



**XI INTERNATIONAL SYMPOSIUM OF
AGRICULTURAL SCIENCES**

BOOK OF ABSTRACTS

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**26-28, May, 2022
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Floral biology and S-incompatibility research in cherries at Fruit Research Institute, Čačak – an overview

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Abstract

In addition to conventional breeding which has been resulted in release of two sweet cherry (*P. avium*) and five sour cherry (*P. cerasus*) cultivars, different aspects of reproductive biology in cherries are among the main research activities at Fruit Research Institute, Čačak (FRI). The most important results were obtained in the field of pollination and fertilization of cherries – flowering phenology, pollen quality, monitoring the pollen tube growth in vitro and in vivo (pollen tube number and growth rate through certain pistil parts, pollen-pistil interaction in the style, unusual pollen tube growth in the ovary), cytoembryology (stage of ovule development, viability of ovule and embryo sac, early embryogenesis). Investigations were also focused to specificities of cherry genotypes in their reproductive behaviour as polleniser/pollinated cultivar, and to the adequate choice of domestic and foreign cultivars' combinations that exhibit the best performance in terms of fruit set and yields. In the last decade, research work on self- and cross-(in)compatibility in sweet cherry has been considerably advanced by S-genotype identification of cultivars, landraces and hybrids using the consensus and specific primers to amplify the S-RNase alleles. Nowadays, pollen-pistil interactions have been considered in the context of temperature conditions, bearing in mind incidence of seasons with higher temperatures during the flowering in the main cherry-growing regions. Within the national CherrySeRB project whose FRI is the leading institution, characterisation of the indigenous genotype potential for desirable reproductive properties and defining 'good reproductive behaviour cherry model' that can face warmer temperature conditions during the flowering are in focus. The main idea of CherrySeRB is connection of production challenges arising from climate change and the richness of Serbian and Balkan cherry germplasm that is still unused enough, which represents a novelty in breeding approach, applicable to other fruit species.

Key words: sweet cherry, sour cherry, cultivars, S-genotyping, flowering, reproductive biology