

“Dwarfing” of rice plants

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In news– The Indian Agricultural Research Institute (IARI) has confirmed that the mysterious disease resulting in “dwarfing” of rice plants, reported mainly from Punjab and Haryana, has been caused by the Southern Rice Black-Streaked Dwarf Virus (SRBSDV).

What is dwarfing of rice plant?

- The **main symptoms of a plant suffering from the rice dwarf disease are** stunting and the appearance of white chlorotic specks on its foliage.
 - The **height of the plant is restricted to 1/2 – 1/3rd** as compared to normal plants.
 - These plants have shallow roots and can be uprooted easily.
 - It is observed across almost all rice varieties, basmati and non-basmati.
- **However, the symptoms are more prominent in early sown paddy crops.**

Key findings-

- The **virus is spread by the white-backed plant hopper (WBPH), an insect pest**, which injects it while sucking the sap from mostly young plants.
- SRBSDV is a virus with ten double-stranded RNA segments. **SRBSDV belongs to the Fijivirus genus and was first detected in China.**
- In addition to rice, **SRBSDV also infects different weed species as nymphs of WBPH** can transmit the virus more efficiently as compared to adults.
- The **presence of the virus was detected both in the infected plants and the body of the vector insect**, whose RNA was isolated. But the virus was not found in the seeds collected from the infected plants.

- The **virus is specific to the phloem** (plant tissues that transport sugar and organic nutrients from the leaves to other parts) and is not transmitted by seed or grain.
- The affected plants showed **severely stunted appearance**. The **roots were poorly developed and turned brownish**. The infected tillers can be easily pulled out.
- The IARI carried out a comprehensive investigation to diagnose the cause of the mystery “dwarfing” disease, using **three independent methods: transmission electron microscopy, RT-PCR and real-time quantitative PCR**.
- There is no exclusive corrective measure for viral diseases. But IARI has suggested the farmers monitor their fields continuously for the presence of White backed planthopper.