

INSECT PESTS OF PULSE CROP



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MAJOR PESTS OF PULSE CROP

Sl. No.	Common Name	Scientific Name	Family	Order
1	Gram pod borer	<i>Helicoverpa armigera</i>	Noctuidae	Lepidoptera
2	Plume moth	<i>Exelastis atomosa</i>	Pterophoridae	Lepidoptera
3	Pod fly	<i>Melanagromyza obtuse</i>	Agromyzidae	Diptera
4	Spotted pod borer	<i>Maruca vitrata</i> and <i>Maruca testulalis</i>	Crambidae	Lepidoptera
5	Pod borer	<i>Etiella zinckenella</i>	Pyralidae	Lepidoptera
6	Flower webber	<i>Polyorcta hemirrhoda</i>	Noctuidae	Lepidoptera
7	Field bean pod borer	<i>Adisura atkinsoni</i>	Noctuidae	Lepidoptera

MAJOR PESTS OF NATIONAL SIGNIFICANCE

Sl. No.	Common Name	Scientific Name	Family	Order
8	Blue butterfly	<i>Euchrysops cnejus</i> and <i>Lampides boeticus</i>	Lycaenidae	Lepidoptera
9	Pod bugs	<i>Riportus pedestris</i> and <i>Clavigralla gibbosa</i>	Coreidae	Hemiptera
10	Bud weevil	<i>Indozocladus asperculus</i>	Curculionidae	Coleoptera
11	Aphid	<i>Aphis craccivora</i>	Aphididae	Hemiptera
12	Stem fly	<i>Melanagromyza phaseoli</i>	Agromyzidae	Diptera
13	Blister beetle	<i>Mylabris pustulatus</i>	Melioidae	Coleoptera
14	Stem weevil	<i>Alcidodes collaris</i>	Curculionidae	Coleoptera

MAJOR PESTS OF NATIONAL SIGNIFICANCE

Sl. No.	Common Name	Scientific Name	Family	Order
15	Leaf roller	<i>Caloptilia soyella</i>	Gracillariidae	Lepidoptera
16	Scale	<i>Ceroplastodes cajani</i>	Diaspididae	Hemiptera
17	Mite	<i>Aceria cajani</i>	Eriophidae	Acarina
18	Leaf miner	<i>Cyphosticha coerulea</i>	Gracillariidae	Lepidoptera
19	Aphid	<i>Acyrtosiphon pisum</i>	Aphididae	Hemiptera
20	Leaf folder	<i>Lamprosema indica</i>		
21	Leaf and stemfly/ miners	<i>Ophiomyia phaseoli</i>	Agromyzidae	Diptera

MAJOR PESTS OF NATIONAL SIGNIFICANCE

Sl. No.	Common Name	Scientific Name	Family	Order
22	Soyabean girdle beetle	<i>Obereopsis brevis</i>	Cerambycidae	Coleoptera
23	Pea leaf miner	<i>Chromatomyia horticola</i>	Agromyzidae	Diptera
24	Green nettle slug	<i>Thosea aperiens</i>	Cochlidiidae	Lepidoptera
25	Greasy cutworm	<i>Agrotis ipsilon</i>	Noctuidae	Lepidoptera
26	Cutworm	<i>Agrotis flammatra</i>	Noctuidae	Lepidoptera

MINOR PESTS OF PULSE CROP

Sl. No.	Common Name	Scientific Name	Family	Order
1	Jassid	<i>Empoasca kerri</i>	Cicadellidae	Hemiptera
2	Whitefly	<i>Bemisia tabaci</i>	Aleyrodidae	Hemiptera
3	Dusky cotton bug	<i>Oxycarenus laetus</i>	Lygaeidae	Hemiptera
4	Pea and bean thrips	<i>Caliothrips indicus</i>	Thripidae	Thysanoptera
5	Termites	<i>Odontotermes obesus</i>	Termitidae	Isoptera
6	Polyphagous caterpillars	<i>Spilosoma obliqua</i> , <i>Amsacta moorei</i> and <i>A. albistriga</i>	Arctiidae	Lepidoptera
7	Tussock caterpillars	<i>Euproctis fraterna</i>	Lymantriidae	Lepidoptera

MINOR STS F PULSE CROP

Sl. No.	Common Name	Scientific Name	Family	Order
8	Foliage caterpillars	<i>Spodoptera exigua, S. litura</i>	Noctuidae	Lepidoptera
9	Green semilooper	<i>Anomis flava</i>	Noctuidae	Lepidoptera
10	Til hawk-moth	<i>Acherontia styx</i>	Sphingidae	Lepidoptera
11	Leaf binder	<i>Cydia critica</i>	Tortricidae	Lepidoptera
12	Bean mite	<i>Polyphagotarsonemus latus</i>	Tarsonemidae	Acarina

1. Tur Pod Bug

S.N: *Clavigralla gibbosa*

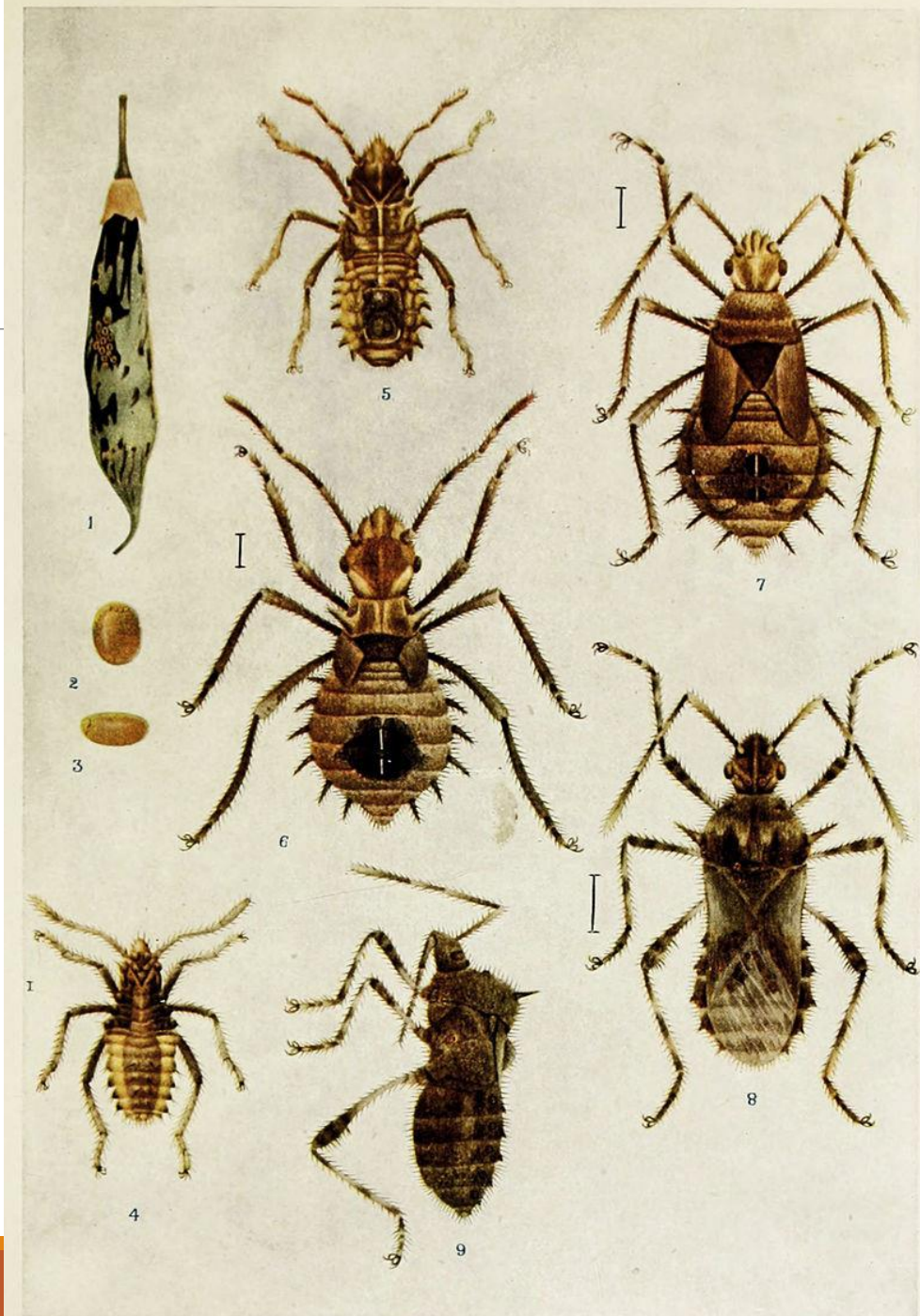
(Coreidae: Hemiptera)

