

Name and surname:	Józef Sowiński
Academic Degree:	prof. dr hab. inż. (Prof.)
Institute/Department:	Institute of Agroecology and Plant Production
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UPWr Base of Knowledge - link:	https://bazawiedzy.upwr.edu.pl/info.seam?id=UPWr3a4e49175cd64de38e081b73d10ae283&afil=&lang=en
Researchgate:	https://www.researchgate.net/profile/Jozef-Sowinski https://www.researchgate.net/profile/Jozef-Sowinski-2
Personal website / Working group website:	
Participation in projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	A mobile system for precision injection irrigation and fertilization meeting the individual requirements of plants". MSINiN. Grant number: BIOSTRATEG3/343547/8/NCBR/2017 (RI 2017-2021). WATER RETENTION AND NUTRIENT RECYCLING IN SOILS AND STREAMS FOR IMPROVED AGRICULTURAL PRODUCTION - WATERAGRII (RI 2022)
PhD topic:	Adaptation of crop species to stress conditions
Research discipline in Doctoral School:	Agriculture and Horticulture
Short description of the research problem to be solved in the PhD (minimum 1000 characters):	Agriculture, and in particular crop cultivation, is to the greatest extent dependent on environmental conditions. The selection of crop species and the possibilities of their cultivation largely depend on the amount and distribution of precipitation, air temperature during the growing season and winter periods. Climate changes resulting from increased greenhouse gas emissions have the greatest impact on agriculture production. The increase temperature during growing season has an ambiguous effect on the vegetation, limiting the cultivation of certain crops while enabling the cultivation of other - alternative - crop species. One of the adverse effects of the increased concentration of greenhouse gases in the atmosphere is the occurrence of extreme conditions. There is an increase in the occurrence of long periods without rain or periods with heavy rainfall, with destructive effects on crops and soil. Crop production in Poland is strongly dependent on stresses related to excess or shortage of water. Cultivation of crops more and more often has to be carried out during periods of drought or semi-drought. The selection of species and varieties as well as their response to periods of drought and the possibility of mitigating the negative impact on the development, growth and yield of crops is a very important research issue in the discipline of agriculture and horticulture. The planned doctoral programme will evaluate crop response to stresses and the possibilities of mitigating the adverse effects of climate change on crops.
Professional skills for PhD candidate (e.g. master program, specializations, softwares, language, analytical techniques, minimum 500 characters):	In order to implement the planned topic of the doctoral programme, the candidate must have a higher university education in the field of agriculture in the discipline of agriculture and horticulture or a related discipline. Creativity, inquisitiveness, willingness to take on new challenges and perseverance in the implementation of undertaken new and risky tasks are important. For the implementation of the experimental part, the Candidate is required to be familiar with the specifics of field research as well as experiment carried out in controlled conditions or to provide evidence of experience in this field. Readiness to work in various weather conditions is required to carry out experiments in field conditions. Experience in laboratory work is essential. Readiness to learn new analytical methods and work with a variety of laboratory equipment. In order to implement the topic of the doctoral thesis, knowledge of English at a level that allows for scientific communication is essential. The Candidate is required to be competent in the use of statistical software.
a) Project title:	none
b) Agreement number:	none
c) Number of months in the project to support PhD student (in months; starting from 1st of October 2024):	0
Project website:	