## Lecture No. 24

## PESTS OF ROSE AND JASMINE

### I. PESTS OF ROSE

| **Major pests** | | | |
|---|---|---|---|
| Rose thrips | *Rhipiphorothrips cruentatus* | Thripidae | Thysanoptera |
| Red scale | *Lindingaspis rossi* | Coccidae | Hemiptera |
| Red spider mite | *Tetranychus cinnabarinus* | Tetranychidae | Acari |
| Rose aphid/lice | *Macrosiphum rosaeformis, M. rosae* | Aphididae | Hemiptera |
| **Minor pests** | | | |
| Hairy caterpillar | *Orgyia (=Notolopus) postica Euproctis fraterna* | Lymantriidae | Lepidoptera |
| Castor semilooper | *Achaea janata* | Noctuidae | Lepidoptera |
| Flower chaffer beetle | *Oxycetonia versicolor* | Cetoniidae | Coleoptera |
| Leaf folder | *Acleris extensana* | Tortricidae | Lepidoptera |
| Leaf cutting bee | *Megachile anthracina* | Megachilidae | Hymenoptera |

#### 1. Rose thrips: *Rhipiphorothrips cruentatus* (Thripidae: Thysanoptera)

**Distribution and status** Cosmopolitan

**Host range:** Grapes,rose, *Lagestoemia indica, Punica granatum.*

**Damage symptoms**

Nymph and adult lacerates leaves from the under surface of the leaves and flower buds. As a result white streaks appear on the infested leaves. Leaves show brown patches and get distorted, finally wither and drop down. Infested flowers do not open, flowers fade and drop down prematurely.

**Bionomics**

Adults are blackish brown and nymphs are reddish in colour. Eggs are inserted into the tissues. A female lays about 45-55 eggs, nymph, adult period are 2-3 weeks and five days respectively.

**Management**

Remove and destroy the damaged leaves, twigs and dlower buds along with the pest

Use yellow sticky traps at 15/ha to monitor activity of sap feeder

Spray neem oil 3% or methyl demeton 25 EC 1.0 L in 500-750 L of water per ha or apply carbofuran 3 G 5g/plant

### 2. Red Scale: *Lindingaspis rossi* (Coccidae : Hemiptera)

**Damage symptoms**

Reddish brown waxy scales completely cover the stem especially on the lower portion of the old stem and younger shoots. Tiny specks in scurvy like patches on the affected stems appear like spots of pox. The affected plant parts become disfigured, dry wither away. In case of severe infestation, the entire plant dies.

**Bionomics**

Female scales are wingless, comparatively larger and settle in a suitable feeding site, whereas long winged males move to fertilize the female scale.

**Management**

Cut and burn affected branches

Rub off scales from twigs with cotton soaked in kerosene or diesel

Spray malathion 50 EC or endosulfan 1.0 L in 500 - 750 L of water / ha at the time of pruning and again during March- April or apply carbofuran 3G 5g/plant or spray fish oil rosin soap 25 g /L

### 3. Red spider mite: *Tetranychus cinnabarinus* (Tetranychidae: Acarina)

**Damage symptoms**

Nymphs and adults feed on the undersurface of the leaves and are found covered with silken webs. As a result, yellow spots appear on the upper surface, which gradually turn reddish. Affected leaves finally wither away. Growth and flower production are adversely affected.


**Bionomics**

Both nymphs and adults are red in colour. About 200 whitish, spherical eggs laid on the ventral surface of the leaves and measure about 0.1 mm in diameter. Egg period 4-7 days, larval and pupal periods 3-5 and 8-12 days respectively. Life cycle is completed in 15-20 days and there are 15 generations / year.

**Management**

Prefer Spinx and temptation varieties as they are moderately susceptible

Avoid First Red as it is highly susceptible.

Remove and destroy the damaged leaves along with mites.

Spray Flufenoxuron 10 DC 500 ml or milbemectin 1 EC 450 ml in 500 L of water per ha or bifenazate 50 WP 375 ml kg in 750 L of water per ha or wettable sulphur 40 WP 3.75 kg in 500 -1000 L of water per ha.

