

Desert Locust warning and management information

Desert Locust

The desert locust, *Schistocerca gregaria*, is one of the most notorious insect pests of the world which inhabits the entire Northern Africa and Western Asia (Figure 1). It affects 64 countries between Morocco and India during the outbreak period. A single swarm of locust made up of several million individuals can eat away every kind of plant on its way in no time. There are two distinct subspecies namely *Schistocerca gregaria gregaria* (Forsk.) and *Schistocerca gregaria flaviventris* (Burmeister).

The current outbreak began with heavy rains in 2018 in the Arabian Peninsula. During Spring 2019, swarms spread from these areas, and by June 2019, the locusts spread north to Iran, Pakistan, and India and south to East Africa. By the end of 2019, heavy swarms occurred in Iran, Pakistan and India.

The current locust invasion is the worst in India since 1993. The outbreak originated from two cyclones (May and Oct 2018) that allowed three generations of breeding - from June 2018 to March 2019 - in the Arabian Peninsula, Iran and Pakistan that caused an 8,000-fold increase in locust numbers. The locusts currently attacking crops in India, bread and matured in Iran and Balochistan in Pakistan. Still the swarms of locusts breeding in Horn of Africa are likely to reach India and Pakistan next month.

In India, the desert areas of Rajasthan, Gujarat and Haryana in North West India were severely affected. Millions of locusts have now affected around 100 districts in five states of Rajasthan, Madhya Pradesh, Uttar Pradesh, Gujarat and Maharashtra and predicted to invade many other states in the next few weeks.

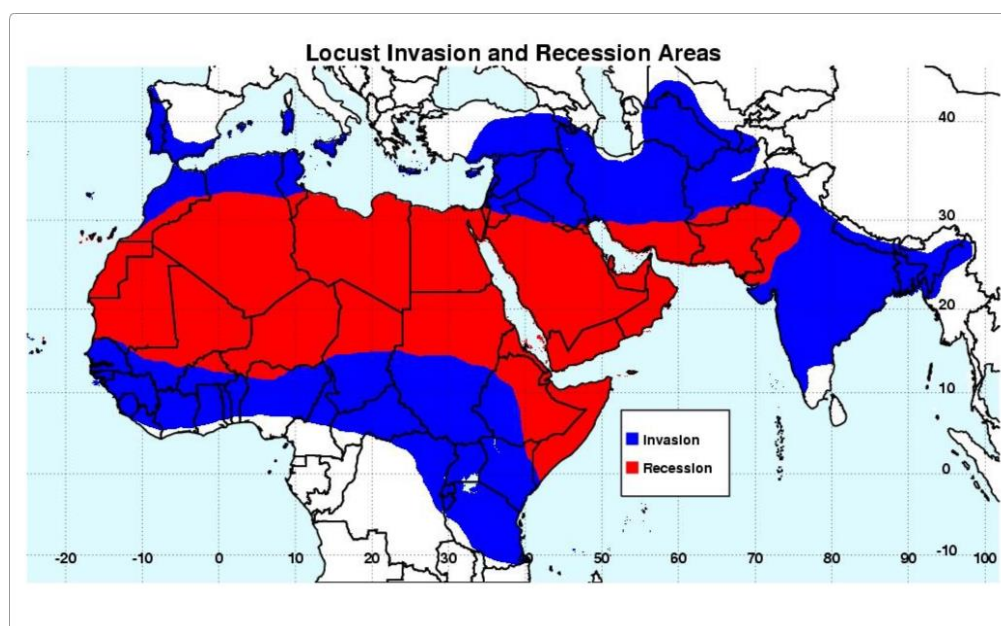


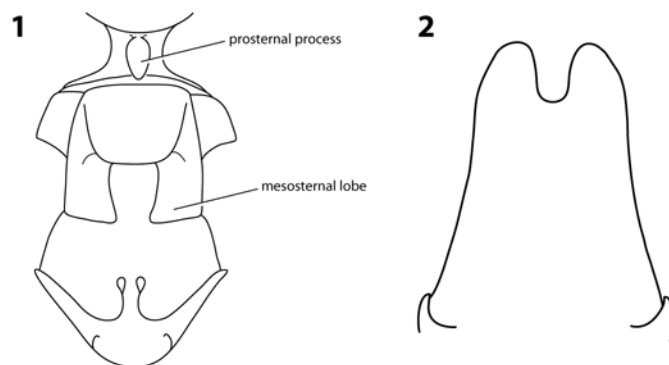
Figure 1. The invasion and recession areas of the Desert Locust (Sharma, 2014)

