

**PESTS OF CHILLIES AND PEAS**

**PEST OF CHILLIES**

More than 20 species have been reported attacking both leaves and fruits of chillies. Severe infestation of thrips and mites cause even death of plants affecting crop stand and finally the yield. The borers reduce the quality of fruits upon severe infestation.

<b>Major pests</b>				
1.	Chillies thrips	<i>Scirtothrips dorsalis</i>	Thripidae	Thysanoptera
2..	Muranai mite/ Broad mite/ yellow mite	<i>Polyphagotarsonemus latus</i>	Tarsonemidae	Acarina
3.	Tobacco caterpillar	<i>Spodoptera litura</i>	Noctuidae	Lepidoptera
4.	Fruit borer	<i>Helicoverpa armigera</i>	Noctuidae	Lepidoptera
<b>Minor pests</b>				
5.	Stem borer	<i>Euzophera perticella</i>	Phycitidae	Lepidoptera
6.	Cut worm	<i>Agrotis ipsilon</i>	Noctuidae	Lepidoptera
7.	Green peach aphid	<i>Myzus persicae</i>	Aphididae	Hemiptera

**1. Chillies thrips: *Scirtothrips dorsalis* (Thripidae: Thysanoptera)**

**Host range**

Tea, grapes, castor, cotton, *Prosopis*, *Nymphaea pubescens*

**Damage symptoms**

Leaves become crinkled, curled upward and shed. Buds become brittle and drop down. Plants get stunted and bronzed. Nymphs and adults are tiny, slender, fragile and yellowish straw in colour.



**Bionomics**

Insect reproduces sexually as well as parthenogenetically. Female thrips insert the eggs into the veins and a female lays upto 40-48 eggs. Lifecycle occupies 10-20 days.



### Management

- Grow resistant varieties like G5, K2, X 235
- Inter crop with a green manure crop *Sesbania grandiflora* (agathi) to provide shade which regulate the thrips population
- Do not grow chilli after sorghum – more susceptible to thrips
- Do not follow chilli and onion mixed crop as both the crops are attacked by thrips
- Sprinkle water over the seedlings to check the multiplication of thrips carbofuran 3G @ 200g/ 40 m<sup>2</sup> area in the nursery
- Dip the roots of seedlings in monocrotophos 36 WSC @ 0.05% for 20 min. before transplanting
- Dust carbaryl 5 D 25 kg /ha in the early morning
- Spray any of the following insecticides with water 500 L/ha
 

<ul style="list-style-type: none"> <li>• Imidacloprid 70 WS 500-1000 g or 17.8 SL 125-250 ml</li> <li>• Emamectin benzoate 5 SG 200</li> <li>• Ethion 50 EC 1.5-2.0 L</li> <li>• Fenpropathrin 30 EC 250-340 ml</li> <li>• Fipronil 5 SC 800-1000 ml</li> </ul>	<ul style="list-style-type: none"> <li>• Imidacloprid 17.8 SL 125-250 ml or 70 WS / 100 kg seed 1.000-1.5L</li> <li>• Lambda cyhalothrin 5 EC 300 ml</li> <li>• Methomyl 40 SP 750-1125 g</li> <li>• Spinosad 45 SC 160 ml</li> <li>• Thiacloprid 21.7 SC 225-300 ml</li> </ul>
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- Encourage the activity of predaceous thrips: *Scolothrips indicus* and *Franklinothrips megalops* in the field

## 2. Muranai mite/ Broad mite/ yellow mite: *Polyphagotarsonemus latus* (Tarsonemidae: Acarina)

### Damage symptoms

Sudden curling and crinkling of leaves followed by blister patches are initial symptoms of severely attacked plants. Petiole in a few cases becomes elongated and it is referred to “rat tail” symptom. Later they stop growing and die.



### Bionomics

The eggs are minute and oval in shape and are laid on the ventral surface of young leaves or on leaf buds. Larva has 3 pairs of legs move sluggishly. The adults measure 0.1 mm in length and bear 4 pairs of the legs. They are yellowish green in colour and translucent in nature. The egg, larval nymphal and adult period occupies 1.5 – 2, 1.5, 1 and 8-10 days, respectively.

