FAO and Locust attack

June 5, 2020
***Source**: The Hindu*

Manifest pedagogy: Issues of starvation and hunger in Africa are attributed to falling agricultural production and productivity. Apart from climate change and desertification, pest attack is an important reason. Locus attacks can pose a great threat to Indian agriculture. Questions can be asked at both prelims and mains stage.

UPDATE

In news: India is currently witnessing its worst desert locust attack in almost five decades.

Dimensions:

- Recent locust attack
- About FAO
- FAO role in tackling it

Content: Desert locusts are voracious eaters. They **eat food equal to their body weight every day.** In just three breeding seasons, they increase their population size by 16,000 times. Their biological makeup has strong radars for moisture and greenery. They are **highly adaptive** and **change their behaviour according to weather and regio**n. Their **migration follows the path of the prevailing wind.**

Recent locust attack: Desert locusts are considered to be natives of Saudi Arabia or the Arabian Peninsula. Following the monsoon winds, they arrive in India – in Rajasthan and Gujarat particularly – every year.

Climate link to the infestation: The strong **positive Indian Ocean Dipole** brought torrential rainfall in 2019 for most parts of India. This extended rainfall continued in several

parts of West Asia, Oman, Yemen and in the Horn of Africa – so much so that the dry sand became heavily moisture laden, facilitating the formation of several locust swarms.

Due to favourable winds, it helped swarms to fly and breed in traditional grounds in Iran, Afghanistan, Pakistan and India. The unusually mild summer this year, which saw several **bouts of rainfall over north and western India** from March to May, also helped the insects breed.

According to FAO, locust invasions would continue in India till July and could reach up to Odisha and Bihar with the monsoon winds and return to Rajasthan subsequently. However, the swarms are **less likely to reach South India, Nepal and Bangladesh.**

Remedies: A strict round-the-clock vigilance and spraying of **pesticides or organophosphate chemicals** is a fundamental step to control the locusts. The **Locust Warning Organisation (LWO) has ordered drones for sprinkling chemicals** in order to kill the locust.

According to their behaviour patterns, as **locusts settle during the night on trees,** that is when pesticides have to be sprayed. India has proposed to Pakistan and Iran for a **coordinated approach** in dealing with the alarming threat of fast-increasing desert locusts in the region. In the long term, a **comprehensive plan** to prevent sudden and extreme climate change will be imperative.

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About Locust Warning Organization (LWO):

- As a result of the 1926-1931/1932 locust plague, India, under the British Raj, a permanent LWO was set up in

1939 with a **station in Karachi (undivided India).**

- Its main job was to keep an eye out for a specific sub-species of the insect, the desert locust, that sprang into the region from the Thar desert.
- **After Independence,** India established its own centre at **Jodhpur, Rajasthan,** as a part of the ***Directorate of Plant Protection Quarantine and Storage,*** under the **Ministry of Agriculture.**[/gdlr_styled_box]

About FAO:

- The Food and Agriculture Organization (FAO) is a specialized agency of the United Nations that leads international efforts to defeat hunger.
- **Headquartered in Rome, Italy**, it was founded in October 1945.
- It is the oldest existing agency of the U.N.
- Its **goal is to achieve food security for all** and make sure that people have **regular access to enough high-quality food** to lead active, healthy lives.
- It is **composed of 197 member state.**
- It is governed by a biennial conference representing each member country and the European Union, which elects a **49-member executive council.**
- The Director-General is Qu Dongyu of China.

Origin:

- In May–June 1905, an international conference was held in Rome, Italy, which led to the creation of the **International Institute of Agriculture (IIA)** by the King of Italy, Victor Emmanuel III.
- The IIA was the first intergovernmental organization to deal with the problems and challenges of agriculture on a global scale.
- It published the **first agricultural census in 1930.**
- World War II effectively ended the IIA.
- During the war, in 1943, United States President

Franklin D. Roosevelt called a UN Conference on Food and Agriculture, which brought together representatives from 44 governments.

- The Conference ended with a commitment to establish a permanent organization for food and agriculture.
- Thus **FAO came into existence on 16 October 1945 in Quebec City, Canada.**
- After the war, the **IIA was officially dissolved** by resolution of its Permanent Committee **on 27 February 1948.**
- Its functions, facilities and mandate were then transferred to the newly established FAO which maintained its headquarters in Rome.

