VEER KUNWAR SINGH UNIVERSITY - ARA

B.Sc.

ZOOLOGY (HONOURS) -

PART - III

PAPER - VI

FROM

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B.Sc. 2nd Yr. (H)
Part-III, Paper-VI
Unit-2(i)

LINKAGE

- It's the close association of genes or other DNA sequences on the same chromosome
- The closer two genes are to each other on the chromosome, the greater the probability that they will be inherited

Genetic linkage -

- Genes on non homologous chromosomes assort independently during meiosis
- Genes on the same chromosome are said to exhibit linkage and are called — linked genes
- Linked genes, and hence the phenotypic characters they control, are inherited together because they are located on the same chromosome
- Modern understanding of genetic linkage came from the work of - Thomas Morgan

Morgan showed — that two recessive genes in - Drosophila melanogaster, white eye (w) and miniature wing (m) are X-linked

Gene Mapping Using Two-Point Testcrosses

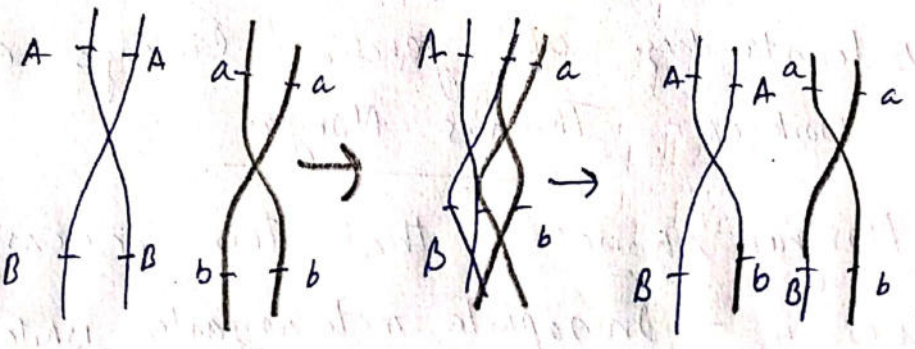
① With autonomal recessive alleles, when a double heterozygote is testcrossed, Four Phenotypic classes are expected. If the genes are linked -, the two parental phenotypes will be about equally - frequent and more abundant than the two recombinant phenotypes

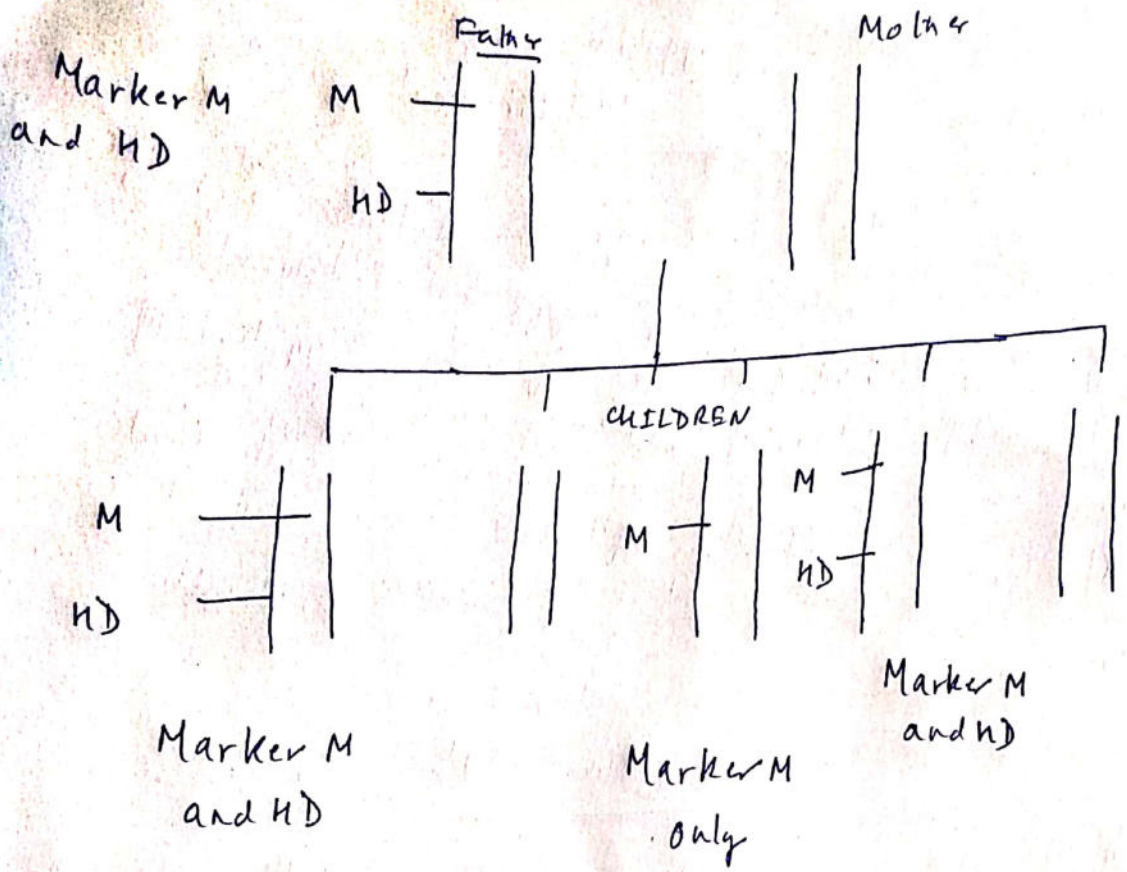
TEST CROSS FOR LINKAGE

- For determination if two genes are linked (close together on the same chromonome) or not

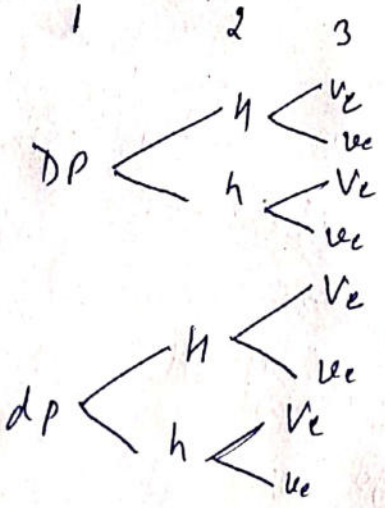
- **Setup** -

  - One individual heterozygous for both traits x individual homozygous recessive for both traits.





CHROMOSOME – Genotype



Dp H Ve
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NEXT DAY – CROSSING OVER