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Whiteflies Resistant Variety of Cotton

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Why in News

Recently, the National Botanical Research Institute (NBRI), Lucknow has developed a **whiteflies-resistant variety of cotton**.

- Whiteflies are **one of the top ten devastating pests in the world** that damage more than 2000 plant species and also function as **vectors for some 200-plant viruses**.
- Cotton is one of the worst-hit crops by whiteflies. As **two-third of the cotton crop was destroyed** by the **whiteflies in Punjab in 2015**.

Key Points

- **Need for Development :**
 - Even though **Bt cotton** is also genetically-modified cotton and present in the market for farmers usage, it is resistant to two pests only and not resistant to whiteflies.
- **Constituents :**
 - The leaf extract of an **edible fern Tectaria Macrodonata** causes **toxicity to the whitefly**.
 - It works against whiteflies but is safe for application on the crop plants and provides protection from them.
- **Process:**
 - When whiteflies feed on doses of insecticidal protein of Tectaria Macrodonata, it interferes with the **life cycle of insects**.
 - The whiteflies suffer from very poor egg-laying, abnormal eggs, nymph and larval development, and the poor overall growth of the fly.

- **Target and Non-target Insects:**

- The Tectaria Macrodonga is found to be **un-effective on non-target insects.**
- Thus, it clearly shows that the protein is **specifically toxic to whitefly** and **does not cause any harmful effect on other beneficial insects like butterflies and honeybees.**



Tectaria Macrodonga

- Tectaria Macrodonga is **native to tropical areas of Asia** and **commonly found in Western Ghats of India.**
- The fern is known to be used in salads in Nepal and as a concoction for gastric disorders in many regions of Asia

National Botanical Research Institute

- The CSIR-National Botanical Research Institute (NBRI) – is amongst one of the constituent research institutes of the **Council of Scientific and Industrial Research (CSIR)**, New Delhi.
- It undertakes basic and applied research on various aspects of plant science, including documentation, systematics, conservation, prospection, and genetic improvement.
- It emphasises on under-exploited, non-traditional, and wild plant genetic resources of the country for sustainable development and human welfare.

Source:PIB