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TEMPERATURE DEPENDENT DEVELOPMENT OF *HETERODERA SCHACHTII* IN A CHANGING CLIMATE IN SOUTHWEST GERMANY

ABSTRACT

The lifecycle duration of the beet cyst nematode (*Heterodera schachtii* sacc. Schmidt) notably depends on the soil temperature. According to Kochs (2014) respectively Curi & Zmoray (1965) 450-465°Cd to a base temperature of 8°C are required to complete one generation. The potential number of completed lifecycles per year was analyzed for the timeframe 2010-2015 and put in relation with the reproduction rate of *Heterodera schachtii* in related field trails. Therefore data of the daily mean temperature in 20 cm soil depth were taken from agrometeorological stations in the study area. All temperatures above 8°C were summed up and divided by 450. The result is that 2011-2015 potentially 4 generations could be completed per year.

The possible impact of climate change on the potential number of lifecycles of *Heterodera schachtii* was estimated by using REMO (REgional MOdel) climate projection data. For the impact assessment between the 1st of March and the 31th of October the daily mean temperature above 8°C was summed up annually. The following three time windows were compared: a baseline period 'B' (1971-2000), a medium-term period 'K' (2021-2050) and a long-term period 'L' (2071-2100). The results show an increase of the potential number of lifecycles of *Heterodera schachtii* due to the projected warming with obvious regional differences. On average in period B 3,3, in period K 3,7 and in period L 4,8 lifecycles could be completed potentially during one vegetation period. Due to that the regional importance of an appropriate nematode management will become more important in future.