



**XI INTERNATIONAL SYMPOSIUM OF
AGRICULTURAL SCIENCES**

BOOK OF ABSTRACTS

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**XI INTERNATIONAL
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AGRICULTURAL SCIENCES**

**26-28, May, 2022
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01_16

Are drought and precipitation patterns affecting sunflower susceptibility wireworms?

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Abstract

Climate change, manifested in increasingly warmer weather conditions, prolonged drought periods and changed precipitation amount and patterns, has been identified as a changing force in agriculture production. Extreme weather events have a major impact on crops, but also on agricultural pests. Specifically, drought conditions enable pests to thrive and make higher damages due to altered bionomy but also increased susceptibility of host plants. Wireworms are most devastating soil-dwelling pests of a number of crop species, and according to the predictions, they are likely to become a bigger problem under the conditions of climate change. This work aimed to monitor the occurrence and activity of wireworms in sunflower, depending on the environmental conditions, precipitation patterns in particular, and plant growth stage. Wireworm presence was monitored in a three-year period, 2018, 2019 and 2021, on an untreated sunflower field. Wireworm presence and activity was deduced based on damaged plants (%), field emergence (%) and plant density (number of plants per 10 m out of 40 sown seeds), observed at two phenophases (one and three to four pair of leaves). These traits were correlated with precipitation amounts in period April-June and average daily temperatures. High precipitation in May 2019 (147.6 L) evidently affected feeding activity of wireworms, since the percentage of damaged plants was the lowest (0-0.7%) in this year. The opposite was recorded in years with average precipitation levels in May 2018 and 2021 (63-64.2 L) when the damages ranged from 2.69 to 16.5%. However, field emergence and plant density of sunflower did not differ significantly depending on the amount of precipitation in this period. Weather patterns in June did not affect wireworm feeding since sunflower exited sensitive phenophase. Given results confirm sunflower plasticity to a variety of water conditions, and also wireworm sensitivity to high water content in the soil during feeding period.

Key words: climate, soil-dwelling pests, sunflower, damages