Citrus trees are vulnerable to diseases and parasites. Some of the most common pests are aphids, mealybugs, scales, psyllids and snails. These pests can destroy entire citrus trees or even entire citrus groves! Citrus farmers sometimes will use pesticide soaps to clear out these pests. Farmers have also found out that using ladybugs and a specific breed of wasp will do the job just as well, more sustainably! California economically depends on our citrus trees, to lose them would be devastating!

You can create a wasp or a ladybug pony bead key chain to help protect the citrus!
WASP KEY CHAIN

Supplies:
- Plastic Lacing String - one piece about 1 1/2 yards.
- 9 Black Pony Beads
- 2 Red Pony Beads
- 6 Yellow Pony Beads
- 10 white Pony Beads
- 1 "O -ring"

Tie a knot onto the O-ring using the lanyard, making sure the strands are about the same length on each side. Using the guide above, weaving the strands in and out of the beads as shown above. As you can see, every bead, *except the white beads*, should have both strands coming through. Tie the strands together after the last weave.
Tamarixia radiata is an ectoparasitoid of the Asian citrus psyllid (Diaphorina citri) which is a pest of citrus crops where they transmit the bacterial infection known as the citrus greening disease to citrus trees, which can kill entire citrus orchards.

The Tamarixia, as a parasite, makes citrus psyllid's young their hosts for their offspring. Female wasps lay their eggs on the undersides of the nymphs, and when the wasps hatch, they burrow into these juvenile psyllids and begin digesting their innards, eventually leaving an empty hull where the wasp can grow to maturity.

In Southern California, University California of Riverside heads a project for breeding and releasing Tamarixia in self sustaining populations to control the citrus greening disease for our citruses.

LADY BUG KEY CHAIN

Supplies:
- Plastic Lacing String about 2 yards.
- 17 Black Pony Beads
- 24 Red, Yellow or Orange Pony Beads
- 1 "O-ring"

Tie a knot onto the O-ring using the lanyard, making sure the strands are about the same length on each side. Using the guide above, weaving the strands in and out of the beads as shown above. As you can see, every bead should have both strands coming through. Tie the strands together after the last weave.

FLIP ME OVER TO READ ABOUT LADY BUGS
**Lady Bugs**

**Coccinellidae**

*Coccinellidae* is a widespread family of small beetles, commonly known as ladybugs in North America and ladybirds in Britain, while entomologists prefer the name ladybeetles. Ladybugs come in a various range of sizes, colors and patterns. The most common species of ladybug in North America is the *Harmonia axyridis*, it originates in Asia but was artificially released in the U.S. to control aphid and scale insect populations.

All ladybugs are predators to aphids and scale insects, both of which are sap sucking insects and excrete waste called "honeydew" which can cause a lot of damage to citrus trees. Generally ladybugs are omnivorous, so in some gardening cases they are pests, but for the citrus farmers, they are friends. Below is cited a Youtube video where you can watch ladybugs eating aphids. *This video may be disturbing to some audiences.*

Southern California in the late 1800s to the mid century had hundreds of citrus groves that were seriously threatened by the Cottony Cushion scale insect. In 1888, we released the ladybug breed *Rodolia Cardinalis*, and they essentially saved the California citrus industry!

**Harmonia Axyridis**

**Rodolia Cardinalis**

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