



# Highlights of 2020

**SLU Centre for Biological Control, CBC**

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A popular science report of CBC's activities



## About the SLU Centre for Biological Control, CBC

The SLU Centre for Biological Control (CBC) is run by SLU with a grant from the Swedish government. Six researchers associated with the Centre conduct research to stimulate the development and implementation of biological control, working in close collaboration with stakeholders. A communicator is also linked to the Centre. Biological control is a collective term for various strategies to inhibit pests and diseases using living organisms and is an important component of integrated pest management in plant production. Biological control has great potential to restrict the damage caused by harmful organisms such as insect pests and plant pathogens.

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### Highlights of 2020 - SLU Centre of Biological Control

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# Plant protection in unusual times

Johan Stenberg, director of the SLU Centre for Biological Control

The aim of the International Year of Plant Health 2020 (IYPH 2020) was to raise global awareness of sustainable plant protection in times of climate change and global spread of pests and pathogens. Although the covid-19 pandemic overshadowed most other activities in 2020, it also placed cross-disciplinary questions related to control of harmful organisms on the global agenda.

Numerous activities were carried out despite all the difficulties. In this report you can read more about how the SLU Centre for Biological Control has contributed to this development.

During the year, the SLU Centre for Biological Control published a number of scientific advances related to the biological control of, for example, pest insects, fungal diseases, and nematodes. Many of these advances have been achieved in collaboration with plant producers both in Europe and in developing countries, as well as with industrial partners. The fact that Paul Becher received SLU Alnarp and Sparbankens Skåne's Innovation Prize is one example showing that the activities are unique, innovative, and relevant (in the words of the committee).

Supporting government agencies and institutions is another important task which resumed at full pace in 2020. For example, Ingvar Sundh has continuously contributed expertise and advice to EFSA (European Food Safety Authority) and the EU Commission on issues related to biopesticides and microbial control. We are also fortunate to have a very engaged national reference group for cross-fertilization between the SLU Centre for Biological Control and Swedish stakeholders.

The pace achieved in 2020 will hopefully accelerate in 2021. New major grants from EU H2020, SLU Grogrund, BiodivERSA, as well as national projects promise interesting developments in the year ahead. Please remember that the SLU Centre for Biological Control is never far away from you. We are available on social media and in other relevant places, and are always open for collaboration and discussions.



# Steps towards application

CBC contributes to research providing direct benefits to society

## Research for more environmentally friendly agriculture

Two methods that are directly applicable to more sustainable agriculture, on which CBC undertakes research, are push-pull methods and optimization of flower strips.

Push-pull technology is an intercropping strategy for controlling agricultural pests by using repellent "push" plants and trap "pull" plants. For example, cereal crops like maize or sorghum are often infested by stem borers. Grasses planted around the perimeter of the crop attract and trap the pests, whereas other plants planted between the rows of maize, repel the pests and control parasitic plants that threatens the crops. In Eastern Africa, Mattias Jonsson is investigating how these methods can be optimized for better yield.

Growing flowers to support beneficial insects that consume pests is a way of utilizing natural processes in a sustainable agricultural system. In addition, the flower strips favour pollinating insects. Maria Viketoft, Mattias Jonsson and Johan Stenberg are working on optimizing this method by looking at which flower species are most efficient and investigating how the environment below- and above-ground is affected by the flower strips.



## Regulation of biological control agents

Before a biological agent is allowed to be used, it must undergo a safety check to ensure that it does not have negative side-effects on humans or in the environment. CBC research as well as advice to the regulatory authorities help ensure that new, safe products and methods can be put at the disposal of end users quickly and efficiently. Read more about this on page 11.

*” By including and collaborating with stakeholders we ensure that we are doing relevant research that is needed in society*

- Magnus Karlsson

## Patents and industrial projects

Several ongoing projects are investigating how beneficial microbes and their metabolites can be utilized in new plant protection products to inhibit pathogens.

Research is also being carried out to optimize the application of the formulations, either by spraying or entomovectoring. National and international enterprises as well as SLU Holding are important partners in these projects.



