

Name and surname:	Sylwia Lewandowska
Academic Degree:	dr hab. inż. (DSc.)
Institute/Department:	Department of Genetics, Plant Breeding and Seed Production
e-mail address:	sylwia.lewandowska@upwr.edu.pl
ORCID:	0000-0001-8576-4357
UPWr Base of Knowledge link:	https://bazawiedzy.upwr.edu.pl/info/author/JPWr51adaaa2352649068c09331a4c4ef8a0/Sylwia+Lewandowska+title?r=publication&lang=pl
Researchgate:	https://bazawiedzy.upwr.edu.pl/info/author/JPWr51adaaa2352649068c09331a4c4ef8a0/Sylwia+Lewandowska+title?r=publication&lang=pl
Personal website / Working group website:	https://legumegap.eu/work-package-2/
Participation in projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	<p>"Project leader of international project ERA-NET Co-Fund SusCrop, akronim LegumeGap „Increasing productivity and sustainability of European plant protein production by closing the grain legume yield gap”, duration 01.04.2019 – 31.12..2022</p> <p>Project manager on behalf of Dresden University of Applied Sciences (Germany), ""Innovation Network to Improve Soybean Production under the Global Change"", acronym (INNISOY) duration: 2017-2022</p> <p>Project manager ""Optimisation of the productivity of new flax (Linum usitatissimum L.) and its use as a raw material source for biomedical preparations"", duration: 2013-2016"</p>
PhD topic:	Development of environment friendly methods to stimulate seed germination and plant growth
Research discipline in Doctoral School:	Agriculture and Horticulture
Short description of the research problem to be solved in the PhD (minimum 1000 characters):	<p>The quality of seeds and yield are the basic parameters determining the effectiveness of crop production. It depends on the environmental conditions during seed germination, plant growth and development, maturation and seed storage after harvest. Seed germination is a complicated physiological process that begins with water absorption and ends with the emergence of radicle. Improvement of germination rates are challenges in modern agriculture. Various methods of seed improvement are tools for this purpose. The development of agriculture and the related rational use of natural environment resources forces seed companies to search for novel methods of increasing germination ability of seeds, uniform seedling emergence, and high yields.</p> <p>The aim of the research will be:</p> <p>(a) to increase plant yields by: using non-chemical methods of plant growth stimulation (physical agents) and macroalgae-based bio-products,</p> <p>(b) to reduce the chemicalisation of agriculture</p> <p>(c) to increase germination ability of seeds of different crop species. The germination tests will be carried out according to the International Seed Testing Association (ISTA) methodology. Experiments will be performed in 4 replications, using different concentrations of algae products, which are rich source of biologically active compounds that can positively stimulate plant growth or/and by physical methods (magnetic field, near infrared radiation). The aim of these studies will be to select optimal doses of algae concentration for plants and other tested factors. The following will be analyzed: (1) seed germination ability, (2) percentage share of normal and abnormal seedlings and dead seedlings, (3) uniform emergence (4) chlorophyll content (5) evaluation of effectiveness of tested factors.</p>
Professional skills for PhD candidate (e.g. master program, specializations, softwares, language, analytical techniques, minimum 500 characters):	A candidate should have basic knowledge of agricultural botany and should be familiar with laboratory work. He/She is expected to carry out field and laboratory experiments, be ready to go on scientific internships abroad and participate in international scientific conferences. A candidate should be fluent in English, be able to study scientific papers in this language (writing, reading, listening, speaking). The ability to use programmes for statistical analysis will be also an advantage. A candidate should have a comprehensive knowledge in the science of crop production and organic farming.
a) Project title:	
b) Agreement number:	
c) Number of months in the project to support PhD (in months; starting from 1st of October 2022):	
Project website:	