

PROTECTING POLLINATORS

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POLLINATOR SPECIES OF IMPORTANCE



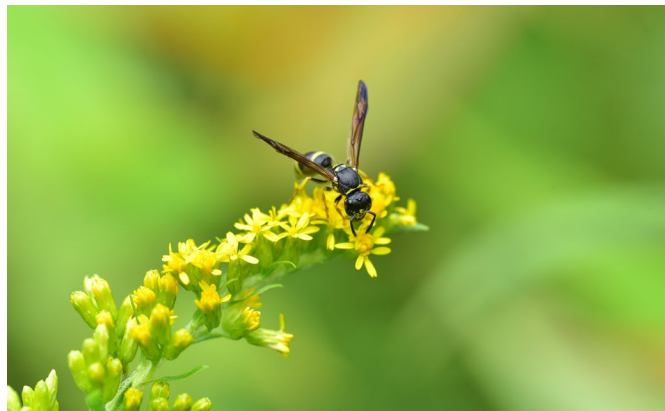
❖ Bees



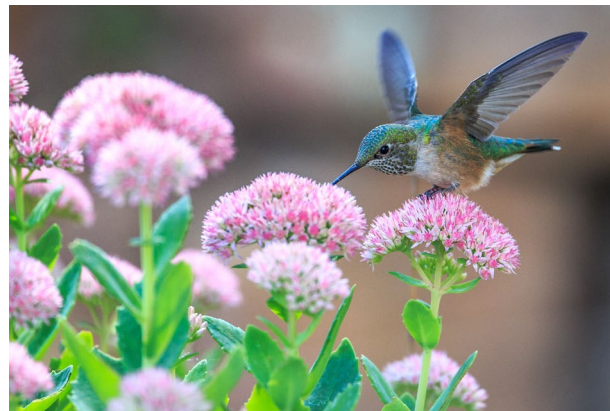
❖ Butterflies



❖ Flies



❖ Wasps



❖ Birds



❖ Bats

WHY ARE POLLINATORS IMPORTANT

- ❖ Essential to the production of 85 crops
- ❖ Provide \$15 billion in crop production value
- ❖ Estimated to be responsible for 1 out of every 3 bites of food eaten

- ❖ 80% of flowering plants require pollination.
- ❖ Like to hunt? Pollination required to produce seeds & berries for foraging animals (particularly birds, turkey, and deer)
- ❖ Without pollinators, our environment would be totally different.

