Honeybees and Pollinators:

Why they should be important to you.

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You will learn:

- Why is pollination important
- What is pollination
- Who are the pollinators
- What are the native plants that will help pollinators
- Why plant native plants
- Why are pollinators struggling
- What you can do to help pollinators
- How using native plants can save you money, time and more.

Why is pollination important?

1. **It puts color on your plate -** Without pollination, our meals would be bland
2. **It saves you money at the grocery store - "**Up to 85% of major commercial crops depend, at least partially, on animal pollination for seed and fruit production and for achieving maximum yields."[22]
3. **It helps your garden glow -** If you want a backyard full of beautiful flowers and healthy trees, you need good pollination.
4. **It helps feed the wildlife we love -** The seeds and berries that result from pollination are the main food source for the birds and small animals that make our local ecosystem so special.

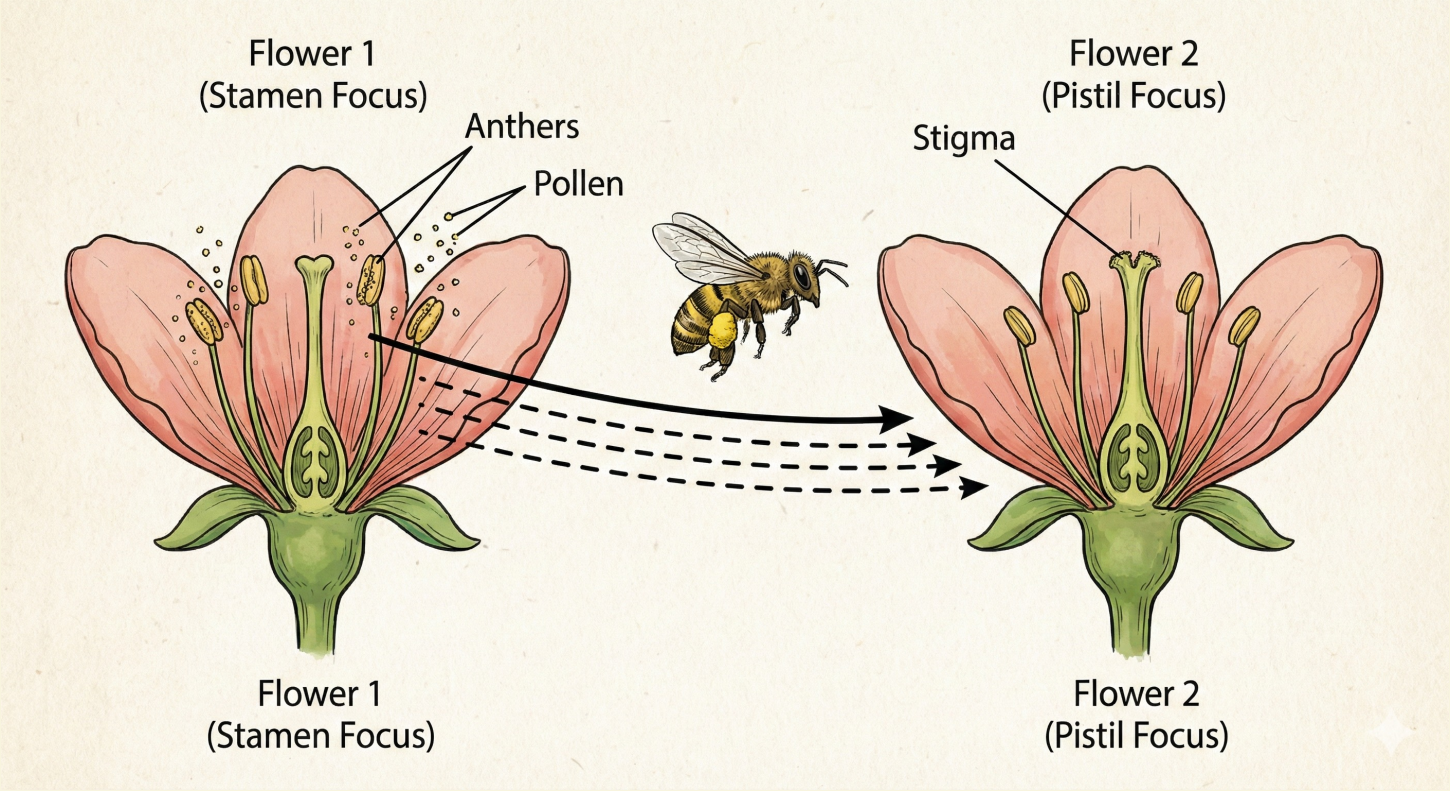
Breakfast with pollinators

Source: 56

Breakfast without pollinators

Source: 56

What is pollination?



