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**ENTO. 311      Pests of crops and stored grains and their management      3(2+1)**

**Theory**

Scientific name, order, family, distribution, identification, host range and nature of damage, biology and bionomics, and management of important arthropod pests.

**Polyphagous insect pests:** Locust, grasshopper, white grub, termite and red hairy caterpillar.

**Pests of field crops** Rice: Brown plant hopper, yellow stem borer, rice hispa. Sorghum: Shootfly; Maize: Stem borer; Sugarcane: Pyrilla, whitefly, shoot borer. Pulses: Gram pod borer, cutworm. Tobacco: Tobacco caterpillar. Oilseeds: Mustard aphid, sawfly, painted bug, groundnut aphid, soybean girdle beetle, castor semilooper, castor capsule borer, sesame leaf and capsule borer. Cotton: Jassid, whitefly, spotted and pink bollworm, red cotton bug.

**Pests of vegetables** Brinjal- brinjal shoot and fruit borer; Tomato- Fruit borer (Covered in gram); Okra- Shoot and fruit borer (Covered in cotton). Potato: Tuber moth. Chilli: Thrips; Onion and garlic: Thrips. Cruciferous vegetables: Cabbage caterpillar, diamondback moth, semilooper, tobacco caterpillar (Covered in tobacco). Pea: Stem fly. Cucurbitaceous vegetables: Melon fruit fly, red pumpkin beetle, red vegetable mite.

**Pests of fruit crops** Mango: Mango hopper, mealy bug, stem borer, fruit fly; Guava: Fruit fly.

Citrus: Citrus psylla, citrus caterpillar, bark eating caterpillar. Pomegranate: Anar butterfly; Ber: Fruit fly. Coconut: Black headed caterpillar; Apple: San Jose scale, woolly aphid.

**Pests of ornamental crops:** Rose aphid, hollyhock tinged bug, jasmine budworm.

**Pests of spices and condiments:** Aphid, seed midge.

**Pests of stored grains:** Khapra beetle, lesser grain borer, rice weevil, red rust flour beetle, pulse beetle, Angoumois grain moth, grain mite, Storage structures and methods of grain storage. Principles of stored grain pest management.

Rodents and their management in fields and godowns.

Birds of agricultural importance and their management.

## Practical

Study of identification, host range and nature of damage, biology and bionomics, and management of important arthropod pests of various field crops, vegetable crops, fruit crops, ornamental crops, spices and condiments including polyphagous insect pests. Identification of insect pests and mites associated with stored grains. Determination of insect infestation by different methods. Fumigation of grain stores and godowns. Identification of rodents and birds and their control operations. Determination of moisture content of grain. Methods of grain sampling under storage condition. Visit to nearest FCI godowns.

## Lecture Schedule: Theory

S.No.	Topic	No.of lectures
1.	Polyphagous insect pests: Locust, grasshopper, white grub, termite and red hairy caterpillar	2
2.	Rice: Brown plant hopper, yellow stem borer, rice hispa.	2
3.	Sorghum: Shootfly; Maize: Stem borer; Sugarcane: Pyrilla, whitefly, shoot borer	2
4.	Pulses: Gram pod borer, cutworm. Tobacco: Tobacco caterpillar	2
5.	Oilseeds: Mustard aphid, sawfly, painted bug, groundnut aphid, soybean girdle beetle, castor semilooper, castor capsule borer, sesame leaf and capsule borer.	2
6.	Cotton: Jassid, whitefly, spotted and pink bollworm, red cotton bug.	2
7.	Pests of vegetables crops: Brinjal- brinjal shoot and fruit borer; Tomato- Fruit borer (Covered in gram); Okra- Shoot and fruit borer (Covered in cotton). Potato: Tuber moth. Pea: Stem fly.	2
8.	Chilli: Thrips; Onion and garlic: Thrips	1
9.	Cruciferous vegetables: Cabbage caterpillar, diamondback moth, semilooper, tobacco caterpillar (Covered in tobacco).	2
10.	Cucurbitaceous vegetables: Melon fruit fly, red pumpkin beetle, red vegetable mite.	2
11.	Pests of fruit crops: Mango: Mango hopper, mealy bug, stem borer, fruit fly; Guava: Fruit fly.	2
12.	Citrus: Citrus psylla, citrus caterpillar, bark eating caterpillar.	1
13.	Pomegranate: Anar butterfly; Ber: Fruit fly.	1
14.	Coconut: Black headed caterpillar; Apple: San Jose scale, woolly aphid.	1
15.	Ornamental Crops: Rose aphid, hollyhock tinged bug, jasmine budworm.	1
16.	Spices and condiments: Aphid, seed midge	1
17.	Pests of stored grains: Khapra beetle, lesser grain borer, rice weevil, red rust flour beetle, pulse beetle, Angoumois grain moth, grain mite.	2

19	Rodents and their management in fields and godowns.	1
20.	Birds of agricultural importance and their management.	1
21.	Storage structures and methods of grain storage.	1
22.	Principles of stored grain pest management.	1

### Lecture Schedule: Practical

S.No.	Topic	No.of lectures
1.	Study of identification, host range and nature of damage, biology and bionomics, and management of important arthropod pests of various field crops: Polyphagous pests-Locust, grasshopper, white grub, termite and red hairy caterpillar	2
2.	Field crops Rice: Brown plant hopper, yellow stem borer, rice hispa Sorghum: Shootfly; Maize: Stem borer; Sugarcane: Pyrilla, whitefly, shoot borer Pulses: Gram pod borer, cutworm. Tobacco: Tobacco caterpillar Oilseeds: Mustard aphid, sawfly, painted bug, groundnut aphid, soybean girdle beetle, castor semilooper, castor capsule borer, sesame leaf and capsule borer. Cotton: Jassid, whitefly, spotted and pink bollworm, red cotton bug.	4
3.	Vegetable crops: Identification, host range and nature of damage, biology and bionomics, and management of important insect pests: Brinjal- brinjal shoot and fruit borer; Tomato- Fruit borer; Okra- Shoot and fruit borer; Potato: Tuber moth; Chilli: Thrips; Onion and garlic: Thrips; Cruciferous vegetables: Cabbage caterpillar, diamondback moth, semilooper, tobacco caterpillar; Pea: Stem fly; Cucurbitaceous vegetables: Melon fruit fly, red pumpkin beetle, red vegetable mite.	3
4.	Pests of fruit crops: Mango: Mango hopper, mealy bug, stem borer, fruit fly; Guava: Fruit fly; Citrus: Citrus psylla, citrus caterpillar, bark eating caterpillar; Pomegranate: Anar butterfly; Ber: Fruit fly.	2
5.	Pests of stored grains: Khapra beetle, lesser grain borer, rice weevil, red rust flour beetle, pulse beetle, Angoumois grain moth.	1
6.	Rodents and their management in fields and godowns.	1
7.	Birds of agricultural importance and their management.	1
8.	Storage structures and methods of grain storage.	1
9.	Management of stored grain pests.	1

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