

2. for cleaning of the sterile analogue after it has been pollinated with pollen from the already cleaned fertile analogue:

$$1a \underline{Trf_1rf_1rf_2rf_2} \times \underline{NRf_1Rf_1rf_2rf_2} = 100\% \text{ sterility}$$

$$1b \underline{Trf_1rf_1rf_2rf_2} \times \underline{Nrf_1rf_1Rf_2Rf_2} = 100\% \text{ sterility}$$

This method of cleaning applies also to sterile single cross hybrids with the same genotype when they produce undesirable fertile plants.

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3. A new method for determination of the degree of fertility in hybrids on sterile cytoplasm.

The methods used so far for determination of the degree of fertility determine it as percentage of fertile pollen against the total amount of pollen shed. The sterile stamens which were not extending outside the floweret were not taken into account. From a practical point of view it is more correct that fertility degree should be expressed as percentage of fertile pollen against the total amount of pollen which would be produced by plants with a normal cytoplasm. The only method meeting to a certain extent this requirement is the method of Galleev (CMS v selekcij i semenovodstve kukuruziy, Kiev, 1962).

The method utilized in our studies employs the following procedures: samples from 1000 flowerets are taken several days before or at the time of flowering of the tassels. The flowerets should be chosen from different plants and different parts of the tassels. Cross sections are made on 40 flowerets. The low part of the floweret held with a microscopic needle is observed under a stereo-microscope (25 times magnification). Data are taken on fertile, sterile and semi-sterile stamens. Assuming that the latter contain 50% of sterile pollen, the degree of fertility is determined by the percentage of fertile pollen in relation to the amount of pollen which would be produced by the tassels if all the stamens produce pollen normally.

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