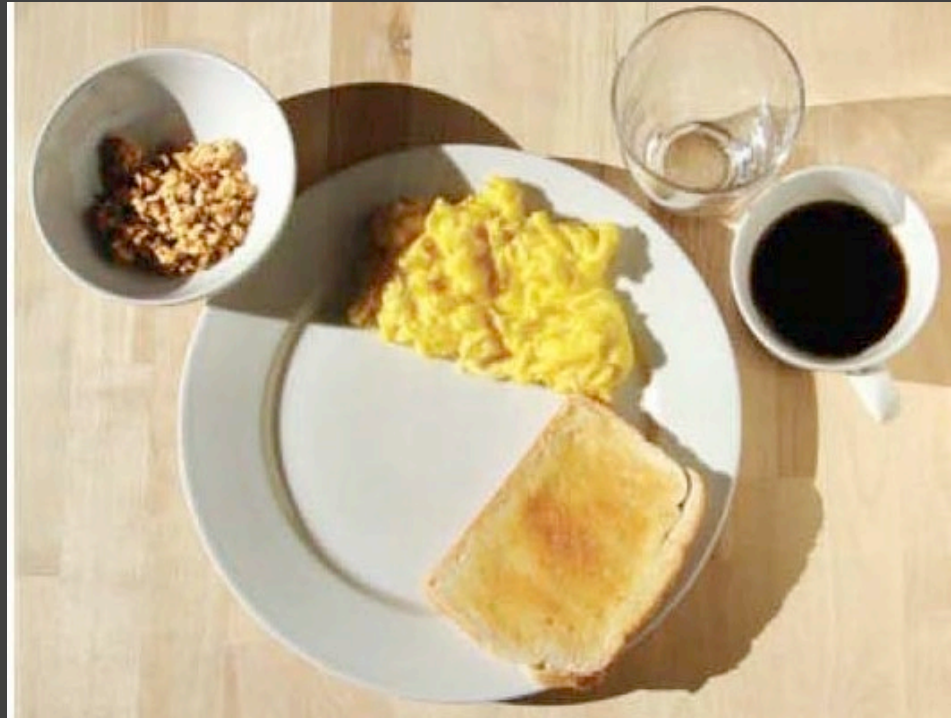




**HONEY BEES:
THE MOST IMPORTANT POLLINATOR**

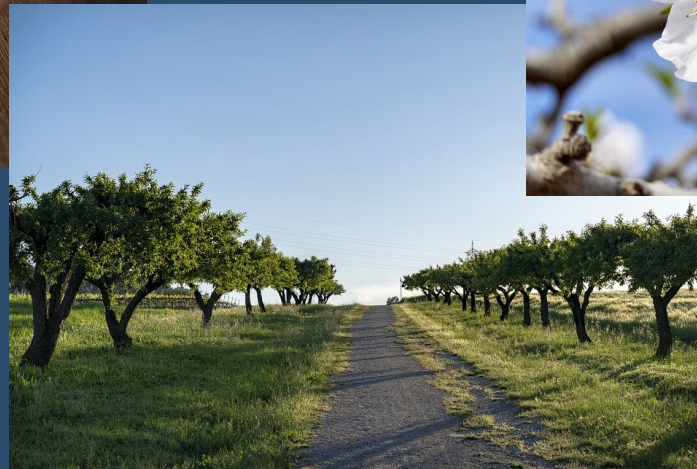
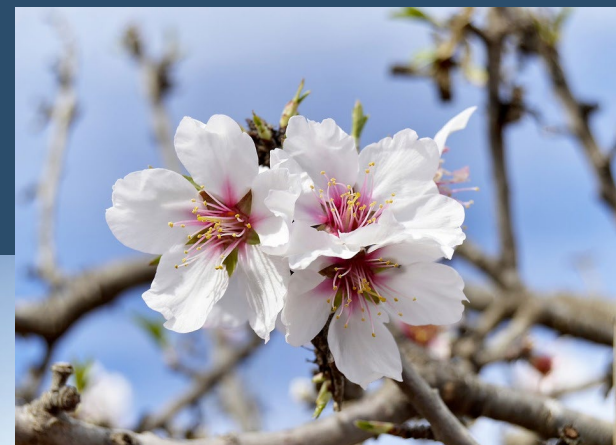
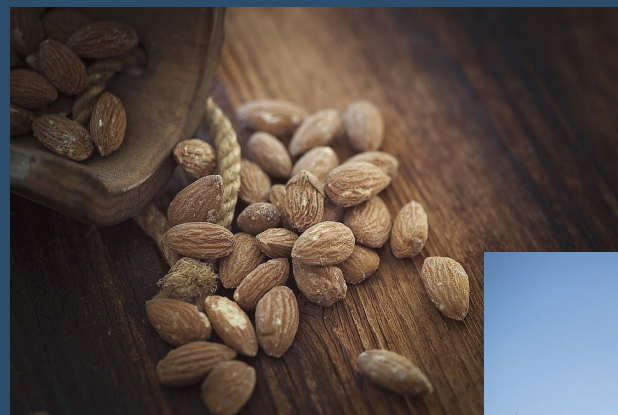


YOUR BREAKFAST WITH BEES

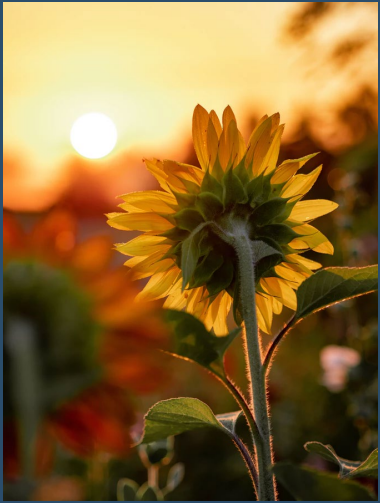


YOUR BREAKFAST WITHOUT BEES

**750,000+
ACRES OF
ALMONDS IN
CENTRAL CA
REQUIRE 1.5
MILLION
COLONIES OF
HONEY BEES
FOR
POLLINATION**



NO BEES, NO NUTS



SO WHAT CAN WE DO TO PROTECT THEM?

- ❖ Integrated Pest Management Techniques
- ❖ Using Best Management Practices
- ❖ Protect Food Sources, Water, & Habitat of Pollinators
- ❖ Reduce Pesticide Use
- ❖ Use Pesticides with Extreme Caution



In general, insecticides are more likely to harm pollinators than are herbicides or fungicides... but the potential is always there.



