


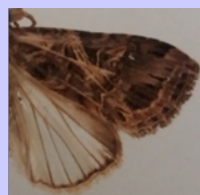


**ICAR-DIRECTORATE OF ONION AND GARLIC RESEARCH, RAJGURUNAGAR, PUNE-410505,
MAHARASHTRA
CROP PROTECTION
INSECT PEST CALENDAR OF ONION AND GARLIC**

Colour indicator

	Low intensity
	Moderate intensity
	Severe

Crop: Onion												
Insect Pest	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Onion thrips, <i>Thrips tabaci</i> Lindeman (Thysanoptera: Thripidae)   												
Pest description and identification: <ul style="list-style-type: none"> Nymphs are white to pale yellow in colour, elongate and slender body. Nymphs resemble exactly like the adult, but lack wings Pupa is pale yellow to brown in colour Adults are slender, yellowish brown, and approximately 1 mm in length Males are wingless, while females have long, narrow fringed wings Damaging stage: <ul style="list-style-type: none"> Nymphs and adults Symptom of damage: <ul style="list-style-type: none"> Both nymphs and adults feed on the young leaves in the neck region, and females lay their eggs in the leaves individually Leaves curl and twist, and show white or silvery spots which later turn into white blotches along the leaves Entire plant becomes blemished and white, exhibiting blast like appearance. Infested terminals lose their colour, roll, and dry up gradually from tip down and dropping leaves prematurely. 												
Common cutworm, <i>Spodoptera litura</i> Fabricius (Lepidoptera: Noctuidae)												



Beet army worm, *Spodoptera exigua* Hubner (Lepidoptera: Noctuidae)



Pest description and identification:

- Young caterpillars are light green with black head or black dots, and they are seen in cluster.
- Pupa is pale yellow to brown and pupate in the soil
- Adults are slender, yellowish brown, and approximately 1 mm in length, brown in colour. The forewings are brown with wavy white patterns, possess reniform spot is brown outlined with a white margin and has a marking of letter "A" at the apex area, orbicular spot is elongate, narrow, oblique, light brown and outlined with a white margin. While hind wings are white with a brown patch along the edge
- Creamy white eggs are laid in masses, and covered with silky hairs

Damaging stage:

- Larva

Symptom of damage:

- Larvae can be found in nursery beds and newly transplanted onion fields
- Larvae feed gregariously on foliage and leave a papery appearance on the leaves

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

Pest description and identification:

- The early instar larvae are pale green in colour, turning into grayish in colour with black head. Older larvae have broad stripe on both side and usually dark green or grayish black in colour
- Pupae are light brown and pupate in the soil
- Adults are medium- sized, with mottled grey and brown forewings; orbicular spot is round and light or yellowish brown with a white margin surrounded by a thin black margin. Whereas, uniform grey or white in grey or white hind wings
- White eggs are laid in clusters towards the apex of the leaves and covered with scales

Damaging stage:

- Larva

Symptom of damage:

- Larva feed gregariously for the first few days, especially in the growing tips of onion by scraping mesophyll layer
- As the larvae mature, they become solitary and continue to feed on tubular leaves by boring



Damaging stage:

- Nymphs and adults

Symptom of damage:

- Adults and nymphs feed primarily on the underside of leaves
- Feeding punctures appear as small spots stippled on the upper surface of the leaves
- Typically, mites feed in “pockets”
- Mite infestation creates silk webbing, which is usually visible
- Leaves become bleached and discolored with time and they may fall off eventually

Head borer, *Helicoverpa armigera* Hubner (Lepidoptera: Noctuidae)



JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

Pest description and identification:

- Larva colour varies from greenish to brown
- Green with dark brown grey lines laterally on the body with lateral white lines with dark and pale bands. Fully-grown larva is greenish with dark brown grey lines along the side of body and measures about 35-45 mm in length
- Pupa is brown in colour, occurs in soil, within stalk and crop debris
- Adult moth is light pale brownish yellow stout moth. Fore wing grey to pale brown with “V” shaped speck. Hind wings are pale smoky white with a broad blackish outer margin.
- Eggs are spherical in shape, creamy white in colour and laid singly

Damaging stage:






- Larva

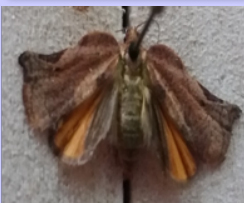
Symptom of damage:

