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Alternative crops for a changing climate in Switzerland

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Rising temperatures, shifts in precipitation patterns and longer dry periods provoke a need for better adapted crops in Switzerland to maintain agricultural productivity in the long term. The aim of this work was to identify plants with a high climatic suitability in the future. A simple mechanistic model (ecocrop) was applied to determine suitability for different time periods under RCP scenarios 4.5 and 8.5. The model considers temperature and precipitation ranges. From a pool of 600 edible plants, 21 plants were identified that would benefit from progressing climate change in terms of average climatic yield potentials. In addition, these plants were found to have a high nutritional quality and could thus be seen as good candidate crops to expand the portfolio of cultivated crops in Switzerland in efforts to adapt to climate change and maintain or even increase food productivity in a future climate. The potentials of selected crops are discussed in terms of cultivation requirements, spatial suitability, and market potentials.