HARMFUL PESTICIDES



EXPOSURE RISKS

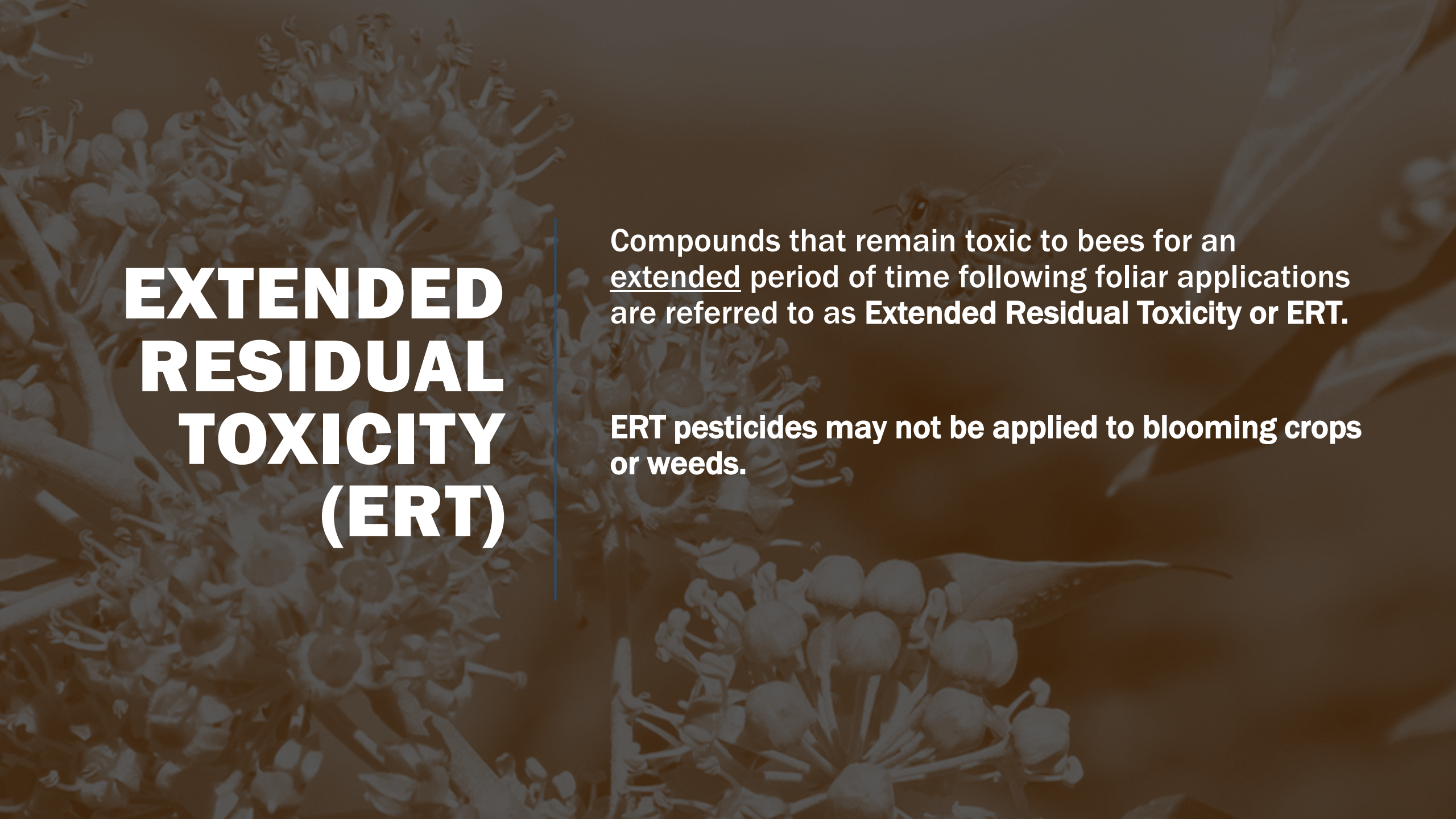
- ❖ Direct Exposure-
Pollinators present during spraying
- ❖ Residual Exposure –
Picked up while foraging plant after spraying, or contact pesticide in other areas (field edges, ditches, etc)



RECOGNIZE RESIDUAL TOXICITY

Some pesticides remain toxic to bees for some time after the application is made via contact with residues on the treated plant, including bloom.

This is residual toxicity.



EXTENDED RESIDUAL TOXICITY (ERT)

Compounds that remain toxic to bees for an extended period of time following foliar applications are referred to as **Extended Residual Toxicity or ERT.**

ERT pesticides may not be applied to blooming crops or weeds.

