Guidelines for plant care during monsoon

Monsoon brings different challenges like high humidity, less light due to cloudy skies, moist soil condition for prolonged period etc. These unfavorable greenhouse conditions are highly conductive for multiplication of different pests and diseases, hamper plants growth which ultimately affects flower quality and quantity. Following are the guidelines which would help the plants to overcome these challenges:

Greenhouse infrastructure management:
  ➢ Make deep drains along lower edge of the poly house to drain excess water from the greenhouse
  ➢ Dig out a deep trench around the greenhouse to avoid flood water, gaining entry into the greenhouse
  ➢ Repair top plastic if it gets damaged to avoid direct splashing/entry of rain inside greenhouse

Greenhouse operations to maintain microclimate:
  ➢ Keep the top shade net open throughout the day to facilitate maximum light utilization inside polyhouse and enhance soil moisture evaporation.
  ➢ If there is heavy rain fall, close the side curtain and open immediately once rains are over.
  ➢ If possible install air circulators and exhaust fans to avoid excess humidity build up inside poly house
  ➢ If any algal growth observed on plastic wash plastic to remove algal growth

Cultural operations:
  ➢ Deleafing-Regularly remove lower dead or over matured non functional leaves. Always maintain only 20-25 fully developed leaves on plants.
  ➢ Raking- Regular and raking at fortnight interval is highly beneficial to facilitate soil moisture evaporation as well as to provide aeration around the root zone.
  ➢ Weeding- Regularly remove weeds on beds to avoid competition for nutrients and water.
  ➢ Disbudding- If you don't intend to take production regularly remove all the flower buds of 3" size
  ➢ Replace the rotten husk: In Dendrobium orchid; replace the rotten husk and add with new and sterilized husk.

Water management:

➢ Watering should be given only along with fertilizers. If needed; extra water should be given by light showering on beds
➢ Water the plants only after checking the moisture level in media
➢ Do not allow water to stagnate in plot.
➢ Do not irrigate the plants on the day of drenching

Fertilizer management:

➢ Fertigation must be given after checking bed moisture level (wapsa condition)
➢ Instead of chemical fertilizers; Jeevamrut slurry can be given weekly through drip.
   Method for preparation of Jeevamrut-(For 2000 sq.m.)
   Mix Cow dung-20 kg + Cow urine-10 Lit +Black jaggery- 2kg +Chana powder-2 kg in 200 lit water; keep it for 3 days. Shake mixture daily for 3 times. Then filter the mixture and give through drip or shower on beds directly
➢ Foliar sprays of micronutrient can be given if any deficiency is observed.

Disease management:

➢ Weekly preventive spray schedule has to be carried out to minimize possibility of fungal and bacterial infection.
➢ In Carnation; preventive drenching of systemic fungicide (at an interval of 15 days) should be carried out to avoid *Fusarium* and *Rhizoctonia* infection.
➢ All the foliar sprays and drenching operations should be carried during morning hours. Never let the soil or foliage remain wet during night hours.

Pest management:

➢ The commonly occurring pests during this season include caterpillars, snails, nematodes, sciara larvae etc.
➢ Scouting & preventive action for pests should be followed regularly as advised.
➢ Soil application of Furadan granules @ 15 gm / m^2 should be done to keep control on nematode population
➢ Preventive organic spray for all sucking pests-
   Ingredients: Garlic-2 kg+ Chilli-2kg (Most pungent varieties like Jwala, Sweekar preferred) +Ginger- 2kg+Cow urine- 1 lit
   Crush all the ingredients together, Soak it for 5-6 hours and boil it. Then mix it with 500 lit water and take spray (4000 m2 area is covered in 500 lit water)
➢ Regular preventive spray (weekly)
   Neem oil (@1 ml/Lit) + Cow urine (@ 3ml/Lit)
   H$_2$O$_2$ with silver @ 1ml/Lit
➢ Once in a month through drip give *Trichoderma* 1 Lit +*Pacelomyces 1 Lit (for 4000 sq.m.)* No chemical fungicides are administered 2 weeks prior or 20 days after the incorporation of the biological agents.

- Snail control in Dendrobium: Grease can be applied on to the poles to prevent the snails from climbing on to the bench from the ground. To control the snails on the beds, metaldehyde application needs to be administered.
- To control contamination with nematodes or any other bacterial or fungal spores, the irrigation water can be treated with H_2O_2 + Silver @ 0.6 ml / lit.

Precaution during heavy winds:
- Wind damages to greenhouse include pipe bending of greenhouse, torn plastic, uplifting of foundation posts etc. Precautionary measures and pro-active approach can minimize the intensity of damage.
- Close and airtight all openings like greenhouse doors, curtains or any other loose ends. Even a slightest point on entry can be highly damaging. The effective force of the wind is doubled when it is allowed inside the structure
- Bury extra greenhouse cover material of side walls in trenches. Dig the trenches 20 cm deep, bury the bottom cord and stake paving slabs, sand bags or stones to weigh down the bottom of the plastic. It provides a good wind protection and secures the greenhouse structure.
- Tape outside as well as inside area where PVC is attached to metal frame to block all the gaps in the frame.
- Tie the criss-cross rope on greenhouse arch to support the plastic
- Inspect and cut dry or weak tree branches those could fall on the greenhouse

Rain water harvesting:
- Installing a rainwater harvesting system in every greenhouse, irrespective of its size, is needed for collecting and storing rain water for future productive use. This is an innovative solution to reuse natural rainwater throughout the year.

Disclaimer Note: These guidelines are general guidelines to keep plants healthy and active; however, company does not own any liability for any issues because the results vary with climate, soil and water quality.