Source: 56

Self Pollination vs Cross Pollination

Feature	Self-Pollination (The "Solo" Effort)	Cross-Pollination (The "Team" Effort)
Genetic Outcome	Low diversity; offspring are genetically identical to the parent (inbreeding).	High diversity; offspring inherit traits from two parents (hybrid vigor).
Adaptability	Low; populations are vulnerable to disease and climate shifts.	High; populations are resilient and adaptable.
Energy Cost	Low; plant does not need to produce excessive nectar/scent to attract help.	High; plant invests energy in nectar/showy petals to attract vectors.
Fruit/Seed Quality	Often smaller, fewer seeds, less viable.	Larger, more abundant, nutrient-dense, better taste.
Dependence	Independent of external vectors (wind/insect).	Dependent on external vectors (wind, water, animals).

The Pollinators*

Bees
Butterflies
Moths
Beetles
Wasps
Flies

*not all inclusive

Here's a Honeybee Fact

~20,000

Species of Bees throughout the world.

3600

Species of Bees in North America and Mexico

8

Species of Honey bees

Sources: 63,64

Bees – The honeybee

1. Non-native (Introduced from Europe in the 1600s)
2. Livestock - It's not a wild animal in the US
3. Honeybees are generalists – will visit just about any flower
4. Huge colonies make them great for large amounts of crops (Almonds/watermelons)
5. Can't pollinate everything effectively (tomatoes, deep tubular flowers, etc.) but can fill in where natural pollinators are missing.

Bees – Native Bees

1. **Squash Bee** – Active in early morning. Specialize in**:** Cucurbits (Squash, Zucchini, Pumpkin, Gourd), Have been in north America for 100's of years, ground nesting.[19]
2. **Bumble Bee** – Generalist – Can do **Buzz Pollination (Sonication) when honeybees can't.** It helps Tomatoes, eggplants, peppers, and blueberries get the most efficient pollination.[20]
3. **Leafcutter Bees** – Carry pollen on their stomach instead of legs making them excellent pollinators.[21]
4. **Mason Bees** – Active in early spring making them amazing for early blooming fruit like apples and pears.[22]

Squash Bee – Public domain[5]

Leafcutter Bee – Public domain[3]

Bumble Bee – Public domain[4]

Mason Bee – Public domain[2]

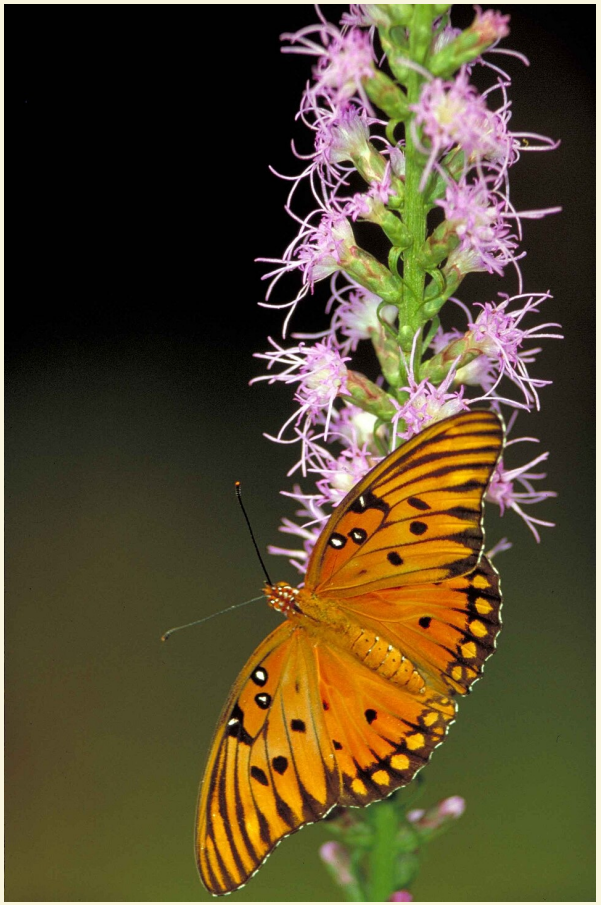
Butterflies

1. **Zebra Longwing** – is a visitor from Florida – Live far longer than other butterflies. Lays eggs on passion flowers.[23, 24]
2. **Gulf Fritillary** – Very flashy and pretty. Caterpillars feed on the native Maypop(Passion flower).[25]
3. **Palamedes Swallowtail –** Relies on the Red Bay and Swamp Bay trees. Lives in the coastal swamps and maritime forests of Georgetown and Horry counties.[26,27]
4. **Monarch Butterfly** – We have migratory and residents[10] – They are mostly generalists for food. Rely on Milkweed to lay their eggs. Fall generation can live for months while others only live for weeks.[11]

