WOLBACHIA BACTERIA - SCIENCE

Why in news?

Wolbachia Bacteria - Natural bacteria present in upto 60% of insect species including some mosquitoes.

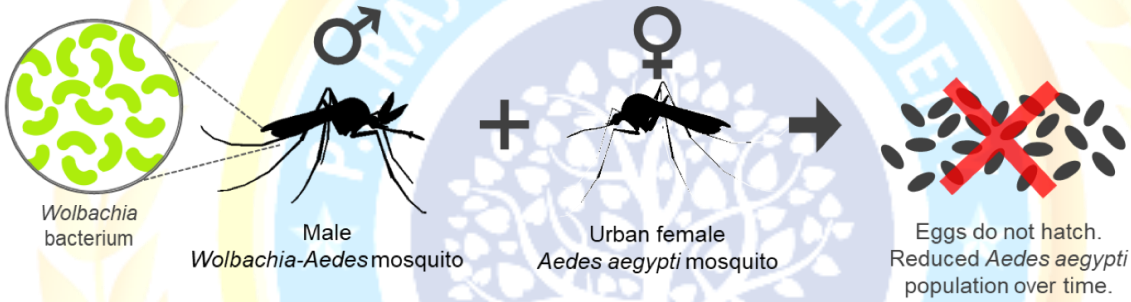
Characteristics of Wolbachia Bacteria:

Generation of More Females than Males:

- Wolbachia bacteria are found in insect eggs but not in sperm.
- Only females can pass Wolbachia bacteria to their offspring; males cannot.
- Wolbachia bacteria have evolved strategies to ensure more female than male offspring in their hosts.

Causes the Extinction of Male Varieties:

- Wolbachia can cause unfertilized eggs to develop into female wasps by doubling their chromosome count.
- This makes males unnecessary for reproduction.



Eradication of Males in Wasps:

- Scientists have discovered that wasps are eliminating males due to Wolbachia bacteria.
- Researchers found that Wolbachia bacteria manipulate the wasp Encarsia formosa to eliminate its males entirely.

Importance of E. formosa

Scientists studying agriculture are interested in E.formosa wasps because of their effectiveness in managing whiteflies, a significant pest that reduces crop productivity by feeding on the sap from plant leaves.

Terms related to the article -

Gene - The basic unit of heredity passed from parent to child. Genes are made up of sequences of DNA and are arranged, one after another, at specific locations on chromosomes in the nucleus of cells.

Chromosome - Chromosomes are threadlike structures made of protein and a single molecule of DNA that serve to carry the genomic information from cell to cell.

Mutation - A mutation is a change in the DNA sequence of an organism. Mutations can result from errors in DNA replication during cell division, exposure to mutagens or a viral infection.

Haploid - Haploid refers to the presence of a single set of chromosomes in an organism's cells

Diploid - Diploid is a term that refers to the presence of two complete sets of chromosomes in an organism's cells, with each parent contributing a chromosome to each pair.

Mitosis - The process by which a single parent cell divides to make two new daughter cells. Each daughter cell receives a complete set of chromosomes from the parent cell. This process allows the body to grow and replace cells.