



Climate suitability analysis in the context of EFSA Pest Risk Assessment. *Amyelois transitella*, the navel-orange worm, as a case study

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The European Food Safety Authority (EFSA) conducts plant pest risk assessment (PRA) under the mandate of the European Commission, the European Parliament and the Member States. The analysis of potential pest establishment is a key element of PRA and it is based on the presence of suitable hosts in the area under assessment and on the analysis of climate suitability for the pest. We aim to elucidate the climate suitability analysis process in the context of EFSA PRA, from literature search on pest distribution data and eco-physiology, to data extraction, data analysis, and application of climate suitability models. We detail the full process, applied to the polyphagous pest navel-orange worm *Amyelois transitella* (Lepidoptera: Pyralidae). Following two mandates of the European Commission, EFSA completed a pest categorisation of the navel-orange worm (EFSA, 2021) and it is currently conducting a PRA. For this case study, 771 scientific documents were collected and screened at title – abstract level, out of these 191 were screened as full-text. Ninety-seven studies were then selected for data extraction (out of which 69 containing information on the pest distribution and 51 on eco-physiology). Information on distribution included 160 geographical records, out of which 91 related to specific points with geographical coordinates and 69 related to different level of administrative units. Based on this information, climate suitability analysis was conducted applying a methodology based on the Köppen–Geiger climate classification, and the Climex model. *A. transitella* is currently present in North and South America, but absent from the EU territory. Preliminary results showed that, if the insect enters in the EU territory, it is more likely to establish in Southern and Mediterranean areas of the EU, where it could cause an impact on susceptible EU crops.