### Management

➤ Spray any of the following insecticides with 500 -750 L water/ha

• Buprofezin 25 SC 300-600 ml	• Fenpyroximate 5 EC 300-600 ml
• Chlorfenapyr 10 SC 750-1000 ml	• Hexythiazox 5.45 300-500 ml
• Diafenthiuron 50 WP 600 g	• Lambda cyhalothrin 5 EC 300 ml
• Ethion 50 EC 1.5-2.0 L	• Milbemectin 1 EC 325ml
• Fenazaquin 10 EC 1.25 L	• Propargite 57 EC 1.5 L
• Fenpropathrin 30 EC 250-340 ml	• Spiromesifen 22.9 SC 400 g
• Dicofol 18.5 EC @ 2 L	• Phosalone 35 EC 1.5 L
• Wettable sulphur 50 WP @ 4 kg	

➤ Encourage the activity of predatory mite: *Amblyseius ovalis*

### 3. Tobacco caterpillar: *Spodoptera litura* (Noctuidae: Lepidoptera)

Refer cotton





#### 4. Fruit borer: *Helicoverpa armigera* (Noctuidae: Lepidoptera)

For host range, damage symptoms, bionomics refer cotton



#### Management

Follow IPM practices as given for cotton

Spray Fipronil 5 SC 800-1000 ml or Indoxacarb 14.5 SC 335-400 ml or Methomyl 40 SP 50-1125 g or Novaluron 10 EC 375 ml or Spinosad 45 SC 160 ml or Thiodicarb 75 WP 625-1000 g

#### 5. Stem borer: *Euzophera perticella* (Phycitidae: Lepidoptera)

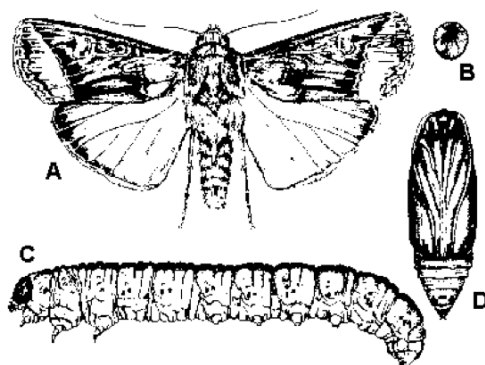
Refer Brinjal

## 6. Cut worm: *Agrotis ipsilon* (Noctuidae: Lepidoptera)



The greasy cut worms come out during night and cut the seedlings at ground level and eat tender leaves. Larva: Black with pale mid dorsal stripes; head pale brown, skin with coarse granules interspersed with small granules. Adult: Forewing pale brown with dark purplish brown along costal and towards base; hind wing white with brown tinge.

**ETL:** 2 larvae/ metre row



A- Adult, B- Egg, C- Larva, D- Pupa

### Management

- Hand pick and destroy the larvae – morning and evening hours on cracks and crevices in the field
- Plough the soil during summer months to expose larvae and pupae for predation by birds.
- Operate light trap @ 12 traps/ ha
- Place pheromone traps @ 12 traps/ ha to attract male moths
- Poison bait: Rice bran 12.5 Kg + Molasses or Brown sugar 2.5Kg + Carbaryl 50 WP 1.25 Kg – Mix the ingredients well – Keep around the field in the evening hours
- Irrigate in day time to expose larvae for avian predators
- Insecticides: Endosulfan 35EC @ 1 L/ha or chlorpyrifos 20EC @ 1 L/ha or neem oil @ 3%

## 7. Green peach aphid: *Myzus persicae* (Aphididae: Hemiptera)

Leaves get curled and crinkled coated with honeydew and sooty mould. Plants remain stunted. Adult is mostly yellow in colour.



