



PhD student in Biology: epidemiology and eco-evolutionary biology

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Department of Plant Protection Biology

The Department of Plant Protection Biology at SLU is an interdisciplinary constellation, encompassing Resistance Biology, Chemical Ecology, and Integrated Plant Protection research units. Research efforts at the department are directed towards both fundamental and applied research.

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Name of research project/thesis: Herd immunity in food crops: promoting efficient and durable use of biocontrol and chemical fungicides

Description:

Herd immunity is a form of indirect protection from disease that occurs when a sufficient percentage of a population becomes immune to infection through e.g., vaccination, thereby reducing the likelihood of infection for individuals who lack immunity. The concept of herd immunity was developed within the science of human epidemiology and has never been fully explored in relation to crops.

The first aim of this project is to investigate whether herd immunity can be obtained in crop plantations through speckled use of 1) resistant cultivars, 2) biological control (*Aureobasidium pullulans*) and 3) chemical fungicides (Switch). The second aim is to investigate whether use of these speckled measures creates selection mosaics with evolutionary micro-refuges for the pathogen, thereby preventing it from evolving counter-resistance. Garden strawberry infected by *Botrytis cinerea* (causing grey mould) will be used as a model system.

The PhD student will be responsible for a large mesocosm experiment, in which susceptible or resistant strawberry plants will be subjected to speckled application of biological or chemical fungicides. Disease development in the plants, as well as resistance evolution in the pathogen, will be studied over four years.

Apart from experimental work, the PhD student will analyse data and publish scientific papers based on her/his findings together with the group of supervisors.

Qualifications:

Applicants should hold a degree in epidemiology, evolutionary biology, phytopathology or equivalent. Experience of hands-on work relating to the scientific area of the position is meriting. Applicants should further be fluent in spoken and written English. The successful candidate must be capable of independent planning, execution and analysis of experimental research and should furthermore have an interest in theory development as well as solving applied problems. As a person you are enthusiastic, responsible, and have excellent collaboration skills.

Place of work:

Alnarp, Sweden

Forms for funding or employment:

Employment (4 years)

Starting date:

As soon as possible, according to agreement

Application:

Click the “Apply” button to submit your application. The deadline is 2023-01-02

To qualify for third-cycle (Doctoral) courses and study programmes, you must have a second-cycle (Master’s) qualification. Alternatively, you must have conducted a minimum of four years of full-time study, of which a minimum of one year at second-cycle level.

Applicants will be selected based on their written application and CV, degree project, copies of their degree certificate and transcript of records from previous first and second-cycle studies at a university or higher education institution, two personal references, and knowledge of English. More information about the English language requirements can be found here: www.slu.se/en/education/programmes-courses/doctoral-studies/new-doctoral-students/english-language-requirements/

Please note that applicants invited to interview must submit attested copies of their degree certificate, a transcript of records from previous first and second-cycle studies at a university or higher education institution. Applicants who are not Swedish citizens need to submit an attested copy of their passport’s information page containing their photograph and personal details.

Read about the PhD education at SLU at www.slu.se/en/education/programmes-courses/doctoral-studies/

Academic union representatives:

<https://internt.slu.se/en/my-employment/employee-associations/kontaktpersoner-vid-rekrytering/>

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SLU has just over 3,000 employees, 5,000 students and a turnover of SEK 3 billion. The university has invested heavily in a modern, attractive environment on its campuses.

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Contact person

Johan A Stenberg
Professor
johan.stenberg@slu.se

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