- Head borer is a pest of onion seed crop and occurs sporadically on onion grown for seed
- Larva cuts the pedicel of the flower and feeds on the stalk. Single larva can damage many flower stalks
- Causes defoliation, break the umbel stalk, and umbels

Crop: Garlic

Pest	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Onion thrips, <i>Thrips tabaci</i> Lindeman (Thysanoptera: Thripidae)  												
Pest description and identification: <ul style="list-style-type: none"> Nymphs are white to pale yellow in colour, elongate, slender body and the appearance of an adult but without wings Pupa is pale yellow to brown Adults are slender, yellowish brown and measure about 1 mm in length Males are wingless and females have long narrow fringed wings Damaging stage: <ul style="list-style-type: none"> Nymphs and adults Symptom of damage: <ul style="list-style-type: none"> Leaves curl and twist, and white or silvery patches appear at later stages Whole plant looks blemished and turns white 												
Red spider mite <i>Tetranychus cinnabarinus</i> Boisduval (Acari: Tetranychidae) 												
Pest description and identification: <ul style="list-style-type: none"> Adult females are more or less elliptical in shape and reddish in colour Eggs are laid singly on the underside of the leaves or attached to silky webs made by the adults Larvae pinkish and have four pairs of legs and are slightly larger than the egg. Nymphs are reddish or greenish appearance, and having four pairs of legs. Damaging stage: <ul style="list-style-type: none"> Nymphs and adults Symptom of damage: <ul style="list-style-type: none"> Adults and nymphs feed primarily on the underside of leaves Feeding punctures appear as small spots stippled on the upper surface of the leaves Typically, mites feed in “pockets” Mite infestation creates silk webbing, which is usually visible Leaves become bleached and discolored with time and they may fall off eventually 												

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Eriophyid mite, <i>Aceria tulipae</i> Keifer (Acari: Eriophyoidea)  												
Pest description and identification: <ul style="list-style-type: none"> Eriophyid mites are cylindrical/cigar-shaped, tapering from head to rear, translucent white in colour and microscopic Unlike most mites, eriophyid only have two pairs of legs located near the head Adult mite is about 200 to 250 µm length and width 36 to 52 µm Damaging stage: <ul style="list-style-type: none"> Nymphs and adults Symptom of damage: <ul style="list-style-type: none"> Both adults and immature stages feed on the young leaves and infested leaves do not open completely Stunting, twisting, curling and discoloration of foliage are some common symptoms Whole plants will show curling symptom and yellow mottling on the edge of the leaves Mites acts as vectors for various plant viral diseases in garlic 												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Aphid <i>Aphis sp</i> and <i>Myzus sp</i> (Hemiptera: Aphididae)   												
Pest description and identification: <ul style="list-style-type: none"> <i>Myzus sp</i> nymphs are green to yellow in colour Winged aphids have a black head and thorax, green abdomen with a large dark patch dorsally <i>Aphis sp</i> nymphs vary from tan to gray or green, and often are marked with dark head and distal portion of abdomen dark green. Adults are light to dark green in colour Damaging stage: <ul style="list-style-type: none"> Nymphs and adults Symptom of damage: <ul style="list-style-type: none"> Both nymphs and adults suck leaf sap which causes the leaves to roll, twist and yellowing. Aphids also transmit the viral diseases in garlic. 												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Leaf tier <i>Archips machlopiis</i> (Meyrick) (Tortricidae: Lepidoptera)												
Pest description and identification:												



- Larvae are greenish grey to whitish grey with a reddish brown head with a prominent brown prothoracic shield
- Pupae are dark brown to black in colour; with a long tapering cremaster in a dense web of silk.
- Adult moths are cryptically coloured, with forewings grey, brown, rust, or tan coloured, have a prominent round-pointed apex with wings held in a characteristic a flattened roof shape at rest

Damaging stage:

- Larva

Symptom of damage:

- Larvae tie the adjacent leaves of plants together and feed the leaf tissue from inside by scraping action

Prepared by

Dr Karuppaiah V and Dr Soumia PS

Agricultural Entomology

ICAR-Directorate of Onion and Garlic Research, Rajgurunagar, Pune-410505, Maharashtra