Zebra Longwing – Public domain[7]

Monarch – Public domain[8]

Palamedes swallowtail – Public domain[6]



Gulf Fritillary – Public domain[9]

And More

Goldenrod Soldier Beetle[17]

1. **Moths** — **Tobacco Hornworm -** massive proboscis(tongue) that allows it to pollinate deep-throated flowers like Moonflowers, Petunias, and Nicotiana.[13]
2. **Beetles** — **Goldenrod Soldier Beetle –** Late summer and fall - Favors Goldenrod. Larva eat the eggs of garden pest.[14]
3. **Wasps — All Kinds** Eat garden pests; some lay their eggs in hornworms. Some inadvertently pollinate [15,16]
4. **Flies — Syrphid Flies** - Lots are mimics, The adults feed on nectar and pollen, pollinating crops like strawberries. Larva eat aphids[18].

The Plants**

Trees and Shrubs
Perennials
Vines
Honeybee Specific

** common & not all inclusive

It’s time for a drawing!

Here's a Honeybee Fact

1/12 Teaspoon

Amount of honey a bee makes in their lifetime.

64

Number of teaspoons in a pound of honey

Only one

The honeybee is the only insect that makes food for humans.

Sources: 65,66

Trees and Shrubs

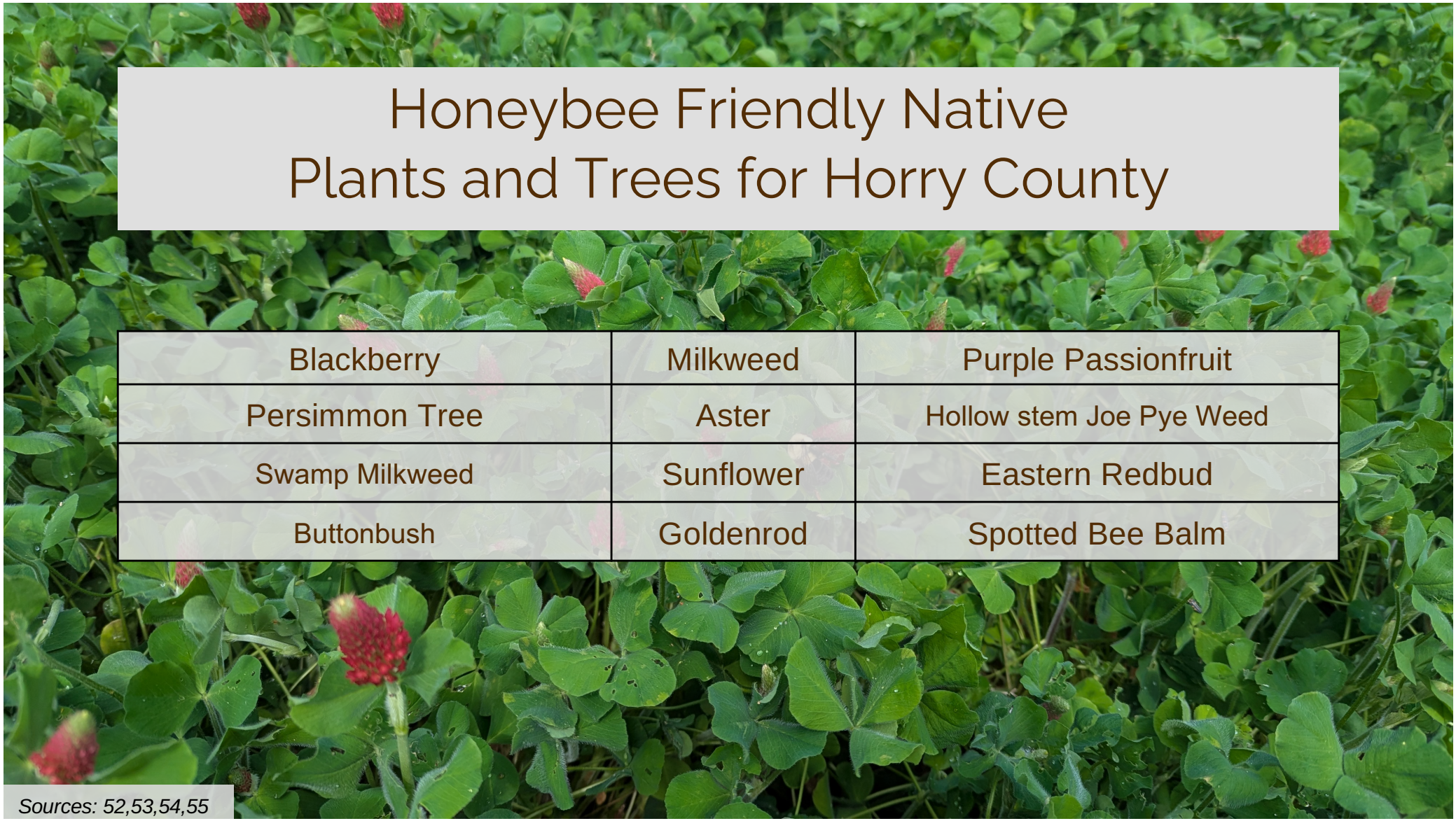
Plant Name	Bloom Time	Benefits
Red Bay	*Spring*	**Host Plant** for the Palamedes Swallowtail. An evergreen tree of the coastal swamps.[28]
Wild Black Cherry	*Late Spring*	Host to the Coral Hairstreak and Eastern Tiger Swallowtail. Massive spring nectar bloom.[29]
Buttonbush	*June through August*	A wetland shrub with spherical, white flowers. Butterfly magnet. Good for wet areas in Dillon/Marion.[30]
Sparkleberry	*March through June*	Drought tolerant. "Nectar/pollen source for pollinating insects, Host plant for butterfly larvae, Fruit/seeds for birds."[31,38]
Southern Magnolia	*May through June*	Pollinated by beetles.Birds eats and disperse their seeds.[32, 33]