Functions:

- Help eliminate hunger, food insecurity and malnutrition
- Make agriculture, forestry and fisheries more productive and sustainable
- Reduce rural poverty – help the rural poor gain access to the resources and services they need
- Enable inclusive and efficient agricultural and food systems
- Increase the resilience of livelihoods to threats and crises

Two fundamental areas of work – **gender and governance are fully integrated** in the above strategic objective action plans.

FAO role in tackling it:

- The **Locusts and Transboundary Plant Pests and Diseases Group** is responsible for assisting members throughout the world in managing migratory pests, mainly locusts, and diseases through early warning and early reaction.
- The group has **three regional commissions** for controlling desert locust:

    - in **Northwest and West Africa**
    - in the **Near East**
    - in **Southwest Asia**
- FAO's **Desert Locust Information Service (DLIS)** is the focal point for all locust and locust-related information that is necessary to operate an early warning system for desert locust plagues.
- FAO prepares **monthly bulletins** and updates summarizing the locust situation and **providing six-week forecasts of migration and breeding on a country-by-country basis.**
- It undertakes field assessment missions, strengthens national capacity, develops new innovative tools and techniques, coordinates control operations and emergency assistance during locust upsurges and plagues.
- It **has laid out a standard operating procedure (SOP)** to deal with locust menace.
- Sandy areas that have green vegetation are to be monitored constantly to see if locusts are present.
- Desert areas receiving rainfall are to be surveyed for live locusts or their eggs.
- Recommended pesticides are to be used to stop their breeding.
- Areas where farmers have recently reported sighting of locusts are to be surveyed and sanitized.
- Special attention is to be paid in areas where day temperature ranges between 20 degree Celsius and 38 degree Celsius, because if these areas have moisture or receive rain, the desert locusts are likely to swarm in.

Mould your thought: Explain the functions of the Food and Agriculture Organisation (FAO). What is its role in tackling desert locust menace?

PREVIOUS ARTICLE ON 31ST JAN 2020

In news: A massive locust invasion has destroyed thousands of

hectares of crops in Gujarat.

Placing it in syllabus: Locust invasion (explicitly mentioned)

Static dimensions: What is a locust attack?

Current dimensions:

- Locust attack in India and other parts of world
- Its impact on agriculture
- Suggestive measures to tackle locust attack

Content: Sharing borders with neighbouring Pakistan, **Gujarat and Rajasthan are under attack from hoppers locusts** where south western monsoon had prolonged this time. According to the Agriculture Ministry's **Locust Warning Organisation (LWO),** route followed by locusts is:

Sudan and Eritrea -> Saudi Arabia -> Iran -> Pakistan (Sindh) -> Gujarat

The **locusts are locally known as tiddis.** Currently, **at least 99 villages of the border district of Banaskantha are affected** by the swarms of locusts. **To tackle the menace, 11 central centres have arrived** in Gujarat. They will take all necessary steps, including spraying of pesticides, to contain the attack.

What is locust attack?

- Locusts are the **oldest migratory pest in the world.**
- They **differ from ordinary grasshoppers** in their ability to change behaviour (**gregarize**) and form swarms that can migrate over large distances.
- **No taxonomic distinction is made** between locust and grasshopper species.
- **Swarming** behaviour is a **response to overcrowding.**
- The most devastating of all locust species is the **Desert Locust (Schistocerca gregaria).**
- When desert locusts meet, their nervous systems release

serotonin, which causes them to become mutually attracted, a prerequisite for swarming.

- During quiet periods, **Desert Locusts live in the desert areas between West Africa and India.**
- **Three pests,** the Italian Locust, the Moroccan Locust, and the Asian Migratory Locust, jeopardize food security and livelihood in Caucasus and Central Asia (CCA) as well as in adjacent areas of northern Afghanistan and the southern Russian Federation.
- Locusts have a **high capacity to multiply, form groups, migrate over relatively large distances** (they can fly up to 150 km per day).
- If ecological conditions become favourable, they **rapidly reproduce** and increase some 20-fold in three months.
- Initial bands of gregarious hoppers are known as "**outbreaks**".
- When these join together into larger groups, the event is known as an "**upsurge**".
- Continuing agglomerations of upsurges on a regional level originating from a number of entirely separate breeding locations are known as "**plagues**".
- Locusts **need moist, sandy soil** in which to lay eggs and fresh vegetation for hoppers to grow into adults.

