

EFFECT OF DROUGHT ON THE BREAK OF DIFFERENTIATION AND ABORTION OF GENERATIVE BUDS IN PLUM

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Abstract

The course of differentiation of generative buds in 6 plum cultivars was monitored in 1988-1992 by making permanent histological preparations by paraffin technique. The degree of drought over this period was evaluated through the monthly drought index according to Martonnen. The most severe atrophy of the apical meristem in generative buds was recorded in 1990, whereas there was no difference in the level of this phenomenon in 1988 (with drought) and 1989 (no drought). Atrophy of the apical meristem and the break of differentiation of generative buds are correlated with the occurrence of drought during the progamic stage of differentiation.

Introduction

In some of our previous papers (Mičić and Čmelik 1988; Mičić et al. 1992; Mičić and Đurić 1995), studies were conducted on the course of differentiation of generative buds as affected by their position on the node and the shoot, the effects of cultural practices on the break of differentiation of apical meristem in generative buds, as well as the formation of "empty buds" (the buds with the complete atrophy of the apical meristem, otherwise morphologically typical generative buds), i.e. bud abortion in stone fruits as a result of the break of differentiation. The analysis of ecological conditions, conducted from the onset of differentiation of generative buds through the end of the growing season in the stone fruit species studied, clearly indicated the existence of a correlation between the occurrence of meristem atrophy in generative buds and the degree of drought over the same period. The knowledge of the way in which this phenomenon manifests itself, as well as of the conditions favouring its development, is of great importance since its consequences are observed only at the start of the following vegetation. The presence of "empty buds", therefore, has to be noticed prior to winter pruning and other cultural practices at the beginning of the growing season in order to avoid measures that could result in economically important losses.