- **Distribution:** In India, it has been recorded from Delhi, Orissa, Tamil Nadu, Uttar Pradesh, Maharashtra, Madhya Pradesh, Andhra Pradesh, Karnataka and Bihar.
- **Host range:** Pigeon pea, lab-lab, cowpea, chickpea, kidney bean, cluster bean, etc.
- **Morphology:** The adult bugs are greenish brown in colour, having a spined pronotum and the femur, swollen at the apical end.
- The young nymphs are reddish and show prominent lateral spines on the prothoracic and abdominal segments.



Biology

- **The bugs appear on crops in October.**
- **They mate several times in end to end position and the copulation period varies from an hour to nearly 24 hours.**
- **After a lapse of about 11 days, which is the pre-oviposition period, the females lay eggs.**
- **S.O.O- on pods and, less frequently, on leaves or the floral buds, in clusters of 5-25 each.**
- **The Egg and nymphal are 8 and 17 respectively.**
- **Nymphs are gregarious in nature and are seen feeding in groups and pass through five nymphal stages.**





Clavigralla eggs on leaves and pod

Nature of Damage

- Both the adults and the nymphs suck cell sap from the stem, leaves, flower buds and pods.
- As a result of this damage, the pods show pale yellow patches and later on shrivel up with dark patches & lose germination.
- The grain inside remains small in size and the yield may be reduced significantly



Management

- A minute insect, *Hadronotus antestiae* (Scelionidae) parasitizes the eggs of this pest. It has been observed in nature up to 55 per cent of the eggs might be attacked and destroyed.
- Spray 1.25 liters of monocrotophos 40EC or 1 liter of trichlorophos 50EC in 625 liters of water per ha.
- Two sprays during flowering and three during pod formation are quite effective.



2. Pod Bug

S.N: *Riptortus pedestris*

(Coreidae: Hemiptera)

Distribution: Widely distributed.

Host range: Red gram, cowpea, lablab, soybean and other pulses.

Morphology: Adults of the brownish elongate bug with slightly enlarged hind femora.





Biology



- Adults mate 2-3 days after emergence and repeat it throughout life.
- Egg laying starts 12-14 days after emergence.
- A female lays, on an average, 115 eggs during on ovipositional period of 30 days.
- **S.O.O.- singly on pods at their base.**
- The egg, nymphal and adult duration are 3-4, 16 and 45-47 days respectively.
- There are 5 nymphal instars.



Nature of Damage

- **The damage is caused by nymphs and adults by sucking juice from seeds piercing the pods in the process.**
- **The seeds within the pods become rough and rugged.**
- **Tender pods when attacked do not develop.**
- **Management same as in case of tur pod bug.**



3. Gram Pod-borer

S.N: *Helicoverpa armigera*
(Noctuidae: Lepidoptera)

- **Distribution:** Widely distributed in India.

Reasons for its national importance are (ARS Mains 5 marks)

- **It is a polyphagous pest and feeds on the economic parts.**
- **Fast development of resistance to chemical pesticides.**
- **Excess use of nitrogenous fertilizers and insecticides give luxurious growth of the crop which attracts the pest**
- **Continuous breeding of the pest due to host availability**

