

Mendel's law of dominance



By Dr. Shashi Prabha
HOD , Zoology Dept.
Karim City College

Semester – IV , CC- 8

Mendel's law of dominance



Gregor Johann Mendel (1822 - 1884):

- Gregor Johann Mendel is regarded as the father of genetics.
- He experimented with pea plants, by crossing various strains and observing the characteristics of their offspring.
- He thought that 'heritable factors' (genes) retained their individuality generation after generation.
- Principles of genetics were developed in the mid 19th century.

Mendel's law of dominance



- Mendel deduced the underlying principles of genetics from his experiments:

1. Law of Dominance
2. Law of Segregation
3. Law of Independent assortment

Mendel's law of dominance



Law of dominance:

- Mendel's law of dominance states that in a heterozygote, one trait will conceal the presence of another trait for the same characteristic.
- Rather than both alleles contributing to a phenotype, the dominant allele will be expressed exclusively.

Mendel's law of dominance



Law of dominance(contd...)

- The recessive allele will remain “latent,” but will be transmitted to offspring by the same manner in which the dominant allele is transmitted.
- The recessive trait will only be expressed by offspring that have two copies of this allele; these offspring will breed true when self-crossed

Mendel's law of dominance



Law of dominance(contd...):

- Thus in a hybrid union, the allele which expresses itself phenotypically is the dominant allele while the other allele which fails to express itself phenotypically is the recessive allele.
- The hybrid individual shows phenotypically only the dominant character.
- The law of dominance is often described as Mendel's first law of inheritance.

Mendel's law of dominance



Law of dominance(contd...):

Example:

- He crossed homozygous tall with dwarf pea plants.(TT x tt).
- The F₁ hybrids were all heterozygous plants with tall character.
- These F₁ heterozygous plants on self pollination produce offspring that belong to second filial generation F₂
- The plants of F₂ generation were both tall and dwarf, in approximate 3:1 ratio.

