

4. Degree of fertility in single cross hybrids with sterile cytoplasm.

The determination of the degree of fertility in single cross hybrids with sterile cytoplasm is important for the establishment of the proportion between male and female components when these hybrids are used as pollinators.

Using the above reported method, we have found the following degrees of fertility in single cross hybrids with T- and S-type of cytoplasm differing in genotype and mode of development.

Table 1  
Percentage of fertile pollen in single cross hybrids with T or S cytoplasm differing in genotype and mode of development.

No.	Genotype	Mode of development	No. of hybrids	Fertile pollen	
				%	m %
1a.	$TRf_1rf_1Rf_2rf_2$	$TRf_1Rf_1rf_2rf_2 \times Nrf_1rf_1Rf_2Rf_2$	14	58.9	4.95
1b.	- " -	$Trf_1rf_1Rf_2Rf_2 \times NRf_1Rf_1rf_2rf_2$	5	74.5	6.06
1c.	- " -	$Trf_1rf_1rf_2rf_2 \times NRf_1Rf_1Rf_2Rf_2$	8	91.8	2.12
2.	$TRf_1Rf_1Rf_2rf_2$	$TRf_1Rf_1rf_2rf_2 \times - " -$	14	93.9	2.07
3.	$TRf_1rf_1Rf_2Rf_2$	$Trf_1rf_1Rf_2Rf_2 \times - " -$	14	93.9	2.11
4.	$SRf_3rf_3$	$Srf_3rf_3 \times NRf_3Rf_3$	24	63.1	2.45

The decreased degree of fertility in variants 1a and 1b in comparison to 1c is probably due to the weaker complementary action of the factors  $Rf_1$  and  $Rf_2$  when they originate from the two parents. The decreased degree of fertility in variant 4 is explained by the fact that the male gametes with recessive factors- $Srf_2$  (Buchert, Genetics 44, 4, 1959) lose their vitality.

The fact that some single cross hybrids with sterile cytoplasm and restored fertility give significantly lower percentages of fertile pollen should be taken into account when they are used as pollinators.

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