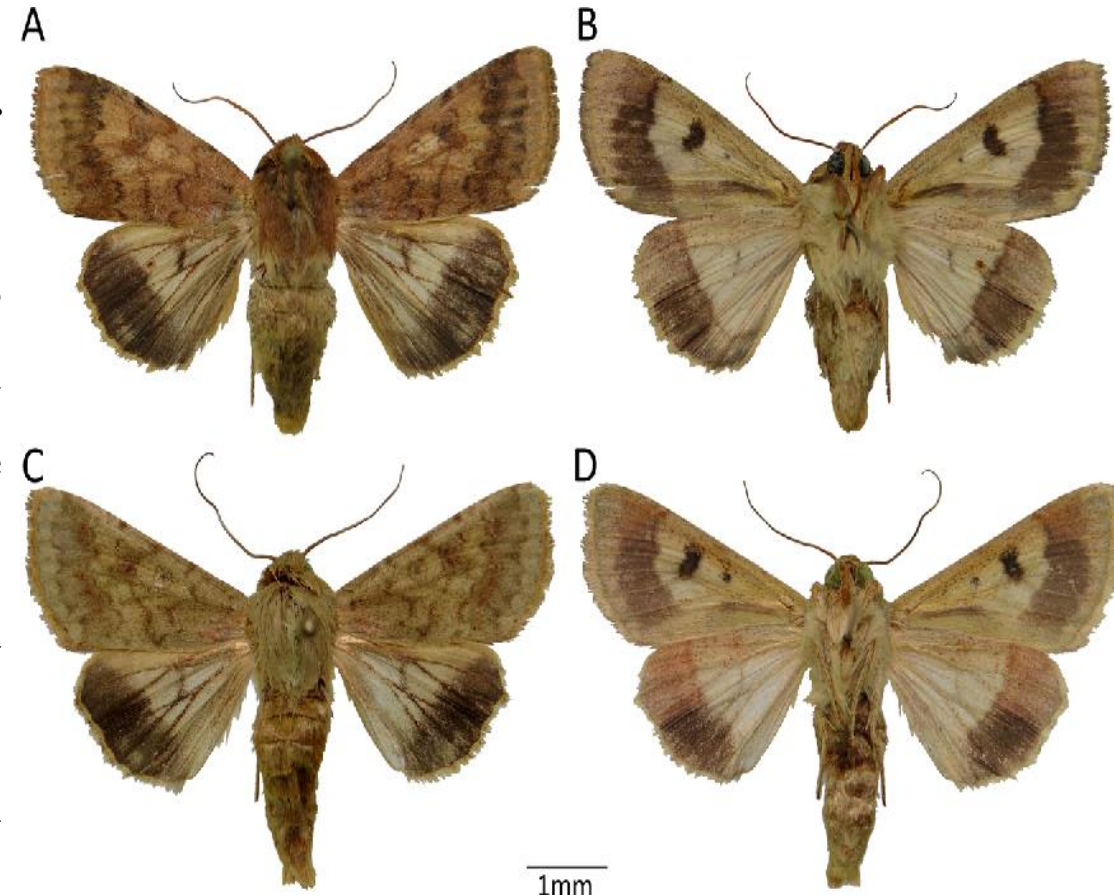


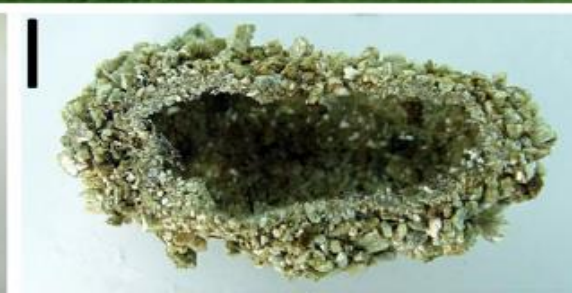
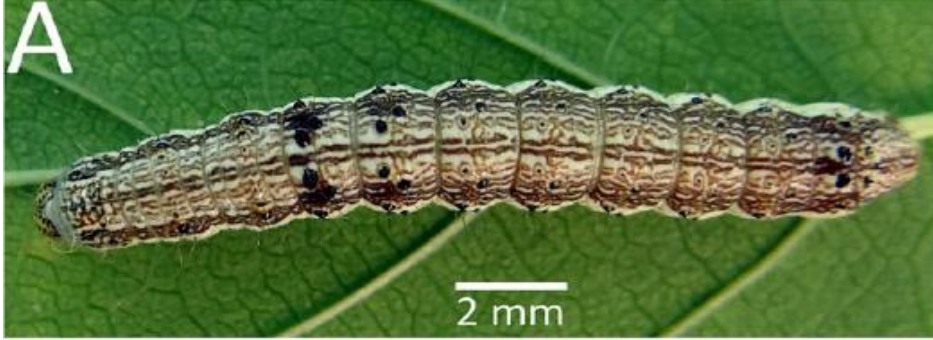
Host Range [ARS Mains 2013; 5 marks]

- In the USA, it is a well-known pest of corn (corn earworm) and cotton (cotton bollworm).
- This is a well known important pest of pulses and cotton in India.
- Chickpea, pigeonpea, pea, mungbean, urdbean, lentil, soyabean, cowpea, cotton, sorghum, groundnut, okra, maize, tomato, chillies, berseem, safflower, sunflower
- Major pest of Chickpea at reproductive stage [JRF 2001, 2007]

Morphology

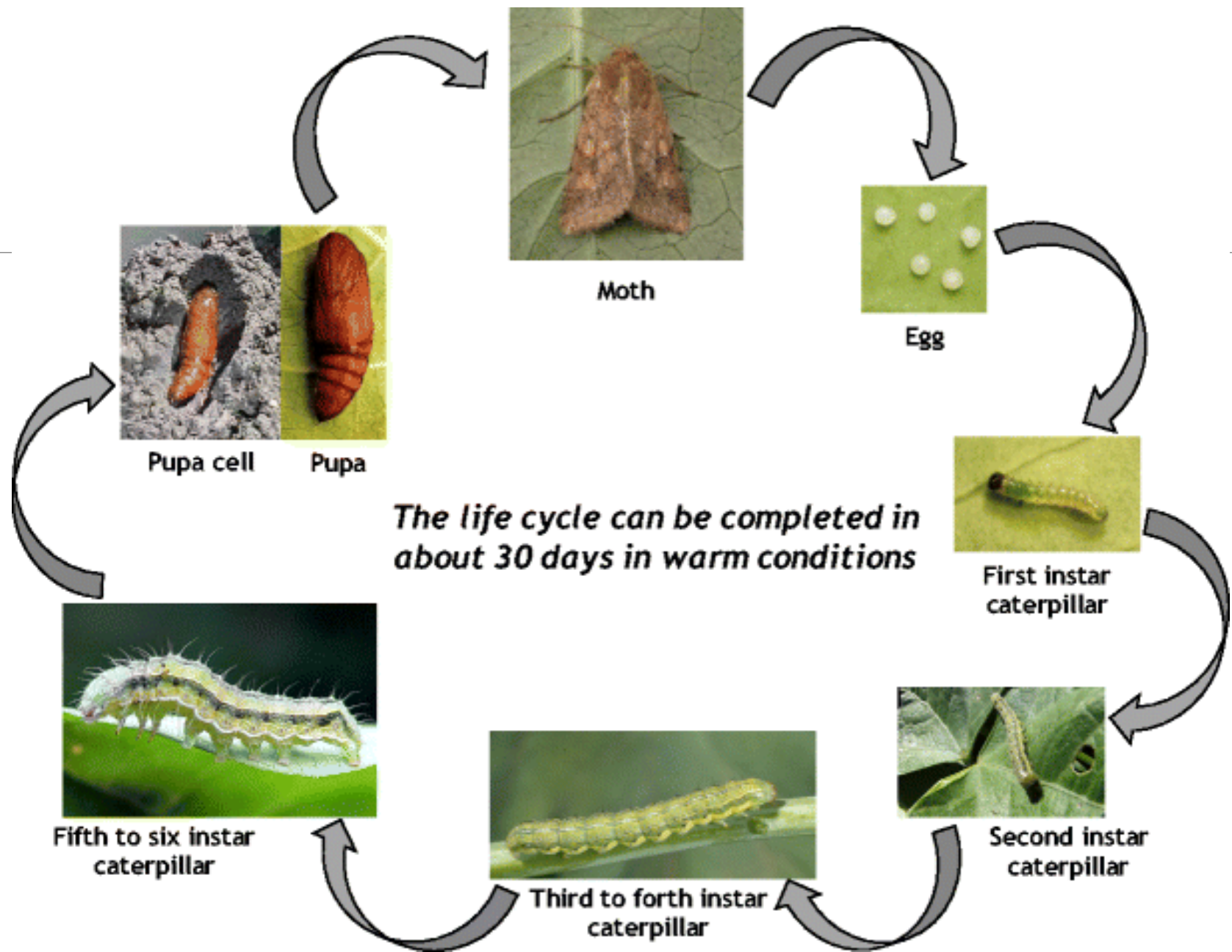
- **Moth is strongly built and is yellowish brown.**
- **There is a dark V- shaped speck and a dark area near the outer margin of the fore wing.**
- **The fore wings are marked with greyish wavy lines and black spots of varying size on the upper side and a black kidney shaped mark and a round spot on the underside.**
- **The hind wings are whitish and lighter in colour with a broad blackish band along the outer margin.**
- **The caterpillars cause damage and, being greenish with dark grey lines along the sides of the body.**





Biology

- **The females lay eggs singly on tender parts of the plants.**
- **A single female may lay as many as 7-41 eggs in 4 days.**
- **The eggs are shining greenish yellow and are round.**
- **They hatch in 2-4 days in April to October and 6 days in February and the young larvae feed on the foliage for some times and feed on the developing grains, with their bodies hanging outside.**
- **They move from pod to pod and are full-fed in 13-19 days.**
- **The full-grown larvae come out of the pod and pupate in the soil**
- **The pupa is dark brown and has a sharp spine at the posterior end.**
- **In the active season, the pupal period lasts 8-15 days, but in winter the duration is prolonged, particularly in northern India.**
- **There may be as many as 8 generations in a year.**



Moth

Egg

First instar caterpillar

Second instar caterpillar

Third to fourth instar caterpillar

Fifth to six instar caterpillar

Pupa cell

Pupa

The life cycle can be completed in about 30 days in warm conditions

Nature of Damage

- Although they prefer food plants like gram and red gram, the larvae are polyphagous.
- While feeding it thrusts its head inside the pod leaving the rest of its body outside.
- It makes circular holes on the pods of red gram, fruits of tomato etc. [JRF 2001]
- The larvae feed on leaves and bore into pods.
- As the internal contents of pods are devoured the yield of pulses is considerably reduced.
- A single larva may destroy 30-40 pods before it reaches maturity.