# Outreach activities

Bringing knowledge to the general public

## A strawberry app for recreational growers

Around the country there are hobby growers who put great effort into producing high quality strawberries. A newly developed app could lead to better advisory services for recreational growers.

- A research group from SLU, led by René van der Wal, took advantage of this commitment and has launched a web-based strawberry app allowing growers to collect and report valuable observations of species found on or near their strawberry plants, says Paul Becher.

The goal of this citizen research is to produce better cultivation advice for Swedish gardeners, e.g. in the case of pests.

- Moreover, the project promotes the IYPH 2020 and highlights, to the general public, SLU action on plant protection, says Paul.

The Strawberry app is one example of citizen science projects at SLU.



The strawberry app: [jordgubbsappen.slu.se/](http://jordgubbsappen.slu.se/)

"SLU's strawberry app 1.0 – few reports but a lot of attention" - An evaluation of the app: [www.slu.se/strawberry-app-report](http://www.slu.se/strawberry-app-report)

## Citizen science - combining outreach and research

Exploration together with public participation combines outreach and research – and can be applied to projects on biological control.

- I was involved in organizing a workshop on the 16th of October intended to increase citizen science capacity at SLU. This is a very interesting way of creating more interest in scientific research. In addition, it is a great way to get new ideas and data input, says Paul.



*” Citizen science is a very interesting way of creating more interest in scientific research.*

- Paul Becher



## New co-workers

Newly hired PhD students, postdocs and master's students

### Flower strips provide ecosystem services to areas of strawberry cultivation

Neus Rodriguez-Gasol and Elodie Chapurlat will investigate what ecosystem services flower strips can provide to strawberry fields. They have recently started their two-year postdoctoral positions at SLU. Read more about their projects here: [www.slu.se/flowerstrips-strawberries](http://www.slu.se/flowerstrips-strawberries)

### Can natural enemies provide biological control of aphids in a changing climate?

Asmita Baral undertook her master's thesis work at SLU. She investigated whether a diverse range of natural enemies can provide stable biological control of aphids when the climate changes. Read more about Asmita's project here: [www.slu.se/asmita-baral](http://www.slu.se/asmita-baral)

### How can plants recognize fungal biocontrol agents?

Anais Carpelan has been working on her master's thesis at SLU. She investigated how fungal biocontrol agents can activate the immune system in crop plants, thereby resulting in protection against plant pathogens.

### Conflicts and synergies between plant resistance and biocontrol

Mudassir Iqbal was recruited as a postdoc in April 2020 to investigate mechanisms of biocontrol of the yeast-like fungus *Aureobasidium pullulans* controlling grey mould on strawberry. Special interest is focussed on how the control efficacy is affected by the evolution of plant intrinsic resistance. Such knowledge is crucial in plant breeding in order to predict potential conflicts and synergies between intrinsic plant resistance and biocontrol.

### Maize pests and natural control under climate change to be investigated

Mattias Jonsson is in the process of recruiting one PhD student to work on push-pull management of maize pests in East Africa. The student will explore when and where push-pull works best and will explore how it affects predator-prey food webs and biological control. The project is funded by the European Commission and is part of the project UPSCALE.

In addition, Johan Stenberg is recruiting a postdoc in evolutionary ecology. This project will investigate how climate change may affect ecoevolutionary interactions between plants, herbivores, and carnivores over continental scales. Climate-induced changes in natural selection may alter the ability of natural enemies to control pests on cultivated crops as well as their wild relatives.



*Asmita Baral has conducted experiments with different carabid beetles and the bird cherry oat aphid under various climatic conditions in climatic chambers during her master's work.*



# A bridge between academia and society

## CBC's reference group

One of the tasks of the SLU Centre for Biological control is to disseminate the university's knowledge for the benefit of society and to function as a bridge between academia and various external actors, as well as between researchers. One way of interacting with actors in society is CBC's reference group.

The reference group consists of representatives from the Swedish Board of Agriculture, the

Swedish Environmental Protection Agency, the Swedish Chemicals Agency, the Swedish Rural Economy and Agricultural Societies, LRF - The Federation of Swedish Farmers, RISE and the biological control company Lantmännen BioAgri. The aim is to develop the area of biocontrol through collaboration between SLU and these actors.



