

## **Pest and Disease Management in Pea Cultivation**

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#### Abstract: -

Peas (Pisum sativum) are a crucial leguminous crop cultivated globally for their nutritional and economic significance. However, their productivity is threatened by various pests and diseases, which can lead to reduced yields and poor quality. Implementing effective pest and disease control measures is essential for sustainable pea farming. This article examines the primary pests and diseases that affect pea crops, including aphids, pea weevils, cutworms, and thrips, as well as fungal infections like powdery mildew, downy mildew, fusarium wilt, root rot, and ascochyta blight. Additionally, it discusses integrated pest and disease management (IPDM) strategies, incorporating cultural, biological, and chemical approaches to minimize crop damage and promote sustainable agriculture.

#### Introduction:

Peas (Pisum sativum) are an important leguminous crop grown worldwide due to their nutritional high value and economic these importance. However, crops are vulnerable to various pests and diseases that can significantly impact their yield and quality. Effective management of these threats is crucial for ensuring the successful and sustainable production of peas. This article highlights the major pests and diseases affecting peas and outlines comprehensive management strategies to mitigate losses.

## **1.** Aphids (Aphis spp.):

Aphids are tiny, sap-sucking insects that target the soft parts of pea plants, such as leaves, stems, and pods. They cause stunted growth, curled foliage, and decreased pod formation. Additionally, they serve as vectors for viral infections like pea enation mosaic virus.

#### **Control Measures:**

- Conduct regular field inspections for early aphid detection, particularly during initial growth phases.
- Encourage natural predators like ladybird beetles and lacewings for

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**Pests in Pea Cultivation:** 



biological control.

- Utilize neem-based biopesticides or insecticidal soaps as environmentally friendly solutions.
- Apply systemic insecticides only when infestations are severe.
- 2. Pea Weevils (Sitona lineatus): Pea weevils cause damage by feeding on leaves and root nodules, reducing nitrogen fixation and plant health.

#### **Control Measures:**

- Opt for resistant pea varieties whenever possible.
- Timplement crop rotation with nonleguminous plants to disrupt the weevil lifecycle.
- Use entomopathogenic nematodes to target larvae in the soil.
- Deploy trap crops to divert adult weevils from main fields. **AGRICULTURE MAGPusa Pragati** and 'Azad Pea-1'.

## 3. Cutworms (Agrotis spp.):

Cutworms, active at night, sever young seedlings at the base, leading to reduced plant populations.

## **Control Measures:**

- Maintain weed-free fields and remove plant debris to eliminate hiding places.
- Introduce biological agents such as Bacillus thuringiensis (Bt) or parasitic wasps.
- Use protective barriers around seedlings to prevent cutworm attacks.

#### 4. Thrips (Thrips tabaci)

Thrips extract plant sap, causing leaf distortion, silvery streaks, and malformed flowers. They can also spread viral diseases.

#### **Control Measures:**

- Employ reflective mulches to repel thrips.
- Set up blue or yellow sticky traps to monitor and capture adult thrips.
- Apply botanical insecticides like pyrethrin to manage infestations.

#### **Major Diseases in Pea Cultivation**

**1. Powdery Mildew (Erysiphe pisi):** This fungal infection manifests as white, powdery patches on leaves, stems, and pods, affecting photosynthesis and reducing yields.

## **Control Measures:**

- Crow resistant pea varieties such as
  - Avoid overhead irrigation to lower humidity around plants.
  - Apply sulfur-based fungicides or potassium bicarbonate as preventive measures.

#### 2. Downy Mildew (Peronospora viciae):

Downy mildew leads to yellow patches on upper leaf surfaces and gray mold underneath, often causing defoliation and stunted growth.

#### **Control Measures:**



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- Use disease-free seeds and rotate crops regularly.
- Enhance field drainage to prevent excessive moisture accumulation.
- Apply systemic fungicides like metalaxyl at early infection stages.
- 3. Fusarium Wilt (Fusarium oxysporum f. sp. pisi):

This soil-borne fungus causes yellowing, wilting, and plant death, persisting in the soil for years.

#### **Control Measures:**

- Select resistant cultivars such as 'HFP-4' and 'HFP-9907'.
- Improve soil drainage to prevent fungal proliferation.
- Treat seeds with fungicides like carbendazim before sowing.
- Use crop rotation with non-host plants to break the infection cycleGRICOLTUR

# 4. Root Rot (Rhizoctonia solani and Pythium spp.)

Root rot thrives in poorly drained soils, causing root browning and decay, which stunts plant growth and reduces yields.

#### **Control Measures:**

- Avoid planting in areas prone to waterlogging.
- Use biofungicides like Trichoderma spp. for seed treatment.
- Improve soil health by incorporating organic amendments.

#### 5. Ascochyta Blight (Ascochyta spp.):

Ascochyta blight results in lesions on leaves, stems, and pods, leading to defoliation and poor pod formation.

#### **Control Measures:**

- Use certified, disease-free seeds.
- Remove crop debris after harvest to reduce disease recurrence.
- Apply fungicides like chlorothalonil or mancozeb at the early disease stage.

# Integrated Pest and Disease Management (IPDM)

Integrated Pest and Disease Management (IPDM) is a comprehensive approach that merges cultural, biological, and chemical techniques to control pests and diseases while minimizing environmental harm. Key components include:

## 1. Cultural Practices:

to break the infection cycleGRICULTURE MS Implement crop rotation to break pest

- and disease cycles.
- Use high-quality, disease-resistant seeds.
- Ensure adequate plant spacing for proper air circulation.
- Enhance soil fertility through organic amendments.

#### 2. Biological Control:

- Encourage natural predators, parasitoids, and beneficial microbes.
- Apply biopesticides such as neem oil or Bacillus thuringiensis.

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#### 3. Chemical Control:

- 🖝 Use pesticides fungicides and judiciously, following recommended dosages.
- Rotate chemicals with different modes of action to prevent resistance.

#### 4. Monitoring and Early Detection:

- Conduct regular field scouting for early pest and disease detection.
- Use pheromone traps, sticky traps, and light traps for monitoring.

#### 5. Sanitation and Hygiene:

- Remove infected plant residues and weeds.
- Sterilize tools and equipment to prevent disease transmission.

#### **Conclusion:**

Efficient pest and disease management is essential for optimizing pea crop yield and quality. Implementing IPDM practices helps IRE N5. (Van Emden, H. F., Ball, S. L., & Rao, farmers reduce losses. lower chemical dependency, and foster sustainable agriculture. By integrating cultural, biological, and chemical approaches with consistent monitoring and prevention, pea crops can both thrive. ensuring economic and environmental benefits.

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