

# INSECT PESTS OF JUTE



**Dr. Nihal R**

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# IMPORTANT PESTS OF JUTE

Sl. No.	Common Name	Scientific Name	Family	Order
1	Stem girdling beetle	<i>Nupserha bicolour postbrunnea</i> [ARS NET/ PRE 2015]	Cerambycidae	Coleoptera
2	Weevil	<i>Apion corchori</i>	Apionidae	Coleoptera
3	Semilooper	<i>Anomis subulifera</i>	Noctuidae	Lepidoptera
4	Mealy bug	<i>Ferrisia virgata, Phenacoccus solenopsis,</i> <i>Meconellicoccus hirsutus</i>	Pseudococcidae	Hemiptera
5	Leaf miner	<i>Trachys dasi</i>	Buprestidae	Coleoptera
6	Tobacco caterpillar	<i>Spodoptera litura</i>	Noctuidae	Lepidoptera

# IMPORTANT PESTS OF JUTE

Sl. No.	Common Name	Scientific Name	Family	Order
7	Indigo caterpillar	<i>Spodoptera exigua</i>	Noctuidae	Lepidoptera
8	Sunhemp hairy caterpillar	<i>Utethesia pulchella</i>	Arctidae	Lepidoptera
9	Hairy caterpillar	<i>Spilosoma obliqua</i>	Arctidae	Lepidoptera
10	Leaf thrips	<i>Ayyaria chaetophora</i>	Thripidae	Thysanoptera
11	Scale	<i>Parasaissetia nigra</i>	Coccidae	Hemiptera
12	Beetles	<i>Pachnephorus bretinghami</i> , <i>Nodostoma bengalensis</i>	Eumolpidae	Coleoptera



# 1. Stem girdling beetle:

S.N: *Nupserha bicolor postbrunnea*  
(Cerambycidae: Coleoptera)

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- **Distribution:** India and Bangladesh.
- **Host range:** *Corchorus olitorius*, mesta, Dhaincha.
- **Recent pest on jute.**



# Biology

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- **The female beetle makes two rings (1-1.4 cm wide) by cutting a strip, make a slit & reaches as far as the pith, where the beetle deposits one egg.**
- **Since a female lays, on an average, 35 eggs, many jute plants are damaged within 2-3 weeks.**
- **The eggs are yellowish.**
- **They hatch in 3-4 days and the emerging larvae start feeding and travelling downwards along the central hollow of the stem, feeding on the pith.**
- **The larvae become full-grown in 30-50 days.**
- **S.O.P.- in a chamber made in the hollow of the stem.**
- **With the advent of winter, the larvae cut out small portions of the stem in which they encase themselves and diapause.**

# Biology

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- **These encasements are detached from the main stem and when the jute plants are placed under water, they float, carrying with them, the larvae.**
- **Thus, the diapausing larvae escape drowning.**
- **The females prefer stems of 2.5-5.0 mm in diameter, which are available at different heights of the jute stem depending on the age of the crop.**
- **The pupation and the emergence of beetles seem to synchronize with the availability of jute plants.**
- **This is monovoltine pest.**

# Nature of Damage

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- **The adult beetle girdles the stem at two levels before it starts oviposition.**
- **This causes withering, drooping and death of the portion above the lower girdle to a length varying from 5 to 50 cm thus resulting in loss of fiber yield.**
- **The main damage occurs because of oviposition, resulting in the breakage of fiber length at several places.**
- **Thus, both the quality of fiber and the yield suffer.**
- **The damage is estimated at 6-30 per cent, being more in younger plants than in the older ones.**
- **Not much damage is caused by the feeding of grub or adults.**









# Management

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- **Growing of resistant species of jute (*C. capsularis*) is useful.**
- **Removal of drooping stem portions and stem casings containing diapausing grubs.**
- **Conserve grub parasitoids - *Neocatolaccus nupserhae* and *Norbaus acuminatus* (Chalcididae).**
- **Spray application of phosalone 0.07% or quinalphos 0.05% at fortnightly interval is effective.**
- **Mix 25 kg of phorate 10G per ha in the top soil followed by light irrigation.**

## 2. Jute weevil [ARS 2014 Mains]

S.N: *Apion corchori*

(Apionidae: Coleoptera)

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- **Distribution:** India and Bangladesh
- **Host range:** *C. capsularis* is more susceptible to attack than *C. olitorius*.
- **Morphology:** The small weevil is brown or dull black and has small whitish setae on its body.



