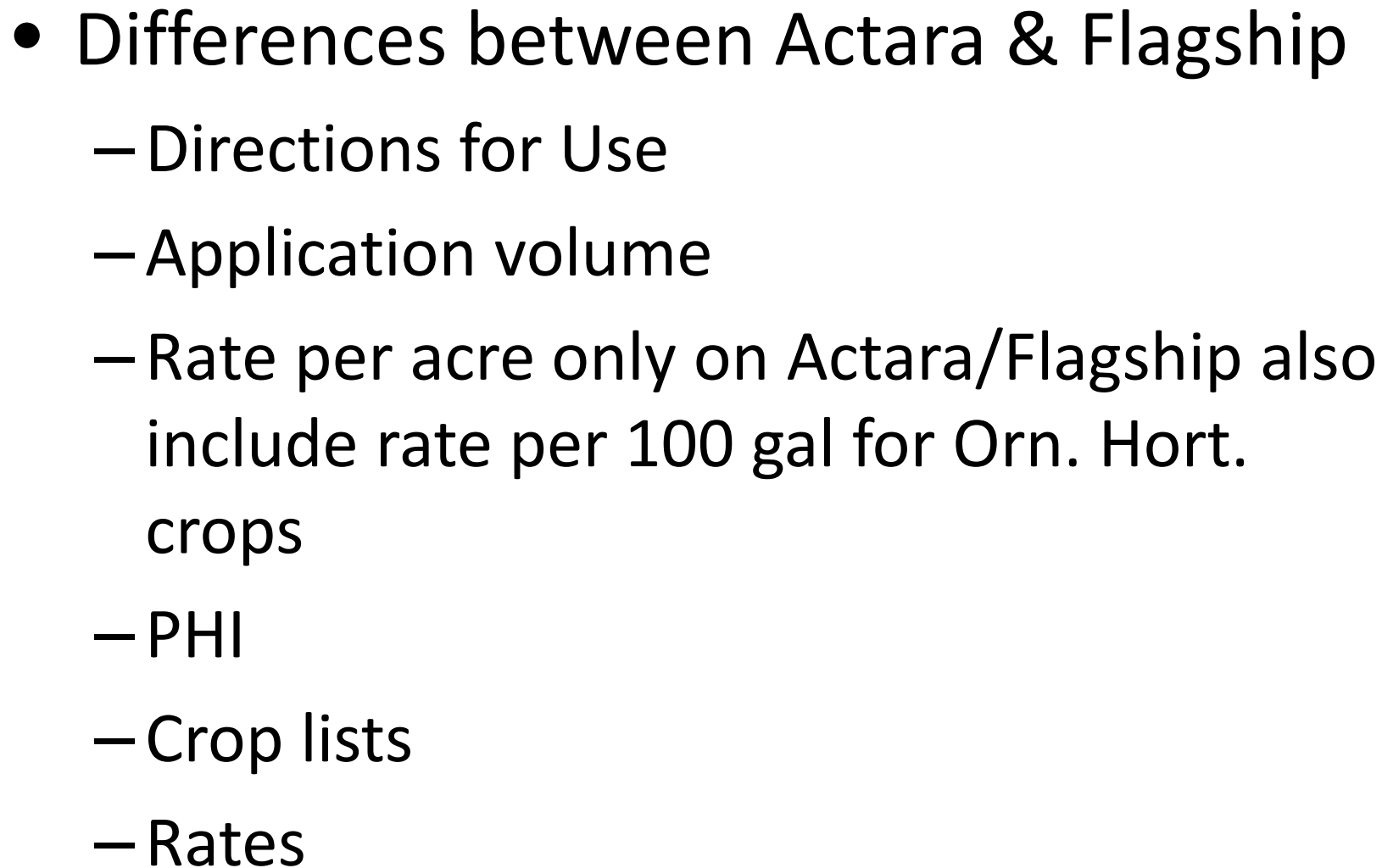
Product of India
Formulated in the USA

SCP 955A-L3B 0810

2 pounds
Net Weight

syngenta®

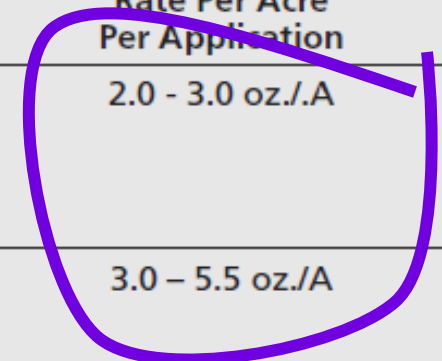
- 
- Similarities between Actara and Flagship
 - Active Ingredient Amount
 - Wettable Granular
 - “Caution”
 - Agriculture Use Statement
 - PPE
 - Resistance Management Recommendations

