

“Application of insect frass for the development of sustainable agriculture in Kosovo”

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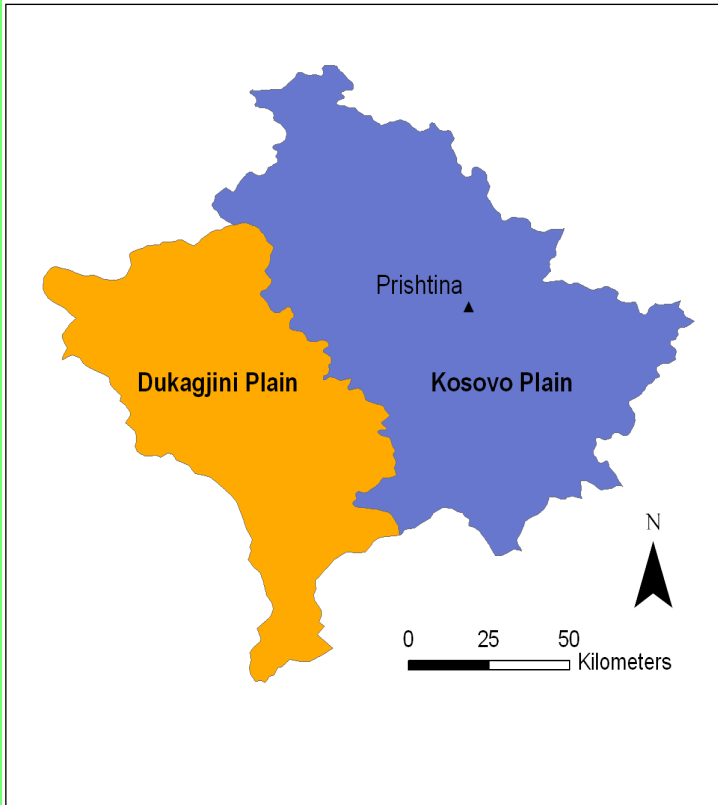
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The Republic of Kosovo



www.wikipedia.de

- Kosovo (10.877 km²) is located in the centre of the Balkan Peninsula.
- The country is characterised by two large plains (the Dukagjini Plain in the western and the Kosovo Plain in the eastern part).
- In general, the climate is continental. The western part is influenced by Mediterranean climate.

→ The most frequent soil types in the plains are fluvisols. In hilly areas and mountains vertisols, cambisols and regosols are widespread.

Aromatic
(2022)

Kosova = 1.990 ha/0.5% land;
Wild collection NWFP= 373.488 ha;
Producers = 56;
Processors = 19;
Beehives = 40;
Exporters = 8;
Export = 6 mil. Euro

Source; FiBL & IFOAM – Organics International (2023)

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→ Organic agriculture has high potential in Kosovo and the National Organic Action Plan 2023-2026 (NOAP) activities intend to realize this potential.

→ The application of organic agricultural practices will improve the environmental sustainability of agriculture as a whole, while preserving biodiversity and natural resources and reducing the negative impacts of agriculture on ecosystems.



Photo. A. Mehmeti

→ In 2002 the first Organic Agriculture Association of Kosovo (OAAK) was established.

→ Later, in 2013 association “Organika” was established, representing the main sector operators for NWFPs and MAPs.

→ Cultivation of Medicinal Aromatic Plant (MAPs) should be raised so as not to endanger natural ecosystems.



Photo. H. Kurtaj



Source: <http://agroproduct-shpk.com/en/>



Photo. A.Mehmeti



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→ Organic agriculture is an emerging segment of the agricultural sector in Kosovo and is a strong governmental support and commitment to increase the cultivated area under organic agriculture.



→ The Professors from the University of Prishtina - Faculty of Agriculture and Veterinary, supported a small number of farmers from the Dukagjini region, who produced in accordance with organic agriculture principles since 2002.



Photo. A.Demaj

Activities for organic farming

- Education
- Awareness of organic production
- Research
- Publishing and informing
- Marketing

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Lesë fleksibile "Comb Harrow" në praktikën e luftimit të barërave të këqija



