Tomato leaf curl New Delhi virus (ToLCNDV)

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In news- Effective defense strategy deployed by a resistant tomato cultivar against Tomato leaf curl New Delhi virus unravelled by scientists of National Institute of Plant Genome Research(NIPGR) recently. These findings could be translated into development of resistance in susceptible cultivars of tomato through modern breeding or molecular approaches.

About the Tomato leaf curl New Delhi virus-

- ToLCNDV infection **causes severe losses in tomato yield worldwide.**
- It i**s a bipartite, whitefly-transmitted, begomovirus** which was **first described on tomatoes in India in 1995** (initially as ToLCV-India).
- ToLCNDV was initially found on Solanum lycopersicum (tomato), and then on other Solanaceae such as Solanum melongena (aubergine), chili pepper (Capsicum spp.) and Solanum tuberosum (potato).
- Following its discovery in India, other Asian countries reported the occurrence of ToLCNDV on a rather wide range of crops.

- **This single-stranded DNA virus is transmitted by the whitefly, Bemisia tabaci.**
- **Diseases caused by ToLCNDV on its different host plants generally include yellow mosaic, leaf curling,** vein swelling, and plant stunting.
- On cucurbit fruits, skin roughness and longitudinal cracking have been observed.
- On fruiting crops, when the virus infection occurs at an early stage, affected plants are severely stunted and

fruit production is significantly affected.

- Lack of information on resistance (R) genes against ToLCNDV has considerably retarded the pace of crop improvement against this rapidly spreading pathogen.

National Institute of Plant Genome Research(NIPGR)-

- The National Institute of Plant Genome Research (formerly known as National Centre for Plant Genome Research) is an autonomous **institution aided by the Department of Biotechnology, Government of India.**
- The Institute's establishment coincides with the 50th anniversary of India's independence as well as the birth anniversary of Prof. (Dr.) J. C. Bose.
- Th**e formal announcement was made on November 30th 1997.**
- The Institute started to function in the year 1998 with the mandate to undertake, promote and co-ordinate research, train workers and to serve as information resource in identified aspects of plant genomics to build a frontline institution.
- NIPGR is poised to contribute towards frontier areas of Plant Biology such as, Computational Biology, Genome Analysis and Molecular Mapping, Molecular Mechanism of Abiotic Stress Responses, Nutritional Genomics, Plant Development and Architecture, Plant Immunity, Molecular Breeding, Transgenics for crop improvement and other emerging areas based on plant genomics.