A. Closeup picture of *H. armigera* egg
(Photo by Josemar Foresti; Corteva Agriscience, Brazil).



C. Picture of *H. armigera* pupae
(Photo by Josemar Foresti; Corteva Agriscience, Brazil).



E. Soybean defoliation by *H. armigera* larvae
(Photo by Paulo Roberto da Silva; Corteva Agriscience, Brazil).



B. Picture of *H. armigera* larva feeding on soybean. (Photo by Paulo Roberto da Silva; Corteva Agriscience, Brazil).



D. Picture of *H. armigera* moth
(Photo by Abhilash Balachandran; Corteva Agriscience, Indianapolis, USA).



F. Soybean pod feeding by *H. armigera*.
(Photo by Paulo Roberto da Silva; Corteva Agriscience, Brazil).

Management

- **Timely sowing, i.e., up to mid-October or growing early maturing cultivars which complete podding by first week of March in northern region helps in escaping peak activity period of *H. armigera*.**
- **In chickpea early sowing is done to protect the crop.**
- **Use of *Helicoverpa-tolerant* varieties like JG 315 and JG 74 for central zone and ICCV 7 for southern zone is recommended.**
- **Mixed intercropping with non-preferred host plants like barley, wheat, mustard and linseed should be preferred over sole crop.**
- ***Campoletis choridae* (Ichneumonidae) is a larval parasite of major importance.**
- **In vegetative phase, during the peak of its activity, it may parasitize 50-60 percent of *Helicoverpa armigera* larvae, whereas during podding phase, 30-40 percent parasitization has been recorded.**

Management

- **Apply nuclear polyhedrosis virus (NPV) @ 250-500 larval equivalents/ha alone.**
- **Spraying should be carried out in the evening hours.**
- **The pod borer can be managed by spraying the insecticides at the economic threshold level of 1 larva per five plants at pod initiation stage.**
- **The recommended insecticides are 250 ml of fenvalerate 20EC or 200 ml of cypermethrin 25EC or 400 ml of deltamethrin 2.8EC in 625 litres of water per ha at the start of pod formation and repeat after two weeks if necessary.**
- **Alternatively, apply fenvalerate 0.4 per cent dust @ 20 kg/ ha or malathion 5 per cent dust @ 25 kg/ha.**
- **For consuming any part of the raw gram plant, observe waiting period of 20 days after application of the insecticide.**

Management

- **Spray application of azadirachtin 0.03% WSP, chlorpyrifos 1.5%DP, deltamethrin 2.8%EC, emamectin benzoate 5%SG, ethion 50%EC, monocrotophos 36% SL, novaluron 10%EC, NPV of *Ha* @ 2%AS, quinalphos 25% EC & 1.5% DP or *Bacillus thuringiensis* var. *kurstaki* three times at fortnightly interval commencing from flowering affords protection.**

4. Plume Moth

S.N: *Exelastis atomosa*

(Pterophoridae: Lepidoptera)

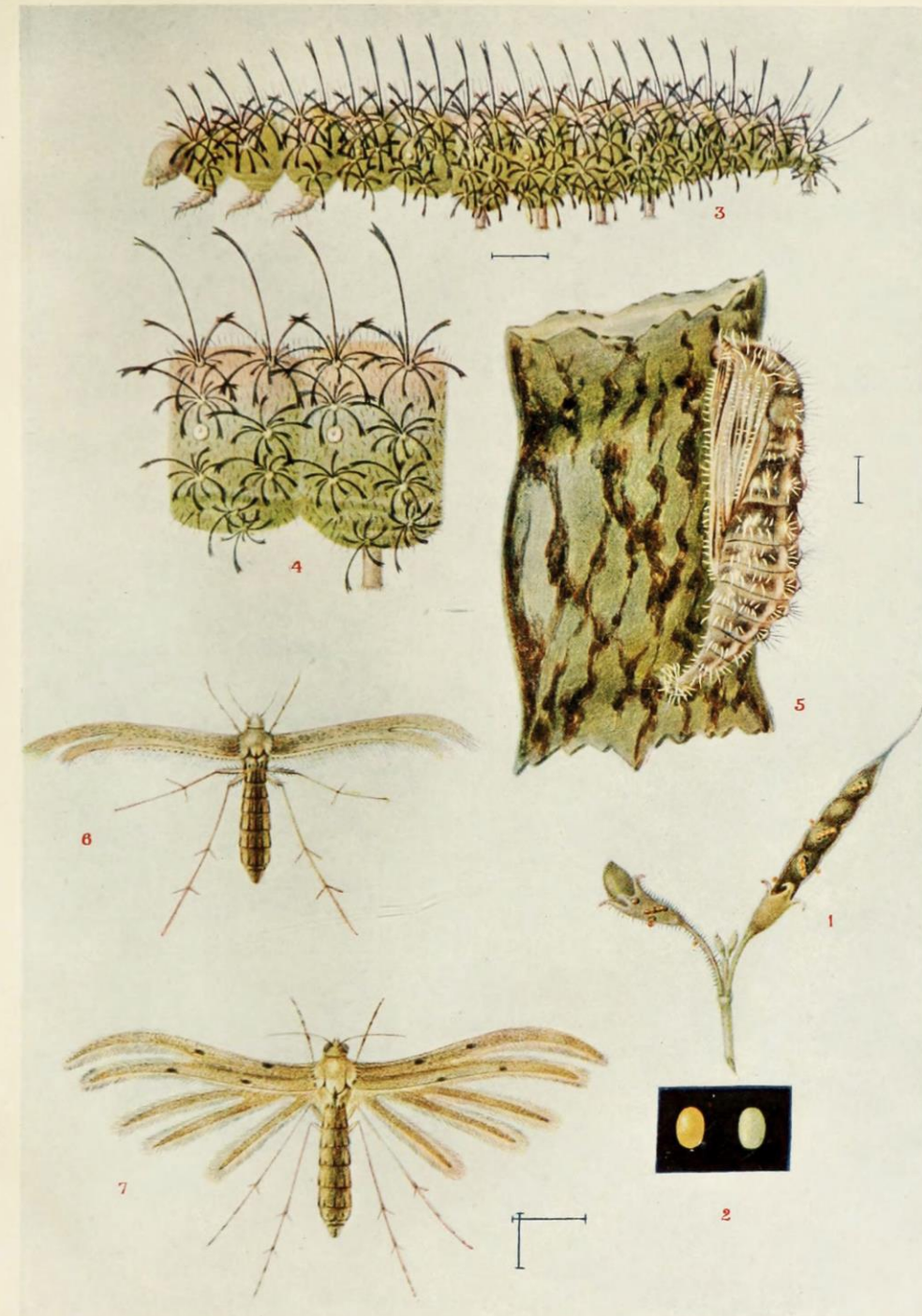
- **Distribution:** Andhra Pradesh, Assam, Madhya Pradesh, Punjab, Tamil Nadu, Maharashtra and Karnataka.
- **Outside India,** it has also been recorded in Nepal and New Guinea.
- **Host range:** This insect is a specific pest of pigeon pea.
- **Morphology:** The delicate moth with plumose light brown wings.
- **The larva** is green or greenish brown with spines radiating all over the body from tubercles.