# Biology

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- **weevils make holes in the stem and oviposit at the base of the petiole, in which the larvae bore and damage the top leaves.**
- **In older plants, the weevils prefer to oviposit in the basal region and the lower part of the stem is damaged.**
- **The larvae emerge after 3-5 days and start feeding on the surrounding tissues.**
- **They are fully fed in 8-11 days.**
- **S.O.P.- in rough chamber in the stem.**
- **The pupal stage is completed in 4-6 days and the weevil emerges from the pupal case through an exit which is either made days by the larva before pupation or by the weevil itself.**
- **Although the adults may live for about 200 days, the normal life-cycle is completed in 15-24 days.**



# Biology

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- **The egg, larva and pupal periods last for 3-5, 8-18 and 4 days, respectively.**
- **A number of overlapping generations are completed during the jute season.**
- **The winter is passed in the adult stage and the weevils seek shelter in bushes, shrubs and hedges, and start laying eggs on the new crop next year.**

# Nature of Damage

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- **It bores holes for oviposition with the rostrum in the jute stem and the larvae feeding inside the stem also injure the fiber.**
- **Destructive pest of early sown and seed crop.**
- **The main damage to the quality of fiber is caused by weevils making oviposition holes.**
- **The grubs tunnel into the pith.**
- **Due to damage a gall-like swelling is formed [IARI PhD 2000]**
- **Withering of terminal shoots of jute**
- **A female may make a number of holes before laying an egg and damages numerous stems in her life time.**
- **The fields suffering the most are those with nitrogen fertilizer and those which are sown early**

# Apion grub infestation: drying of top shoot and 'knot' symptom





# Management

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- **Removal and destruction of infested plants at the time of thinning the crop and by collecting and destroying the stubble after harvest.**
- **Spray 2.5 kg of carbaryl 50 WP in 625 litres of water per ha or phosalone 0.07% or quinalphos 0.05% can be suggested.**

### 3. Jute semilooper

S.N: *Anomis sabulifera*  
(Noctuidae: Lepidoptera)

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- **Distribution:** This is a specific pest of **jute** and is the most destructive in the **jute tracts of India and Bangladesh.**



# Biology

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- **The pest passes winter in soil in the pupal stage and the moths appear in May-June, when the crop begins to grow in the field.**
- **S.O.O. singly on the underside of young leaves which look like water droplets.**
- **The tiny caterpillars, on emerging, start feeding on the apical leaves and buds.**
- **S.O.P- on the plant or in the soil.**
- **In summer the pupae emerge in about a week, but those, which diapause, spend the entire winter in that stage.**
- **The life-cycle is completed in about one month and several generations are completed in a year.**





**Egg (2-3 Days)**



**Larval instars (15-17 Days)**



**Pupa (7-8 Days)**



**Adult (5-7 Days)**



# Nature of Damage

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- **Only the caterpillars cause damage by feeding on the foliage and being green, they camouflage but are easily noticed when they crawl by producing a loop in the middle.**
- **The incidence on the crop takes place in about three distinct waves and the peak damage is noticed during the period from early July to middle of August.**
- **Larvae feed on apical buds up to the fifteenth leaf from top.**
- **The attack is severe on half-grown plants which are one meter high.**
- **Usually, the incidence of the pest on the crop is uniform.**
- **The second generation is the most damaging and sometimes up to 90 percent of the leaves may be eaten up.**
- **Generally, the top 7-9 leaves are damaged and plant growth is adversely affected, resulting in a considerable reduction in the yield of fiber.**



# Management

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- **Ploughing the infested fields after harvest to kill the pupae.**
- ***Litomastix gopimobani* (Encyrtidae), *Tricholyga sorbillans* and *Sisyropa formosa* (Tachinidae) are associated with the larvae of this pest.**
- **The caterpillars can be dislodged into kerosene water by drawing a rope across the young crop.**
- **Spray 500 ml of fenitrothion 50EC in 500 litres of water per ha.**
- **Spray application of phosalone, methyl parathion emulsions will be effective.**



## 4. Jute Mealy bug

S.N: *Phenacoccus solenopsis*, *Meconellicoccus hirsutus*  
(Hemiptera: Pseudococcidae)

