DEVELOPMENT AND FRUIT SET OF SOME GREENHOUSE TOMATO HYBRIDS AS INFLUENCED BY THE CULTURE SYSTEM

Diana CENARIU, Alexan S. APAHIDEAN, Maria APAHIDEAN, Doina STANA, Rodica SIMA

University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, 3-5 Manastur Str, diacenariu@yahoo.com

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SUMMARY

The tomato (Lycopersicon esculentum Mill.) is a perennial plant but grown in temperate climate as an annual plant. Various tests in greenhouses have proven that the tomato flower is not completely self-pollinating. Incomplete pollination results in misshapen fruit. Cool or cloudy weather retards pollen shedding. Pollination must be aided by artificial wind, vibration of the plants, artificial stimulation by spraying the tomato flowers with 2% Tomatostim solution or more often today, by cultured bumblebees.

Cronos and Menhir, the two Dutch tomato varieties used in this research, have been grown in the greenhouse of The University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, in the cycle I cultivating system (February to July 2008) as part of a poly-factorial experiment with four experimental factors: the culture system (in the greenhouse soil or in polyethylene bags, on organic substrate), the hybrids used (Cronos or Menhir), the basal fertilization (simple doses or double doses), and the supplementary fertilization (root and root + foliar), resulting a number of 16 variants.

Tomato yield is influenced by high daytime temperatures [1]. Other factors such as light and humidity play an important role in the process of pollination, fruit setting rate (%) and total yield. At the beginning of March, when the flowers of the first cluster where ready for pollination, a chemical stimulation with 2% Tomatostim solution was applied twice a week in order to increase the fruit set, because of the insufficient light and nebulosity. At mean temperatures of 29°C, fruit number, fruit weight per plant and seed number per fruit are markedly decreased compared with those at 25°C [2].

The fruit setting rate (%) for the 1st-5th clusters has registered values from 72.35% (Cronos grown in the greenhouse soil) to 83.85% (Menhir grown in peat bags, foliar and root fertilized). This is considered to be a very good fruit setting rate (%) compared to the one obtained at the 6th-9th clusters which have registered reduced values of 48.7% for Menhir on organic substrate and 26.6% for Cronos planted in soil. The 6th to 9th fruit clusters were harvested starting from 3rd decade of June until the 15th of July.

REFERENCES