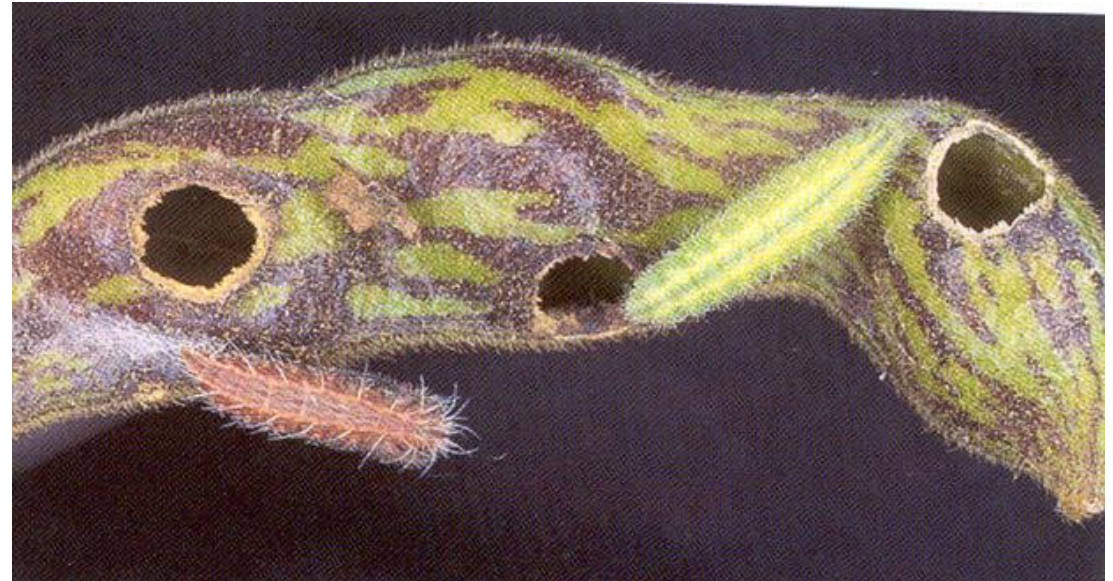
Biology

- **S.O.O.- singly on tender parts of the plants.**
- **S.O.P.-outside the pod on its surface or in the entrance hole itself.**
- **The pest remains active throughout the year, provided suitable host plants are available, although its incidence remains greater in the monsoon season.**
- **The egg, larval and pupal periods occupy respectively 4, 14-30 and 4-8 days.**
- **The life-cycle is completed in 17-42 days.**



Nature of Damage

- **The larvae first scrape the surface of the pods and finally make holes into them and feed on the seeds, reducing crop yield.**
- **The larvae feed on flower buds and seeds of pods by remaining outside and is very characteristic.**
- **Irregular bore hole and larvae excretes inside the damaged grain.**
- **Chemical control measures are same as in case of gram pod-borer.**



5. Spotted Pod Borer

S.N: *Maruca testulalis*
(Crambidae: Lepidoptera)

- **Distribution:** This pest is wide spread in tropical and sub-tropical regions of the world.
- **Host range:** Cowpea, lablab, green gram, black gram, red gram, soybean, etc.
- It webs the leaves of Daincha, a green manure crop.
- **Morphology:** The moth has a white cross band on the dark brown forewings and a dark border on the white hind wings.
- The larva is green with a brown head, short dark hairs and black warts on the body.



Biology

- **S.O.O.- singly in the flowers or buds or on the pods of the host plants.**
- **After hatching, the young caterpillar enters the bud, flower or the pod.**
- **S.O.P.-in a thick silken cocoon on the pod or leaf fold, or within debris or near surface of the ground the pupa being yellow with a greenish body.**
- **The moths shelter among lower leaves.**



Nature of Damage and Management

- The larvae web together the flowers and feed on them and also bore into pods and feed on the seeds resulting in appreciable loss in yield of seeds.
- The entrance hole is plugged with excreta.
- **Chemical control measures are same as in case of gram pod-borer.**





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6. Field Bean Pod Borer

S.N: *Adisura atkinsoni*

(Noctuidae: Lepidoptera)

- **Distribution:** This is a cold weather pest of lablab and red gram having a wide distribution in India.
- **Morphology:** The adult is a pale yellowish-brown moth, with V-shaped specks on fore wings and pale brown markings on hind wings.
- The greenish larva has brown lateral markings and a slightly humped anal segment.



Adisura atkinsoni

- Larva relatively small with thin lateral brown stripes

Helicoverpa armigera

- Larva large, variously coloured with yellow lateral stripes



Biology

- **S.O.O.- in the setting flowers and very young pods.**
- **A female may lay as many as 290-950 eggs.**
- **S.O.P.- In soil in an earthen cocoon.**
- **During February to November, it hibernates in the pupal stage.**
- **The egg, larval and pupal periods last for 2-3 14-6 and &-16 days, respectively.**

Nature of Damage and Management

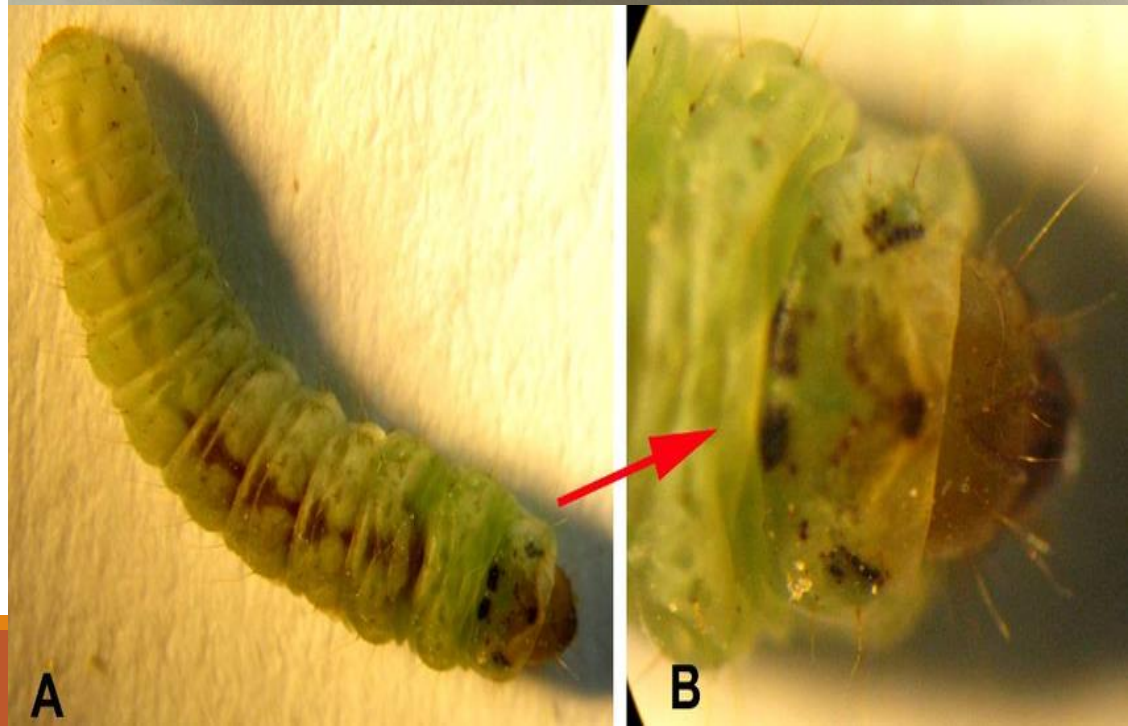
- **The larvae feed on flower buds and bore into the pods feeding on the developing seeds and cause considerable loss.**
- **Chemical control measures are same as in case of gram pod-borer.**



