The production of predatory mites requires food, water, places for the predators to lay eggs and live or hide. These requisites can be met by using the appropriate host-prey combination or in an artificial system.

Four predatory mite production systems will be evaluated at county team member sites. Maintenance will be by Master Gardeners. Promotional efforts will be utilized to inform the public of the free predatory mite samples for placement in their gardens. Systems include:

Rearing on Live Corn Plants

This requires a small production area where multiple 4-inch potted corn plants serve as banker plants. Banker plants are a relatively new pest management method that has been used successfully in many commercial vegetable and ornamental operations. Plants are inoculated with pest mites that are specific to the corn plants. The pest mites in turn serve as a food source for the beneficial mites, thus sustaining beneficial predator populations. Plants with predatory mite populations are planted in gardening areas and continually release predators as pest populations move onto crops, thus keeping pest populations at low levels.

Rearing on Live Ornamental Pepper Plants

Chilli thrips (*Scirtothrips dorsalis*) are relatively new to Florida and have proven to be a difficult pest on many vegetable and ornamental plants. For example, they are particularly hard to control on popular rose varieties, even when predatory mites are applied directly to plants. Research conducted by Lance Osborne, PhD has demonstrated that several ornamental pepper plants serve as excellent hosts of *Amblyseius swirskii* predatory mites, even without the introduction of pest insects or mites. Pepper plants inoculated with the predatory mite are planted among plants attacked by chilli thrips, thus providing a continual supply of beneficials to keep pest mite populations low. This system is also effective in controlling whiteflies, broad mites and other thrips species.

Rearing on Cut Foliage

This method is similar to the banker plant system. Predatory mites are raised on pest mites that are specific to corn host plants. Indoor insect “cage” systems in team member offices contain populations of the “corn mites” and *Neoseiulus californicus* or *Amblyseius swirskii* predatory mites. Cut corn plant foliage is periodically placed within cages that contain pure colonies of the host specific pest mites. These leaf pieces allow for the pest mites to build large populations to be used as food for the predatory mites. Mite infested foliage pieces are placed into cages that contain the predatory mites. Leaf pieces invested with the predatory mites can then be removed from these cages and distributed to the public to be placed on garden plants or infested house plants.

Rearing on Pollen

*Neoseiulus californicus* and *Amblyseius swirskii* predatory mites can be reared on any number of commercially available pollens (peach, kiwi, pear, almond) or field collected crape myrtle and cattail pollen. The rearing units are cages made of plastic sandwich boxes or storage containers. Pieces of cotton balls are placed within these rearing units and the predatory mites lay their eggs on the strands. The cotton pieces with the beneficial mites and eggs are distributed free to the public. These cotton pieces are easily transported and placed among garden plants as a source of predatory mites to keep pest mite populations low.

The first system to be evaluated will be the “Rearing on Pollen” system because it requires the least input and space.

**Rearing technique of *Amblyseius swirskii* and *Neoseiulus californicus* mites.**

**Materials needed:**

1. **Cotton Rounds (cotton facial cleansing pads)**
2. **Weigh Boats (5½ x 5½ x 1 in)**
3. **Non- absorbent cotton**
4. **Card Stock Paper cut into 2 x 2 in pieces**
5. **Black Window Screen: Mesh (2½ x 3 in)**
6. **Wax (not soya)**
7. **A method to melt the wax safely**
8. **Forceps**
9. **Scissors**
10. **Sweater box**
11. **Plastic snack bags or other small sealable containers**

**To make Waxed-Paper Squares:**

**Place black mesh piece on top of card stock piece, using forceps, dip once into hot wax, let dry (possibly place in freezer), and then remove and pull off screen. The wax should now have a mesh pattern with groves imbedded in it. These are for the mites to roam in.**

**Place in the weigh boat 3 cotton rounds stacked on top of each other, saturate with water and place one waxed-paper substrate square on top. Unravel some cotton and place a few strands on top of square and add a small amount of pollen. Release mites on top of the waxed-paper square.**

**The mites will lay eggs on the cotton strands. Additional pollen can be added to the substrate one to two times per week. Additional Waxed-paper squares can be added as the mite colony begins to become crowded. The cotton with eggs can also be removed on a regular basis to start new colonies as needed. These squares can be cut into pieces, placed into small snack or sandwich bags or other suitable container and given to clientele. The cotton rounds should be maintained moist at all times by adding water to the weigh boats every few days. The weigh boats can be maintained in a sweater box with the lid ajar. The room temperature should be between 72 and 80°F.**

**Once this system has been mastered or proven to not meet your particular needs we will train you in using one of the other systems.**