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- **Host range:** Jute, roselle (*Hibiscus sabdarifa*)
- **The nymphs and females feed on the apical parts of a plant which becomes stunted and shows bushy-top symptoms.**
- **The petiole becomes shortened, the lamina crumples and the internodal length is reduced, resulting in fibre deterioration and yield reduction.**





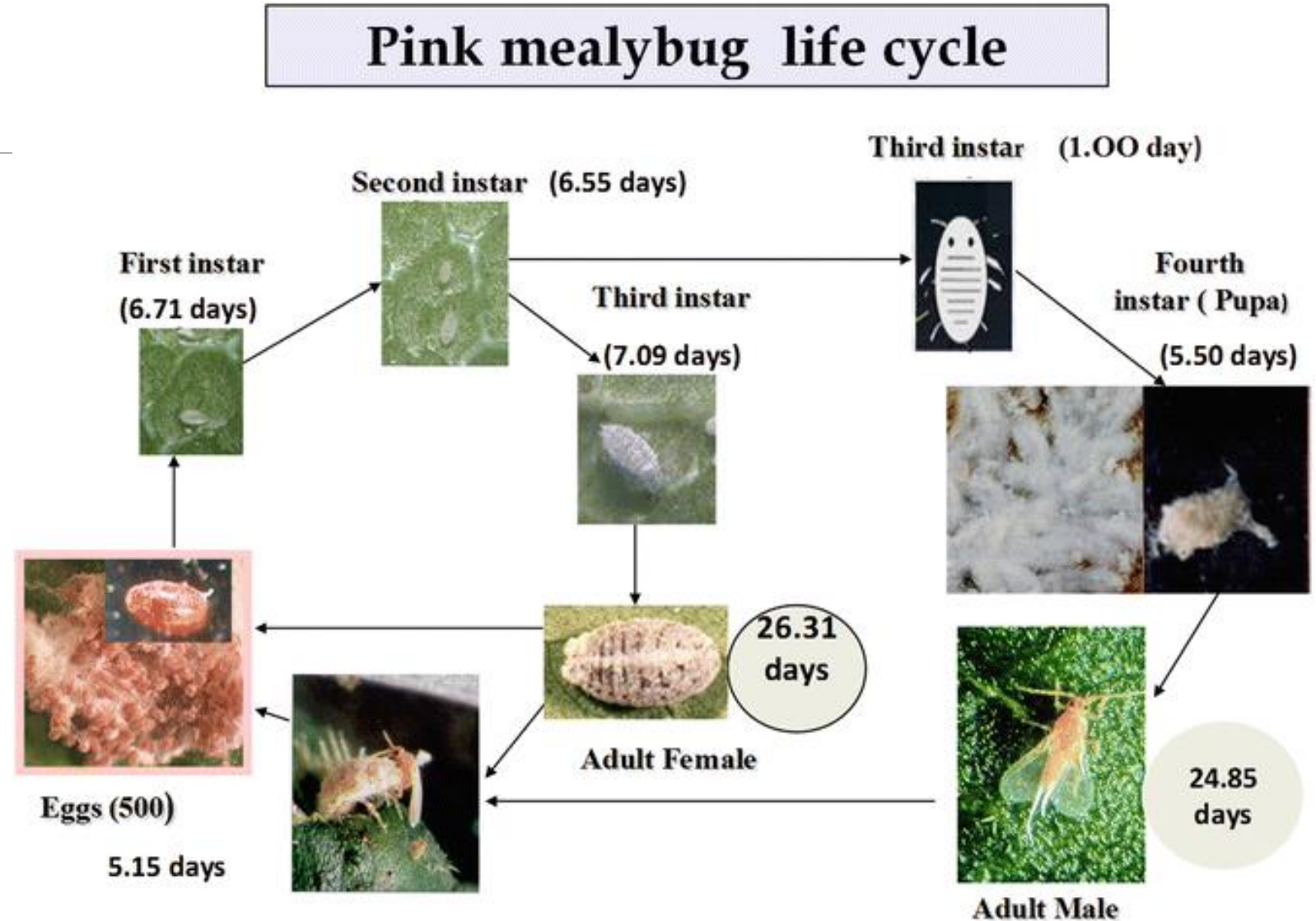
# Biology

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- **The mated females lay pink cylindrical eggs which are rounded at the ends.**
- **S.O.O.- on plants inside the ovisacs.**
- **The incubation period varies from 7 to 14 days in different seasons.**
- **On completion of the incubation period, the emergence of the nymphs starts from the ovisacs in batches, corresponding with the sequence of egg-laying.**
- **The tiny nymphs crawl out on the host and select a suitable spot to settle down.**
- **They are light pinkish and secrete both a white mealy powder and honey-dew.**
- **They develop distinctive sex characters after undergoing a few early moultings.**
- **The full-grown larva secretes fine white mealy fibers with which it forms a cocoon and then pupates in it.**

# Biology

- The females remain wingless, and on maturity, they develop ovisacs in which eggs are laid.
- The bugs suck sap from the stem and leaves.
- The female is a round, sack like, light pink creature.
- The males are slender and have a pair of delicate wings.



# Management

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- **Spray 1.25 litres of dimethoate 30EC in 625 litres of water per ha.**
- ***Scymnus pallidicollis* (Coccinellidae) is the most efficient predator.**





## 5. Beet Armyworm, S.N: *Spodoptera exigua* (Lepidoptera: Noctuidae)

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- **Distribution:** This is a serious pest of young jute plants.
- Major pest of indigo (*Indigofera arrecta*) and hence also called indigo caterpillar.
- Also called as Lucerne caterpillar.
- **Host range:** polyphagous insect-jute, indigo, Lucerne, chillies, onion, brinjal, sweet pepper, gram, linseed, lentil, cabbage, maize, cotton, safflower (*Carthamus tinctorius* L.), sunflower, etc.



# Biology

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- **The pest passes winter as a pupa, which is enclosed in webbings, forming a rough pupal cocoon.**
- **The eggs are spherical and resemble poppy seeds in shape and size, having lines radiating from the center.**
- **The egg-clusters are covered with buff hairs.**
- **The eggs hatch in 1-3 days and the young caterpillars start feeding in groups.**
