

Assignment

Antalene (EE22BTECH11008)

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In a diploid angiosperm species, flower colour is regulated by the R gene. RR and Rr genotypes produce red flowers, whereas the rr genotype produces white flowers. If two individual plants are randomly selected from a large segregating population of a genetic cross between RR and rr parents, the probability of both the plants producing red flowers is

Solution:

For the parent genes:

	R	R
r	Rr	Rr
r	Rr	Rr

TABLE I
GENE OF PARENTS.

Hence, we can see that it gives only Rr gene

For the children genes:

	R	r
R	RR	Rr
r	Rr	rr

TABLE II
GENE OF CHILDREN.

RV	Values	Description
X	0	RR
	1	Rr
	2	rr

TABLE III
RANDOM VARIABLE DECLARATION

we know that Red flower comes for RR and Rr

Therefore,

$$p_X(0) + p_X(1) = \frac{1}{4} + \frac{2}{4} \quad (1)$$

$$= \frac{3}{4} \quad (2)$$