- 
- Differences between Actara & Flagship
 - Directions for Use
 - Application volume
 - Rate per acre only on Actara/Flagship also include rate per 100 gal for Orn. Hort. crops
 - PHI
 - Crop lists
 - Rates

Actara Label for Fruiting Vegetables

Crop	Pest	Rate Per Acre Per Application
Eggplant Ground cherry Pepino Pepper (bell, chili, cooking, pimento, and sweet) Tomatillo Tomato	Colorado Potato Beetle	2.0 - 3.0 oz./A
	Flea beetles Whiteflies Pepper Weevil Stink Bugs	3.0 - 5.5 oz./A

How many times can you apply Actara?



Use Restrictions:

- **Maximum Actara Allowed per Growing Season:** Do not exceed a total of 11.0 oz./Acre (0.172 lb. a.i./A) of Actara or 0.172 lb. a.i. of thiamethoxam containing products per acre per growing season.
- **Application Timing:** Apply before pests reach damaging levels. Scout fields and treat again if populations rebuild to potentially damaging levels. Apply the higher rate within the listed rate range for heavy infestations.
- **Pre-Harvest Interval (PHI):** 0 day
- **Minimum Interval Between Applications:** 5 days

It depends:

Total oz per acre ÷ rate in oz per acre per application

=

Between 2 and 5

Refer to Pollinator Precautions section.
Refer to Resistance Management section.

Flagship® 25WG

Foliar Application to Vegetable Plants Grown for Re-sale to Consumers


- For tomatoes, peppers, eggplant, and cucurbit plants grown for re-sale to consumers.
- In New York State, use is limited to Christmas trees and indoor greenhouse use only.

Crop	Pest	Rate	Use Restrictions
Fruiting Vegetables Eggplant Ground-cherry Pepino Peppers (bell, chili, cooking, pimento, and sweet) Tomatillo Tomato	Aphids Colorado Potato Beetle Flea beetles Leafhoppers	2.0–3.0 oz./A or 0.23–0.34 oz./ 5,000 sq. ft.	Apply before pests reach damaging levels. Apply higher rates within the listed rate range for heavy infestations.
	Whiteflies Pepper Weevil Stink Bugs	3.0–5.5 oz./A or 0.34–0.63 oz./ 5,000 sq. ft.	Apply before pests reach damaging levels. Apply higher rates within the listed rate range for heavy infestations.

- Do not exceed 11 oz./A (1.26 oz./5,000 sq. ft.) of Flagship 25WG per crop.
- Allow at least 5 days between applications.

Which product can you use if you are growing **tomato** seedlings to sell to your local garden center?