## 4. Rose aphid/lice: *Macrosiphum rosaeformis* (plains); *M. rosae* (hills) (Aphididae: Hemiptera)

**Distribution and status:** Northern India, Punjab, Delhi, Mysore, Andhra Pradesh and the Nilgiri Hills

**Host range:** Rose

**Damage symptoms**

Adults suck saps from the tender leaves, buds and twigs resulting in disfigurement and withering of flowers. They make punctures, producing wounds, which leaves mark as the flowers open. Black fungus develops on the honey dew excreted by the insects.

**Bionomics**

Small pear shaped soft-bodied aphids, light green to dark blackish green in color. Apterous form has an elongated body, large red eyes, black cornicles and yellowish green tip at the abdomen. Nymphal development completed in 11-14 days in apterous forms and 14-19 days in alate forms. Aphid multiples rapidly in late spring but cannot withstand the summer heat.

**Management**

Variety Damask is susceptible while Hawaii is comparatively resistant.

Spray malathion 50 EC 500 ml or methyl demeton 25 EC 500 ml in 500 -750 L of water /ha.

**Minor pests**

**5. Hairy caterpillars: *Orgyia (=Notolopus) posticus, Euproctis fraterna* (Lymantriidae: Lepidoptera)**

**Host range:** Castor, rose.

**Damage symptoms:** Larvae cause defoliation.

**Bionomics**

***Orgyia postica*:** Hairy caterpillars of brown head, a pair of long pencils of hairs pointing forward from the prothorax and tuft of yellowish hairs dorsally on the first two abdominal segments, yellowish tufts of hairs dorsally on the first four abdominal segments and long brown hairs dorsally form the 8 $^{th}$ abdominal segment. Adult is brown coloured moth with stout abdomen.

**Host range:** Polyphagous, castor, mango, red gram, linseed, ground nut, grape vine, phalsa, pomegranate and pear.

***Euproctis fraterna*:** Larva is reddish brown with red head surrounded by white hairs arising on warts and a long preanal tuft. Adult yellow moth with pale transverse lines on the forewings.

**Management**

Hand pick caterpillars and destroy

Spray endosulfan 1.0 L in 500 - 1000 L of water per ha

**6. Castor semilooper: *Achaea janata* (Noctuidae: Lepidoptera)**

Refer castor

For management of defoliators viz., hairy caterpillars and semilooper refer castor

**7. Flower chaffer beetle: *Oxycetonia versicolor* (Cetoniidae: Coleoptera)**

Buds and flowers with irregular feeding marks. Adult beetles are red coloured with black marking. Fig Hand picking and destroying, spraying endosulfan 1.0 L in 500 L of water per ha keeps the pest under check.

**8. Leaf folder: *Acleris extensana* (Tortricidae: Lepidoptera)**

Larva ties up the tender shoots and feeds by scrapping; bores into buds and flowers.Larva yellowish green with black head and brown prothorax. Adult bell shaped brownish moth.

**9. Leaf cutting bee: *Megachile anthracina* (Megachilidae: Hymenoptera)**

,

Adults attack red gram and rose plants by cutting neat, circular or oval patches on the leaf margins and use cut bits for construction of nest cells. Adult bees are hairy, medium sized dark insects with the base of the abdomen tinged with red brown. They build cells in crevices and cavities in hedges or dead wood. Nest cell is provided with pollen paste and one egg is deposited in each cell.


