MILESTONES IN PLANT BREEDING

CROP DOMESTICATION

Farmers select the best wild species to create crops

10,000 BC

Domestication of wheat

MUTAGENESIS

Developing new genetic diversity by exposing crop plants to chemical agents or radiation

Blast-resistant rice

1940

HYBRID BREEDING

Crossing two genetically different individuals to develop better performing hybrid

More vigorous hybrid corn

1926

PLANT BREEDING BASED ON CROSS BREEDING

Development of improved varieties by combining good characteristics from two parents

1865

Mendel's laws

Gregor Mendel describes the inheritance of traits from one generation to the next. His laws become the core of classical genetics

GMO

Introducing foreign genes into the DNA of a plant

Insect-resistant cotton

1994

MARKER-ASSISTED SELECTION

Locating desirable traits in a plant for efficient selection and breeding

Barley resistant to yellow dwarf virus

2000

TARGETED BREEDING

Using modern tools such as genome editing for more targeted breeding

Waxy corn

now

future

1953

Understanding the structure of DNA

James Watson and Francis Crick identify the double helix of DNA

PLANT BREEDING BASED ON GENETIC INFORMATION

Development of improved varieties by working directly with the DNA

FACTS

For **10,000** years, farmers and breeders have been developing and improving crops

For **150** years, plant scientists and breeders have improved plant breeding on a scientific basis

Today, farmers feed at least **10** times more people using the same amount of land as 100 years ago

By 2050, we will need **50%** more food to feed a population of 11 billion

ISF International Seed Federation
Seed is Life