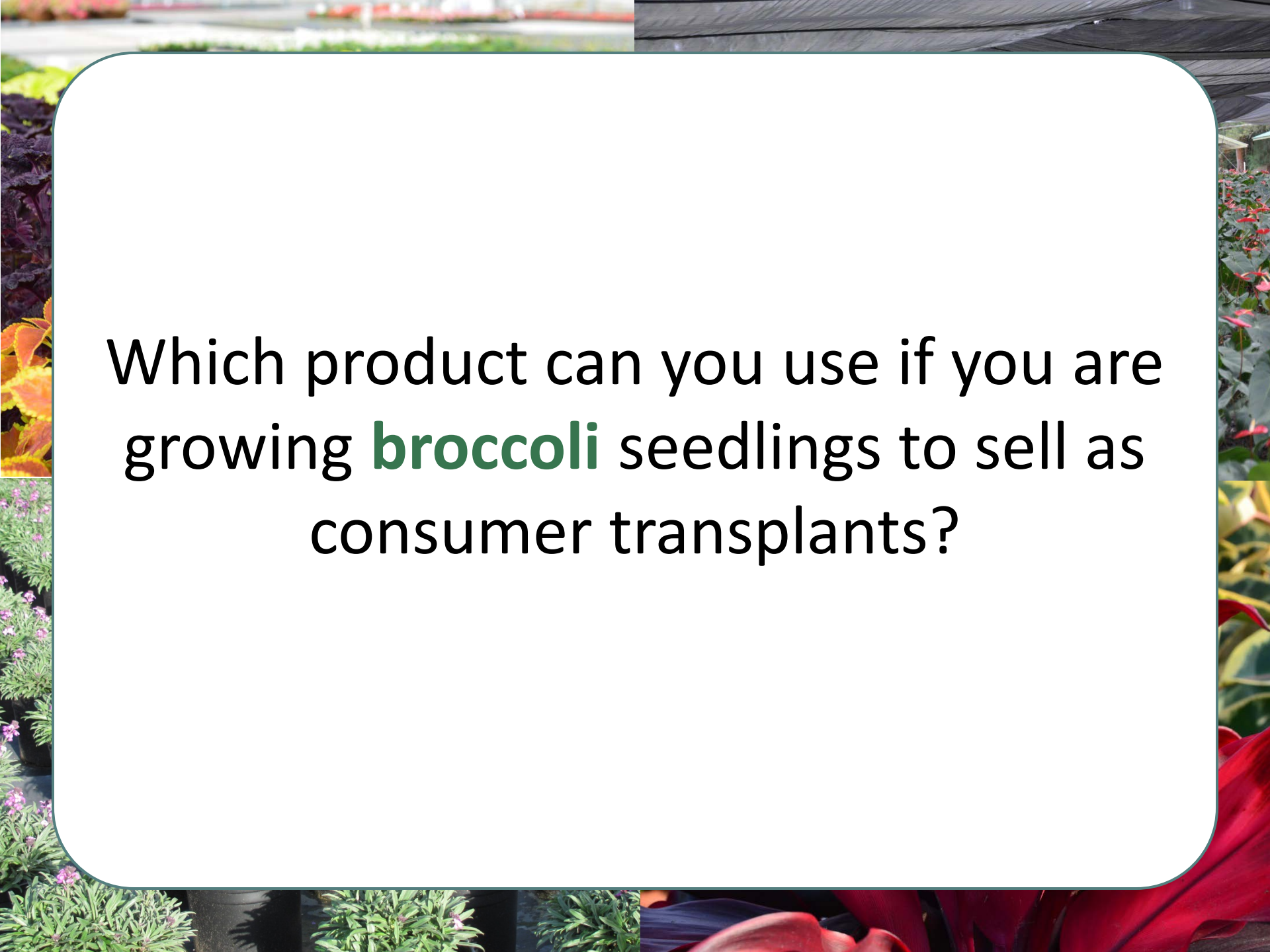




Which product can you use if you are growing tomatoes to harvest and sell at a farm stand you established on your property?



Which product can you use if bumped up the tomato seedlings into larger patio pots and now they are bearing fruit?



Which product can you use if you are growing **broccoli** seedlings to sell as consumer transplants?




Steps to figure out what you can use:

- **Step 1:** Look closely at the labels
- **Step 2:** Consult your state's label Recommendations publication
- **Step 3:** If unsure, ASK your
 - Extension agents
 - Company technical representative
and/or
 - State registration officials

A cartoon-style illustration of a wooden fence. The fence consists of several vertical wooden posts with pointed tops, connected by horizontal rails. The wood is brown with visible grain patterns. A light blue sign with a circular wood-grain pattern is attached to the fence. The sign has a slightly curled bottom-left corner. The background behind the fence is a simple green grassy area.

Good fences
make good
neighbors.

A cartoon-style illustration of a wooden fence with six vertical posts and two horizontal rails. The fence is brown with a wood grain texture. A light blue sign with a wood grain pattern is attached to the fence, featuring the text "Label boundaries make great responsible growers." in black, sans-serif font. The sign is slightly curled at the bottom left corner. Green grass is visible behind the fence posts.

Label boundaries
make great
responsible
growers.





Thank you