Differentiation of desert Locust (*Scistocerca* spp.) from other grasshoppers

Taxonomic key and differentiation of desert locust from other grasshoppers

Mesosternum with the length of lateral lobes longer than their width (Fig. 1). Prosternal process always present (Fig. 1). Malesubgenital plate always bilobed (Fig. 2). Usually moderate to large size..... ***Schistocerca*** (Desert Locust)

Mesosternum with the length of lateral lobes as wide as or wider than their width. Prosternal process present or absent. Male subgenital plate variable. Usually small to medium size **Other Acrididae (Grasshoppers)**



Solitary (left) and gregarious phase nymphs

(Image from Lovejoy et al., 2006)

Adult male (left) and female locust

Desert Locust management

On seeing the Locust swarm invasion, farmers may up take following preventive and management measures. Information to the nearest ICAR Institute / State Agrl. University / State department agriculture or Central Integrated Pest Management Centre (CIPMC) or any of the locust warning organizations or its nearest field station is a must for correct identification of the desert locust and to take up appropriate control measures. The locust should not be misidentified with other grasshoppers such as Ekka or calotropis grasshopper (*Poekilocerus pictus*) for which the image is shown below.



Calotropis grasshopper

A. Cultural and mechanical methods

1. Make loud sound in the cropped field by beating empty tins/metal plates, drum or radio or through any other electronic sound system to prevent locust swarm landing on the crop.
2. If hopper band is formed and observed marching, ignite dry grass or any trash in front of the marching hopper band to kill the nymphs.
3. Dig a trench 2 feet deep and 2 feet wide in front of marching hopper band for trapping and killing by the application of any one of the insecticides mentioned herewith
4. Movement of vehicles from the infested area to the fresh area to be checked for the roosting locust swarms on the vehicle roof top and treated with chemicals accordingly.
5. The desert locust adults and mature swarms use downwind air for their flight and in this manner the movement of the swarms could be predicted for issuing alert warning and management.

B. Chemical methods

1. Spray 5% Neem seed kernel extract on standing crop as feeding deterrent.
2. If hatching of eggs started and nymphs observed, spray bio-pesticide – *Metarrhizium anisopliae var. acridum* @ 75 gram/15 lit water (Not available in India) or any insecticide
3. If a locust swarm is spotted invading a cropped area, the State Agriculture Department should arrange Aerial spraying of ULV formulation of insecticide with the help of ULV nozzles on a Helicopter or drone.

Sr. No	chemical	Dose (gram active ingredient per ha)	
		Hopper nymphs	Adults
Recommended on standing crops			
1.	Chloropyriphos 20% & 50% EC	240	240
2.	Deltamethrin 2.8 % EC & 1.25 % ULV	12.5	12.5
3.	Diflubenzuron 25 % WP	60	NA
4.	Fipronil 5% SC & 2.92 % EC	6.25	6.25
5.	Lambdacyhalothrin 5% EC & 10% WP	20	20
6.	Malathion 50% EC & 25 % WP & 96% ULV	925	925
Recommended for the control of Locust, only in the scheduled Desert Area and not on the standing crops			
1.	Fenitrothion 96% ULV	1.0 lit/Ha desert area	
2.	Fenvalerate 0.4% DP	25kg/ha	
3.	Malathion 5%DP	25kg/ha	
4.	Quinolphos 1.5%DP	25kg/ha	

Cautions:

- The control measures for locust swarms should not be carried out by individual farmers. The infestation may be reported to nearest locust warning centres and their help may be sought for the management.
- Apply during cool hours: 7-00 to 10-00 am or 5-00 to 7-00 pm.
- Wear protective clothing/face mask, hand gloves /goggles/head cap while applying this mixture and leave the field as early as possible.
- The crop should not be harvested for seven days after this treatment.

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