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*Shaping Lives...
Empowering Communities...*

Center for Smart Agriculture

Production management of medicinal and aromatic crops



Module 3: Plant protection

Session 13: Chemicals used for controlling insect pest and diseases



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Aloe

Pests and diseases

Major insect : Mealy bug

Major diseases : Leaf spot, Leaf rot and Anthracnose

Control measures 1. For controlling mealy bugs spray Chlorpyrifos 2 ml in 1 litre of water.

2. Spray the crop with Bavistin 10 g with Carbendazim 2g per litre and repeat at 10 days interval for controlling leaf rot and anthracnose.

3. Leaf spot can be controlled by spraying the crop with 0.2% Mancozeb at weekly intervals



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Tulsi

Diseases and pests

Diseases

Powdery mildew can be controlled by spraying wettable sulphur (4 g/l of water), and the latter two diseases are managed by improved phyto-sanitary measures and by drenching the nursery-beds with a solution of mercurial fungicide.

Pests

The larvae of leaf-rollers with Malathion (0.2%) may be sprayed to control this insect.



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Coleus

Chemical

1) Fusarial /Bacterial wilt control

Dipping the terminal cuttings in carbendazim solution (1 gram per litre) before planting protect *C. forskohlii* from fungal pathogens. Application of streptomycin solution (300 ppm) around the roots of transplanted cuttings protects the crop from bacterial infection (www.indg.in). The chemical Emisan (0.2%) has been found to protect the plants against *Fusarium* wilt to some extent but the protection provided to plants inoculated with biocontrol agents was found to be higher. Chemical fungicides (benomyl) reduced the disease incidence (54.54%) caused by *Fusarium chlamydosporum* during field study of *C. forskohlii*.



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Citronella

Pests and Diseases

Pests:

Termites, mites and thrips are minor pests controlled by spraying chlorpyrifos termite control formulation (TC)(5 ml/litre).

Diseases:

Leaf blight caused by *Curvularia* sp can be controlled by spraying Mancozeb at intervals of 10-15 days. Sheath rot disease caused by *Rhizoctonia solani* is controlled by spraying Hexaconazole 5% Among the insects termites are reported to cause the most damage to the plants. The termite menace can be controlled by the application of 25kg/ha Aldrin to the soil at the time of planting.



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Lemon Grass

Pests and diseases

Pest infestation is very low for this crop. Several diseases are reported on lemon grass, but none are serious enough to cause major reduction in oil yield. The leaf diseases can be controlled by prophylactic sprays of Dithane M-45 and Dithane Z-78 @ 3 g/l thrice at intervals of 15 days.



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Vetiver

Pests and diseases

Pests

There are no serious insect pests except for the ants attack the roots.

Diseases

Very few diseases have been reported on vetiver. During the rainy season the plant is attacked by *Fusarium* spp. It can be effectively controlled by drenching the soil with Bordeaux mixture (1%).



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Rose

Pests and diseases

Pests

Rose plantations are attacked by a number of pests, among which the following are the important ones.

Aphids (*Macrosiphum rosae*): Aphids controlled effectively by prophylactic sprays at 15 days' interval with Methyl Demeton or Metasystox (0.1%) or Dimethoate (0.25%) or Phosphomedon (0.1%).

Caterpillars: controlled by spraying Endosulphon (0.2%) or Quinalphos (0.15%) or Fenthion (0.12%).

Red Spider Mites (*Tetranychus* spp.): Wettable sulphur (0.4%)



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Rose

Pests and diseases

Pests

Rose Thrips (Thrips fuscipennis): Sprays of Malathion (0.2%) or Sumithion (0.1%) at an interval of 10 days control the attack of thrips.

Caspid Bugs (Lygocoris pubulinus): The application of Carbofuron or Phorate @ 10 kg/ha to the soil after pruning, at the time of bud-formation



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Pests and diseases

Pests

Brown and Scurfy Rose Scale (*Aulacapis rosae*): The scales occur on the stems and suck the sap from the stems, resulting in the drying up of the shoot. The incidence is more during the rainy/autumn season. For control of this insect, foliar sprays of Monocrotophos (0.15%) or Carbaryl (0.3%) is recommended.

Diseases

Black Spot (*Diplocarpon rosae*): The fungus causes black spots on the leaves, due to which the leaves will abscise. Fungicidal sprays with Captan (0.2%) or Mancozeb (0.3%) have been recommended for the control of rust.



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Rose

Pests and diseases

Pests

Powdery Mildew (*Sphaerotheca pannosa*): Dinocap (0.1 to 0.15%) or wettable sulphur (0.4%) should be sprayed at 15 days interval

Downy Mildew (*Peronospora sparsa*): Repeated sprays of Mancozeb (0.2%) or Captafal (0.3%) or Copper Oxychloride (0.3%)

Rose Rust (*Phragmidium subcorticium*): The disease is chemically controlled by the spraying of Bavistin @ 0.1% twice during the flowering period (March and May). After the harvest, Benlate @ 0.1%



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Thank You