7. Lentil Pod-borer

S.N: *Etiella zinckenella*
(Pyralidae: Lepidoptera)

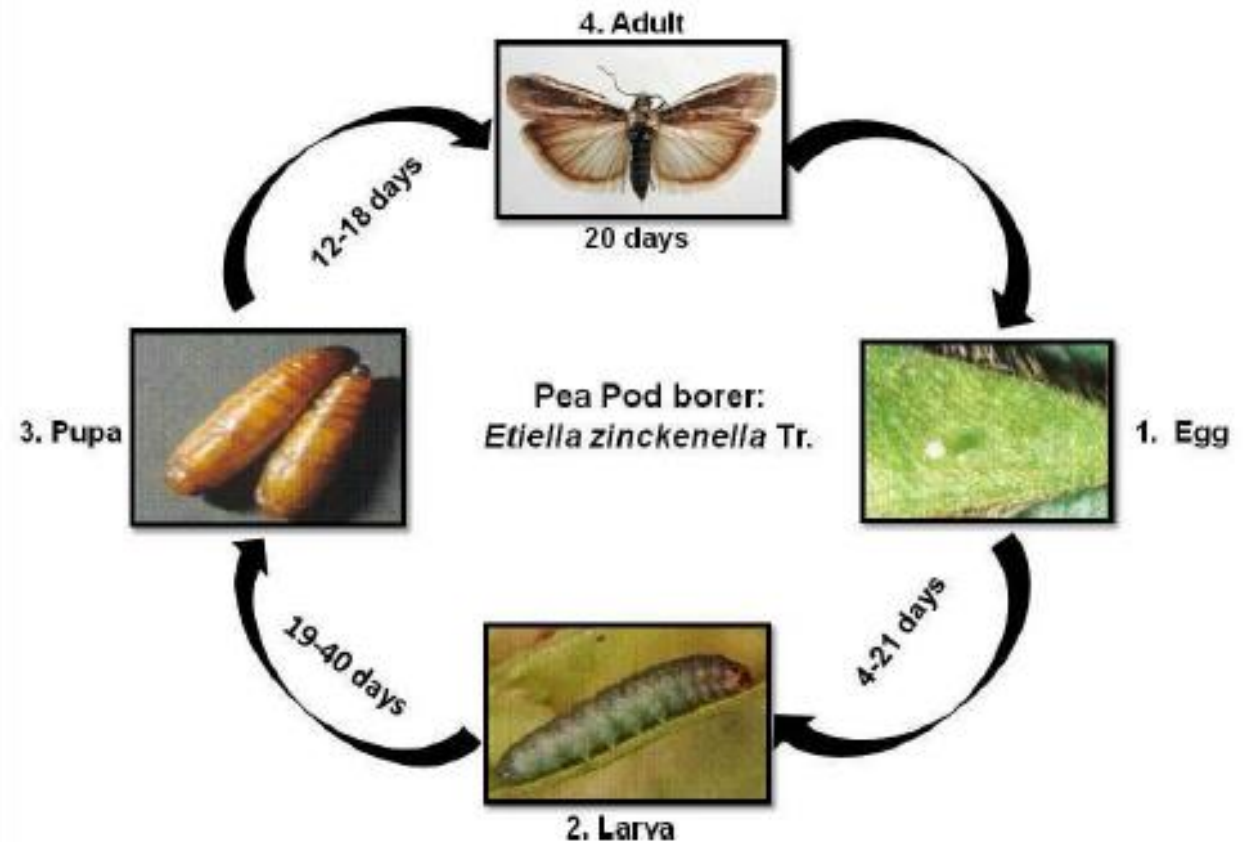
- **Distribution:** It is a serious pest of lentils and green peas in northern India and is also found on a variety of other pulses in various parts of the India.
- **Host range:** Red gram, horse gram, Lab-lab niger, pea and cowpea
- **Morphology:** The larva is greenish and has five black spots on the prothorax.
- The moths are grey. The fore wings have dark marginal lines and are interspersed with ochreous scales.
- The small moth has a white streak on the greyish brown fore wings and pale hind wings.





Biology

- The moths emerge in February and March, and are nocturnal.
- **S.O.O,- on various parts of the plant, including the pods.**
- The eggs, larval and pupal periods are respectively 10, 10-17 and 9-12 days.
- larvae feed on floral parts and subsequently, they bore into the pods to feed on the seeds.
- **S.O.P.- in the soil in an earthen cocoon**
- The pest breeds throughout the year and passes through 5 generations.



Nature of Damage

- **The larvae consume floral parts, newly formed pods and seeds inside the developing pods,**
- **The reduction in yield may be up to 5 per cent.**
- **At flower initiation, spray the crop with 2.25 kg of carbaryl 50WP in 250 liters of water per ha and repeat the treatment after three weeks, if necessary.**
- **Carbaryl should be used if the husk is to be fed to the cattle.**





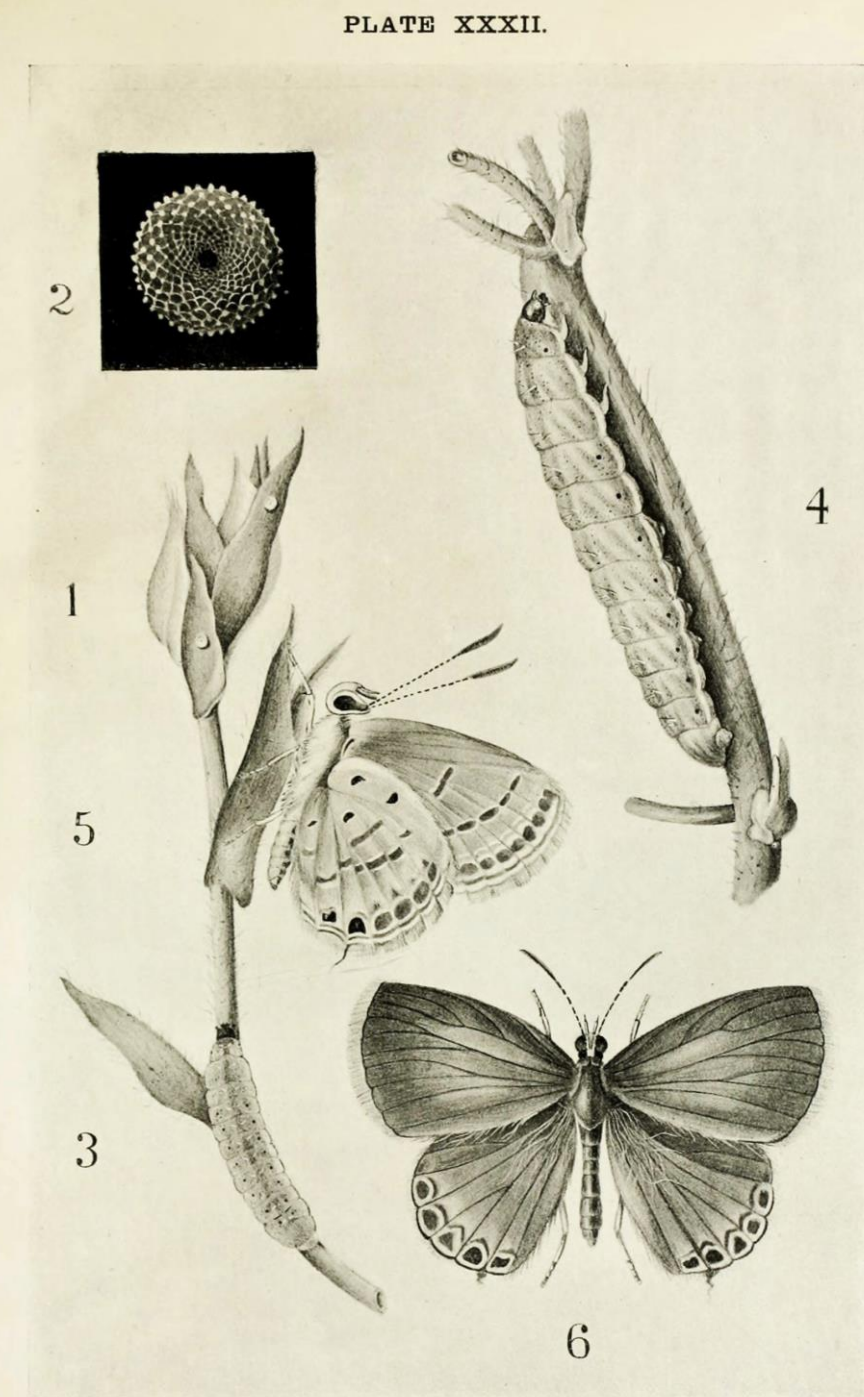
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8. Blue butterflies