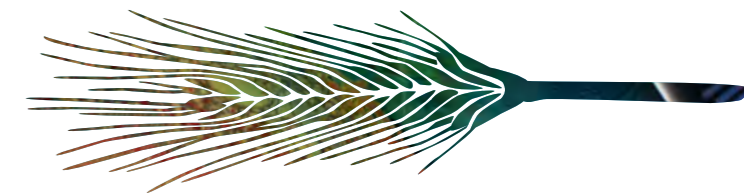
*” For farmers, it's important to find solutions to plant protection problems. Learning about biocontrol methods in development is very inspiring and gives hope for the future.*

- Agneta Sundgren,  
Lantbrukarnas riksförbund, LRF



*” Contacts with CBC help me to have control over what happens in the field of biological control*

- Johanna Jansson,  
the Swedish Board of Agriculture



# Scientific advice

CBC continuously communicates about scientific issues and queries with Swedish and international authorities, industry and organizations. Here are a few examples of how we provide scientific advice.

New microorganisms that can be utilized for augmentative biological control of pests and diseases need to be authorized as plant protection products or biocides. Regulatory measures can be expected to be well balanced and adapted to new developments in research.

CBC research and advice to the regulatory authorities help to ensure that new, safe products and methods can be put at the disposal of end users quickly and efficiently. CBC also gives advice to the Swedish Environmental Protection Agency regarding approval of macroorganisms (nematodes, insects, and arachnids).

## Assisting the European Food Safety Authority

CBC assists The European Food Safety Authority (EFSA) in evaluating microbes for safe use in the food and feed chain. CBC researcher Ingvar Sundh has been invited to continue contributing to the working group for QPS (Qualified Presumption of Safety of microorganisms) of the EFSA for a new mandate during the years 2020-2022.

Ingvar Sundh also assisted the EU Commission in work with new data requirements and guidance documents for safety assessments and authorization of microbial plant protection products.

- I have, for example, worked on issues regarding potential pathogenicity, potential transfer of antibiotic resistance, the specific protection goal approach for determining effects on non-target organisms in the environment, evaluation of temperature growth range and understanding the role of the mode of action for safety assessment, says Ingvar.

Ingvar submitted comments to EFSA's public consultation regarding a new guidance document on the utilization of whole genome sequencing in microbiological safety assessment.

## Response on plant protection products

Ingvar Sundh and Paul Becher contributed to the SLU response to a referral from KemI regarding updates to Swedish provisions for plant protection products. They also helped out with revision of KemI's web-based register of pesticides. In addition, support has been given to the Swedish Board of Agriculture regarding prioritization of certain areas related to crop protection.

## National risk assessments in the Nordic countries

CBC also supports national risk assessment units in Sweden, Finland and Norway.

- In 2020, I contributed four risk assessment reports on new biocontrol products for use in Norway. I am also planning a workshop together with EFSA and the Nordic risk assessment units in Parma, Italy, 2022, says Johan Stenberg.

*” Providing input from the latest research can facilitate the safety evaluation of the use of biocontrol microorganisms in the food and feed chain*

