Biodiversity for Agriculture

online

17 January 2022

UNIVERSITY of LIFE SCIENCES in Lublin

Organizers

Department of Invertebrate Ecophysiology and Experimental Biology

University of Life Sciences in Lublin

Biodiversity for agriculture

Event for universities and research institutes, farmers, agricultural advisors and agriculture organizations.

Participants will learn about the latest practices in sustainable agriculture, especially those related to the ecological infrastructure in the agricultural landscape.

Speakers are experts from Great Britain, Germany, Poland and the United States of America.

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Agenda

9:00 – 9:15 – Welcome

9:15 – 9:50 – Role and management of wildflower areas in sustainable agriculture – prof. John Holland, Game & Wildlife Conservation Trust, Great Britain

9:50 - 10:00 – Questions/Discussion

10:00 - 10:45 – Benefits of non-crop vegetation for natural enemies and biological control of pests in sustainable agricutlural production: should I stay or should I go now? – prof. Klaus Birkhofer, Brandenburg University of Technology, Cottbus - Senftenberg, Germany

10:45 - 11:00 – Questions/Discussion

11:00 – 11:15 – Break

11:15 – 12:00 – Are wildflower strips suitable for a biodynamic farm? Field experiment in Juchowo – prof. UPP dr hab. Paweł Sienkiewicz, Poznań University of Life Sciences; prof. IOR-PIB dr hab. Jolanta Kowalska, Institute of Plant Protection ; National Research Institute, Poznań; dr hab. Krzysztof Kujawa, Wrocław Medical University, Gościnna Polska, Poland

12:00 - 12:15 – Questions/Discussion

12:15 – 12:45 – Break

12:45 – 13:30 – Effects of agricultural landscape strcuture and pesticide use on beneficial insects, prof. Ryszard Laskowski, Institute of Environmental Sciences, Jagiellonian University in Kraków

13:30 – 14:00 Questions/Discussion

14:00 – 14:45 – The transformation of science and agriculture: solving planetary-scale problems with our food system – dr Jonathan Lundgren, Ecdysis Foundation, United States of America

14:45 - 15:00 – Questions/Conclusion

Speaker

prof. John Holland

Prof John Holland is Head of Farmland Ecology. Agro-ecologist for 30 years with broad expertise of farmland ecosystems, Integrated Crop Management, farmland wildlife and development of remedial measures including utilisation of ecosystem services. Associate professor University of Sussex (since Sept 2016). Currently co-ordinator for Interreg project Beespoke which is aiming to increase levels of pollinators and crop pollination through greater provision of wild-rich habitats and Work Package leader in H2020 Framework project, looking at Farmer Cluster approach to biodiversity management. He has 100 publications in refereed journals.

Head of Farmland Ecology
Game & Wildlife Conservation Trust

Abstract

prof. John Holland

In a Great Britain, ecological infrastructure has been in use for a long time. The Wildflower strips have been used in agriculture in the UK for almost two decades. The ecosystem services provided by the green infrastructure of the agricultural landscape are not only limited to providing places for enemies of natural crops, but also a place of refuge and a natural 'canteen' for many groups of pollinating insects (solitary bees, bumblebees, moths, butterflies, beetles, etc.). Flower strips are designed to provide a high diversity of arthropod groups for the most effective control of plant pests and plant pollination. In addition, the mixtures of plants used for flower strips should particularly support the period of early vegetation in the arable fields to ensure, among others, pollen and nectar sources for important pollinating insect species (e.g. bumblebees, solitary bees). Prof. Holland will present the results of several research projects (national and international) on the role of wildflower strips for beneficial arthropods in sustainable agriculture.

Speaker

prof. Klaus Birkhofer

Prof. Klaus Birkhofer is head of the Department of Ecology at the Brandenburg University of Technology, Cottbus - Senftenberg. He deals with the ecology of animals, incl. decline in biodiversity, ecosystem services, predator-prey interactions, and the ecology of the assemblages of organisms in the ecosystem. His scientific interests are also spatial ecology, incl. distribution models and landscape ecology. In addition, he is an agroecologist dealing with biological pest management and ecosystem services related to environmental soil functions.

Chair of Ecology, Brandenburg University of Technology, Cottbus - Senftenberg

Abstract

prof. Klaus Birkhofer

Sown wildflower or self-greening areas are a popular approach to promote natural enemies of pests and biological control services in adjacent agricultural fields. To provide these benefits, such areas should produce a large number of natural enemies and a low number of agricultural pests. Subsequently, natural enemies of pests in non-crop habitats need to actively move into adjacent agricultural fields to control pest populations. This presentation focuses on the local production of natural enemies in non-crop habitats, their spillover into adjacent crop fields and potential benefits for pest control using examples from field studies in Germany, Sweden and South Africa.