S.N: *Euchrysops cnejus*; *Lampides boeticus*
(Lycaenidae: Lepidoptera)

- ***Euchrysops cnejus*: The larvae bore into buds and pods and feeds on flowers and seeds of red gram, cowpea and Lab-lab niger.**
- **The butterfly lay sculptured round eggs singly on unopened buds.**
- **The larva is flat, pale greenish or yellowish with a red line and short-black hairs on the body.**
- **S.O.P.-in the soil at the base of stem.**









- ***Lampides boeticus***: The larva is pale green with a roughened skin and feeds on leaf, twig or pod.
- It feeds on flower buds and seeds of red gram, cowpea and Lab-lab niger.





9. Red gram Pod Fly

S.N: *Melanagromyza obtusa*
(Agromyziidae: Diptera)

- **Distribution:** Most common in northern India.
- **Morphology:** It is a small metallic-black fly, whose tiny maggots bore into the pods and feed on seeds.
- **Biology:** S.O.O.-in the shell of a tender pod.
- The egg, larval and pupal periods occupy 3, 9-10 and 8-9 days respectively.
- **S.O.P.- inside the damaged pods.**
- The adults emerge by cutting holes.
- The life-cycle is completed in 11-27 days and several generations are produced in a year.





Nature of Damage

- **The maggots eat away only a part of the seed and the partially damaged seed becomes subject to bacterial and fungal infections.**
- **Pin head sized bore hole near the septum and shriveling of developing pulse seeds.**
- **Dry pods show pin head sized holes and has shriveled seeds.**
- **The damaged grains are thus, rendered unfit for human consumption.**
- **It also infests lady's finger and safflower in which the maggots mine into the stem and cause wilting of the plants.**
- **The insect is considered to be one of the important pests of red gram as it is capable of inflicting up to 80% loss in yield of seeds.**







Management

- **Advancing the usual sowing season may result in lower incidence of the pest.**
- **Spray 1.75 kg of carbaryl 50WP in 200 liters of water on dwarf varieties and 300 liters on tall varieties per ha at the time of 50 percent flowering.**
- **Repeat the spray after 15 days**

10. Pulse beetle

S.N: *Callosobruchus chinensis*
(Bruchidae: Coleoptera)

- It is a pest both in the field and in storage.
- The grubs feed on the seeds in pods.



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PICTURES



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11. Bean Fly

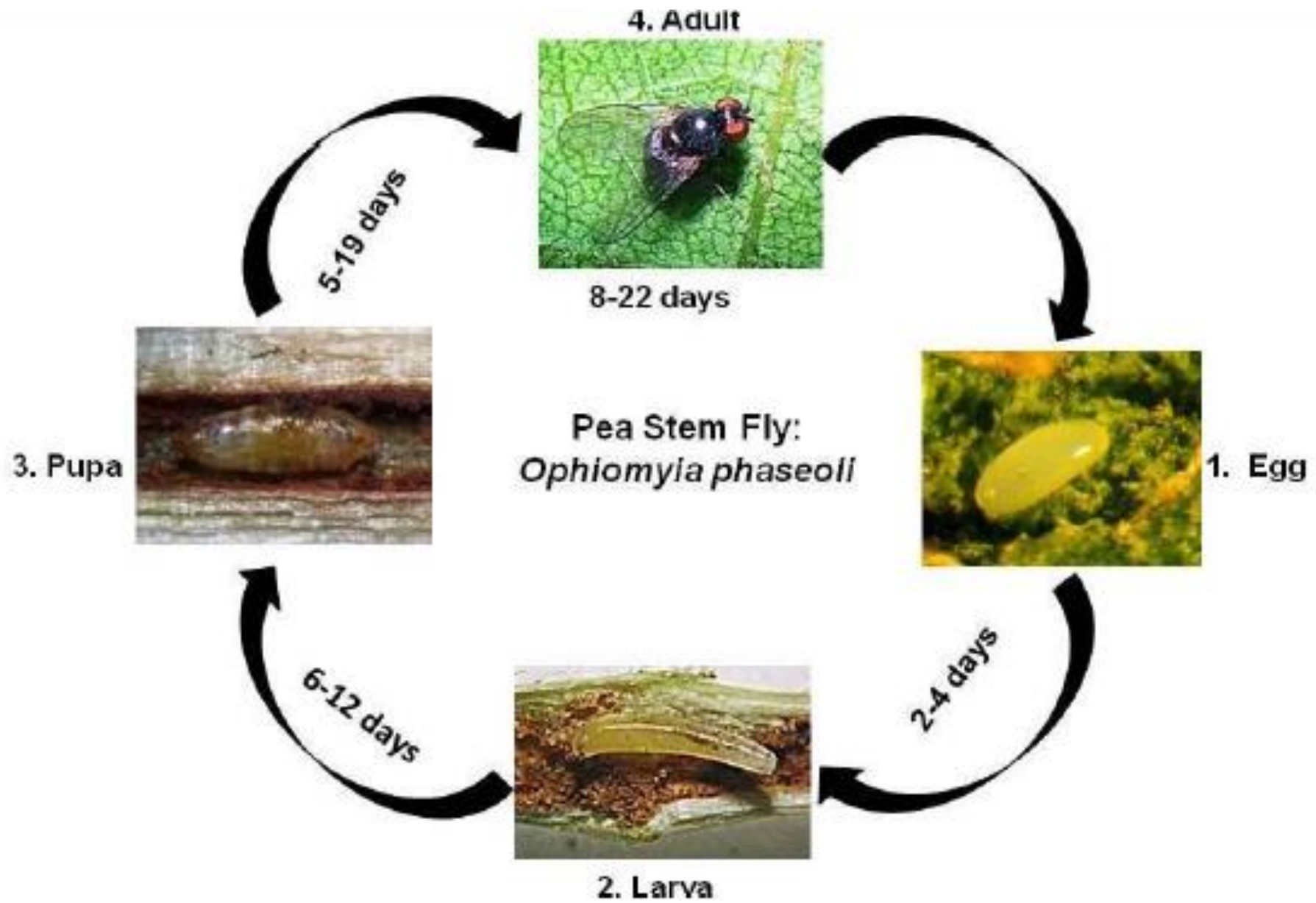
S.N: *Ophiomyia phaseoli*
(Agromyziidae: Diptera)

- **Distribution:** Sri Lanka, India, China, Indonesia, Malaysia, the Philippines, Singapore and many African countries.
- **Host range:** *Phaseolus vulgaris*, cowpea, lima bean, soybean, *Cajanus*, *Canavalia*, *Dolichos* etc.
- **Morphology:** It is a very minute insect.
- Eggs are white and slender.
- The general colour is shiny black except for eggs, wing veins and antennae which are light brown.
- The maggot is creamy in colour and, apodous in form.
- Pupae are barrel shaped and black in color.