- Ingvar Sundh



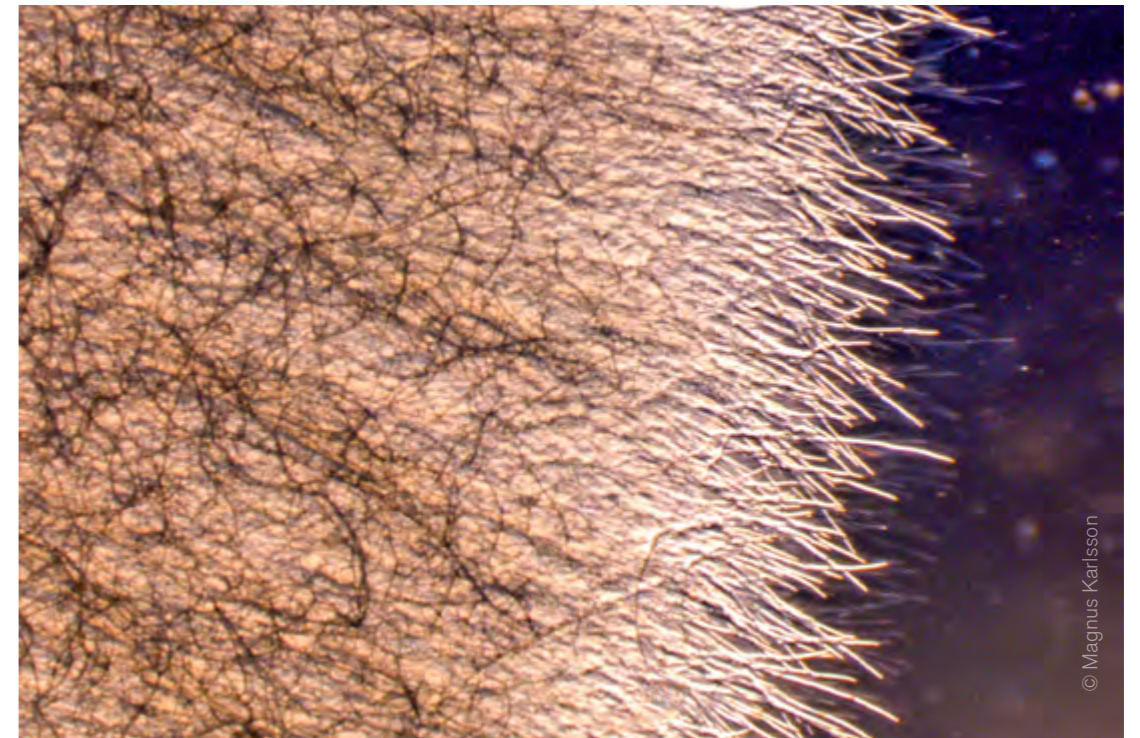
See a summary of updates of the list of evaluated microbes: <https://www.efsa.europa.eu/en/efsajournal/pub/5966>



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# Research on biocontrol

A few examples of research at CBC during 2020



© Magnus Karlsson

## Hunting for biological control agents: more fungal isolates than expected have promising properties

In a new study conducted at SLU, several species of the fungus *Clonostachys* have been shown to have the potential to be used as biological control agents. Eleven fungal genomes have been sequenced and biological control against a fungus that causes foot rot and head blight in cereals has been investigated in a laboratory environment. Both reduced disease development and growth inhibition of the pathogenic fungus were noted in several isolates. Read more:

[www.slu.se/hunt-for-biocontrolfungi](http://www.slu.se/hunt-for-biocontrolfungi)

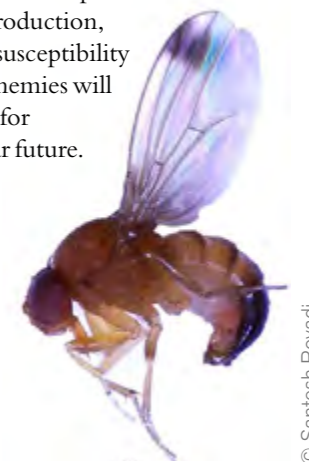
## Detection of the invasive *Drosophila suzukii* in Sub-Saharan Africa

Since about 2008 the Asian fruit fly *D. suzukii* has invaded several continents as a major global pest of

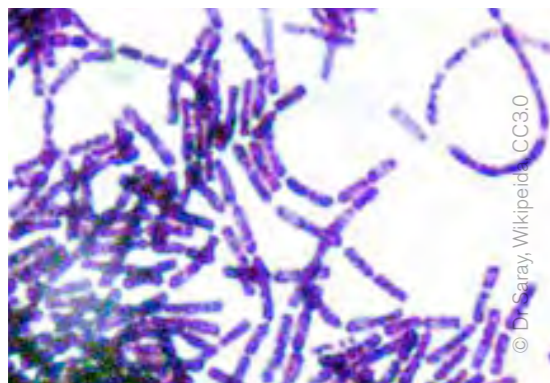
soft-skinned fruit; its establishment and distribution on the African continent was unclear. PhD student Charles Kwadha has now confirmed the presence of the pest in Kenya. Its impact on African fruit production, management and susceptibility to native natural enemies will be a rich substrate for research in the near future.

