

NÁVRH TÉMATU/PROPOSAL OF THEME

Studijní program/*Study Program*: **Crop Science**

Studijní obor/*Branch of Study*: **General Crop Science**

Katedra/*Department of*: **Agroecology and Crop Production**

Školitel (včetně titulů), email/*Supervisor*, email: **doc. Dr. Mgr. Vera Potopová, potop@af.czu.cz**

Konzultant (včetně titulů)/*Co-supervisor*: **prof. Ing. Josef Soukup, CSc.**

Forma studia/*Form of Study*: **Full_time**

Theme: Understanding and modelling compound climate and weather events and their impacts on oilseed rape

Hypothesis:

The tendency of increases in the intensity and frequency of compound events related to climate change will lead to higher yield variability and reduce the qualitative parameters of winter oilseed rape in the main producing regions.

Annotation:

Oilseed rape along the growing season could be exposed to an ensemble of adverse meteorological events (overwintering, lodging, drought, surplus of rainfall, severe frost) whose impacts are complex to be assessed. The compound events (i.e. two or more extreme events occurring simultaneously or successively) may result from contributing events either of the same or different type(s) that amplify the impact to the agricultural production. Thereby, the role of the multivariate extremes, compound events and storylines approaches in the agriculture research has thus gained more attention. Winter oilseed rape (an oil and energy crop) is a globally important crop, it faces changing biotic and abiotic stresses linked to climate change or the introduction of new diseases and pests. **The proposed PhD** will therefore undertake a novel examination of the dual concept of crop-losses and compound events during the growing cycle of oilseed rape under various soil and climatic conditions.

The **two key objectives** of the study are (1) To understanding and modelling the performance of oil-seed rape varieties in relation to compound climate/weather events and pest/diseases; and (2) To evaluate of the response of oilseed rape cultivars to weather factors, phenological, yield and qualitative parameters (beginning and the end of flowering, maturity, lodging, plant length, overwintering, WTS, yield and oiliness).

The European Cooperation in Science and Technology (COST) funded the Action CA17109 called "Understanding and modeling compound climate and weather events", or "DAMOCLES" for short (2018-2022). DAMOCLES brings together climate scientists, impact modellers, statisticians, and stakeholders from all over Europe to better understand, describe and project compound events. The PhD thesis will be realized in the collaboration with the DAMOCLES action and the Czech Central Institute for Supervising and Testing in Agriculture.

Application must be made in the form of a Declaration of Interest including the following:

- ❖ A research proposal/description of your approach to the above proposal
- ❖ A letter stating your specific interest, motivation and qualifications for the PhD thesis
- ❖ Detailed CV, including personal contact information
- ❖ Copies of diplomas, Bachelor as well as Master's degree, including transcript of notes/grades
- ❖ At least two signed reference letters.

We offer:

Excellent research opportunities, advanced training and state of the art technical research infrastructure, within an interdisciplinary, international team located in a very pleasant a unique university campus in Prague.

Source of funding: project NAZV - QK1910269, SGS and development funds from which the well-working student will be supported beyond the scholarship.

Date: 12.2.2019

Signature: