

### ***Hippodamia convergens***

The ladybug is perhaps the most famous of all beneficial insects.

It is one of the most active predators, searching for food from dawn until dusk. An adult ladybug is capable of consuming up to 80 aphids per day, but will also eat a wide variety of other insects and larva including scales, mealy bugs, mites and other soft bodied insects and their eggs. A ladybug will eat about 25 aphids a day even in their larvae stage. The ladybug does not eat vegetation. Ladybugs are most effective if released before pest populations are large. Apply them early and allow them time to reduce your pest problem.



### **Biology**

Ladybugs live approximately one season. They hatch during April and May and the larvae immediately start to eat insects. They grow to about half an inch in length and look like small alligators, dark grey in color, with orange spots. After they reach full size, they go into a molting condition, clinging to weeds, grass stems, bark and leaves. After a few days their backs split open and adult ladybugs emerge. *Hippodamia convergens* is the most common variety of ladybug. It grows to about 3/10" long, and is reddish brown. Ladybugs supplied by Peaceful Valley Farm Supply are harvested in the Sierra Foothills. Harvesting begins in summer. Refrigerated storage maintains these adult ladybugs in prime condition.

### **Release Instructions**

Ladybugs become dormant at low temperatures and may at first appear dead. As they warm up they become active. They will require water after their long dormancy, so sprinkle or irrigate gently before releasing them. If your ladybugs have been in storage for a long time, it is very helpful to feed them prior to release. A mixture of honey and bee pollen can be used. Apply the food source to the screening of the ladybug cage so they can feed on it prior to release. Ladybugs received during March, April and May will be nearing the end of their life cycle and should not be refrigerated for long. If possible, release them the evening of the day they arrive.

Do not release ladybugs during the heat of the day or where the sun is directly shining. Refrigerate them until dusk or early morning. The refrigerator at 36°F - 40°F is optimum. If you do this, you will find them busily ridding your garden of pests the day after they are received. Ladybugs won't fly if the temperature is below 55°F. The use of an attractant like Peaceful Valley's Predalure (PBE950) will encourage the ladybugs to stay around as well.

For best results, place a few ladybugs around insect infested flowers, shrubs and trees each day and keep the remaining insects in the refrigerator. You can also tack the package to tree trunks, letting the ladybugs crawl out. Do not allow ladybugs to freeze. In large fields, scatter the ladybugs in a central area and in spots where pest infestations are greatest. Ladybugs may be used successfully in greenhouses, but must be released at night to prevent them from flying away. It may be desirable to screen the entrances to greenhouses or indoor areas to prevent the ladybugs from flying away before they have laid more eggs. Female ladybugs require a nectar and pollen source in order to mature and lay eggs. It is very important to have plant diversity, including a mixture of flowering plants, to provide this. Peaceful Valley's Good Bug Blend seed mix (PBE970 & PBE980) is designed to provide the food that ladybugs, and other beneficial insects,

need. If natural nectars and pollens are not available in sufficient quantities, provide an alternate source of food.

Ladybugs should be released when the plants have become partially enfoliated (beginning to bud), which will provide coverage, and some pest insects are present, which will provide food.

In order to achieve biological control of insects try to maintain a balance of a few pests for food and enough Ladybugs to keep them in check, being careful not to release too many ladybugs at one time.

Sprinkle or irrigate the area before releasing the ladybugs so they will have a drink of water after their journey. Sprinkling the sack with water can also water them. DO NOT put wet bags back into the refrigerator!

### **Storage**

Ladybugs may be stored in your refrigerator (36°F - 40°F is optimum) for up to two weeks. DO NOT FREEZE. After application re-close the container and place in refrigerator until all Ladybugs are used.

### **Amount Required**

You will receive an average of 72,000 ladybugs per gallon, or 18,000 per quart or 4,500 per netted bag. Generally, one quart of ladybugs will suffice for a large garden, but you may want to use more if pest density is high. You will receive your ladybugs in one-half pint bags to easily distribute them over larger areas.

### **In The Garden**

Ladybugs should be released a few at a time twice a week during the season when leaves are young, tender and attractive to pest insects.

Apply 1 tablespoon on each shrub and a handful on each tree to keep them free from pest damage.

For heavy infestation, release all the ladybugs in the bag or cup at one time.

### **On the Farm**

Use one gallon for up to three acres. In orchards, use one gallon per acre. Grain crops may require as little as one gallon for every 10 acres. For melons and cucumbers, use one gallon for every 15 acres. For artichokes, use about 1 gallon for 10 acres. For alfalfa, a gallon for 10 acres around the time of the last frost is normally enough for the first release; after each cutting, a gallon for 15 acres is usually sufficient. For aphid control in corn, use one gallon for 10 acres.