### Management

- Treat 1.0 kg seeds with Imidacloprid 70WS 10- 15 g
- Spray methyl demeton 25 EC or dimethoate 500 ml or neem based formulations 0.5 -1.0 L or Imidacloprid 70 WS 500-1000 ml or Imidacloprid 17.8 SL 125-250 ml or Fipronil 5 SC 800-1000 ml or Imidacloprid 17.8 SL 125-250 ml

## PESTS OF PEAS

Major pests				
1.	Pea Leaf-miner	<i>Chromatomyia horticola</i>	Agromyzidae	Diptera
2.	Pea Stem Fly	<i>Ophiomyia phaseoli</i>	Agromyzidae	Diptera
3.	Pea Aphid	<i>Acyrtosiphon pisum</i>	Aphididae	Hemiptera
Minor pests				
4.	American Bollworm	<i>Helicoverpa armigera</i>	Noctuidae	Lepidoptera
5.	Pea Pod Borer	<i>Etiella zinckenella</i>	Pyralidae	Lepidoptera

### 1. Pea Leaf-miner: *Chromatomyia horticola* (Agromyzidae: Diptera)

**Distribution and status:** Wide distribution in Northern India and Indian sub-continent

**Host range:** Cruciferous plants, antirrhinum, nasturtium, pea, potato and linseed (*Linum usitatissimum* L.)

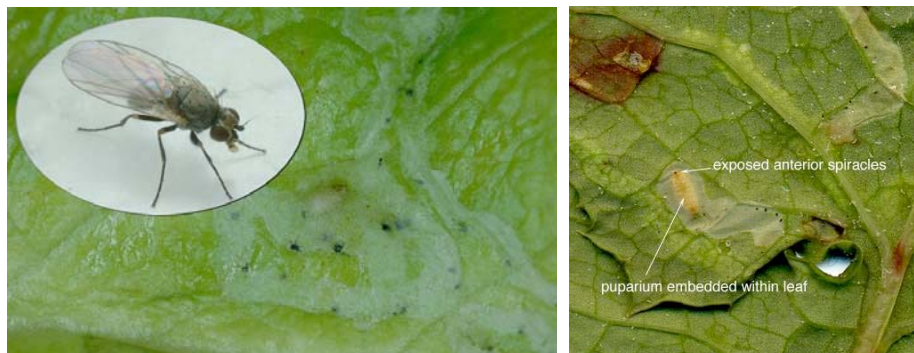
### Damage symptoms

The large number of tunnels made by the larvae between the lower and upper epidermis interferes with photosynthesis and proper growth of the plants, making them look unattractive.



## Bionomics

The adults are two-winged flies having greyish black mesonotum and yellowish frons. It is active from December to April or May and is believed to pass the rest of the year in soil, in the pupal stage. The adults emerge at the beginning of December and after mating, start laying eggs singly, in leaf tissues. Egg period 2-3 days, larval period 5 days and pupate within the galleries. Pupal period is 6 days and the life-cycle is completed in 13-14 days. The pest passes through several broods from December to April-May.



## Management

Spray 1.0 L of dimethoate 30 EC in 750 L of water per ha and repeat spray at 15 day interval. A waiting period of 20 days should be observed for picking of pods.

## 2. Pea Stem Fly: *Ophiomyia phaseoli* (Agromyzidae: Diptera)

**Distribution and status:** Widely distributed in India, Sri Lanka, the Philippines, and China Sporadic pest.

**Host range:** Peas - *Phaseolus mungo* L., *Phaseolus aconitifolius* Jacq., soybean, cowpeas, *Lablab niger* L.

### Damage symptoms

The maggots bore into the stem thereby causing withering and ultimate drying of the affected shoots, thus reducing the bearing capacity of the host plants. The adults also cause damage by puncturing the leaves, and the injured parts turn

yellow. The damage is more severe on seedlings than on the grown up plants.

### **Bionomics**

The adult flies are metallic black. They are active in summer and mate 2-6 days after emergence. The female lays 14-64 elongate, oval and white eggs into the leaf tissue with the help of its elongated ovipositor. The eggs hatch in 2-4 days. They pass through three instars and the larval development is completed in 6-12 days. The larva pupates within its gallery and the pupal period lasts 5-19 days. The female flies live for 8-22 days and the males for 11 days. The pest completes 8-9 generations from July to April and shifts from one host plant to the other in various seasons. It passes winter as larva or as pupa.



### **Management**

- (i) Avoid sowing of the crop earlier than mid-October to check the attack of the pest.
- (ii) Remove and destroy all the affected branches during the initial stages of attack.
- (iii) Sow the crop in the second fortnight of October to escape the damage of the pest.
- (iv) Apply 7.5 kg of phorate 10G or 25 kg of carbofuran 3 G per ha in furrows at the time of sowing
- (v) On the crop, spray three times 750 ml of oxydemeton methyl 25 EC in 750 L of water per ha. The first application should be just after germination and the other two at an interval of 2 weeks each.

