

**IMPROVING THE REPRODUCTION OF SUBTROPICAL AND CITRUS PLANTS FROM CUTTINGS****X.A.Adilov****R.Sh.Karimov****X.D.Botirov****S.X.Ulfatova**

A vegetative propagated tree will have any diseases present in the mother tree. To avoid accidental outbreaks of disease, hobbyists in California who propagate citrus now order cuttings from a program called the [Citrus Clonal Protection Program](#) or CCPP instead of taking cuttings from trees outside. Citrus cuttings from the CCPP come from tested trees in insect-resistant structures. I ordered my citrus cuttings for my home citrus propagation experiment from the CCPP.

Much of the world now shares California's problem with citrus disease. The CCPP will ship budwood anywhere in the world where the local laws allow it. Many citrus growing regions where CCPP budwood is not allowed have their own disease-free citrus budwood programs. Here I have created a web page that lists some other programs: [Citrus Budwood Programs](#).

The below YouTube video goes through in detail the process of setting up an account and placing a budwood order with CCPP.

In California we now have a disease called [huanglongbing](#) that is 100% fatal to citrus trees. It reduces the life expectancy of citrus trees from hundreds of years down to around 5 years. In its early stages, the disease is very difficult to detect, but still extremely contagious. We also have insects called [citrus psyllids](#) that spread the disease. The disease is also easily spread by [human movement of citrus trees and cuttings](#).

Because of the severe disease problem in California, all citrus cuttings used for the propagation of citrus in California are required to originate in an insect-resistant structure from trees that have been tested and shown to be free of disease. This is the case for both citrus nurseries and also for hobbyists. The below photo shows the nursery's tested source trees inside an insect-resistant structure.

Success in rooting citrus trees from cuttings requires the proper temperature, humidity, light levels, and rooting hormone. This guide shows how to grow citrus from cuttings with a good success rate at home without a greenhouse and without accidentally bringing a deadly citrus disease into your yard. Citrus belong to Rutaceae family, the genera Citrus (oranges, mandarins, pomelos, grapefruit, lemons, limes and citrons), Fortunella (kumquats) and Poncirus (trifoliate oranges) contain the principal commercial species (Swingle and Reese, 1967). It is originating in tropical and subtropical Southeast Asia, these plants are among the oldest fruit crops to be domesticated. India ranks sixth in the production of citrus fruit in the world. It is of particular interest because of its high content of vitamin C (Katz and Weaver, 2003). In India, citrus fruits are primarily grown in Maharashtra, Andhra Pradesh, Punjab, Karnataka, Uttaranchal, Bihar, Orissa, Assam and Gujarat. At present, in India total area under citrus fruit production is 1042.0 thousand hectare (13.3% of total area under fruits) with a production of 10090.0 thousand MT (12.4% of total production under fruits) and productivity of 9.87 MT/HA and total area under Sweet orange cultivation in India is 323.2 thousand hectare (4.6% of total area under fruits) with a production of 3520.0 thousand MT (4.3% of total production under fruits) and productivity of 10.9 MT/hectare during the season 2012-13.(NHB 2012-13). Vegetative propagation of plants by stem cuttings is the most commonly used method for producing herbaceous and woody plant in many part of the world. A cutting is a piece of the part of plants used to propagate which regenerate there missing part is called cutting. Stem cutting can be classified as follows: hardwood cuttings, semi hardwood cuttings, softwood cutting and herbaceous cuttings. Stem cuttings have been used for the vegetative propagation of several fruit trees including citrus (Platt and Ovitz,; Donath et al.,; Singh et al.) In plant propagation, the different environment viz., glass house, net house, poly-house and mist chamber have been widely used for rooting of different types of cutting. Development of mist chamber is a major breakthrough in propagation of plants.

Development of mist chamber is a major breakthrough in propagation of plants. Creating humid atmosphere by means of artificial mist around the planted cuttings either in concealed pot culture house or in open conditions has proved to enhance the process of rooting (Prolings and Therios,. Intermittent mist is often used on cuttings because it reduces the temperature of the leaves, lowers respiration, and increases relative humidity around the leaf surface (Langhans,. Mist house condition is often used on cuttings because it reduces the leaves temperature, increases relative humidity and lowers respiration around the leaf surface (Dev et. al., Softwood cuttings of Meyer lemon planted in the open and covered with polythene and muslin cloth rooted 100 percent as compared with those in a greenhouse or those in the open without cover (65%).

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