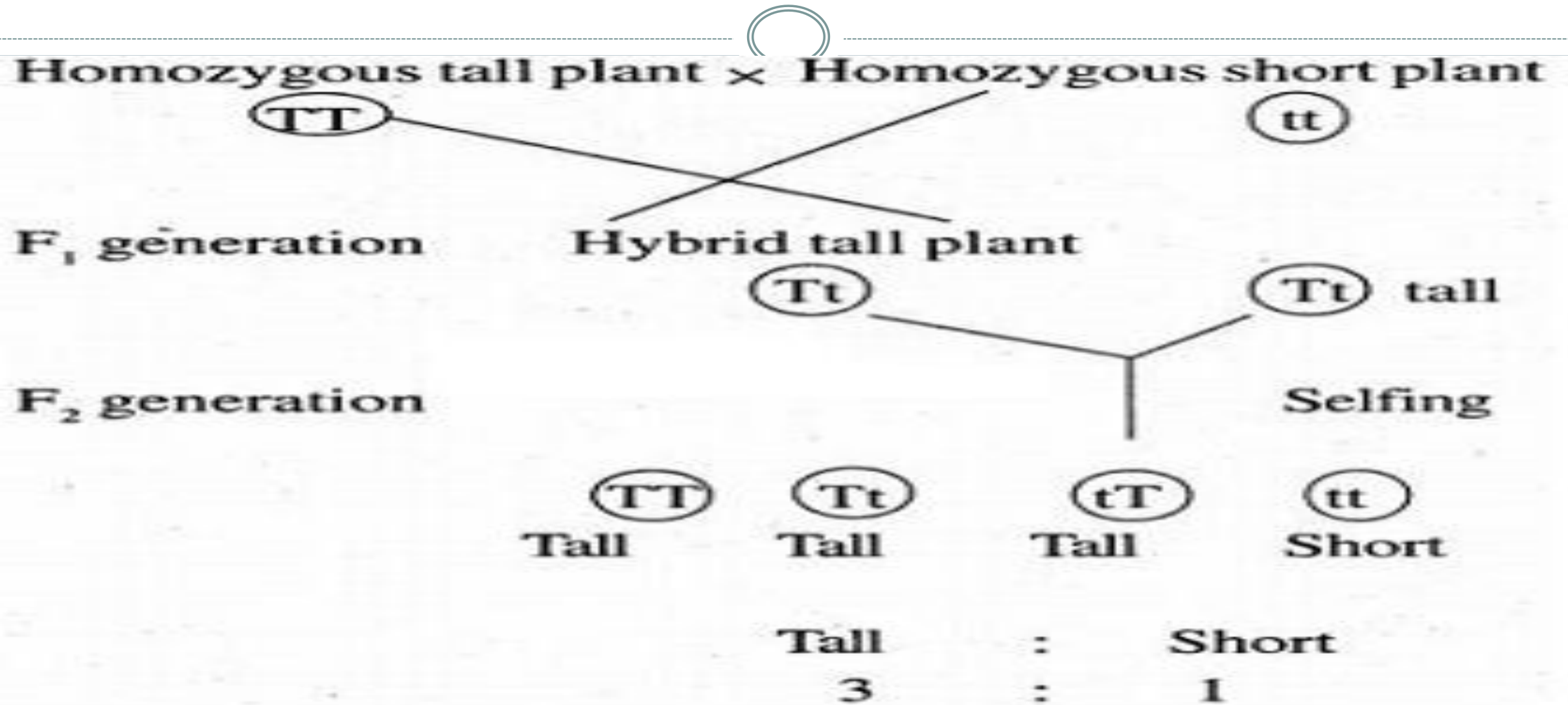
Mendel's law of dominance



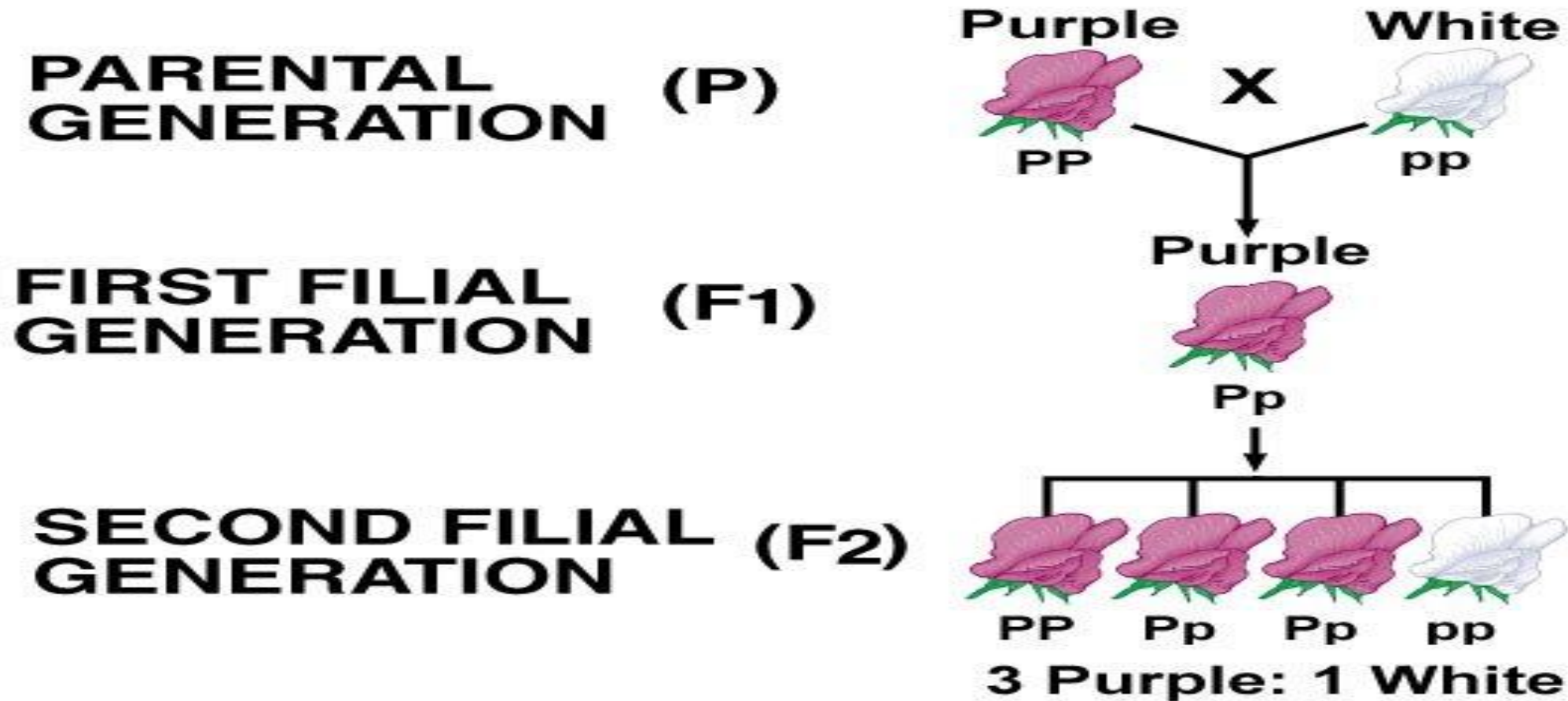
F2 generation:

- F2 generation genotypic ally consists of three types of plants
 - 1 Tall homozygous TT
 - 2 Tall heterozygous Tt
 - 3 Dwarf homozygous tt
- &F2 generation phenotypic ally consists of two types of plants --Tall and dwarf

Mendel's law of dominance



Mendel's law of dominance



Thank You