Speaker

prof. UPP dr hab. Paweł Sienkiewicz

Research interests include the ecology of beetles from the Carabid family (Coleoptera, Carabidae), as well as their use in biological protection against pests and as bioindicators of environmental pollution.

Department of Entomology and Environment protection, Poznań University of Life Sciences

Abstract

prof. UPP dr hab. Paweł Sienkiewicz

Loss of biodiversity and the related threats to nature and man are an important element of modern scientific research. This issue also applies to agriculture, which in Poland covers an area of approximately 60 % of the country's territory. Therefore, maintaining biodiversity in agrocenoses is becoming an important element of the sustainable development strategy. Dr hab. Sienkiewicz will present results of polish field experiments on the impact of annual wildflower strips on the arthropod richness in the conditions of biodynamic agriculture, where no plant protection products are in use. He will also present the results on the potential impact of wildflower strips on plant pests reduction and will refer to the context of the biodiversity conservation as it lives on farmlands.

Speaker

prof. dr hab. Ryszard Laskowski
ryszard.laskowski@uj.edu.pl
https://www.researchgate.net/profile/Ryszard-Laskowski

Profesor Ryszard Laskowski is head of the Ecotoxicology and Stress Ecology Group at the Institute of Environmental Sciences, Jagiellonian University in Kraków. He is an ecotoxicologist pursuing research in biogeochemistry and investigating pollution effects on the distribution of organic matter and microorganism complexes, the influence of metals and pesticides on land invertebrates, interactions between chemical substances in the presence of other environmental stressors, as well as analysing toxokinetics and the effects of pollution and landscape structure on biodiversity. In recent years prof. Laskowski's research has centred on problems relating to optimised crop protection mechanisms (EcoStack Horyzont 2020 project, https://www.ecostack-h2020.eu/). Prof. Laskowski has co-authored 6 books and more than 100 peer-reviewed scientific articles and book chapters. He has led 20 large research projects, 6 of them financed with EU funds. He also worked at the Swedish University of Agricultural Sciences in Uppsala (1991), University of Reading (1994) and Oregon State University (1997-2000). Moreover, prof. Laskowski was president of the SETAC Europe Central/East division between 2008 and 2010 and vice president between 2011 and 2013. Between 2012 and 2018, he was an expert and member of the scientific panel on crop protection products and their residues at European Food Safety Authority (EFSA).

Abstract

prof. dr hab. Ryszard Laskowski

Abstract of the presentation entitled “Effects of agricultural landscape strucure and pesticide use on beneficial insects”

Recent decades have seen a dramatic decline in the numbers of the so-called non-target arthropods, including the natural enemies of agricultural pests and pollinating insects, in farmed areas. The principal cause of this development is deemed to be the wide use of pesticides. On the other hand, contemporary large-area agriculture poses a serious threat to biotic diversity even without accounting for pesticide application. Prof. Laskowski will present populational spatial models developed for Bembidion lampros, a Carabidae family beetle, that enable assessment of the relative importance of pesticide toxicity and landscape structure for the (meta)population of this species. He will also give an answer to the question whether satisfactory biotic diversity can be maintained by means of appropriate changes in the use of agricultural lands, even with pesticide application retained at a level that enables efficient agricultural production. Moreover, prof. Laskowski will show results of field work in the agricultural landscape of Greater Poland analysing the influence of large-area rape cultures and agricultural landscape structure on the biodiversity of Carabidae beetles and life span characteristics of solitary bees *Osmia bicornis*.

Speaker

dr Jonathan Lundgren

Dr. Lundgren is an agroecologist, Director of ECDYSIS Foundation, and CEO at Blue Dasher Farm. Lundgren's research and education programs are helping applied science evolve in ways that foster developments in regenerative agriculture.

Abstract

dr Jonathan Lundgren

We can grow food and conserve biodiversity and environmental health. Agriculture can be used to solve many of the world's problems, and Ecdysis Foundation provides the Research and Development that can make innovative practices scalable and transferable to as many operations as possible. We anticipate a paradigm shift in the way food is produced in this country, and we want to have answers ready for farmers when they are ready to farm in nature's image. Our South Dakota location is just the beginning. After we establish ourselves with a manageable set of questions/projects, we will diversify our scientific expertise to best accomplish the multi-disciplinary nature of the science we are proposing. Our vision is to then apply the Ecdysis model on a national scale, establishing a network of facilities around the country that can address local and regional circumstances.

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Link to the meeting :
https://teams.microsoft.com/l/team/19%3acmQkOLZ85rcHmpXy_mk2qm9_snTRwwGr3CH6MaRywuE1%40thread.tacv2/conversations?groupId=4aa86b55-40a4-41da-a309-189ee387a39c&tenantId=daa3b21c-0252-4929-bc66-5ab31e8227e1