The *families* of pesticides most commonly associated with ERT include:

Organophosphates (e.g., acephate, chlorpyrifos, malathion)

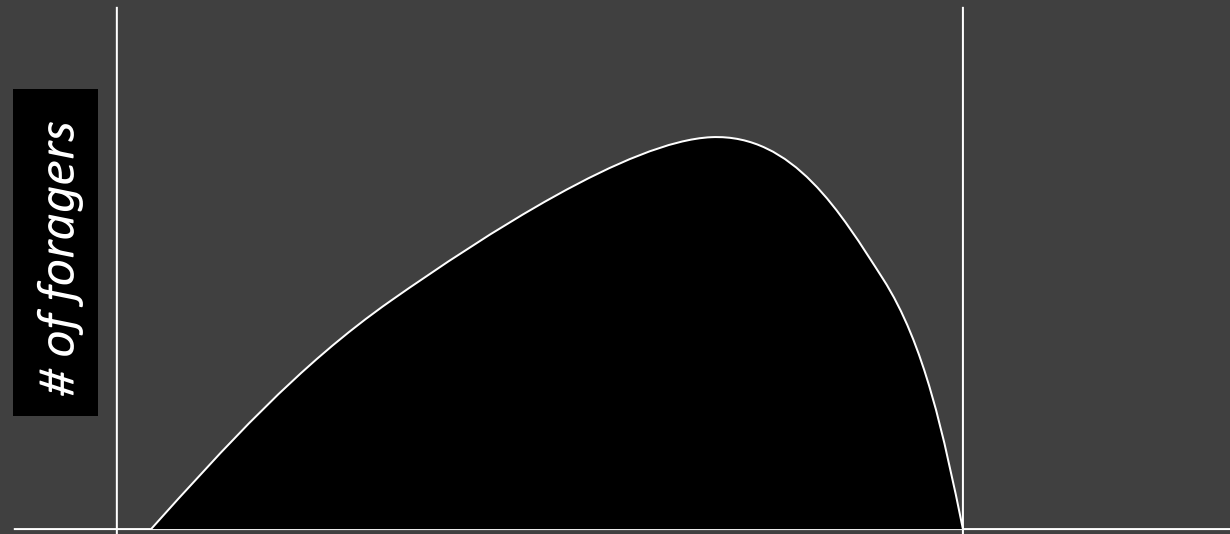
Carbamates (e.g., carbaryl)

Neonicotinoids (e.g., imidacloprid)

Pyrethroids (e.g., deltamethrin and cyfluthrin)

