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Pests of Oilseed Crops and Their Management

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Oilseed crops like groundnut, mustard, sunflower, sesame, safflower, linseed, and soybean are vital to Indian agriculture and economy. These crops are rich sources of edible oils, industrial raw materials, and protein supplements. However, insect pests pose a major threat to their productivity and quality. This article discusses the major insect pests of oilseed crops and their integrated management.

Introduction

India is one of the largest producers of oilseeds globally. Despite the area under cultivation, yield levels remain low mainly due to biotic stresses including insects, mites, nematodes, and diseases. Insect pests cause significant damage right from germination to harvesting stages.

Major Oilseed Crops in India and their Importance

- Groundnut (*Arachis hypogaea*)
- Mustard (*Brassica juncea*)
- Sunflower (*Helianthus annuus*)
- Sesame (*Sesamum indicum*)
- Safflower (*Carthamus tinctorius*)
- Linseed (*Linum usitatissimum*)
- Soybean (*Glycine max*)

Key Insect Pests of Oilseed Crops

A. Groundnut

i. Red Hairy Caterpillar (*Amsacta albistriga*)
Damage: Severe defoliation leading to reduced photosynthetic area.
Management: Deep summer ploughing, early sowing, light traps, spraying NSKE 5% or Bt formulations.
ii. Groundnut Leaf Miner (*Aproaerema modicella*)
Damage: Larvae mine leaves reducing photosynthesis.
Management: Encourage parasitoids Stenomesius spp., spray neem oil or NSKE.
iii. White Grubs (*Holotrichia spp.*)
Damage: Root feeding causing plant wilting.
Management: Deep ploughing, application of neem cake, seed treatment with imidacloprid.

B. Mustard

i. Mustard Aphid (*Lipaphis erysimi*)
Damage: Sap sucking leading to curling, yellowing, and stunting.
Management: Seed treatment with imidacloprid, conserve ladybird beetles, spray neem oil 2%.
ii. Painted Bug (*Bagrada hilaris*)
Damage: Feeds on seedlings causing wilting and poor stand.
Management: Clean cultivation, timely sowing, and application of neem cake.

C. Sunflower

i. *Helicoverpa armigera* (Pod Borer)

Damage: Larvae bore into capitulum and feed on developing seeds.

Management: Release Trichogramma chilonis, pheromone traps, spray NSKE.

ii. Tobacco Caterpillar (*Spodoptera litura*)

Damage: Defoliation and feeding on young plants.

Management: Manual removal, light traps, NSKE sprays.

D. Sesame

i. Leaf Webber and Capsule Borer (*Antigastra catalaunalis*)

Damage: Webbing leaves and boring into capsules.

Management: Timely sowing, neem oil sprays, removal of infested shoots.

ii. Gall Fly (*Asphondylia sesami*)

Damage: Galls on shoots and capsules affecting yield.

Management: Roguing affected plants, neem-based sprays.

E. Safflower

i. Aphids (*Uroleucon compositae*)

Damage: Sap feeding leading to honeydew and sooty mould.

Management: Spray neem oil 2%, introduction of Chrysoperla carnea.

F. Linseed

i. Linseed Gall Midge (*Dasineura lini*)

Damage: Formation of galls on floral parts.

Management: Crop rotation, timely sowing, NSKE spray.

G. Soybean

i. Stem Fly (*Melanagromyza sojae*)

Damage: Larvae tunnel inside stems causing lodging.

Management: Seed treatment with imidacloprid, use resistant varieties.

ii. Spodoptera litura (Defoliator)

Damage: Defoliation of soybean foliage.

Management: Hand picking, pheromone traps, NSKE spray.

Integrated Pest Management (IPM) Strategies for Oilseed Crops

- Cultural Practices: Deep ploughing, timely sowing, crop rotation, destruction of crop residues.
- Mechanical Control: Hand picking of larvae, use of light and pheromone traps.
- Biological Control: Release of Trichogramma spp., Chrysoperla carnea, Bacillus thuringiensis.
- Botanical Pesticides: Neem seed kernel extract, neem oil, pongamia oil.
- Chemical Control: Judicious use of recommended insecticides at economic threshold levels.

Recent Advances in Pest Management of Oilseed Crops

- Use of bio-pesticides like Beauveria bassiana and Metarhizium anisopliae.
- Development of pest-resistant varieties.
- Adoption of pheromone traps for monitoring and mass trapping.
- Farmer field schools to disseminate IPM practices.

Conclusion

Pest management in oilseed crops must be holistic. Integrated Pest Management combining cultural, biological, botanical, and chemical control measures ensures higher productivity, reduced pesticide residues, and environmental safety. Farmers should be trained in IPM techniques and adopt resistant varieties for sustainable oilseed production.

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