Multi-fungal Tolerant Pineapple

Prelims: *Current events of national and international importance| General Science.*

Why in News?

Recently, Scientists from Bose Institute have identified a gene in pineapple that can provide defence to the fruit against devastating fungal attacks.

> ***Bose Institute*** *is an autonomous institute of the Department of Science and Technology (DST) under Ministry of Science and Technology*

- **Pineapple** - It is the most economically significant fruit of the Bromeliaceae family.
  - **Scientific name** - *Ananas comosus* L. Merr.
- **Uses** - It provides various health benefits alongside a delicious juicy flavour, resulting in a *nutritious diet* including all vital components.
- **Threats to pineapple farming** – ***Fusariosis infection***, caused by the aggressive *fungus Fusarium moniliforme*.
- It *warps the plant's stem, blackens the leaves and rots the fruit* from the inside out.
- **Self defence mechanism** – A newly identified *gene 'AcSERK3' can activate host defences* against plant diseases.
- AcSERK3 gene, which is a part of the pineapple's genetic code is known for *helping plants both reproduce and survive stress.*
- This gene is behind the *Somatic Embryogenesis Receptor Kinase (SERK)* which induces the self defence mechanism in Pineapple.

> ***Somatic embryogenesis (SE)*** *is defined as a process in which embryos that can develop into whole plants are produced from somatic cells (body cells) instead of through gamete fusion.*

- **Research work** - AcSERK3 gene was enhanced or overexpressed which enhanced the plant's natural defences, allowing it to fight off the *Fusarium* fungus than ordinary varieties.
- **Significance of the study** – *AcSERK3*-overexpressed pineapple lines were more resilient to *Fusarium* infection due to increased stress-associated metabolites and scavenging enzyme activity.

Reference

[PIB| Research work on Fungal Resistant Pineapple]