

# ***Fundamentals of Plant Breeding — Table of Contents (Sommaire)***

## **1. Introduction**

Overview of plant breeding, history, role, and scope.

## **2. Basic Breeding Methods**

- Selection Breeding (mass selection, pedigree breeding, vegetative crops)
- Combination Breeding
- Hybrid Breeding (inbred lines, heterosis)
- Synthetic varieties
- Literature references for methods.

## **3. Special Breeding and Selection Techniques**

- Mutants (point mutations, polyploidy, chromosome changes)
- Cell & tissue culture variations
- Haploids and selection in apomicts
- Sex inheritance and gene combinations
- Protoplasts, somatic hybridization & gene transfer
- Selection procedures (in vivo/vitro, molecular markers)
- Literature references for techniques.

## **4. Plant Breeding and Plant Production**

- Interaction with farming systems
- Plant physiology (biomass, photosynthesis, stress responses)
- Pathology (disease resistance breeding, epidemiology)
- Breeding of industrial crops & for developing countries
- References for production topics.

## **5. The Plant Breeding Station**

- Tools (mechanization, trial design, evaluation)
- Maintenance breeding
- New maintenance methods (rapid propagation, artificial seeds)
- Seed control systems & breeders' rights.

## **6. Safeguarding and Utilization of Natural Genetic Diversity**

- Genetic vulnerability
- Landraces & wild species
- Centers of diversity & genetic conservation
- References for diversity utilization.