PESTICIDES WITH EXTENDED
RESIDUAL TOXICITY

of foragers



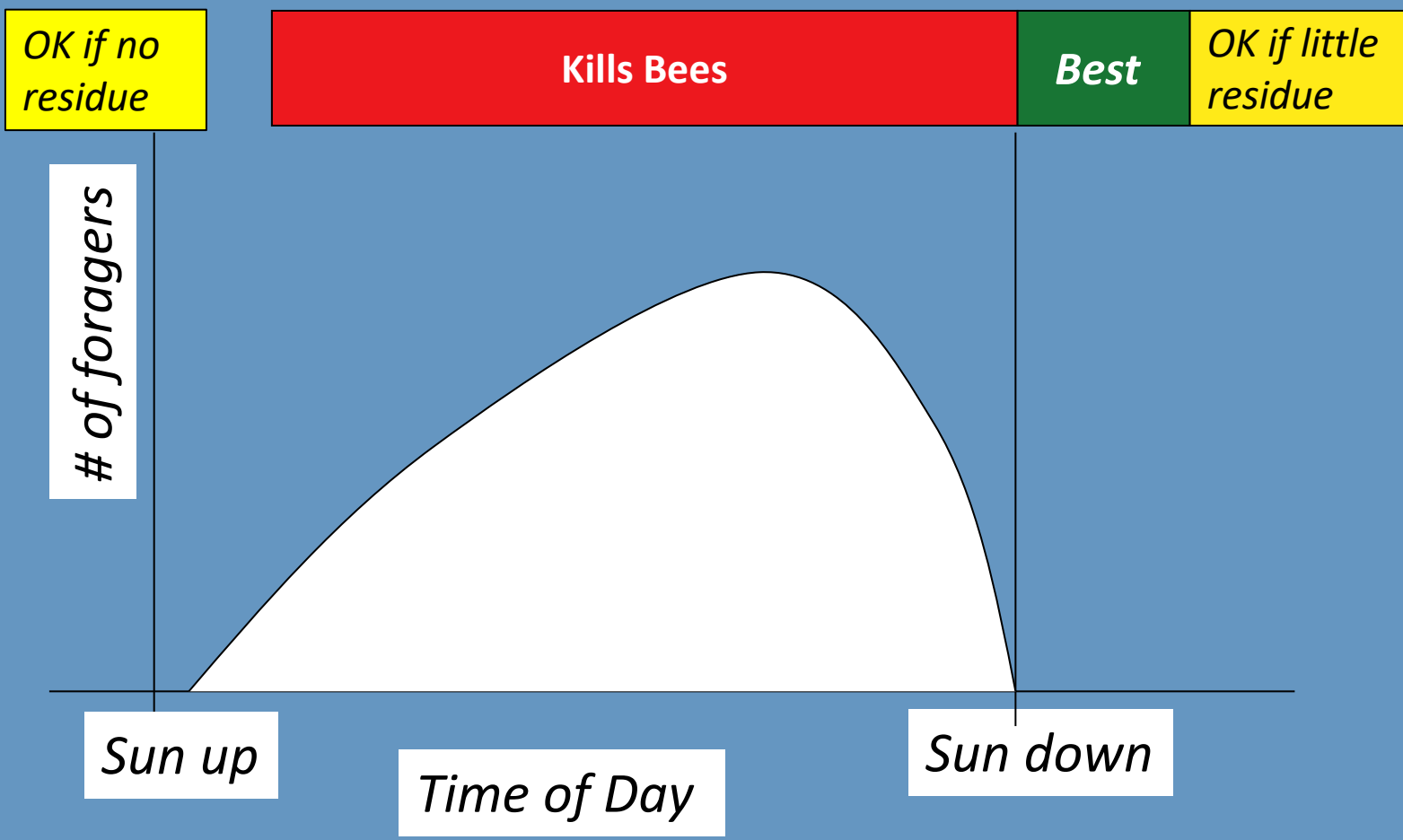
Sun up

Time of Day

Sun down

A HONEY BEE'S (DAILY) LIFE

HONEY BEES FORAGE SUN UP TO SUN DOWN UNLESS IT'S RAINING



BEST TIME FOR PESTICIDE APPLICATION: DUSK TO DAWN

PESTICIDES AND BLOOM

When crops or ground cover are in bloom consider using pesticides that have a short activity period (i.e., non-ERT). Preferably apply them between late evening and early morning

The bottom line: DO NOT apply pesticides that have an ERT during bloom!



READ AND UNDERSTAND THE LABEL

Pollinator Protection Statements on the label instruct you to:

- Check the status of the application site for the presence of blooming plants and pollinators
- Eliminate the exposure of bees and other insect pollinators when they are foraging on pollinator-attractive plants at the application site
- Do this **BEFORE** you schedule an application

THE NEW EPA BEE ADVISORY BOX

On EPA's new and strengthened pesticide label to protect pollinators

PROTECTION OF POLLINATORS

APPLICATION RESTRICTIONS EXIST FOR THIS PRODUCT BECAUSE OF RISK TO BEES AND OTHER INSECT POLLINATORS. FOLLOW APPLICATION RESTRICTIONS FOUND IN THE DIRECTIONS FOR USE TO PROTECT POLLINATORS.

Look for the bee hazard icon in the Directions for Use for each application site for specific use restrictions and instructions to protect bees and other insect pollinators.

This product can kill bees and other insect pollinators. Bees and other insect pollinators will forage on plants when they flower, shed pollen, or produce nectar.

Bees and other insect pollinators can be exposed to this pesticide from:

- Direct contact during foliar applications, or contact with residues on plant surfaces after foliar applications
- Ingestion of residues in nectar and pollen when the pesticide is applied as a seed treatment, soil, tree injection, as well as foliar applications.

When Using This Product Take Steps To:

- Minimize exposure of this product to bees and other insect pollinators when they are foraging on pollinator attractive plants around the application site.
- Minimize drift of this product on to beehives or to off-site pollinator attractive habitat. Drift of this product onto beehives can result in bee kills.

Information on protecting bees and other insect pollinators may be found at the Pesticide Environmental Stewardship website at: <http://pesticidestewardship.org/pollinatorprotection/Pages/default.aspx>

Pesticide incidents (for example, bee kills) should immediately be reported to the state/tribal lead agency. For contact information for your state/tribe, go to: www.epa.gov. Pesticide incidents can also be reported to the National Pesticide Information Center at: www.npic.orst.edu or directly to EPA at: beekills@epa.gov.

Alerts users to separate restrictions on the label. These prohibit certain pesticide use when bees are present.

The new bee icon helps signal the pesticide's potential hazard to bees.

Makes clear that pesticide products can kill bees and pollinators.

Bees are often present and foraging when plants and trees flower. EPA's new label makes it clear that pesticides cannot be applied until all petals have fallen.

Warns users that direct contact and ingestion could harm pollinators. EPA is working with beekeepers, growers, pesticide companies, and others to advance pesticide management practices.

Highlights the importance of avoiding drift. Sometimes, wind can cause pesticides to drift to new areas and can cause bee kills.

The science says that there are many causes for a decline in pollinator health, including pesticide exposure. EPA's new label will help protect pollinators.



