Whiteflies: Threat to Agriculture

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

- **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