## II. PESTS OF JASMINE

| | | | |
|---|---|---|---|
| **Major pests** | | | |
| Budworm | *Hendecasis duplifascialis* | Pyraustidae | Lepidoptera |
| Gallery worm | *Elasmopalpus jasminophagus* | Phycitidae | Lepidoptera |
| Leaf webworm | *Nausinoe geometralis* | Pyraustidae | Lepidoptera |
| Jasmine eriophyid mite | *Aceria jasmine* | Eriophyidae | Acarina |
| **Minor pests** | | | |
| Jasmine leaf roller | *Glyphodes unionalis* | Pyraustidae | Lepidoptera |
| Redspider mite | *Tetranychus cinnabarinus* | Tetranychidae | Acarina |
| Jasmine bug | *Antestia cruciata* | Pentatomidae | Hemiptera |
| Green plant hopper | *Flata ocellata* | Flatidae | Hemiptera |

### 1. Budworm: *Hendecasis duplifascialis* (Pyraustidae: Lepidoptera)

**Host range:** Jasmine

**Damage symptoms**

Tiny caterpillar makes holes on the flower bud, feeds on the inner content of the bud It makes a circular hole on the corolla tube emerges and tunnels to move into other buds of the same shoot.. Infested flowers turn violet in colour, and fall off. In case of severe infestation, adjacent flower buds are webbed together by means of silken thread.

**Bionomics**



Freshly laid eggs of bud worm are round and creamy white in colour which later turn yellow. Eggs are laid singly and glued on the unopened or immature buds, calyx and sometimes on the bud stalk. They hatch in about 3-4 days. The neonate larva is creamy yellow in colour with dark black head and prothoracic shield and passes through five instars.

Pupation mostly takes place inside the soil and sometimes on the leaves, at the junction of petioles and leaf blade. The adult is a small, pale white moth with wavy markings on wings and black patches on the wing margin. The moths have a pair of well developed black palpi and scaly proboscis.

**Management**

Rake the soil during the off season to expose the pupae and apply carbaryl 10 D around the basin.

Apply carbofuran at 40g/plant basally.

Set up light trap during the peak emergence of adult moths

Collect the damaged pinkish flowers once in a week and destroy to arrest further multiplication.

Spray neem seed kernel extract 5 % or monocrotophos 36 SL 1.0 L or endosulfan 750 ml or chlorpyriphos 20 EC at 750 ml or dimethoate 30 EC 500 ml or cypermethrin 25 EC 200 ml in 500 -750 L of water per hectare in the evening hours

Conserve larval parasitoids, *Perilampus sp, Phanerotoma sp and Mesochrous sp*.

**2. Gallery worm: *Elasmopalpus jasminophagus* (Phycitidae: Lepidoptera)**

**Host range:** Jasmine

**Damage symptoms**

Caterpillar web together the terminal leaves, shoots and flower heads and feed on them. Faecal matter is seen attached to the silken web.

**Bionomics**

Moth is small dark grey which caterpillar is green with a red head and prothorax, and lateral brown streaks on the body. Pupation takes place in the web itself.

**Management :** Same as given for jasmine bud worm

**3. Leaf webworm: *Nausinoe geometralis* (Pyraustidae: Lepidoptera)**

**Distribution and status:** West Africa, India, Pakistan, Sri Lanka, Myanmar, Java, Formosa, china and Australia

**Host range:** Jasmine

**Damage symptoms**

Caterpillars attacks leaves of the plant mostly in the lower bushy and shaded portions. The leaves are webbed in an open and loose manner. The silk threads are seen as a cobweb on the surface of the leaves. Larvae skeletonize the leaves by eating away the parenchyma.

**Bionomics**

Adult is a medium sized moth, having light brownish wings with white spots. Caterpillar is green with dark warts. Female lays 15-30 greenish yellow eggs on the leaf lamina; egg period 3-4 days. Larva pupate within the web; larval, pupal period are 12-15 days and 6-7 days respectively. Life cycle is completed in 22-24 days.

**Management**

Spray dimethoate 30 EC 500 ml in 500 – 750 L of water/ha.

### 4. Jasmine eriophyid mite: *Aceria jasmine* (Eriophyidae: Acarina)

**Distribution and status:** India

**Host range:** Jasmine, *Jatropha intergrima*

**Damage symptoms:**

Feeding causes felt-like hairy out growth (Erineum) on the surface of leaves, tender stem and flower buds. Makes web which look like felt and appear to be a white hairy growth on the leaf surface, tender stems and flower buds.

