

Ph.D. Fellowship in Agro-informatics and Precision Agriculture

Volcani Institute, in collaboration with Ben-Gurion University, invites applicants for a Ph.D. Fellowship in precision agriculture. The position starts on October 1st, 2021.

The position is linked to the project “**Tree-based multilevel spatial decision support systems to close the yield gap in almond orchards**” funded by BARD.

The hired candidate will be admitted to a **four** years Ph.D. program at Ben-Gurion University. The education includes relevant courses, a dissertation based on independent research, participation in national and international research environments, relevant academic communication, a trial lecture, and public defense.

About the project

The Ph.D. fellow will be affiliated with the BARD project. The main idea of this project is to investigate the environmental, biological, and management factors that determine tree-level yield variability of almond orchards. We aim to achieve this by integrating multiple factors known to affect yield, including manageable primary resources (i.e., irrigation and fertilizer application), using machine learning algorithms and spatial statistics. These will assist in developing a spatial decision support system (SDSS) for irrigation and fertilization based on site-specific management. This research will utilize intensive sensing data with machine learning algorithms to enhance precision by implementing data-driven yet easy-to-use MZs. These, by considering dynamic in-season MZs based on detecting abiotic and biotic stress-causing factors (i.e., water status, N-pool, N-use-efficacy, light interception, and vegetative growth), management of sensors/sampling, and minimizing the use of UAVs by fusing with recently accessible satellite data. Once completed, the research should breach the gap between fundamental science and farming applications by supporting decisions for optimizing almond yield.

Three researchers will guide the Ph.D. candidate:

- Prof. Shimon Rachmilevitch – Plant ecophysiology
Email: rshimon@bgu.ac.il (<https://rachmilevitchlab.weebly.com/>)
- Dr. Tarin Paz Kagan – Agro-informatics and remote sensing
Email: tarin@volcani.agri.gov.il; (<https://paztarin.wixsite.com/mysite>)
- Dr. Shahar Baram – Soil chemistry and plant nutrition
Email: shaharb@volcani.agri.gov.il (<https://soilmedia63.wixsite.com/shaharlab>)

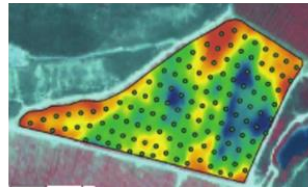
Qualification requirements

We are looking for applicants with a strong academic background who have completed a master's degree in Agronomy, Soil science, Remote sensing, preferably acquired recently, or possess corresponding qualifications that could provide a basis for successfully completing a doctorate.

Practical experience with coding and machine learning algorithms (using R, Python, Matlab), basic lab analysis (e.g., spectrophotometric, ICP etc.), and conducting field studies will be strongly emphasized.

To be eligible for admission to the doctoral programs at the Ben-Gurion, both the grade for your master's thesis and the weighted average grade of your master's degree must

The apex where Agro-informatics, environmental concerns and plant physiology meet



individually be equivalent to or better than 85. If you finish your education (master's degree) in the spring of 2021, you are also welcome to apply.

Emphasis is also placed on your:

Motivation and potential for research within the field; Professional and personal skills for completing the doctoral degree within the timeframe; Ability to work independently and in a team, be innovative and creative; Ability to work structured and handle a heavy workload; Having a good command of both oral and written English

Good proficiency in English is required for anyone attending the Ph.D. program.

For more information, please contact one of the three researchers.