- **They feed voraciously on the epidermis and also make webs.**
- **Within 2-3 days the gregarious larvae spread out and hide under various shelters, from where they come out in the morning and evening to feed on the leaves.**
- **They spin silken webbings and prepare rough cocoons with bits of leaves and other material.**
- **The life cycle is completed in about 30 days.**



# Nature of Damage

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- **The damaged crop, on which larvae have fed, gives a webbed appearance.**
- **The older caterpillars, which feed in the morning and evening, have a voracious appetite and strip off quite large patches on the foliage.**
- **However, the young jute plants, less than two months of age suffer the most.**
- **The early sown capsularis varieties suffer greater losses than those sown later.**
- **At this young stage, they are also in the habit of webbing together either several leaflets or the margin of the same large leaf.**
- **At times, these webs give a shabby look to the crop.**
- **Within these webs the young larvae live gregariously only for two or three days and thereafter they separate and spread out.**
- **They are very voracious and quite large patches of foliages are quickly stripped.**



# Management

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- **Collecting and destroying the egg masses and the caterpillars**
- **Spray 625 ml of fenitrothion 50EC in 625 litres of water per ha. Spray application of phosalone 0.07% or cypermethrin 0.005%.**



# INSECT PESTS OF MESTA

The image shows a close-up of several bright green, palmately 5-lobed leaves of a Mesta plant. The leaves have serrated margins and prominent venation. The background is a soft-focus green, suggesting a dense foliage. The text 'INSECT PESTS OF MESTA' is overlaid in white, sans-serif font across the upper middle portion of the image.

- It is an allied fiber crop extensively grown in Eastern India
- Mesta is attacked by a dozen of insect pests but only the hairy caterpillars are important and cause considerable damage

**Major insect pests of Mesta are**

Mesta hairy caterpillar	<i>Euproctis scintillans</i>	Lymantriidae	Lepidoptera
Bihar hairy caterpillar	<i>Spilarctia obliqua</i>	Arctiidae	Lepidoptera
Mesta semilooper	<i>Anomis sabulifera</i>	Noctuidae	Lepidoptera
Mesta stem weevil	<i>Alcidodes affaber</i>	Curculionidae	Coleoptera
Mealy bug	<i>Meconellicoccus hirsutus</i>	Psuedococcidae	Hemiptera
Leaf hopper	<i>Amrasca biguttula biguttula</i>	Cicadellidae	Hemiptera
Aphids	<i>Aphis gossypii</i>	Aphididae	Hemiptera
Flea beetle	<i>Longitarsus belgaumensis</i>	Chrysomellidae	Coleoptera



