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VIABILITY OF THE POLLEN FROM THE VARIETY MV-1 IN CMS FORM DEPENDING ON THE STORING CONDITIONS

ABSTRACT

In the period 1993 – 1997 investigations were carried out on the possibility of production of hybrid seed from the male-sterile variety Virginia MV-1 in CMS form, by pollination of flowers with pollen powder stored in hypothermic conditions during 1, 2 and 3 years.

4.2 Based on the results of investigations, it might be stated that the viability of the pollen *in vitro* does not show a significant dependence on the duration of its storage in hypothermic conditions. Independently from the storage duration (1, 2 or 3 years), germination ranges from 40.00 to 80.78%.

Investigations *in vivo* confirmed that, independently from the duration of storage (1, 2 or 3 years), the pollen shows high germination which ranges from 78 to 97%.

Seed production per capsule shows similar ranges. No matter whether the pollination was done by fresh pollen or by pollen stored in hypothermic conditions. Significant difference at a level of 0.05 and 0.01 in the number of seeds per capsule is noticed depending on the conditions of tobacco growing, and not on the storage of pollen in hypothermic conditions.

Some years of production appear to be a significant factor for the amount of seed per capsule and, accordingly, per unit area.

Average results for the mass of 1000 seeds are ranging 0.0748 – 0.0816 g. Highly significant differences exist between the average values both of the germination power and the total germination in some years.

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The average yield per stalk between the variants ranges 120 – 131 g, and the average yield per unit area 3484 – 3782 kg/h, not depending on the duration of seed storage.

The percentage of high classes depends primarily on the conditions of tobacco growing and post-harvest manipulation. Chemical analyses did not reveal significant differences resulting from the effect of different variants of pollination.

As a final conclusion, it might be stated that pollination with a fresh pollen stored 1, 2 or 3 years in hypothermic conditions, used either in pure state or in a mixture 1 : 1 with wheat or corn flour, has no negative effect on seed production and tobacco growth, on which the quantity and quality of this production depends.

According to this, the new method, i.e. storing of pollen in hypothermic conditions in order to pollinate the male-sterile variety Virginia, in the next 1 – 3 years is a sure guarantee which, despite of certain conditions that eventually may impede the pollination that was carried out so far, makes it possible to carry out pollination with preserved pollen without negative effects on the production. Beside that, the new method that we have applied is considerably more practical and effective.

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Key words: pollen, seed, flower, tobacco, Virginia, yield, quality