# Winter Season Management Guide for Major Plantation Crops in Southern India

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## Introduction

Winter in southern India brings a unique set of climatic conditions that directly influence the growth, productivity, and health of major plantation crops such as tea, coffee, rubber, coconut, arecanut, cashew, cocoa, oil palm, and various spices. Although winters in the southern region are generally mild compared to northern India, changes in temperature, humidity, and day length can significantly affect crop physiology, pest dynamics, nutrient uptake, and moisture availability.

Effective winter season management is essential to sustain productivity, ensure plant vigor, and minimize seasonal stress. This guide provides a comprehensive overview of key winter practices tailored to the diverse plantation ecosystems of the region—ranging from high-elevation slopes of the Western Ghats to the coastal belts and midland plantations. By focusing on climate-responsive care, timely field operations, and proactive pest and disease management, growers can optimize the performance of their plantations throughout the winter months.

### 1)COFFEE

### COFEEE LEAF RUST

### SYMPTOMS

- Infection occurs on the coffee leaves.
- The first observable symptoms are small, pale yellow spots on the upper surface of the leaves.
- As these spots gradually increase in diameter, mass of orange urediniospores (= uredospores) appear on the undersurface.
- The fungus sporulates through the stomata rather than breaking through the epidermis as most rusts do, so it does not form the pustules typical of many rusts.
- The powdery lesions on the underside of the leaves can be orange-yellow to red-orange in color, and this colour expression has considerable variation from one region to another.

### Management

- Collection and destruction of diseased leaves. Grow S 238, S 395 resistant varieties.
- Spraying of Bordeaux mixture 0.5% before flowering

### 2)TEA

### GREY BLIGHT

### SYMPTOMS

- Small, oval, pale yellow-green spots first appear on young leaves.
- Often the spots are surrounded by a narrow, yellow zone.
- As the spots grow and turn brown or gray, concentric rings with scattered, tiny black dots become visible and eventually the dried tissue falls, leading to defoliation.
- Leaves of any age can be affected.

### MANAGEMENT

- Avoid plant stress
- Grow tea bushes with adequate spacing to permit air to circulate and reduce humidity and the duration of leaf wetness
- Spray Copper Oxy Chloride or Bordeaux mixture 0.1% during winter season

**3) RUBBER**

**POWDERY MILDEW OF RUBBER**

Powdery mildew disease (Oidium heveae) poses a significant threat to natural rubber (Hevea brasiliensis) production, especially during the winter season in many rubber-growing regions. Although both phenological and meteorological factors are known to influence disease development, their combined effects under winter conditions remain poorly understood. This study aims to quantify the contributions of these factors to the incidence and severity of rubber powdery mildew during the winter

**SYMPTOMS**

- White powdery fungal growth appears on young leaves and also on matured leaves.
- Infected leaves curl, crinkle, role inwards and fall off leaving the petiole attached to the tree giving a broom stick appearance.
- The infected flowers and tender fruits shed.

**MANGEMENT**

- Spary sulphur 3-5 times at 15 days interval.
- Carbendazim 0.1% or Tridemorph 1.5% dusting alternated with sulphur dust 70%
- Carbendazim +wettable sulphur and microsul (52% EC) is also effective.

**4)BLACK PEPPER**

**ANTRACNOSE/POLLU DISEASES**

**SYMPTOMS**

- It can be distinguished from the pollu (hollow berry) caused by the beetle by the presence of characteristic cracks on the infected berries.
- The disease appears towards the end of the monsoon.
- The affected berries show brown sunken patches during early stages and their further development is affected.
- In later stages, the discolouration gradually increases and the berries show the characteristic cross splitting.
- Finally, the berries turn black and dry. The fungus also causes angular to irregular brownish lesions with a chlorotic halo on the leaves.

**MANAGEMENT**

- Remove and destroy all fallen leaves and spikes
- **Chemical control:** In India, the pre-monsoon and post-monsoon spray with Bordeaux mixture (1%) or carbendazim + mancozeb (0.1%) is recommended to check the anthracnose.

**5) CARDAMOM**

**Chenthal disease / leaf blight – *Colletotrichum gloeosporioides***

**SYMPTOM**

- Elongated, water-soaked lesions of varying size appear on the upper surface of the leaf.
- The spots become brown to dark with pale yellow hole. Leaves wither and pseudo stem wilts.
- New shoots which develop are reduced in size. Flowers fail to develop.
- The inflorescence dries up stating from tip downwards. The affected garden shows burnt appearance.

**MANAGEMENT**

- Removal and destruction of affected leaves
- Three sprays with carbendazim 0.1% (or) Mancozab 0.2% (or) copper oxychloride 0.25% at 30 days interval

## CONCLUSION

Winter in southern India, while mild, requires careful plantation management to protect crops from stress and pests. Timely practices like irrigation, fertilization, pruning, and disease monitoring help maintain plant health and productivity. By following a season-specific approach, growers can ensure sustainable yields and stronger, healthier plantations throughout the winter months.

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