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## Whiteflies: Threat to Agriculture

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### Why in News

According to a recent study, **exotic invasive whiteflies** in India are causing **direct and indirect yield losses in agriculture, horticulture and forestry crop plants**.

**Whiteflies** are tiny, sap-sucking insects that may become abundant in vegetable and ornamental plantings, especially during warm weather. They excrete sticky honeydew and cause yellowing or death of leaves.

### Key Points

- **Spread of Whiteflies:**

- The first reported invasive spiralling whitefly (*Aleurodicus dispersus*) is now distributed throughout India except Jammu & Kashmir.
- Similarly, the rugose spiralling whitefly (*Aleurodicus rugioperculatus*) which was reported in Pollachi, Tamil Nadu in 2016 has now spread throughout the country including the islands of Andaman Nicobar and Lakshadweep.
- *Aleurodicus dispersus* and *Aleurodicus rugioperculatus* have been reported on over 320 and 40 plant species, respectively.
- Most of the whitefly species are native to the Caribbean islands or Central America.

- **Reasons for Spread:**

- The host range of all of the invasive whiteflies has been increasing due to their polyphagous nature (ability to feed on various kinds of food) and prolific breeding.
- The increasing import of plants and increasing globalization and movement of people has aided the spread of different varieties and their subsequent growth into invasive species.

- **Concerns:**
  - **Damage to Crops:**
    - Whiteflies reduce the production yield and also damage crops. Approximately **1.35 lakh hectares of coconut and oil palm** in India are **affected by the rugose spiralling whitefly**.
    - **Other invasive whiteflies** were also found to **expand their host range on valuable plant species**, especially coconut, banana, mango, sapota, guava, cashew, oil palm, and ornamental plants such as bottle palm, false bird of paradise, butterfly palm and important medicinal plants.
  - **Ineffectiveness of Insecticides:**

Whiteflies have been difficult to control by using available synthetic insecticides.
- **Controlling Whiteflies:**

**Biological Control Methods:**

  - They are currently being controlled by naturally occurring **insect predators, parasitoids** (natural enemies of pests, provide biological control of pests in greenhouses and crop fields) and **entomopathogenic fungi** (fungi that can kill insects).
  - **Entomopathogenic fungi** specific to whiteflies are isolated, purified, grown in the lab or mass-produced and applied into the whitefly infested field in combination with the release of lab-reared potential predators and parasitoids.
  - They are not just **environmentally friendly** but also **economically feasible**.

## Other Pests/Insects Attacking Crops

- **Fall Armyworm (FAW) Attack:**
  - It is a dangerous transboundary insect with a high potential to spread rapidly due to its natural distribution capacity and opportunities presented by international trade.
  - In 2020, the Directorate of Agriculture reported an armyworm attack on the standing crops in the northeastern Dhemaji district of Assam and the **Food and Agriculture Organisation (FAO)** has launched a **Global Action for FAW** Control as a response to the international threat posed by the armyworms.
- **Locust Invasion:**
  - A locust (Migratory insect also known as tiddi) is a large, mainly tropical grasshopper with strong powers of flight. They differ from ordinary grasshoppers in their ability to change behaviour (gregarize) and form swarms that can migrate over large distances.
  - Locust adults can eat their own weight every day, i.e. about two grams of fresh vegetation per day. A very small swarm eats as much in one day as about 35,000 people, posing a devastating threat to crops and food security.

- **Pink Bollworm (PBW):**
  - It (*Pectinophora gossypiella*), is an insect known for being a pest in **cotton farming**.
  - The pink bollworm is native to Asia, but has become an invasive species in most of the world's cotton-growing regions.

## Way Forward

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**Continuous monitoring** of the **occurrence of invasive species**, their host plants and **geographical expansion** is needed, and if required, import of **potential natural enemies** for bio-control programmes can also be carried out.

**Source:TH**