

LOCUST INVASION 2020

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By Himani Pandey Large and aggressive swarms of the crop-devouring short horned insects have invaded India, Pakistan, Afghanistan, Iran, East Africa and Arabian Peninsula.

Desert locusts (*Schistocera gregaria*) have become the latest threat to countries who are still battling the corona crisis.

What kind of insects are they?

Desert Locusts (*Schistocera gregaria*) are a short-horned grasshopper. They usually lead shy, solitary lives. Locusts are not dangerous as long as they are individual hoppers/ moths or small isolated group of insects (Solitary Phase). When they get crowded they become gregarious mini-beasts (Gregarious Phase) and wreak havoc. A single swarm contains up to 40-80 million adults in one, square kilometer and can travel up to 150 km in the one day. They weigh up to 2 grams and can eat their own weight. Color changes from Brown to Pink (immature) and Yellow (mature). Swarm can be the size of 480 square km.

They are polyphagous i.e. can feed on wide variety of crops. They also multiply rapidly. For laying eggs they require a bare ground, which is rarely found in areas with dense vegetation. In the life span of 90 days, they reproduce thrice laying 60-80 eggs each time. 40 million locusts eat the same amount of food daily as the three million people, assuming a person eats 2.5 kg food per day. If left uncontrolled, a single swarm can increase 20 times of its original population in the first generation itself, and then multiply exponentially in subsequent generations.

Why are they seen in months of April-May this year?

Locusts come to India usually in the months of July – October but this year they have arrived earlier because:

Cyclonic storms Mekunu and Luban hit Oman and Yemen respectively. This turned large desert areas into lakes, which allowed insects to breed massively.

The main locust breeding Areas in the Horn of Africa, Yemen, Oman, Southern Iran, and Pakistan's Pakhtunkhwa provinces recorded widespread rains in March–April. This facilitated the breeding of these insects. The hopper bands, and immature adult groups resulting from this large-scale breeding is the product of unusually heavy rains- and they started arriving in Rajasthan, during the first fortnight of April.

Cyclone Amphan has also accelerated their movement eastwards. Story in India so far:

Four species viz. Desert Locusts (*Schistocera gregaria*)

- Migratory locust (*Locusta Migratoria*)
- Bombay Locust (*Nomadacris succinta*)
- Tree Locust (*Anacridium* sp.) are found in India.

The current swarms are all immature.

India is gearing up for what could be one of its worst locust invasions in decades. Outbreaks of insect attack has been reported from Gujarat, Maharashtra, Madhya Pradesh, Punjab, Haryana and Uttar Pradesh.

Last year Gujarat and Rajasthan had reported infestations. But it would be worse this year because of a chain of climate events, administrative laxity in several countries, and the difficult circumstances brought on by the COVID-19 pandemic. Experts have warned huge

crop losses if the swarms are not stopped by June when the monsoon will lead to a new season of sowing rice, sugarcane, cotton etc.

These are the Locusts that voraciously feed on vegetation, but have yet not laid eggs. So far, they have not caused much damage, since the Rabi crops has already been harvested and farmers are yet to start Kharif sowings. But they have ended up invading green spaces including parks, in Jaipur and Orange orchards near Nagpur.

Last big outbreak:

The last big infestation was in 2010. From 2010 to 2018, there were no major swarms or breeding reported.

From 1997 to 2010, there were five, outbreaks that were controlled.

In 2019, Gujarat and Rajasthan suffered severe losses, nearly 3.5 lakh hectares of cumin, rapeseed, and mustard were damaged, and officials had then sad it was the worst attack since 1993. Institutions dealing with locust attacks:

Locust Warning Organization (LWO) was established after the 1926-1931/32 locust plague. It's main centre was Karachi (undivided India). It's main job was to keep an eye for a specific sub- species of insect, the desert locust, that sprang into the region from the Thar desert. Locust attacks had been a major scourge to the colonial administration.

Its central headquarters is in Faridabad and field Headquarter in Jodhpur.

It is a directorate of Plant protection and Storage, Ministry of Agriculture and Farmers Welfare.

Food and Agriculture Organization (FAO) is a specialized agency of United Nations that leads International efforts to defeat hunger and improve nutrition and food security. It's Latin motto, translates to "Let there be Bread." Its Headquarters is in Rome, Italy.

Prevention Protocols:

The surge of the Locusts can be prevented by spraying pest control and plant protection chemicals. In most of the cases Organo-phosphate pesticides can be sprayed on the night resting places of the Locusts. On May 26, the Indian Institute of Sugarcane Research, Lucknow, advised farmers to spray chemicals like lambdacyhalothrin, deltamethrin (banned), chlorpyrifos (banned), fipronil, chlorpyrifos or malathion (banned but allowed in case of Locust infestation).

Special mounted guns are used to spray the chemicals on the resting places and India has 50 such guns, and 60 more are expected to arrive from UK in June. Drones are also being used this year.

Future Prospects:

The United Nations' Food and Agriculture organization has said that "several successive waves of invasions that can be expected until July in Rajasthan with eastwards surges across Northern India as far as Bihar and Orissa." But after July, there would be westward movement of the swarms, as they will return to Rajasthan on the back of the changing winds associated with the southwest monsoon.

Are the steps taken by the government adequate?

India has criticized Pakistan for not spraying adequate pesticides to stem the nascent population. There is a protocol for entomologists from India and Pakistan to conduct Border meetings and divide the pest control responsibilities.

Lack of funds and inadequate monitoring induced due to COVID-19 have further deteriorated the situation and likelihood of natural disasters like cyclones and locust attacks have increased.

Locusts are less likely to harm urban centers because they offer very little to feed on, but the problems of rural areas has been amplified due to nationwide lockdown which makes the transportation of pesticides, machines, and labours difficult.

Various literature on Locust attacks shows that they usually follow one to two year cycle after which there is a lull for eight to nine years.

However, changes in weather patterns like frequent warming of oceans, Indian Ocean Dipoles may trigger regular locust infestation.

Concerned Authorities must be cautious of the present infestation and follow adequate measures to deter Locusts as they have potential to shatter India's Food security.

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