Read more in the Journal of Pest Science:

<https://doi.org/10.1007/s10340-021-01330-1>



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**Why has the authorization of microbial biological control agents been slower in the EU than in comparable jurisdictions?**

The authorization process for microbiological plant protection agents is lengthier in the European Union than in other comparable jurisdictions. Although the EU's regulatory process has strong scientific foundations, the study concludes that the most appropriate scientific concepts, knowledge and expertise have not been applied in the safety assessment of microorganisms utilized in biological pest and disease control. Read more: [www.slu.se/EUbiocontrol](http://www.slu.se/EUbiocontrol)

**Bacteria can attract springtails**

The emission of the earthy odorant geosmin by *Streptomyces* soil bacteria is a sporulation signal that attracts spore-dispersing springtails. New research provides insights into the basic chemo-ecological interactions within the soil ecosystem. *Streptomyces* bacteria are extremely rich in the production of bioactive compounds and therefore can also be applied as biocontrol agents.

Understanding their development and ecology will influence future applications.

Read more (in Swedish): [www.slu.se/varjord](http://www.slu.se/varjord)



**New pest management approaches can benefit pollinators**

The demand for pollinator-dependent crops is increasing. At the same time, agriculture is challenged by increasing restrictions on pesticides. Integrated pest management has been suggested as a way to tackle this dilemma and help mitigate

pollinator decline. However, this strategy is not explicitly pollinator-friendly.

A new framework known as "integrated pest and pollinator management" (IPPM) promotes biocontrol and other pest management strategies that also benefit pollinators. Read more here: [www.slu.se/ippm](http://www.slu.se/ippm)



**Flower strips, but not hedgerows, increase ecosystem services**

Planting flower strips and hedgerows close to crop fields aims to increase biodiversity and ecosystem services such as pest control and pollination. In a global synthesis, an international research team found that flower strips enhanced pest control services in adjacent crop fields by 16% on average. Effects on pollination were more variable. Read more here: [www.slu.se/flowerstrips-hedgerows](http://www.slu.se/flowerstrips-hedgerows)

**Improvement of regulatory measures**

Within the EU-project EcoStack, recommendations will be produced for improvements to regulatory measures and systems applicable to the utilization of plant beneficial microorganisms in crop production. Beside microbial control agents, the study also covers microorganisms conferring plant biostimulating or other types of beneficial effects. During 2020, Ingvar Sundh and EcoStack colleagues produced an inventory of the various applicable regulations and formulated preliminary proposals for revised regulatory policies, to be discussed with stakeholders at a virtual workshop in March 2021.

**Evolutionary perspectives improve plant protection**

We live in a changing world, where pests and natural enemies constantly evolve. Crops also evolve via plant breeding. Now researchers from SLU suggest that Integrated Pest Management

(which is the prevailing paradigm for plant protection) needs to be considered from an evolutionary perspective to become more effective. Read more (in Swedish): [www.slu.se/evolutionartvaxtskydd](http://www.slu.se/evolutionartvaxtskydd)



See CBC's full list of publications: [www.slu.se/cbc-publications](http://www.slu.se/cbc-publications)



The United Nations General Assembly declared 2020 the **International Year of Plant Health (IYPH)**. The year aims to raise global awareness of how protecting plant health can help end hunger, reduce poverty, protect the environment, and boost economic development.

## The International Year of Plant Health 2020

A film project to promote SLU's plant health research

With a series of 1–2-minute film clips distributed via social media, we are promoting SLU's plant health research. The project has been a collaboration between Anna Lundmark, the communications manager for the Ecology Centre at SLU, and Cajsa Lithell, communications manager at CBC. In total, seven movies have been produced.

In one of the clips Mattias Jonsson presents his research on push–pull methods in East Africa. The idea here is to scare and/or lure away pests from the crops and thereby increase harvests.

Maria Viketoft's research on flower strips was featured in another clip. She investigates the advantages and disadvantages of sowing flower strips in fields. The aim is for flower strips to

attract pollinators and natural enemies.

*Clonostachys rosea* is a real super-fungus when it comes to plant protection! One film features Magnus Karlsson's investigations into this fungus that can both fight pests and improve plant growth. In addition, a film to promote a citizen science project on strawberry pathogens was made using the same template.