Perennials

Plant Name	Bloom Time	Benefits & Ecological Notes
Seaside Goldenrod	Late Fall	Hosts butterfly larvae. It does *not* cause hay fever (pollen is heavy/sticky). [34,35]
Butterfly Weed (Milkweed)	Summer	**Monarch Host**. Bright orange flowers. Thrives in the dry, sandy soils common in inland Horry and Marion counties. Deep taproot makes it drought-proof.[36]
Swamp Milkweed	Summer	**Monarch Host**. Pink flowers. Perfect for rain gardens or wet ditches in Georgetown County. Less aggressive than Common Milkweed.[37]
Black-eyed Susan	Summer	Tough, drought-tolerant, and beloved by native bees. Often acts as a biennial. Seeds also attract birds, such as American goldfinches. [39]
Spotted Beebalm	Late Summer	A "super-pollinator" plant. Its exotic-looking stacked flowers attract large predatory wasps (beneficials) and huge numbers of bees. Thrives in sandy soil. Adapted for summer growth in SC. [40,41]

Vines

Plant Name	Bloom Time	Benefits
Passionflower (Maypop)	*July to September*	**Host Plant** for Gulf Fritillary and Zebra Longwing. Spectacular complex flowers. Edible fruit.[44,23,24,25]
Coral Honeysuckle	*Late spring to early summer*	**Hummingbird Magnet**. The non-invasive alternative to the destructive Japanese Honeysuckle. Evergreen in mild coastal winters.45,46,47
Carolina Jessamine	*February to April*	**SC State Flower**. Early spring yellow blooms. Provides nectar for Bumble Bee. All parts are poisonous. **(toxic to Honeybees in large quantities).**[48,49]
Crossvine	*Mid-spring*	Another hummingbird favorite with trumpet-shaped flowers. Semi-evergreen.[50,51]



Honeybee Friendly Native Plants and Trees for Horry County

Blackberry	Milkweed	Purple Passionfruit
Persimmon Tree	Aster	Hollow stem Joe Pye Weed
Swamp Milkweed	Sunflower	Eastern Redbud
Buttonbush	Goldenrod	Spotted Bee Balm

Sources: 52,53,54,55

Why plant native plants?

1. They have “natural defenses to local diseases and insects”.
2. As a rule, they need less water beyond average rainfall and are used to our occasional droughts.
3. They have co-evolved with our local pollinators.
4. Usually, they require less supplemental feeding.
5. They will support our local insects and birds who can in turn help with our local pests such as mosquitos and garden pests.
6. They are less likely to be invasive and introduce new allergies.
7. To help local pollinators because their habitats are disappearing.