Read EPA's new and strengthened label requirements: <http://go.usa.gov/jHH4>

THE "BEE ADVISORY BOX"



LABEL IS THE LAW

Pollinator protection statements should inform you of pesticide selection—and application timing—decisions

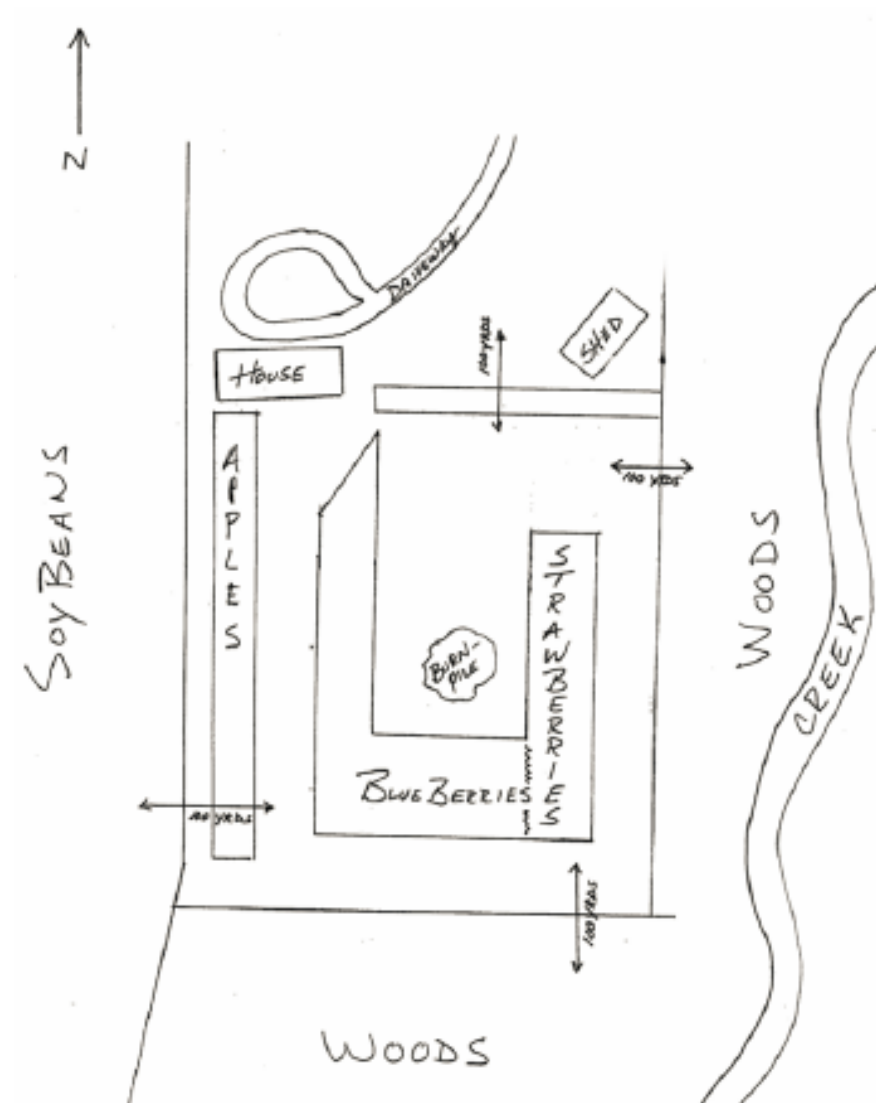
REMEMBER:

