SOFTWARE PACKAGE TO SOLVING COMPLEX SEED ORCHARD LAYOUTS

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Lstiburek and El-Kassaby (2009) suggested the use of a quadratic assignment problem as a global heuristics to solving complex seed orchard layouts and named the resulting scheme as the Minimum-Inbreeding (MI) seed orchard layout. While the original theoretical concept was demonstrated using a small 10x10 orchard block, the same authors later expanded the MI scheme to large-scale operational sizes (Lstiburek et al., 2015). Here we describe the formation of distance and flow matrices using the actual software package, which is composed of two parts: (1) improved version of the computer program OPTIQAP (extension of the algorithm by Miscevicius 2005), and (2) a series of routines developed in R system. All advantages of the original MI scheme have been retained in the extended version. These may include, either alone or in combination: unequal clonal sizes, related genetic entries, and preferential allocation. We believe that this package is useful to many operational tree improvement programs.

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