User manual for the FinnPRIO graphical user interface (GUI)

Version 1.0

1. Introduction

FinnPRIO is a model for carrying out quick, well structured, semiquantitative expert assessments on the risk that invasive pest species pose to plant health. The model has been published by Heikkilä et al. (2016) and a full description of it can be found in the article. This user manual provides instructions on how to use the FinnPRIO graphical user interface (GUI), which is designed for carrying out and storing FinnPRIO assessments.

2. Requirements

The FinnPRIO GUI is run in Microsoft Excel. The GUI was created with VBA in Microsoft Excel 2013 on Windows 7 Enterprise (32-bit) and some modifications were done in Excel 365 on Windows 10. The functionality of the FinnPRIO GUI in previous versions of Microsoft Excel hasn't been tested.

Before using the FinnPRIO GUI in Excel, BERT (Basic Excel R Toolkit) needs to be downloaded and installed. This is because the simulation of the assessment scores in FinnPRIO GUI is partly carried out in statistics language R (R Core Team 2015) using the package "mc2d" (Tools for Two-Dimensional Monte-Carlo Simulations) (Pouillot & Delignette-Muller 2010) and BERT is used to connect Excel with R.

BERT can be freely downloaded from: https://bert-toolkit.com/download-bert. After installation, start Excel and click "Add-ins" tab on the Excel ribbon menu. BERT Console button should be visible on the left. Click the BERT Console button to open the console. From the BERT Console toolbar tab on "Packages" and select "Install packages" from the dropdown menu. Select "0-Cloud [https]" mirror, from the "CRAN Mirror" pop-up window. Select the package "mc2d" from the list and click on the "Install" button. Now Excel and BERT are ready for running the FinnPRIO GUI.

> **IMPORTANT!**
> Note that the FinnPRIO GUI uses comma (,) as a decimal separator. If point (.) or some other symbol is used as a decimal separator in Excel, FinnPRIO GUI automatically changes the decimal separator in Excel into comma when the FinnPRIO GUI is used. **After closing the FinnPRIO GUI, the original settings for decimal separation in Excel must be restored manually**.

3. General structure of the FinnPRIO GUI

The FinnPRIO GUI has two userforms, one for carrying out FinnPRIO assessments, and another for simulating of scores of several assessments. Both userforms can be opened from the "MAIN PAGE" worksheet.

3.1. FinnPRIO userform for carrying out assessments

This userform can be used to carry out and save new assessments, and to update previously made assessments.

All the assessments are saved in the "Assessment database" worksheet. They can be uploaded to the userform (one at a time) for a closer look and for an update from the dropdown menu "List of previously saved assessments". As a default, the "Assessment database" worksheet contains an assessment titled "TEST ASSESSMENT1 – NEVER DELETE THIS ONE!". This assessment should never be deleted from the database, because it is connected to some of the functions of the userform. Note that the title of an assessment will contain the scientific name of the assessed species and the date when the assessment has been saved. If changes for the assessment are made in the same day, a new saving will overwrite the existing assessment in the assessment database. If changes are made in the following days, the assessment will be saved as a new assessment.

The assessment questions in the userform, on the tabs "Entry", "Establishment and Spread", "Impact" and "Management", correspond to the FinnPRIO questions described in Heikkilä et al. (2016). Instructions on how to interpret the questions and the answer options are given on the tab "Instructions".

The userform for carrying out FinnPRIO assessments can also be used to simulate the score distributions of the assessments, but only for one assessment at a time. This can be done on the tab "Simulation". After the simulation is completed, summary statistics of the score distributions appear in the cells in the userform under the heading "Results". The results of all iterations of the simulation can be found in the "Simulation data" worksheet. Note that the contents of the "Simulation data" worksheet is always overwritten when a new simulation is run. To save the summary statistics of the simulation scores click "Save scores". This saves the summary statistics of the simulation and information on the used simulation settings in the worksheet "Simulation results".

3.2. FinnPRIO userform for simulating the scores of several assessments simultaneously

This userform can be used to simulate scores of several assessments at a time.

Once the userform is opened, all the assessments saved in the "Assessment database" worksheet appear in the left-side window titled "Assessments". Select assessments to be simulated by ticking the box in front of the assessments. Several assessments can be selected by holding down Ctrl or Shift button. Once the assessments have been selected, click the button "Add" and the selected assessments will appear in the right-side window "Selected assessments for the simulation". Again, select assessments for the simulation from the right-side window by ticking the boxes in front of the assessments. After the simulation is completed, summary statistics of the probability distributions of the scores with information on the used settings are automatically saved in "Simulation results" worksheet

> **IMPORTANT when simulating the score distributions!**
> - The sum of the weights of the economic and environmental and social impacts must equal 1.
> - Contrary to Heikkilä et al. (2016), the scores in the FinnPRIO GUI are normalized such that they all have a minimum attainable level of 0 and a maximum attainable level of 1.
> - During the simulation process you may not be able to use Excel for other purposes.

3.3. Printing an assessment as a PDF

The FinnPRIO GUI also has a function for making PDF files of the assessments. The PDF file includes the information from the tab "Basic info", and the answer options selected to the FinnPRIO questions with their justifications.

Printing can be done in the "Print" worksheet, which can be accessed from the main page of the GUI or from the sheet tabs in Excel. Assessments can be selected for printing from the dropdown menu in the upper left corner of the worksheet. The dropdown menu includes all assessments saved to the "Assessment database" worksheet. Before printing the assessment as a PDF, make sure that the whole texts in the justification fields are visible by adjusting the heights of the rows.

4. References

Heikkilä J., Tuomola J., Pouta E. ja Hannunen S. (2016). FinnPRIO: a model for ranking invasive plant pests based on risk. Biological Invasions 18: 1827-1842. http://link.springer.com/article/10.1007/s10530-016-1123-4

Pouillot R. & Delignette-Muller M.-L. (2010). Evaluating variability and uncertainty in microbial quantitative risk assessment using two R packages. International Journal of Food Microbiology 142(3): 330-340

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