These film clips have been promoted on Facebook and Twitter.

Due to the covid-19 pandemic, many activities had to be postponed in the international Year of Plant Health. Therefore, the IYPH has been extended until summer 2021. We will grab this opportunity to produce some more film clips in this series!



See all film clips here:  
[www.slu.se/IYPHfilm](http://www.slu.se/IYPHfilm)



## New research projects

During 2020 CBC has received grants for new research projects

### Plant breeding for reduced chemical use

In a new project, funded by SLU Grogrund, Magnus Karlsson and colleagues will investigate whether plant breeding can improve the potential for biocontrol and biostimulation by beneficial microorganisms in wheat and sugar beet.

Another focus is to develop genetic markers to be used in breeding programmes to develop new crop cultivars that are highly compatible with beneficial microorganisms. The programme is a collaboration between SLU, Lund University and the plant breeding companies Lantmännen and MariboHilleshög.

### PlantCline - Adapting plant genetic diversity to climate change

BiodivERsA has funded a CBC project that will investigate how tritrophic evolutionary interactions between plants, herbivores, and carnivores are affected by climate change. The

resultant knowledge will help plant breeders to develop crops that are pre-adapted for natural control in warmer and drier conditions. The project involves partners in four EU countries and is coordinated by Johan Stenberg.

### Sustainable agriculture with better biological control methods

The European Commission (Horizon 2020) has funded a project that will explore when and where push-pull management (a mixed cropping system) can best contribute to reduced pest pressure, fewer weeds, improved soil fertility and improved livelihoods for farmers in East Africa. The project will also actively work towards developing and implementing the technology in other regions. Mattias Jonsson leads one of the work areas in this project involving 18 African and European partners. The project started in November 2020 and will run for five years.



© Marysellah Nelima, ICIPE



## CBC financed projects and teaching

### CBC finance project on fungal biocontrol agents

During 2020 CBC allocated funds for a pilot project on rhizosphere competence of fungal biocontrol agents.

Being able to become established on crop plants is an important property of successful biocontrol agents in augmentative biocontrol. The ability of fungal biocontrol agents to establish in the root system of wheat has been tested. Preliminary results show that certain strains are, indeed, able to establish on wheat roots, but this ability is not connected with the plant growth-promoting effect of the biocontrol agent.

### Teaching - developing a biological control module and lab work at a distance

CBC gives lectures on biological control, IPM and plant protection in different basic and advanced courses at SLU. In addition, we supervise candidate and master's thesis work, as

well as PhD students. CBC has developed a half-day teaching module on biological control for basic level university courses, including a short presentation about CBC. It includes introductory lectures and a group exercise with case studies covering augmentation, conservation and classical biological control. During 2020, the module was included in SLU courses in Crop Production.

Magnus Karlsson has been teaching on the international PhD level course "Plant disease epidemiology – from theory to applications", organized by SLU. The course had 33 participants from nine different countries.

The covid-19 pandemic has complicated teaching greatly. Many adaptations had to be made. However, many of the new electronic solutions will be very useful to have in the years to come.



” Year 2020 brought many new solutions for electronic teaching. On-line instructions on slug dissection for detection of nematodes worked well!

- Maria Viketoft



# CBC in the media

Examples of CBC researchers interviewed in different media

## Innovation award for hoverflies as multi-tools for plant protection

Researcher Paul Becher and PhD student Guillermo Rehermann were awarded SLU Alnarp and Sparbankens Skåne's Innovation Award 2020. Paul and Guillermo's contribution, "Flying Agents - hoverflies for pollination, pest control and targeted vectoring of beneficial microbes", uses nature's own small drones, hoverflies, for pollination and also, by extension, to be able to accurately supply various beneficial microorganisms and chemicals.

” *Small, smart and on nature's own terms*

- The jury on the winning contribution

- Everyone knows, pollination by bees is of crucial importance for our ecosystems and agricultural production. Insects can be applied as 'Flying Doctors' for vectoring biocontrol agents to flowering crops for control of plant pathogens, says Paul Becher.