**Bionomics:** Female is cylindrical and vermiform with two pair of legs and measures about 150-160 µ long and 44 µ thick.

**Management**

Grow resistant variety Parimullai (TNAU).

Spray triazophos 1.5 ml/L in combination with neem oil 5 ml/L twice or thrice or monocrotophos 1.0 L or wettable sulphur 40 WP 3.75 kg or dimethoate 30 EC 625 ml or malathion 50 EC 1.0 L in 500 -750 L of water/ha.

### Minor pests

### Jasmine leaf roller: *Glyphodes unionalis* (Pyraustidae: Lepidoptera)

Caterpillars roll the leaves and feed on them. Adult is a white moth with brown lines along the costal margin of forewings. Caterpillar is green in colour.



### Redspider mite: *Tetranychus cinnabarinus* (Tetranychidae: Acarina)

**Damage** Mites feed on the undersurface of leaves and are found covered with silken webs.

As a result of feeding, yellow spots appear on the upper surface of leaves and gradually turn reddish infested leaves wither away.

**Bionomics** Both nymphs and adults are red in colour. Eggs are laid on ventral surface of leaves and are whitish and spherical. Female lays 200 eggs. Egg period is 4-7 days. Larval and pupal period lasts for 3-5 and 8-12 days respectively. Life cycle is completed in 15- 20 days. There are 15 generations/year.

**Management**

Remove and destroy the webbed and damaged leaves along with mites.

Spray dicofol 18.5 EC 1.5 L or wettable sulphur 40 WP 3.75 kg in 500-750 L of water per ha

**Jasmine bug: *Antestia cruciata* (Pentatomidae: Hemiptera)**

Both nymphs and adults suck the sap from tender shoots and buds and prevent flower formation. Nymph is dark brownish black and round adult bug is dark brown shield shaped bug with orange and white marking on wings.

**Green plant hopper: *Flata ocellata* (Flatidae: Hemiptera)**

The adult bug is green with minute spot on fore wings. Both nymphs and adults feed on terminal shoots.

**Question paper on rose and jasmine**

| | | | | |
|---|---|---|---|---|
| 1. | Leaves with yellow patches and black spots of excreta on rose is the typical symptom of **Thrips (*Rhipiphorothrips cruentatus*)** | | | |
| 2. | Circular or semi circular cuttings on rose leaves is caused by **Leaf cutter bee** | | | |
| 3. | Buds and flowers with irregular feeding marks is due to attack of | | | |
| | Leaf cutter bee | **Flower chaffer beetle** | Red spider mite | Rose thrips |
| 4. | What is the scientific name of Leaf cutter bee ***Megachile anthracina*** | | | |

| | | | | |
|---|---|---|---|---|
| 5. | ---------- larva attacks buds which are webbed together by silken threads on jasmine **Bud worm (*Hendicasis duplifascialis*)** | | | |
| 6. | Gallery worm caterpillar webs together the terminal leaves, shoots and flower heads and feed on them. Say **True** or False | | | |
| 7. | _____ causes felt-like hairy out growth (Erineum) on the surface of leaves, tender stem and flower buds of jasmine - **Jasmine eriophyid mite** | | | |
| 8. | Scientific name of jasmine eriophyid mite is ---------- ***Aceria jasmini*** | | | |
| 9. | Site of pupation for jasmine bud worm is ---------- | | | |
| | Over bud | **Soil** | Leaf | Within bud |
| 10. | *Elasmopalpus jasminophagous* is scientific name of _____ | | | |
| | Bud worm | **Gallery worm** | Leaf worn | Leaf roller |
| 11. | *Antestia cruciata* belongs to the family | | | |
| | Pyraustidae | **Pentatomidae** | Phycitidae | Miridae |
| 12. | Rose red scale belongs to the family Diaspididae. Say True or **False** | | | |
| 13. | Mites belong to class ---------- **Arachnida** | | | |
| 14. | Aphid is also called as lice. Say **True** or False | | | |
| 15. | Semilooper has prolegs on 5, 6 and 10 abdominal segments. Say **True** or False | | | |