Optimum neighborhood seed orchard design - software package
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Software package
The current version of the software was programmed in the R language and the code is connected to a simple interface in Microsoft Excel. The user works almost exclusively in Excel file, which includes all necessary instructions.

Input Parameters:
• SO grid
• number of clones, their ID and sizes,
• number of iterations and additional parameters controlling the heuristics.

These parameters are automatically forwarded to the R software and the resulting scheme with the matrix of direct neighborhoods are forwarded back to MS Excel (Fig. 2). All these steps are done using simple keyboard shortcuts as described in the instructions.

The software is freely available at: https://katedry.czu.cz/en/kgfld/software

Possibilities of using ONA
In its current basic form, the ONA is specifically suited for the establishment of the first generation SO. It allows creating layouts of any sizes and shapes. It also works efficiently with variable clonal sizes (i.e., different numbers of ramets per clone). ONA can also be utilized to improve existing SO if mortality occurs or in conjunction with additional design.

Software extensions are under continuous development and the software link is being updated. Extensions should include, in particular, the addition of assortative positive/negative mating, and relatedness. Therefore, ONA will become suitable for the establishment of advanced-generation SO.