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Pests of Jasmine and Their Management

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Abstract

Jasmines commonly called as “Queen of Night”. The jasmines are vulnerable to attack by a number of injuries insect and non-insect pests cause yield loss in this crop. Among the various pests, bud worm, blossom midge, gallery worm, leaf webworm, whitefly and eriophyid mite. These pests can be well efficiently managed by following integrated management tactics viz. cultural, mechanical, physical biological and chemical methods.

Introduction

Jasmine is an important commercial flower crop of India widely grown throughout the peninsular regions. India is the home for many species of jasmines and commonly known as the “Queen of Night” because of the esteemed characteristic fragrance. The production and productivity of jasmine has been hampered by numerous insect pests including, bud worm (*Hendecasis duplifasialis* Hampson), blossom midge (*Contarinia maculipennis* Felt), gallery worm (*Elasmopalpus jasminophagus*), leaf webworm (*Nausinoe geometralis* Guenee), whitefly (*Dialeurodes kirkaldyi* Kotinsky) and eriophyid mite (*Aceria jasmini*). They can be managed fruitfully using integrated pest management techniques. The symptomatology and IPM of jasmine pests are given below.

Jasmine Bud Worm, *Hendecasis duplifasialis* (Crambidae: Lepidoptera)

The greenish larva makes bore hole on flower buds and feeds on the inner content. The attacked buds are webbed together with faecal matter; finally, the infested flower turns into purple colour and pupates in soil, sometimes on the leaves. Pale white adult moths lay their eggs in immature buds, bud stalk and calyx.

Blossom Midge, *Contarinia maculipennis* (Cecidomyiidae: Diptera)

The colourless to yellowish larvae of these tiny midges feed on inner parts of the flower buds, which turn characteristically by purple or pink colour before drying. Mature larvae drop to the ground and pupate in soil. The mosquito like female deposits their eggs in open tips of young flower buds.

Gallery Worm, *Elasmopalpus jasminophagus* (Phycitidae: Lepidoptera)

The dark grey moths lay their eggs on terminal shoot. The greenish caterpillar web the terminal leaves, shoots and flower buds with faecal matter to the silken web. Pupation takes place within the webbings.

Leaf Webworm, *Nausinoe geometralis* (Crambidae: Lepidoptera)

Light brownish winged moth lays their greenish yellow eggs on leaf lamina; the greenish caterpillar webs the leaves and skeletonizes the leaves by scraping the parenchymatous tissues. The severely attacked plant looks like 'burnt appearance' because the damaged and dried leaves remain entangled in the web. The larva pupates within the web.

Whitefly, *Dialeurodes kirkaldyi* (Aleyrodidae: Hemiptera)

The nymphs and adults of whitefly suck the sap from lower surface of the leaves in large numbers and cause yellowing. It invites sooty mould fungus thereby photosynthesis will be affected and reduction in yield occurs.

Eriophyid Mite, *Aceria jasmine* (Eriophyidae: Acari)

The vermiform mites infest leaf surfaces, tender stems and buds and cause white velvet-like hairy outgrowth on the surface of leaves and flowers (*Erineum*). The plant growth is stunted with suppressed flower production. The attack starts in March to reach a peak during the rainy season. Maximum damage is seen in September.

Integrated Pest Management (IPM) Practices

By employing the following integrated pest management strategies, one can easily manage the pests of jasmine in an efficient manner.

Cultural Control

- The pruning should be done to regulate the shade in order to facilitate proper penetration of sunlight and maintenance of hygienic bushes.
- Rake the soil during the off season to expose the pupae.
- Maintain sanitation of the jasmine field with good drainage.
- Avoid planting of alternate host plants such as tomato, brinjal and bitter gourd around the main cropped area.
- Grow resistant *Jasminum auriculatum* variety Parimullai released by Tamil Nadu Agricultural University (TNAU) against eriophyid mite.

Mechanical Control

- Collect and destroy the infested leaves, plant parts along with life stages of insects.
- Collect the damaged pinkish flowers once in a week and destroy to arrest further multiplication.
- Install sprinkler irrigation for minimizing sucking pests' damage.

Physical Control

- Set up light trap during the peak emergence of adult moths, thus egg laying can be minimized.
- Set up Helilure sex pheromone traps @ 4/acre against bud

worm.

- Yellow sticky traps @ 5/acre can be used to monitor whitefly incidence.

Biological Control

- Conserve larval parasitoids viz. *Perilampus* sp., *Phanerotoma* sp. and *Mesochrous* sp. to check bud worm menace.
- Also ensure the natural occurrence of predators such as spiders, chrysopids, coccinellids, reduviid bugs etc. though unnecessary application of pesticides in the crop.

Chemical Control

Spray any one of the following insecticides with surfactant thoroughly covering foliage and bark during early morning or late evening hours.

1. Bud worm, blossom midge, gallery worm and web worm

Neem Seed Kernel Extract (NSKE) 5 % (or) spinosad 45 SC 0.5 ml/lit. (or) thiacloprid 240 SC @ 2 ml/lit. (or) chlorantraniliprole 18.5 SC @ 0.3ml/lit. (or) novaluron 10 EC 2 ml/lit. (or) Flufenoxuron 10 DC @ 1.5 g/lit.

2. Whitefly

Neem oil @ 3 ml/lit. (or) acetamiprid 20 SP @ 0.1 g/lit. or thiamethoxam 25 WG @ 0.4 ml/lit.

3. Eriophyid mite

Fenazaquin 10 EC @ 2 ml/lit. (or) propargite 57EC @ 2ml/lit. (or) Abamectin 1.9 EC 0.5 ml /lit.

Conclusion

The several biotic and abiotic factors are responsible for low productivity and quality deterioration of jasmine production, but the damage caused by multitudes of arthropod pests constitutes the most important limiting factor. To overcome these pests, the above mentioned IPM measures can be successfully imposed wherever applicable for the management of pests in jasmine. The minimum yield loss caused by these pests can even be avoided.

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