

## Chapter 7

## GENERAL AGRICULTURAL INSECT-PESTS

## 7.1 DESERT LOCUST

T.N: *Schistocera gregaria**Locusta migratoria*

(Acrididae; Orthoptera)

**Introduction:** Desert locust is polymorphic species show morphological color and behavior variation in different phases e.g. color of body, length of wings, and shape of pronotum. Existence is either a solitary or gregarious.

**Differences between destructive gregarious and harmless solitary phases are:**

Gregarious ( <i>Schistocera gregaria</i> )	Solitary ( <i>Locusta migratoria</i> )
1. Occur in swarms and move from place to place.	1. Occur singly and don't move from place to place.
2. On emergence body color is pink, then grey and ultimately to yellow. Small spots on elytra.	2. Greenish white to yellowish grey. No spots on the body.
3. Pronotum concave shortly and surface almost smooth.	3. Stripes on pronotum and a pale stripe along its middle.
4. Prosternal spine smaller.	4. Prosternal spine prominent.
5. Hind femur shorter, tegmina longer.	5. Hind femur longer, tegmina shorter.
6. Body size smaller.	6. Body size robust.
7. Move in bands.	7. Solitary life.

**Distribution:** Africa, Portugal, Spain, North Siberia, Sudan, Arabia, Syria, Iran, Afghanistan, West Pakistan and India. It is connected with dry desert and semi-desert regions.

**Host plants:** Feeds on about all kinds of vegetation, eye lashes of children and also on moist wool of sheep. Also show cannibalism (feed on their fellows).

**Habits and behavior:**

- Feeding habit is extremely wasteful.
- Positively geotropic in the morning and afternoon.
- Feed 24 hours.
- Sluggish during cold and cloudy weather.

**Life history:** Their mating on ground last for few minutes to many hours. Under field conditions, immediately after mating they lay eggs. Eggs are laid in clusters in light soil in a hole drilled with ovipositor.

Polygamy and polyandry (a pattern of mating in which an animal has more than one mate) are common. The area of egg laying can be recognized by holes. Incubation period is 2-3 weeks. Hoppers undergo 5 moults and there may be 2-4 broods in a year.

**Damage:** Severe damaged is caused in summer. Both adult and nymphs cause damage. Wheat at ear forming stage, oil seeds and cotton seedlings are destroyed. Hoppers may enter house, beds, kitchen etc. and cause a nuisance. Make roads slippery when crushed under.

**Control:** It is an international problem. Anti locust organization supplies the information to our plant protection department to control this pest in deserts. Control is a collective effort and carried out on emergency basis because hoppers cause damage in short time.

1. Prevent swarm by beating the drums etc. exploiting crackers, firing guns and waving clothes.
2. During mating and egg laying adults are sluggish and should be killed by
  - Beating them with brooms
  - Running a sohaga (planker) over them
  - Burning
3. Destruction of eggs by
  - Ploughing
  - Digging and feeding to poultry
  - Irrigation at the time of hatching
4. Burning of resting hoppers and adults in the morning or night with the help of a flame thrower or by burning trash
5. Destruction of hoppers by

- Trenching is efficient and cheapest method
  - Isolation of egg laid area and trapping of hatched hoppers
  - Erection of barriers of metal sheets
6. Natural enemies (crow, peacocks, dogs, squirrels, pigs and foxes) should be encouraged in affected areas.
7. Insecticides: endosulfan, chlorpyrifos, carbaryl, deltamethrin, imidacloprid, spinosad and azadirachtin should be sprayed.

## 7.2 TERMITES

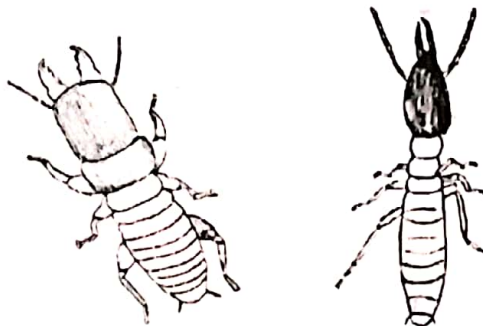
T.N: *Microtermes obesi*

*Odontotermes obesus*

(Termitidae; Isoptera)

**Social insect living in colonies with following individuals:**

<b>Queen</b>	Large, abdomen greatly stretched. Lay eggs.
<b>King</b>	Small, mates with queen.
<b>Soldier</b>	Head flat, long scissor like mandibles and shield shaped pronotum. Defend colony.
<b>Worker</b>	Head small, blind. Take care of young ones, feed queen and collect food.
<b>Fungus comb</b>	Spongy, found cultivated in fungus garden. Young ones feed on these combs.
<b>Royal chamber</b>	King and queen live in this chamber.



**Biology:** Live in nests underground. Winged individuals seen on light during monsoon.

Colony headed by king and queen. Live in royal chamber deeply hidden in termitarium. Couple is monogamous. Brachypterous and Apterous forms are present in the progeny of Macropterous Royalties. These are reproductive and can replace royal couple when necessary. They are polygamous. Macropterous forms find new colonies.

Eggs stage	1 week
Nymphal stage	6 months
Queen	5-10 years

**Damage:** They destroy the wood work, fences, articles of household and wooden poles that directly contact with soil. Also damage cotton, sugarcane, wheat, fruits, vegetables and shade trees.

**Control:**

- Use of farm yard manure or green manure in the infested field should be avoided.
- Wooden structure of buildings should not directly touch the ground.
- Spray 0.5 % chlorpyrifos.