Read more here: [www.slu.se/innovation-hoverflies](http://www.slu.se/innovation-hoverflies)

## Earth scent link in important interplay

The smell of soil is associated with spring and spring farming. Now, researchers from SLU and Lund University have found that the scent is an important link in the interaction between an insect-like organism and soil bacteria that are super producers of antibiotics.

- Our experiment showed that it is the smell of the earth that attracts soil-dwelling organisms called springtails. Knowledge of such ecological interactions in soil is important for sustainable agriculture, says Paul Becher.

Read the article in Jordbruksaktuellt (in Swedish): [www.ja.se/artikel/2226065/jorddoften-lnk-i-viktigt-samspel.html](http://www.ja.se/artikel/2226065/jorddoften-lnk-i-viktigt-samspel.html)

## The hunt for the scent to control detrimental flies

Paul Becher was interviewed for an article on *Drosophila suzukii* and the use of beneficial flies in the journal Lantmännen.

## Strawberries can have bodyguards

Is it possible to grow strawberries without chemical pesticides? Johan Stenberg is trying to find out with his ongoing research.

- By spraying the strawberry flowers with a solution containing a yeast-like fungus, fungal pathogens are inhibited, says Johan Stenberg.

This yeast-like fungus acts as a bodyguard against grey mould.

Read more at SVT (in Swedish): [www.svt.se/nyheter/lokalt/skane/jordgubbar-kan-fa-egna-livvakter-mot-mogel?cmpid=del:tw:20200619:jordgubbar-kan-fa-egna-livvakter-mot-mogel:nyh:lp](http://www.svt.se/nyheter/lokalt/skane/jordgubbar-kan-fa-egna-livvakter-mot-mogel?cmpid=del:tw:20200619:jordgubbar-kan-fa-egna-livvakter-mot-mogel:nyh:lp)

## Non-toxic strawberry plantations with the help of flowers

Strawberries are one of our most sprayed crops and organic farming can be something of a gamble. Strawberries are easily destroyed by insect infestations and grey mould, but it may be possible to find green alternatives to chemical pesticides. In a new project, researchers are testing whether organic strawberries do better when grown together with flowers.

- We will optimize the flower strips by trying different plants. It may be possible to combine different plants and contribute to both pollination and pest control, says Maria Viketoft

Read more in Extrakt (in Swedish): [www.extrakt.se/jordgubbsodlingar-giftfria-med-hjalp-av-blommor/](http://www.extrakt.se/jordgubbsodlingar-giftfria-med-hjalp-av-blommor/)



# Seminars and conferences

## Genetic variation in biocontrol

During 2020 most conferences were virtual. However, Magnus Karlsson gave an invited talk at the 15<sup>th</sup> European Conference on Fungal Genetics in Rome. Magnus talked about how genetic variation in biological control agents can be used to study interaction mechanisms and improve biocontrol.

## Webinar on resistance breeding

Within the project "Resistance breeding for healthy crops", which is part of SLU Grogrund, a webinar was given on November 30.

– It was a great kick-off for this new exciting project with participants from academia and various stakeholders, says Magnus Karlsson.

## Synergies and conflicts involving biocontrol

Within the Plant Biologicals Network, Johan Stenberg gave an invited talk at the annual meeting on synergies and conflicts involving biocontrol in the broader framework of IPM.