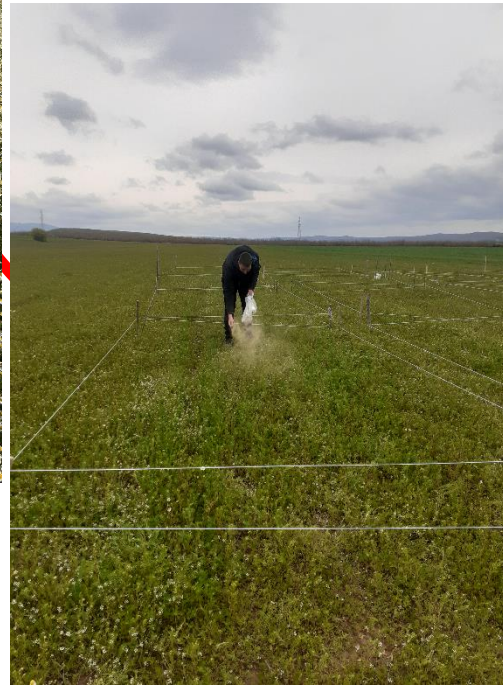
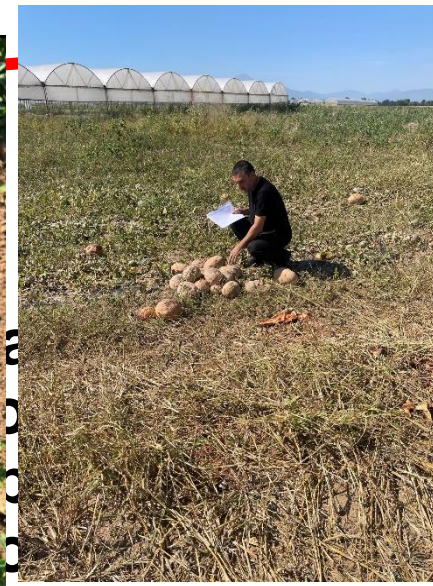
Barërat e këqija paragjten edhe në prodhimtarinë organike duke shkaktur uljen e rendimentit të kulturave bujqësore. Për luftimin e tyre në mënyrë mekanike me sukses mund të përdoret lesë fleksibile – Comb Harrow.

Lesë fleksibile - Comb Harrow e firmës HATZENBICHLER i lufton me sukses barërat e këqija në kulturat e ndryshme: hamaullore, kolë, panxharëqeçer, sojë, fasule, bizele, patate, misër, dhe në livadhe e kullësca.

Lesë fleksibile është përdorur një kohë të gjatë në kushte të ndryshme dhe sot paraqet shembull tipik. Të njëjtat ose të ngjashme kanë gjetur përdorim në vende të ndryshme të botës.



Photo. A.Demaj & A.Mehmeti



Objectives

Objective 1: Establishing Insect Frass Production in Kosovo

- Licensing *Hermetia illucens* import and frass production.
- Researching the technical setup.
- Assessing local farmers' acceptance.

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Objective 2: Applying Insect Frass in Agriculture

- Testing mealworm frass on medical aromatic plants.
- Defining application guidelines for mealworm frass.
- Mapping agriculture side streams.
- Evaluating impact of frass on the soil nutrients.

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2023-2024



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University of Prishtina

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Bio Source Shpk



Gobeyond

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→ The latest innovative agricultural approaches, amongst others, target the transformation of large amounts of agriculture side streams into protein for animal feed and natural fertilizer (insect frass „excrement“) using insects in a concept of circular bioeconomy.



→ Production and the application of insect frass for chamomile and oregano in organic agriculture is introduced for the first time in Kosovo.



Photo: A. Mehmeti

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→ The main objectives are to explore the feasibility of local frass production by evaluating the value chain (sourcing, bio-conversion, application, sales) and the effects of its use on plant growth, yield, and soil health.



Photo: D. Mehmetaj



Photo: E. Kabashi

→ The frass of the insect *Tenebrio molitor*-mealworm is tested, whereas for production, the focus will be on licensing the production of *Hermetia illucens*-black soldier fly.



Photo: A. Mehmeti



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The study focused on:

→ Quantifying the impacts of the application of frass to organic crops such as chamomile and oregano in the open field and germination experiment in greenhouse.



Photo: D. Mehmetaj

→ Definition of application parameters for mealworm frass as guidelines for farmers.

→ Mapping the amount of side streams in agriculture production systems (pepper, watermelon, tomato, potato, apple, pear and cucumber) in Kosovo.



Photo: A. Mehmeti



Photo: V. Shabiu

The study focused on:

- Licensing of the import and use of *Hermetia illucens* and the production of frass and protein for animal feed.
- Research on the technical environment to build a bio-conversion unit for experimental production and marketing research will be conducted to enter the market.
- Evaluation of impact of the frass application on soil nutrients.



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Photo. D.Hajdini

Conclusions

- Involve all main stakeholders (producers, researchers, processors, traders and distributors) in development of the organic sector towards sustainable agriculture;
- The use of frass can be an alternative to be used in future for medical aromatic plants, but, more studies are needed to understand insect frass role as a mineral fertilizer substitute.
- The agriculture side streams can vary significantly depending on the specific crop or agricultural activity;
- Utilizing agriculture side streams to feed insects effectively contributes to a circular bioeconomy.
- Frass has impact on above fresh biomass and height of medical aromatic plants.

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Concluaiona

THANK YOU FOR YOUR ATTENTION