Biology

- **The flies are seen as soon as the host crops are available in the field.**
- **S.O.O,- Eggs laid singly in holes made on the upper surface of young leaves, especially near the petiole end of the leaf.**
- **On hatching, the maggot forms a short linear leaf mine and further on it tunnels underneath the epidermis of the leaf until it reaches one of the veins which leads it to the midrib and then to the leaf stalk and the stem.**
- **S.O.P. inside the stem.**
- **The total life cycle takes 2-3 weeks.**
- **As many as seven generations of this pest have been reported during the active season of the pest infestation.**



Nature of Damage

- **As a result of severe infestation, the leaves turn yellow, giving the plants a dry appearance.**
- **The stems turn brown, become swollen and break down.**
- **The spring crops usually suffer less infestation than the late summer crops in which infested plants may constitute over 70 per cent of the plant population.**
- **Attacked plants bear less pods which are mostly empty or else their seeds may be very small**



Leaves show feeding and oviposition punctures on the upper side with corresponding light yellow spots



Attacks in the seedling stage usually cause wilting and death

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Management

- **Apply 625 ml of monocrotophos 40EC or 750 ml of oxvdemeton methyl 25EC in 625 litres of water per ha at 15 days interval during flowering stage.**
- **Soil application of 10 kg of phorate 10 G is effective up to 40 day.**

12. Green Nettle Slug-caterpillar

S.N: *Thosea aperiens*
(Cochliiidae: Lepidoptera)

- **Host range:** sorghum, pigeon pea, red gram, finger millet. Tanner's cassia, cowpea, tamarind.
- In Sri Lanka, it is reported to feed on *Dunbaria heynei*, an herbaceous climber.
- **Morphology:** The greenish larvae feed on leaves.
- They have stinging hairs on their body are a nuisance to the field workers, in addition to damaging the plants.
- Fore wings of the adult moths are dark, cinereous-brown, whereas the hind wings are palish in colour.



Biology

- The moths are active during October-November and lay eggs on host plants.
- The caterpillars on emergence feed on leaves till the end of December.
- **When full-grown, they bore into the soil. construct a cocoon and hibernate there in the larval stage.**
- **During the following August-September, they pupate and subsequently emerge as moths.**
- **The period from the onset of pupation and the emergence as moths takes about 30 days.**
- **Normally one life-cycle is completed in a year.**

Nature of Damage

- **The larvae defoliate the plants.**
- **The field workers when accidentally touch the stinging hair of the caterpillars may develop painful rashes on their hands and arms.**
- **Chemical control measures are same as in case of gram pod-borer.**

13. Hairy caterpillar and Spingid moth

S.N: *Euproctis fraterna* & *Acherontia styx*

(Erebidae & Sphingidae: Lepidoptera)

- The larvae of *Euproctis fraterna* on red gram and the *Acherontia styx* on black gram and Lab-lab niger feed on leaves.





1cm



14. Defoliators

- **The leaf folder *Lamprosema indica* (F.)** is noticed on Lab-lab niger, green gram, black gram and soybean.
- The greenish larva with lateral white lines of the moth *Anticarsia irrorata* (F.) feeds on leaves of Lab- lab niger and cowpea.
- The weevils *Myloccerus viridanus*, *M. discolor*, *M. undecimpustulatus* and *Episomus lacerta* feed on leaves of pulse crops.
- On red gram and rose the adult of the **leaf cutter bee *Megachile anthracina*** cuts semi-circular or circular bits of leaves.
- The larva of *Pammene critica* (Tortricidae) webs the leaves of red gram and pods: another common **leaf roller pest of red gram is *Caloptilia sovella* (Gracillariidae)**. The larva of former species is yellowish with a brown head and that of the latter species is creamy yellow.

15. Sucking pest

- The **scale insect *Ceroplastodes cajani*** attacks red gram and Lab-lab niger.
- The **thrips *Megalurothrips usitatus*** and ***Thrips florum*** infest the flowers of red gram
- The **thrips *Ayyaaria chaetophora*** infests the leaves of Lab-lab niger.
- Small greenish brown **stink bug, *Coptosoma cribraria* (Plataspidae)** infests tender shoots and pods of Lab lab niger, red gram, cowpea, green gram and black gram.
- **Eriophid mite, *Aceria cajani* transmits Sterility mosaic virus in redgram. Symptoms are small sized pale coloured small leaves.**

16. Girdle beetle

S.N: *Obereopsis brevis*

(Cerambycidae: Coleoleoptera)

- **Host range and morphology:** This is an important pest of soybean and also lablab and cowpea.
- **The adult is a small black beetle.**



Biology

- **The ovipositing female beetle girdles the stem twice and makes 3 punctures just above the lower ring before inserting a single egg through the largest hole into the pith.**
- **This results in dropping of the upper part of the stem. A female beetle lays 7-13 eggs.**
- **The egg, grub and pupal periods are 4-5, 34-47 and 8-11 days respectively.**
- **The grub tunnels upwards and downwards within the stem and a single larva can destroy the whole plant.**
- **Over wintering takes place as the full-grown grub within the feeding tunnel in a gall-like chamber near the base of the plant in the girdled portion of the stem which has fallen out or under plant debris.**

Nature of Damage and management

- **The female of this insect feeds on the xylem of the stem.**
- **The larvae further damage the stem and make tunnels inside and fill these with excreta.**
- **The leaves and the growing points dry up & The broken stems can be seen in the field.**
- **Same as in case of bean fly.**





17. Flower webber

S.N: *Polyorycta hemirrhoda*

(Noctuidae: Lepidoptera)

- **The larva webs the flowers on the inflorescence in green gram, black gram and cowpea and feeds on them.**
- **The larva is green with a black head and long white hairs on the body.**
- **The moth has fore wings with yellow and purple patches and white hind wings.**

18. Bud weevil

S.N: *Indozocladius asperulus*

(Curculionidae: Coleoptera)

- **The adult is very small and brown with a snout.**
- **It thrusts the minute oval creamy white eggs into buds and covers them with a fluid.**
- **The grubs feed on the pollen and pupate in the soil in earthen cells.**

19. Blister beetle

S.N: *Mylabris phalerata*

(Meloidae: Coleoptera)

- **Eat away the flowers irregularly.**
- **Flowers partially eaten and petals are damaged**



20. The aphid

S.N: *Aphis craccivora*
(Aphididae: Hemiptera)

- It infests tender shoots and inflorescence of red gram, Lab-lab, cowpea, green gram, black gram and soybean.
- **Black colour aphid on beans is *Aphis craccivora* [JRF 2002, 2011].**



21. The Stem fly

S.N: *Melanagromyza phaseoli*
(Agromyziidae: Diptera)

- Causes withering and drying of shoots in Lab-lab, niger, cowpea, black gram and green gram.
- Incidence can be reduced by changing date of sowing [JRF 2001]
- Over winters in pupal stage.





Thank you...