### **3. Pea Aphid: *Acyrtosiphon pisum* (Aphididae: Hemiptera)**

**Distribution and status:** Cosmopolitan in distribution

**Host range:** Peas - *Phaseolus mungo* , *Phaseolus*





*aconitifolius* Jacq., soybean, cowpeas, *Lablab niger*

### **Damage symptoms**

Aphids are carriers of pea mosaic. Both nymphs and adults suck the sap from young shoots, ventral surface of tender leaves, inflorescence and even on stems. Curling and distortion of leaves, stunting and malformation shoots occur. Leaves turn pale and dry. Honeydew secretion of aphids leads to sooty mould which hinders the photosynthetic activity of the plants.

### **Bionomics**

Adult aphids are soft bodied, long legged, pear-shaped, green yellow or pink in colour with long conspicuous cornicles Both alate as well as apterous forms are present and these are generally females; males are rare. Winged and wingless males have been reported from Europe and USA but not from India. Reproduction is parthenogenetic and viviparous. It takes about a week to complete one generation and there are several overlapping generations in a year.



### **Management**

Spray 1.0 L of dimethoate 30 EC in 750 L of water per ha when the attack starts and repeat after 15 days if necessary.

### **Minor pests**

#### **4. American Bollworm: *Helicoverpa armigera* (Noctuidae: Lepidoptera)**

Refer cotton



### Management

Spray 5 L of chlorpyrifos 20EC or 2.0 kg of acephate 75 SP in 750 litres of water per ha.

### 5. Pea Pod Borer: *Etiella zinckenella* (Pyralidae: Lepidoptera)

The larvae damage the crop by feeding on flowers and pods.



### Management

Spray 750 ml of endosulfan 35 EC or 2.25 kg of carbaryl 50WP in 750 L of water per ha when the attack starts. Repeat after 15 days if necessary.

### Questions Chilles and Peas

1.	Skeletonization of brinjal leaves is caused by-----	<b>Hadda beetle</b>
2.	Attacked brinjal fruits with boreholes plugged with excreta is indication of presence of -----	<b>Shoot and fruit borer</b>
3.	Continuous planting of brinjal and ratooning is favourable for multiplication of ----	<b>Shoot and fruit borer</b>
4.	Little leaf of brinjal is transmitted by -----	<b>Leaf hopper</b>
5.	Site of pupation for ash weevil is -----	<b>Soil</b>
6.	Presence of circular holes and larva feeding by thrusting only a part of its body into tomato fruit is symptom of Fruit borer <i>Helicoverpa armigera</i> -Say true or false	
7.	Give the name of an introduced pest in tomato -----	<b>Serpentine leafminer</b>
8.	Tomato leaf curl is transmitted by -----	<b>Whitefly</b>
9.	---- feed on chili flowers resulting in pre-mature dropping of flowers and also cause bud necrosis	<b>-Thrips</b>
10.	----- is the pest where only the adult cause the damage to fruits	<b>Fruit sucking moth</b>
11.	Name the predatory thrips feeding on thrips	
	a. <i>Thrips tabaci</i>	b. <i>Scirtothrips dorsals</i>
	c. <i>Thrips florum</i>	d. <b><i>Scolothrips indicus</i></b>
12.	Muranai disease is caused by ----- on chillies-	<b><i>Polyphagodorsonemous latus</i></b>
13.	Name the predatory mite feeding on mite	
	a. <i>Aceria cajani</i>	b. <i>Aceria sorghi</i>
	c. <i>Aceria oryzae</i>	d. <b><i>Amblyseius ovalis</i></b>
14.	_____are resistant to shoot and fruit borer	<b>Pusa purple round, Arka Kusumakar, Doli – 5</b>
15.	Notching of brinjal leaf margins by adults is the damage symptom by _____	<b>- Ash weevil</b>
16.	Pea mosaic virus is transmitted by _____ pea aphid	<b><i>Acyrtosiphon pisum</i></b>