Locust attack in India and other parts of world:

Locust swarms are the bane of farmers in more than 66 countries. Locust is the **only insect that has a global committee working to outwet it.** Although the Sahel (Africa) and the Arabian Peninsula are the major breeding grounds of the desert locust, it is also indigenous to India.

Swarms **migrate according to seasonal rains and the prevailing winds** to two widely separated **geographic belts** – the winter-spring breeding zone and the summer-autumn zone.

From the **deserts of the Sahel and the arid zones along the Red Sea,** they grow steadily in numbers and begin to spread across

the Arabian Sea. They fly at heights of upto two km and, **aided by winds, can cover a distance of 2,000 km at one stretch.**

They **eventually land on the shores of the Indian subcontinent,** their arrival coinciding with the southwest monsoon.

There have been a **dozen plague cycles in India since 1860**. In **1926-31** there was a locust plague in Punjab and Uttar Pradesh. There were repeated plagues in **1949-55, 1959 and 1978**. Although there was an upsurge of locusts in **1988**, there was no damage to crops.

The **desert locust plague in Africa, the Middle East, and Asia lasted from 1966 to 1969**. The 1985-88 plague in the Sahel and the Arabian Peninsula collapsed suddenly because unusual wind patterns carried swarms heading for Morocco into the Atlantic Ocean, where they perished.

In **2017, an outbreak developed on the central and southern Red Sea coast** in Saudi Arabia. During April, 2017 an outbreak developed in the **west and northwest Mauritania.**

Its impact on agriculture:

Locust swarms **devastate crops** and cause major agricultural damage which results in famine and starvation. Though they occur in many parts of the world, locusts are most **destructive in sustenance farming regions of Africa.**

Desert locust plagues may threaten the economic livelihood of one-tenth of the world's humans. Each locust **can eat its weight in plants each day, so a swarm of such size would eat 423 million pounds of plants every day.**

Locusts **devour leaves, flowers, fruits, seeds, bark and growing points, and also destroy plants by their sheer weight** as they descend on them in massive numbers.

Locusts damage crops worth Rs 10 crore during the 1926-31 plague cycle. During the 1940-46 and 1949-55 locust plague

cycles, the damage was estimated at Rs 2 crore each and at Rs 50 lakh during 1959-62 locust plague cycle.

Bhuj in Gujarat saw the last upsurge in 1993. This time locust swarms have **destroyed standing crops** of castor, cumin, jatropha, cotton, and potato, and fodder grass in around 20 talukas. **Gujarat has not witnessed such an invasion of locusts since 1993-94.** The invasion has damaged crops in half a dozen districts in the state.

Suggestive measures to tackle locust attack:

In the **past, management strategies** have typically focused on burning tyres to create an exclusion zone, catching them in nets or digging trenches. However, these local measures will prevent locusts from reaching a particular area, but can do little to halt the progress of the swarm.

Currently, the most commonly used control is **insecticide**. Sprayed from land or aerial vehicles, whole swarms can be targeted in relatively short periods of time. However, this has led to some environmental concerns.

Allowing reptiles, the natural enemies of the locusts to thrive all year, prevents locust breeding.

More promising remedy is **biological control mechanisms**. Natural predators such as wasps, birds and reptiles may prove effective at keeping small swarms at bay.

However, for managing more established swarms, newly-developed **targeted microbial biopesticides, such as the fungus-based "Green Muscle",** offer a larger-scale solution.

Scientists stress an **integrated locust management system** therefore must combine both chemical and biological methods to produce optimum results.

The most effective way to avoid the devastating effects of locust plagues is to prevent them from happening in the first

place. In this regard, **locust monitoring station**s collect data on weather, ecological conditions and locust numbers, making forecasts of the timing and location of breeding.

Note: The **Locust Warning Organisation (LWO)** , a central government body, is responsible for issuing warnings and monitoring and controlling locust attacks in India.