

Citrus Decline A Major Problem

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Introduction

Citrus decline is primarily attributed to multiplicity of causes. Most of the citrus industries are threatened by this syndrome. Decline as such is not a specific disease, but is a symptomatic expression of many disorders in the plant. Decline denotes gradual degradation of orchards whereas dieback indicates the lethal conditions leading to rapid death of plant from top to bottom. The malady being widespread, it is causing huge losses to growers and deserves immediate attention.

Symptoms

The symptoms comprise of retarded growth and sickly appearance of the tree. In the early stages, the symptoms are restricted to a few limbs, eventually affecting the whole tree. Trees show sparse foliage with mottling leaves, stunted growth and sickly appearance. Midrib and lateral veins of old, mature leaves turn yellow with interveinal areas along the veins showing diffused yellowing. Leaves may turn yellow and are shed with the onset of autumn or summer and the dieback of twigs starts. Dead shoots appear prominently after drying. In the advanced stages of decline the yields drop down drastically owing to the reduced canopy. The quality of fruits is adversely affected. Apart from reduced size, the fruits have thick skin, undesirably firm, lacking in gloss with many skin blemishes, less juice although often high in TSS content.

Causal Factors

'Citrus decline' is attributed to a number of factors. These include : general neglect of the orchard, stress for induction of flowering, scarcity of water for irrigation during later part of summer, poor drainage, non-availability of disease free planting material, susceptibility of conventional rootstocks/ scions to various insect-pests and diseases, malnutrition, alternate bearing, improper spacing, injudicious water management, neglect of pruning and disposal of dead wood.

Rejuvenation of Declining Citrus Orchards

- **Improved Cultural Practices:** Improved cultural practices such as pruning, top and frame working must be implemented. Injuries to roots should be avoided during ploughing and harrowing. Removal of all the dry woods and shoots should be carried out properly. Dry wood removal should be followed with the immediate foliar spray of fungicide viz ; Carbendazim @ 1 g/lit of water.
- **Clean Cultivation:** Weed control is of foremost importance in citrus cultivation. The pre and post emergence herbicides have been identified for different citrus growing regions for an effective control of weeds up to 300 days in a year.
- **Removal of dry shoots:** After harvest, the dried twigs should be removed along with one inch live stem portion followed by the Carbendazim spray @ 1 g/lit water in order to arrest further sickness of the plant.
- **Removal of nutritional disorders:** The nutritional problems have to be identified based on the available leaf nutrient standards and adjusting the fertilizers schedules accordingly.
- **Efficient use of water:** Flood irrigation is conventionally followed in citrus orchards where irrigation water is in plenty. But, it acts as pre-disposing factors for foot and root rot. Hence, regulation of irrigation through drip is of utmost importance. The adoption of fertigation technique will meet the nutritional as well as water requirement of the plant at different growth stages to ensure maximum water use efficiency.
- **Regulation of crop:** Only optimum load of crop should be allowed in a season and necessary measures should be taken at flowering/berry stage for thinning etc. In case of Nagpur mandarin, two commercial crops are taken in a year that is not advisable for the normal health and productivity of the tree hence double cropping should be discouraged. The bearing should be regulated in such a way that only one crop of optimum loads e.g. 700-900 fruit/tree is taken in a year. Crop should not be taken at least for two seasons and intercrops should be avoided till the orchard is rejuvenated. The first two seasons crop load should be monitored and strictly regulated.
- **Management of insect pests and diseases :** Citrus plantation all over India have been found susceptible to fungal, bacterial and viral diseases and insect-pests like



blackfly psylla, whiteflies, leaf folders, trunk borer, scales etc. Cotton swabbing of Bark eating caterpillar (BECP) larval tunnels with *Dichlorvas* 0.1% or injecting 5 ml of it with the help of disposable syringe. Swabbing may be done with carbon disulphide, kerosene or petrol which should be followed by closing the larval hole with mud at least twice during Oct-Nov., and Jan.-Mar.

- **Management of diseases:** Regular monitoring of pest and disease complex is must by taking prophylactic and curative measures at a right time. Two Bordeaux paste (2:2:250) applications on the tree trunk before and after monsoon must be given.
- **Inarching:** Declining trees can be rejuvenated by inarching with the help of at least three seedlings as of rootstocks in case roots are damaged severely.