# 1. Mesta hairy caterpillar

S.N: *Euproctis scintillans*  
(Lymantriidae: Lepidoptera)

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- **Adult is a medium sized yellowish coloured moth with a reddish/ yellowish line and spots on edges of wings**
- **Alternate hosts – It also infests Castor, Cotton, Pigeon pea, Mango, Sun hemp etc.,**



# Biology and Management

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- **Eggs:** are laid in masses on the under surface of the leaves. [I.P – 5-9 days]
- **Larva:** larvae are yellowish in colour and brown coloured head and yellow stripes with a mid dorsal red stripe.
- There are tuft of black hairs dorsally on the first three abdominal segments. [L.P – 29 – 35 days].
- **Pupa:** It pupates in a cocoon of hairs on the leaves or in leaf folds. [P.P – 10-12 days].
- **The early instar larvae feed gregariously on the foliage and thus cause severe defoliation**
- **Timely sowing of the crop at the onset of monsoon rains**
- **Foliar sprays with methyl demeton @ 2 ml / lit. or phosalone @ 2 ml / lit. of water were effective in control the pest**

## 2. Mesta stem weevil

S.N: *Alcidodes affaber*

(Curculionidae: Coleoptera)

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- **This insect is a common pest on Malvaceous plants in India infesting Bhendi, *Bombax malabaricum*, *Althaea rosea* , *Ficus bengalensis* etc.**
- **Adult is a dark greyish – brown weevil with pale coloured cross bands on the elytra.**



# Nature of Damage

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- **The adult weevil feed on leaf buds, petioles and tender terminal portion.**
- **However, serious damage is caused only by the grubs.**
- **Grubs boring in to stem and petioles and causing gall like swellings**
- **Frass is found through hole made on the stem**
- **The infested plants gets stunted**
- **Their flowers and fruiting gets retarded considerably**
- **A single plant may harbour as many as 12 grubs**
- **The active from September – December**



# Management

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- **The grubs are parasitized by – *Aphrastobracon alcidophagus*,**
- ***Zoridescopus spp.***
- **Spray the crop with phosalone @ 2ml / lit. of water are effective**



### 3. Mesta mealy bug

S.N: *Maconellicoccus hirsutus*

(Pseudococcidae: Hemiptera)

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- **The mealy bugs infests the stem resulting in the formation of swelling and shortening of inter nodes.**
- **The vertical growth of the stem is suppressed as the growing tips are damaged.**
- **Secondary branches are put forth with the formation of 'bunchy top'**
- **The fiber of attacked plants snaps (break) during retting (separation of fiber from the stem) at the infestation point.**
- **The plant height is reduced resulting in low yield**



# Management

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- **Release of *Cryptolaemus montrouzieri* when peak infestation in September to October**
- **Spray the crop with methyl demeton @ 2 ml / lit. or dimethoate @ 1.5 ml / lit. is effective**

## Bihar hairy caterpillar : *Spilarctia obliqua* (Arctiidae: Lepidoptera)

- The caterpillar is a defoliator and attack apical buds and top shoots
- Spraying the crop with phosalone @ 2ml / lit. of water



**Mesta semilooper: *Anomis sabulifera***  
**(Noctuidae: Lepidoptera)**

- Caterpillar feeds on apical leaves and growing point as result stunted growth and branching affecting the fiber yield





**Leaf hopper: *Amrasca biguttula biguttula*  
(Cicadellidae: Hemiptera)**

- **It infests the under side of leaves**
- **The edges of the affected leaves turn red and curl down wards**
- **The crinkled leaves are fall off**
- **The plants become stunted reducing the fibre length**





**Aphid: *Aphis gossypii***  
**(Aphididae: Hemiptera)**



**Flea beetle: *Longitarsus belgaumensis*  
(Chrysomelidae: Coleoptera)**

- **Adult make minute holes on leaves and defoliate the plants**
- **Grubs feeds on the roots by mining**







Thank  
you

