Instructions for the Electronic Supplementary Materials

a) Estimation of productivity shocks following a pollinator decline

1. Save the following three files (data_input.xlsx; Estimation of productivity shocks.gms; Estimation of productivity shocks_fromauthors.gdx) in one directory
2. Open GAMS Studio (a free demo version can be obtained from https://www.gams.com/download/)
3. Open the file “Estimation of productivity shocks.gms”; Estimation
4. Run the code
5. Inspect the shock parameters from the newly created gdx file
6. Optionally: Compare it with the values from the gdx file provided

Simulation of global pollinator declines

The shock parameters are subsequently used for scenario analysis in the CAPRI model. The model can be downloaded from www.capri-model.org.

The CAPRI model comes with access to the underlying model database. The modeldatabase needs to be generated following the instructions on the website or in the “batchfile” provided in the supplementary materials. Once the database has been estimated, the model can simulate the productivity shocks. The shocks are provided in three different gms files:

1. global_collapse_NormalCropYieldElas_MeanDep.gms
2. global_collapse_NormalCropYieldElas_MinDep.gms
3. global_collapse_NormalCropYieldElas_MaxDep.gms

These gms files are called from a batch file within the graphical user interface (GUI) of the CAPRI model. The batch file is also provided, see file name “Policy_Pollinators_normalelas_allscen.txt”

The results from these simulations can be viewed within the GUI. This will allow to analyse the main results. The results and graphics reported in the manuscript are further processed in the software package R.