Take time, uninterrupted and undisturbed, to read and understand the label

KNOW THE LANDSCAPE

Observe the surroundings

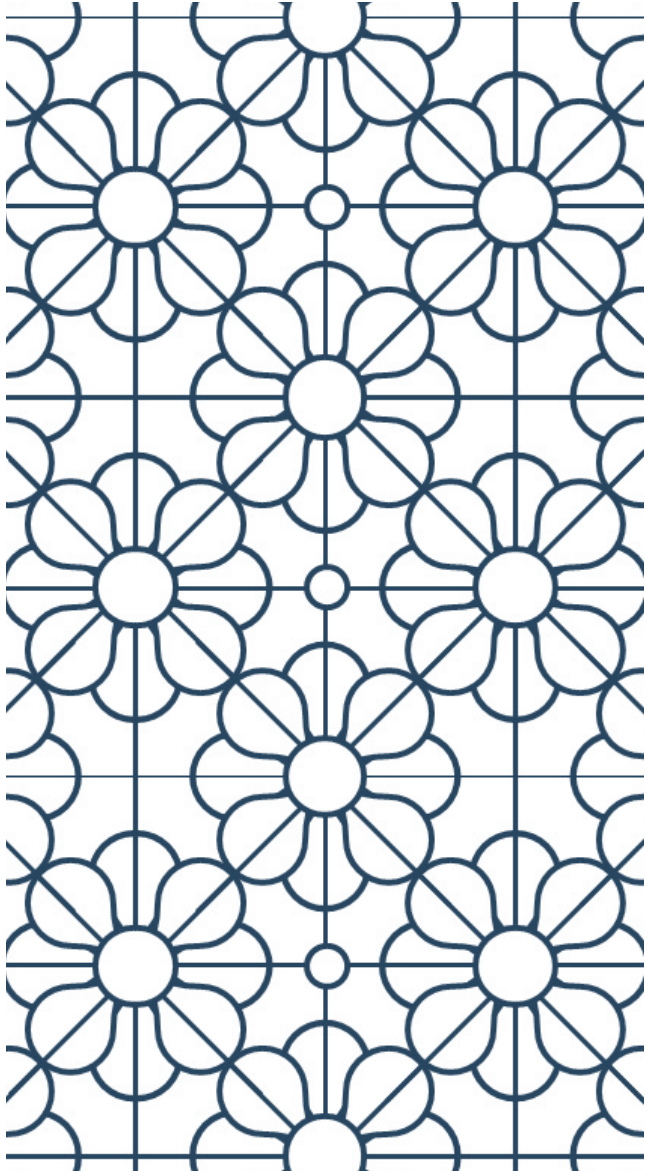
Observe fields and adjacent areas





KEY QUESTIONS TO CONSIDER

- What is the growth cycle of the crop?
- When will the crop be in bloom?
- What are the predicted dates that pests will need to be treated?
- What else is blooming in or near the field?
 - Cover crops
 - Weeds
 - Fencerow vegetation
 - Adjacent crops or orchards
- What pollinator activity is nearby?
- Can (non-crop) blossoms be removed by mowing or other methods before applying bee-toxic pesticides?



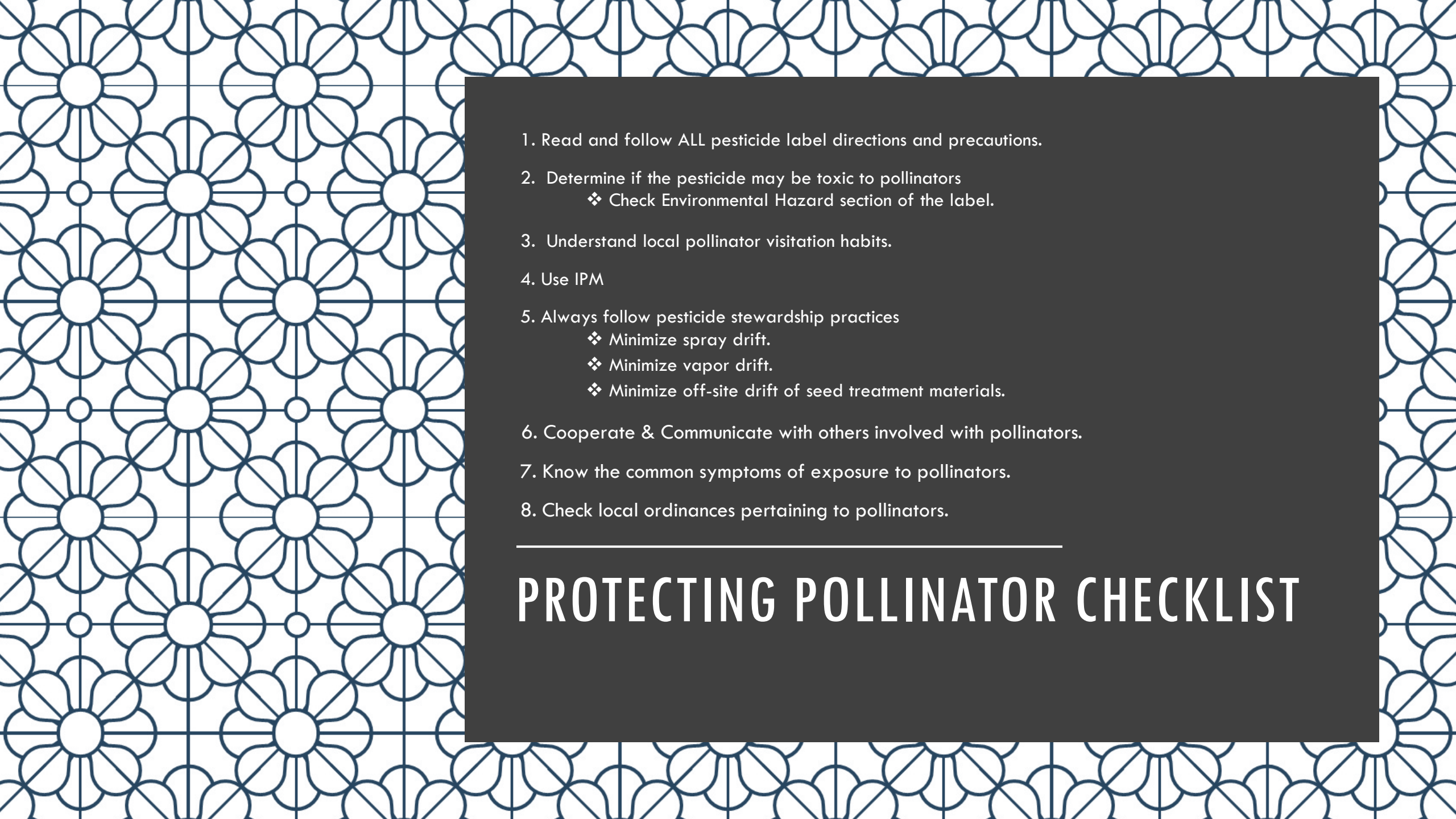
Use a variety of tools beyond chemical controls only

