

**Plant  
Biologicals  
Network**

# **2023 Annual Report**

# PREFACE

BY SVEND CHRISTENSEN  
CHAIR OF THE PLANT BIOLOGICALS NETWORK



## Meeting the rising demand for biologicals with trust

Since we started the network, there has been an explosive demand worldwide for nature-based alternatives to pesticides and for climate resilient crops. That is great news for the environment – and for researchers and producers of biological solutions. But with the rise in demand comes increased competition, and an increased need for effective products. In PBN, we believe that the biological revolution is necessary, but that it must be sustainable for both the environment and for the farmers.

Collaboration and open discussion between companies and universities ensures a research-based approach to how new products are created. Farmers should be able to trust that the products that enter the market are quality products that have been proven to work under the correct circumstances.

We are fortunate to have companies in the network that are open to sharing their experience. Sharing knowledge will continue to be our most noble responsibility as the field expands.

Speaking of expansion, we are excited to open the network for new members in the Nordics and in the Baltics in 2024 and welcome new members who can bring new expertise and insights to PBN.

In this report, we have compiled some of the network's highlights in the last year. Thanks to our members, old and new, for a prosperous year.

# ACTIVITIES IN 2023



## Company visit to Agrolab

Agrolab is the largest private agricultural contract research organization in the EU North Zone. With expertise dating back to 1984, the company offers a variety of services required to register a plant protection product in the EU North zone, from high-quality field trials to registration documentation required by the authorities.

Over the years, Agrolab has expanded with field trial stations throughout Scandinavia and the Baltic states.

The company visit included an introduction to Agrolab, including tour of the facilities and sharing of practical experiences with the European biostimulant regulation.

## PBN symposium

The annual PBN symposium was held as a full-day event on 16 November 2023. The session topics covered: Regulation, Robustness, End-user experiences, and Hot topics in biologicals. Speakers were from both academia and industry.

As a new thing, the symposium ended with a panel discussion on the role of biologicals in the green transition and in securing food production.





### Company visit to FMC

FMC offices in Hørsholm has concentrated its R&D in biologicals, crop nutrition and biostimulants under the umbrella of Plant Health. FMC is an agricultural sciences company with a commitment to spending 100% of R&D on developing sustainable products by 2025. The company's biological crop protection and plant health solutions deliver value on top of existing farming practices.

The EIC was established in 2017 to accelerate in-house biological discovery and screening. Scientists isolate natural microbes from soil, screen for unique biopesticide or biostimulant solutions, and test their performance in on-site greenhouses. In 2019, the facility was expanded to include state-of-the-art fermentation and processing equipment, which currently is being upgraded to produce pheromones for mating disruption solutions.

The company visit included an introduction to FMC, a tour of the facilities, including the microbiology lab, the greenhouse area and the fermentation and formulation labs.

### Membership event at Nordic Greens

The membership event opened up for discussions and exchange of ideas and experiences with regards to biological products. The discussions particularly evolved around two topics:

1. Biological plant protection agents and biostimulants are increasingly gaining ground in the Danish market and are being used in more and more crops - but what is the difference between the two types of products, and is there hope for more biological products to be approved in the future?
2. In the world of research, there are many years of experience with the use of various biological solutions, but the great variation can pose special challenges with experimental design, and the results are not always clear-cut. To ensure optimal efficiency, there is a need for practical exchange of experience between sectors and throughout the entire production chain. The challenges may be different, but all have the same goal of maintaining production of high-quality products. This applies both on golf courses and in greenhouses.

## CLIMATE FRIENDLY PLANT BIOLOGICALS PROJECT



The Innomission AgriFoodTure financed the mission driven *Climate and environmentally friendly plant biologicals - Development of novel methods for assessing the impact of plant biologicals on crop productivity, climate, environment and biodiversity* project. The project commenced in 2023.

### Aim of the project

The aim of the project is to:

1. Strengthen the quantification of the effect of plant biologicals with regards to

**Crop productivity**

**Biodiversity**

**Climate and Environment**

by implementing the plant biologicals mode of action and conditional needs.