Sources: 57,58

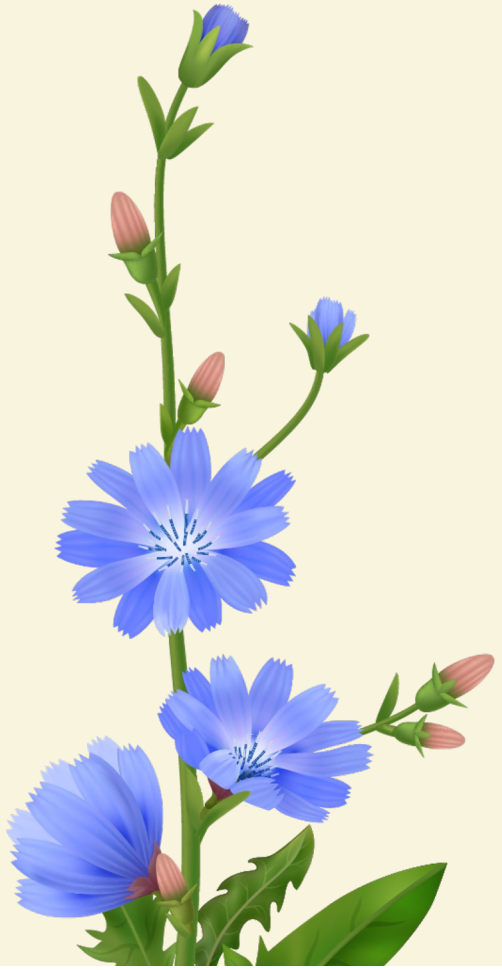
The disappearing habitat problem

- **Urban Sprawl:** Large areas of native vegetation being replaced by buildings, parking lots and other non-pollinator friendly spaces
- **Monoculture Lawns:** Houses are being built with large lawns that do little to no good for pollinators
- **Connectivity:** Many pollinators can only fly so far. Honeybees for instance only travel 3 miles for food. So, if they have the misfortune of being born not near their food source they are often doomed.

Other Pollinator Threats

- **Pesticides:** Direct mortality, sublethal affects & herbicide use
- **Invasive Species and Diseases:** Invasive Flora, Predatory Insects & Pathogens
- **Climate and Coastal Vulnerability:** Salt Spray and Storm Surges, Phenological Mismatch, Rare natural disasters

How can you help?




RED
IMPATIENS
(ANNUAL)
WHITE
IMPATIENS
(ANNUAL)
WAX BEGONIAS
(ANNUAL)
WAX
BEGONIAS
(ANNUAL)
COLEUS
(ANNUAL)

Source: 56


TULIPS
(PERENNIAL
BULB)
PANSIES
(ANNUAL/COOL-SEASON
PERENNIAL)
MARIGOLDS
(ANNUAL)
PETUNIAS
(ANNUAL)
PETUNIAS
(ANNUAL)

Source: 56


PURPLE CONEFLOWER (PERENNIAL)
BUTTERFLY WEED (PERENNIAL)
JOE PYE WEED (PERENNIAL)
BLAZING STAR (PERENNIAL)
PHLOX (PERENNIAL)
BLACK-EYED SUSAN (SHORT-LIVED PERENNIAL/ANNUAL)
PHLOX (PERENNIAL)
CORAL HONEYSUCKLE

Source: 56

The “Green Premium”

Financial Metric	Traditional Turf/Exotic Landscape	Native Pollinator Landscape
Installation Cost (per acre)	Up to $12,000	$2,000 – $4,000
Maintenance ROI	Standard	Up to 150%
Water Requirement	High (Supplemental)	60% – 80% Lower
Chemical Requirement	Frequent Fertilizer/Pesticide	Minimal to None

Sources: 59,60

10 Ways to save the “pollinators”

1. Support and preserve pollinator habitats
2. Go chemical-free for pollinators
3. Choose pollinators-friendly plants
4. Go underground for bees
5. Trees for pollinators
6. Always bee learning (and sharing!)
7. Bee a volunteer
8. Engage in community service
9. Bee the change: take action

Source: 61

It’s time for a drawing!

Questions?

Download the presentation

https://www.threeriveroaksfarm.com/beekeeping/HoneybeesAndPollinatorsFinal.pdf

Resources

- Coastal Native Plant List
- Free and low-cost Milkweed seeds (SC Addresses only)

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