«Polyhybrid crossing»

Polyhybrid crossing-crossing in which the parent forms differ in three or more pairs of analyzed alternative features..

- The General formula for determining phenotypic classes in polyhybrid crossing is (3:1)n , where n is the number of splitting pairs of alleles.

The law of independent inheritance of genes

The third law of Mendel:

- When crossing individuals that differ from each other in two or more pairs of the analyzed alternative traits, genes and their corresponding traits are inherited independently of each other and combined in all possible combinations.

Limitations of the law of independent inheritance.

- Independent inheritance is performed only when different pairs of allelic genes are in different pairs of homologous chromosomes.
- It is possible to simultaneously inherit only so many genes, how many pairs of homologous chromosomes there are in organisms of the same species.

So, have human this 23 gene (2n=46),

peas and rye have 7 genes (2n=14),

corn has 10 genes (2n=20).

- In monogybrid crossing, in case of complete domination in heterozygous hybrids of the first generation, only dominant allele is manifested, but the recessive allele is not lost and is not mixed with the dominant allele. Among the hybrids of the second generation, both recessive and dominant allele can appear in its pure form, i.e. in the homozygous state. As a result, the gametes formed by such heterozygotes are clean, i.e. gamete And contains nothing from the alleles and gametes and clean.

Task:

Short, shortsightedness and albinism are encoded by recessive genes located in different chromosomes. Tree-creeper, short-sighted man with a normal pigmentation is married to a healthy woman's screwed an albino chick. Their first child was a tree-creeper, the second is myopic, the third – an albino. Determine the genotypes of parents and children.

Solution

- **A** – a normal brush, **a** –shortness,
  B –normal vision, **b** –myopia ,
  C –normal pigmentation, **c** – albinism.
- **Scheme of marriage**
- **P** ♀ **AaBbcc** X ♂ **aabbCc**

norm. brush, norm. vision, albinism. — short., myopia., Norm.pigm.

G **ABc Abc aBc abc abC abc**

F_1

aaBbCc short., norm.vision norm.pigm.

AabbCc norm.vision, myopia albinism

AaBbcc norm.brush norm.vision

Answer

male gen otype– **aabbCc,**
genotype of a woman– **AaBbcc,**
short-haired child– **aaBbCc,**
myopic– **AabbCc,**
albinism– **AaBbcc.**

Thank you for listening!