2. Create a paradigm and cases on how to develop experimental design, protocols and statistical analysis/models that support integration of multiple data types from field experiment to generate scientific documentation of efficacy on crop yields.

### Project partners:



3. Develop models to estimate the potential impact of the applied plant biologicals on the climate, environment, and biodiversity.

### Key learnings

We have learned that understanding the products in terms of mode of action, claims and formulation is key for the design of test protocols – this will increase the likelihood of drawing the right conclusions on the efficacy of the product for practical application.

The calculation of GHG-emissions by changing from chemical plant protection product or fertilizers to plant biologicals, draws very large attention from involved companies.

We have been successful with involving stakeholders e.g. in workshop on risk assessment of plant biologicals.



## WHO ARE WE?

The Plant Biologicals Network is a member association with 23 members and a steering group of 9 members. The annual general assembly is the highest authority of the network.

The purpose of the collaboration is to create a knowledge and innovation network across the Nordic countries and the Baltic states, with the aim to establish the region as a significant global plant biologicals hub.

PBN promotes the use of plant biologicals as well as awareness and knowledge exchange on research, innovation and regulations of plant biologicals.

## OUR MEMBERS

### Core members

Aarhus University  
 Bayer  
 Danish Technological Institute  
 FMC  
 Novonesis  
 University of Copenhagen

### Ordinary members

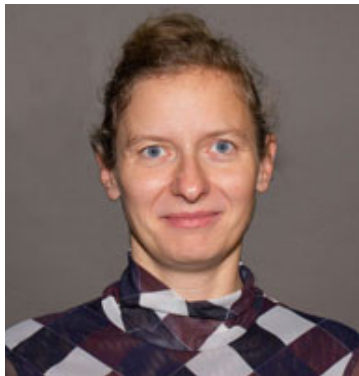
Agrolab  
 Azelis  
 BASF  
 BioScience Solutions  
 BJ Agro  
 Borregaard BioPlant  
 Chart Biotech  
 Corteva  
 Danish Crop Protection Asc.  
 Dansk Golf Union  
 Ingleby Farms  
 Lund University  
 Manna Regulatory  
 Swedish Uni of Agric. Sciences  
 Syngenta Nordic  
 Technical University of Copenhagen  
 UCL University College

## THE PBN SECRETARIAT

The Plant Biologicals Network secretariat is located at the Department of Plant and Environmental Sciences at University of Copenhagen. The secretariat handles the daily management of the PBN, following the directives set by the PBN steering committee.



**Network Chairman**  
**Svend Christensen**  
Head of Department  
University of Copenhagen



**Network Manager**  
**Aleksandra Mleczek**  
Special Consultant  
Uni of Copenhagen



“Attending the different activities and yearly symposium organized by the PBN network offers you insights into the latest research and innovation and provides a great opportunity for networking and knowledge exchange within the field of plant biologicals”

**Tone Larsen**  
Crop Manager  
BASF



“We are in the network because we want to expand our connections and knowledge. Solutions to global challenges and the impact of food production come through cooperation and partnership. No one has all the solutions, not even big companies like us. It’s essential that we work together.”

**Niels Bjerre**  
Product Manager  
Bayer Crop Science



“Developing future plant biologicals requires close collaboration between the biotech industry, academia, and other stakeholders. PBN provides a unique forum for exchanging knowledge and ideas to stimulate these collaborations. DTU Bioengineering is committed to contributing to PBN to advance collaborations and technological developments in the plant biologicals field.”

**Bjarke Bak Christensen,**  
Head of Department,  
DTU Bioengineering



## 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 your annual turnover and the amount of employees working with plant production in your organization.

You can find an overview of the current membership fees here: [www.plantbiologicals.dk](http://www.plantbiologicals.dk)

Please contact us via [pbn@plantbiologicals.dk](mailto:pbn@plantbiologicals.dk) if you would like to learn more about the network or become a member.



## Plant Biologicals

	Macrobiotics	Microbiotics	Biologically derived
Biostimulants		○	○
Biocontrol agents	○	○	
Inducers of resistance		○	○
Biofertilizers		○	



## 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 and include:

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

**microbiotics** (bacteria, fungi, oomycetes and vira).

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

