

Winter care guidelines for greenhouse crops

Effect of winter on plants: (Temperature below 18° C)

- Phosphorus deficiency (Dark purple coloration of leaves).
- Low light intensity causes low photosynthetic activity thereby reduces crop production and quality of flowers.
- Also due to low light levels; transpiration rate is reduced which may lead to moisture accumulation at the root zone.
- In winter; air and soil temperatures are low and these cause reduced root activity! This means slower uptake of nutrients; so the growth of the plants slows down considerably during this period.

To avoid the above mentioned impact of winter, a few greenhouse operational, cultural and chemical measures can be adapted.

Greenhouse Operations:

- Clean the top plastic sheet to ensure maximum light penetration into the greenhouse. This also helps to remove algal growth on plastic if any.
- Keep the top shade nets open all through the day. This will enhance the photosynthetic activity and helps to increase greenhouse temperature. Similarly, close the top shade net during the night time, which helps to retain the heat developed during the day time.
- Open the side curtains as the temperature starts rising during late morning, and close them during early evening hours, before the temperature begins to drop.

Cultural Operations:

- Rake the soil at frequent intervals to enhance root development and increase soil aeration.
- Remove old and dried leaves to maintain an ideal crop microclimate. Retain around 30 – 35 healthy leaves in plants that have reached the generative phase. High humidity levels in the crop canopy will serve

as an ideal medium for germination of disease causing spores, mainly Powdery Mildew.

- Carefully monitor the soil moisture levels. The surface level may appear dry while the layers beneath would possess ample moisture as the evaporation losses are considerably less. In this case too, raking is beneficial. The quantity of water per plant needs to be regulated to prevent moisture accumulation in the root zone.
- Application of Sulphur Powder in pathways helps to build up heat to some extent.

Chemical Measures:

- Plants showing Phosphorus deficiency can be given drenching with 12:61:0 (2 gm/lit), once a week @ 100 ml/plant.
- Silica drenching @ 1 ml/lit. Once in 15 days. Silica helps in releasing the tied up phosphorus, thus increasing the availability of Phosphorous for plant.
- Since the soil moisture rate of evaporation is less, the fertigation frequency may be less. Under such situations, when fertigation is given after a longer gap, the EC of fertigation solution can be raised up to 2 mS/cm.
- Foliar spray of 13:40:13 @ 1 gm/lit once in 10 days.
- Foliar spray of Stim Rich @ 1 ml/lit once in 10 days to build up immunity.
- Regularly monitor the soil EC and pH, to ensure that the plants are not deprived of nutrients or there is no excess amounts leading to toxicity.
- Humic acid drenching once a fortnight will enhance root growth and activity.
- Be alert for the incidence of Cyclamen mites or any other plant pathogens. If symptoms of cyclamen mite infestation are observed, damaged leaves should be removed with immediate effect and the necessary sprays administered.
- In case of Hydroponic Projects (Pot/ grow bag cultivation with coco peat), the fertigation cycles need to be reduced/regulated depending on the moisture content in the substrate. Fortnightly drenching with Hydrogen Peroxide with Silver can be administered.