



Plant Biologicals Network



Annual
Report
2022

Preface

It was Pliny the Elder who said “on a farm, the master’s eye is the best fertilizer.” In 2022, we collected insights from farmers in Denmark and Sweden, who tested biological plant protection products and biostimulants. Thanks to their keen eyes for detail, we learned that the effects of the products depend on when and how they are used.

We saw an example of this at our workshop in March, when grower Claus Hunsballe said that certain biological insecticides only worked when sprayed in the evening. Spraying during his morning routine had no effect. The product worked, but only under the right circumstances.

Today, we use the same methods to test biologicals and synthetic pesticides, but when you are dealing with living organisms, you have to be much more alert to environmental factors. In the Plant Biologicals Network, we want to change the way we test these products to ensure that biologicals show optimal effects in field trials.

Hence, we will launch the project “Climate and environmentally friendly plant biologicals” in 2023 as part of Innovation Fund Denmark’s Innomission Programme. The project will develop new methods for assessing the effects of plant biologicals. The project consortium consists of members of the network, and we look forward to spreading the results and knowledge from the project in the years to come.

We have compiled the highlights in PBN in 2022 in this report. Thanks to everyone for a productive year. We hope that 2023 will open many more eyes to the biological revolution.

Best wishes,

Svend Christensen

Chair of Plant Biologicals Network



Activities in 2022

Workshop: effective use of biologicals for crop protection

In March 2022, the network organized a workshop in collaboration with the Danish Crop Protection Association. The focus of the workshop was the use of biological products and potential solutions to some of the practical challenges when using these technologies in crop production – including optimal timings, frequency and application technology.

The speakers included Roma Gwynn (Rationale) who gave some practical tips for optimal efficacy and shared some of her experiences from broadacre crops in the UK. Andrew Chapple (Bayer Research & Development) talked about application technology, and what users should be aware of when working with biologicals.

We also heard from growers, such as Claus Hunsballe (Hunsballe Grønt) who shared his experiences with using biologicals in organic fruit and vegetable production, while Lars Bødker (Danske Kartofler/SEGES) represented the large sector of Danish potato producers.



“The membership of PBN gives me the opportunity to acquire the newest scientific developments in plant biologicals and present these for my students at UCL. PBN represents both the scientific approach but also the more practical application of these developments and this is very relevant for my students.”

Freddie Skov-Hundevad
Senior Lecturer & Trainee Coordinator
UCL University College



Follow-up article in Landbrugsavisen

In the wake of the workshop in March, Landbrugsavisen published an article with 4 tips to increase the use of biological plant protection products based on the network's conclusions:

- There is a need for more detailed knowledge about the products.
- Existing methods for efficacy trials should be examined and adjusted.
- Application technology should be considered and optimized for biological products.
- The approval process for biological products for the Northern market should be made more efficient.

[You can read the full article here.](#)

PBN Symposium

The annual PBN symposium was held as a full-day event on 17 November 2022. The session topics were: Regulation, Testing Biologicals, Biostimulants, and Biopesticides & Biological Control. Speakers were from both academia and industry.

[You can find the presentation slides from the symposium here.](#)



Innmission project: Climate and environmentally friendly plant biologicals

In the spring of 2022 the Innovation Foundation approved the project application for the project *Climate and environmentally friendly plant biologicals – Development of novel methods for assessing the impact of plant biologicals on crop productivity, climate, environment, and biodiversity.*

The project will start in the beginning of 2023 and will run until 2026. The aim is to develop novel methods for assessing beneficial effects of plant biologicals.

Project description:

The use of chemical pesticides and fertilizers must be reduced. However, with no alternatives available, there is a great risk of indirect climate impact due to yield loss caused by pests and disease.

Plant biologicals can work as a partial substitute but are much more sensitive to local environments than agrochemicals. To give farmers a true alternative, new tools are required for testing the efficacy and robustness of plant biologicals, their effect on biodiversity and climate footprints.

Experimental designs and protocols will be developed in the project for using plant biologicals to meet a range of needs and challenges. Procedures will also be established for calculating the impact of plant biologicals on climate, biodiversity and the environment.

Using these designs and protocols, field trials will be conducted over three years to test the impact of plant biologicals on specific pests or their effect as biostimulants. In addition, the project will develop data models for analysing the effects of treatment under varying environmental conditions.

The methodologies developed through the project will be essential for the future development and implementation of plant biologicals. Project results will be communicated through publications, symposiums and workshops.

Project period:

2023-2026

Project manager:

Danish Technological Institute

Partners in the project:

Danish Technological Institute

University of Copenhagen

Aarhus University

SEGES Innovation

Chr. Hansen

Novozymes

FMC

Syngenta

Corteva





“With pressure on the golf industry to reduce the use of pesticides, we should be better at using biological alternatives. PBN connects us with members in industry and academia that give us the latest knowledge, so we can become pesticide free faster. We’ve come a long way, but are still dealing with pests that affect the quality and playability of our golf courses. It’s important that we can present our challenges to the network, so we can build the solutions together.”

Torben Kastrup Petersen
Golf Course Executive
Danish Greenkeepers Association

Join the network

The Plant Biologicals Network is open for new members. Members can be companies, industry organizations, educational institutions, research and technology institutions, public authorities, interest groups, farmers and farming companies. If you’re in the plant biologicals sector, don’t hesitate to reach out. As a member, you will gain access to all PBN events and be able to influence the network’s activities.

The annual membership fee is based on the amount of employees working with plant production in the organization. You can find an overview of the current membership fees [here](#).

Please contact us via pbn@plantbiologicals.dk if you would like to learn more about the network or become a member.



Organization

The Plant Biologicals Network is a member association with a steering group of 12 members. The annual general assembly for all members is the highest authority of the collaboration. The network secretariat is located at the Department of Plant and Environmental Sciences at University of Copenhagen. See the network [bylaws](#).

Core members

Bayer
Chr. Hansen
Danish Technological Institute
FMC
Novozymes
Swedish University of
Agricultural Sciences
University of Copenhagen
Aarhus University

Ordinary members

Agrolab
Azelis
BASF
BioScience Solutions
BJ Agro
Borregaard BioPlant
Chart Biotech
Corteva
Danish Crop Protection Asc.
Dansk Golf Union
Danske Kartoffler
Ingleby Farms
Lund University
Manna Regulatory
Syngenta Nordic
UCL University College



“PBN offers a unique opportunity for us to interact with end users and stakeholders - from farmers to industries and universities. It provides us with the valuable knowledge and direct feedback that we need to develop and bring new products to the market.”

Jeanne Kjær
BioAg Marketing, Senior Manager
Novozymes

How do we define plant Biologicals?

In the Plant Biologicals Network we define plant biologicals as naturally derived products that can serve as biostimulants, biocontrol agents, resistance inducers or biofertilizers. They derive from naturally occurring microorganisms, plant extracts or other organic matter. They include:

macrobiols (predators and parasitoids: e.g. mites, spiders, bugs, lady beetles and wasps),

microbiols (bacteria, fungi, oomycetes and vira) and

biologically derived products (plant extracts, lipopeptides and proteins).



	Macrobiols	Microbiols	Biologically derived
Biostimulants		○	○
Biocontrol agents	○	○	
Inducers of resistance		○	○
Biofertilizers		○	



Plant Biologicals Network

Contact:

Web: www.plantbiologicals.dk

Email: pbn@plantbiologicals.dk