Use pesticides only when needed

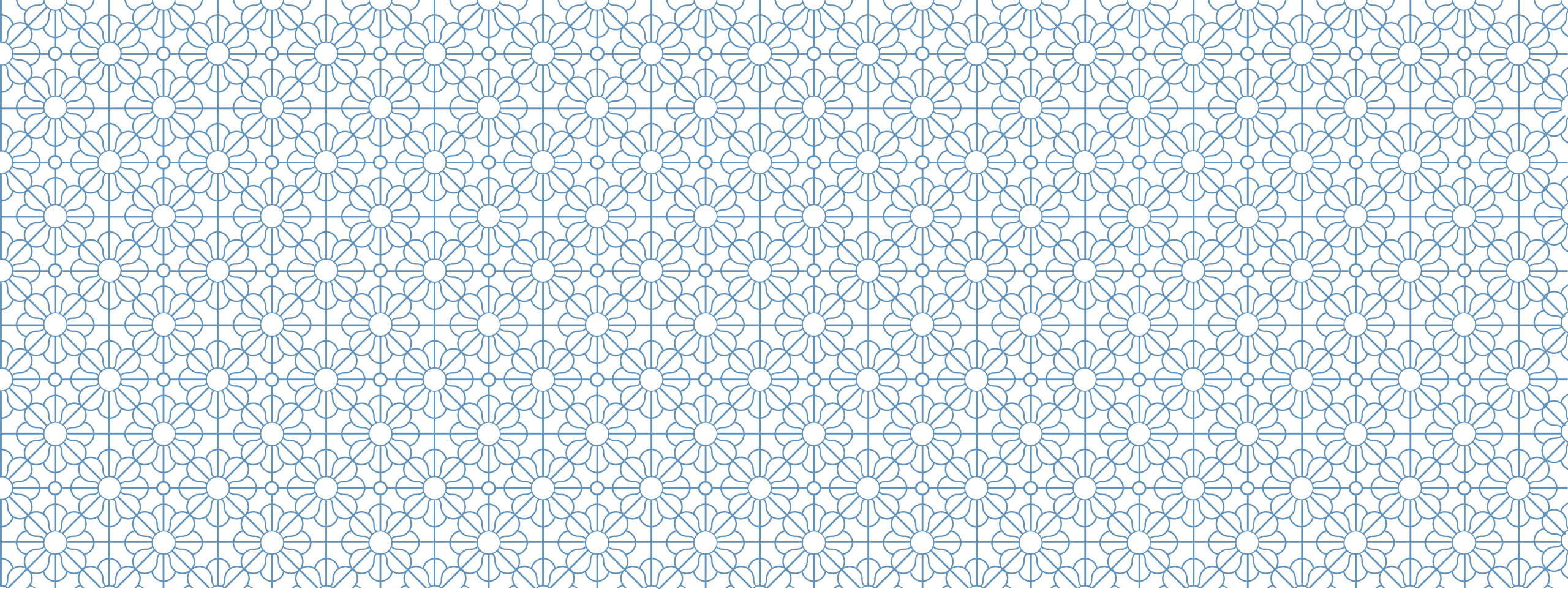
Determine the need for treatment through pest scouting or monitoring

When using pesticides, prevent drift!

DEVELOP AN IPM PLAN

- 
1. Read and follow ALL pesticide label directions and precautions.
 2. Determine if the pesticide may be toxic to pollinators
 - ❖ Check Environmental Hazard section of the label.
 3. Understand local pollinator visitation habits.
 4. Use IPM
 5. Always follow pesticide stewardship practices
 - ❖ Minimize spray drift.
 - ❖ Minimize vapor drift.
 - ❖ Minimize off-site drift of seed treatment materials.
 6. Cooperate & Communicate with others involved with pollinators.
 7. Know the common symptoms of exposure to pollinators.
 8. Check local ordinances pertaining to pollinators.

PROTECTING POLLINATOR CHECKLIST



QUESTIONS?

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