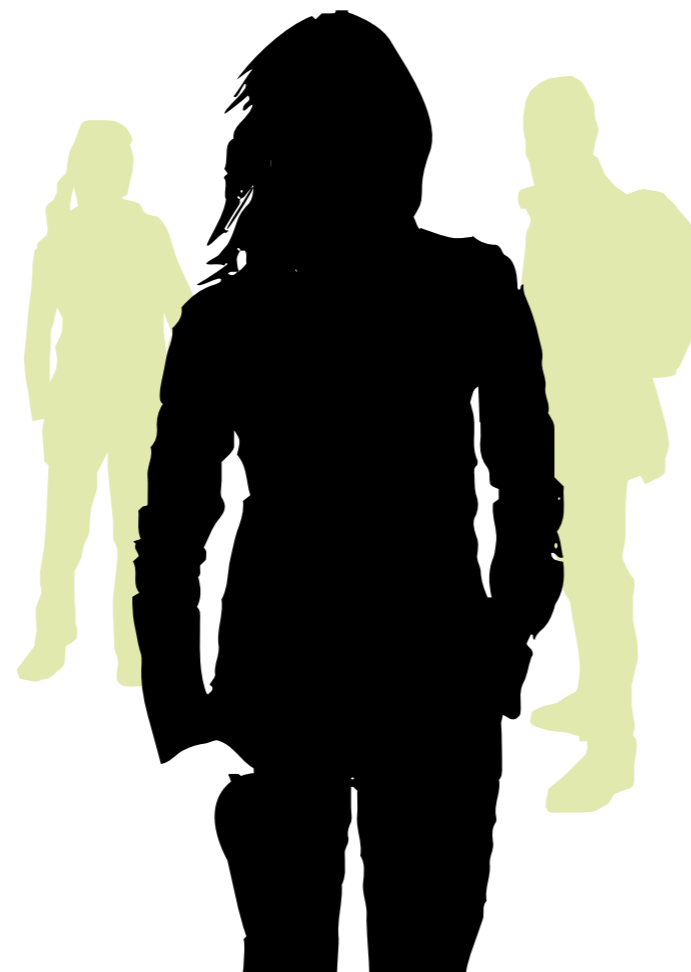
Magnus Karlsson giving a talk at the 15<sup>th</sup> European Conference on Fungal Genetics in Rome in February 2020.

## Strategies for invasive flies

A public, digital event took place in December where the conclusion of the 'Dromytl project' was presented. This project was funded by the European Regional Development Fund and led to the development of a yeast-based control strategy targeting the invasive pest *Drosophila suzukii*. The event was live streamed on YouTube and Paul Becher gave the final talk of the event.

## Many opportunities for digital meetings

In addition, CBC researchers took part in many digital conferences, webinars and other national and international meetings. For example the 2<sup>nd</sup> Fresenius International Biocontrol Conference, a workshop arranged by the European Biostimulants Industry Council, and LRF (Federation of Swedish Farmers) and the Swedish Board of Agriculture's workshop and webinar on low-risk plant protection products.



# The people at CBC



**Paul Becher** – studies chemically mediated interactions between organisms, including host-finding and sexual communication in insects. Specifically interested in the function of semiochemicals in biological control.



**Mattias Jonsson** – specializes in insects and arachnids for biocontrol. Mainly focused on natural and conservation biological control of invertebrate pests in agroecosystems.



**Magnus Karlsson** (Deputy director) – interested in microorganisms and their interactions with other microbes, with plants and with the environment. Investigates fungal interactions in relation to plant pathology and biological disease control.



**Cajsa Lithell** – CBC's communications manager.



**Johan Stenberg** (Director) – the work of Johan aims to optimize and evolution-proof biocontrol within the framework of Integrated Pest Management. Wild genetic resources and studies of natural selection in agroecosystems are often key ingredients in his research.



**Ingvar Sundh** – works with issues related to safety and regulatory measures. Focuses on strategies to determine that a biocontrol agent has no unacceptable adverse effects in humans or non-target organisms in the environment.



**Maria Viketoft** – works on nematode ecology, in particular how these worms interact with plants (both crops and wild plant species) and other soil organisms.

## Team and reference group meetings

In December 2020, a team meeting was held with CBC researchers as well as associated researchers digitally via Zoom.

CBC's annual reference group meeting took place in November.

– This was an enjoyable and productive meeting with Swedish stakeholders. Although the meeting had to be digital, we had a good exchange of ideas, says Johan Stenberg.

## New Director since July 2020

Since the first of July 2020, the SLU Centre for Biological Control, CBC, has a new Director. Johan Stenberg, Professor at the Department of Plant Protection Biology takes over from Mattias Jonsson. The new Deputy Director is Magnus Karlsson. Read more here: [www.slu.se/cbc-director2020](http://www.slu.se/cbc-director2020)

## OUR COMMUNICATION CHANNELS



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för biologisk bekämpning



SCIENCE AND  
EDUCATION **FOR**  
**SUSTAINABLE**  
**LIFE**