OPTIMUM NEIGHBORHOOD SEED ORCHARD DESIGN – SOFTWARE PACKAGE

Kateřina Chaloupková, Jan Stejska[1] and ***Milan Lstibůrek***
Czech University of Life Sciences, Prague, Czech Republic

Seed orchards represent the link between operational forestry and tree improvement. When a new orchard is established, factors such as the census of contributing genotypes and their physical allocation must be considered. All these factors affect the realized response to selection and levels of gene diversity. Therefore, good design should promote random mating and minimize inbreeding. While the existing designs are primarily focused on minimizing levels of inbreeding, the objective of the Optimum Neighborhood Seed Orchard (ONA) design is to maximize panmixia. It is generally known that pollination efficiency is a function of distance and thus most frequent genetic exchange occurs among neighboring clones. Because of this, panmixia in seed orchards was defined as a situation where close neighborhoods of all possible combinations of clones occur with the same frequency within the orchard grid.

Here we present computer algorithm to implement the ONA scheme using realistic input parameters, we also discuss the user's interface, and provide link to the actual software, so that breeders can freely use it.

Contact Information: Milan Lstibůrek, Kamýcká 129, 165 21 Praha 6 - Suchdol, Czech Republic, Phone: +420-22438-3786, Email: lstiburek@fld.czu.cz