



**ecobreed**  
IMPROVING CROPS



Funded by European Union  
Horizon 2020  
Grant agreement No 771367



[www.ecobreed.eu](http://www.ecobreed.eu)

[www.kis.si/Raziskave\\_1/NemDetect](http://www.kis.si/Raziskave_1/NemDetect)



## Vabilo / Invitation

### Delavnica / Workshop

**Agricultural Institute of Slovenia (KIS), Ljubljana**

**ECOBREED IN NEMDETECT  
DELAVNICA O NAPREDNI  
FENOTIPIZACIJI RASTLIN S  
POUDARKOM NA  
FITONEMATOLOGIJI**

**15.-17. september 2021**

**Prijave** na naslov el. pošte:  
[projektna.pisarna@kis.si](mailto:projektna.pisarna@kis.si)

**Prizorišče:**  
**Kmetijski inštitut Slovenije (KIS),  
Hacquetova ulica 17  
Ljubljana  
Jezik dogodka: angleščina**

**ECOBREED AND NEMDETECT  
WORKSHOP ON ADVANCED  
PLANT PHENOTYPING WITH  
A FOCUS ON  
FITONEMATOLOGY**

**15.-17. September 2021**

**Registration** for participation at:  
[projektna.pisarna@kis.si](mailto:projektna.pisarna@kis.si)

**Venue:**  
**Agricultural Institute of Slovenia  
(KIS), 17 Hacquetova street  
Ljubljana  
Language of the event: English**



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## Program

### 1. dan (15. 9. 2021)

10.00-11.00

**Prihod udeležencev in registracija**

11.00

**Dobrodošlica**

Vladimir Meglič in Uroš Žibrat, KIS

11.20-11.50

**Zaznavanje poljščin: primeri fenotipizacij in nadzora**

Ankush Prashar, Univerza v Newcastlu

11.50-12.20

**Predobdelava spektralnih podatkov**

Uroš Žibrat, KIS

12.20-12.50

**Raziskovanje in analiza podatkov**

Janez Lapajne, KIS

12.50-13.20

**Upravljanje s podatki**

Anže Županič, Nacionalni inštitut za biologijo

13.20-13.50

**Odmor za kavo**

13.50-14.20

**Uvod v rastlinske parazitske ogorčice (PPN)**

Nicole Viaene, Flanders research institute for agriculture, fisheries and food

14.20-14.50

**Distribucija in širjenje ogorčic koreninskih šišk (RKN)**

Saša Širca, KIS

## Programme

### Day 1 (15. 9. 2021)

10:00-11:00

**Participant arrival & registration**

11:00

**Welcome**

Vladimir Meglič and Uroš Žibrat, KIS

11:20-11:50

**Crop sensing in field: phenotyping and monitoring exemplars**

Ankush Prashar, Newcastle University

11:50-12:20

**Spectral data pre-processing**

Uroš Žibrat, KIS

12:20-12:50

**Data exploration and analysis**

Janez Lapajne, KIS

12:50-13:20

**Data management**

Anže Županič, National Institute of Biology

13:20-13:50

**Coffee break**

13:50-14:20

**Introduction to plant parasitic nematodes (PPN)**

Nicole Viaene, Flanders research institute for agriculture, fisheries and food

14:20-14:50

**Distribution and spread of root knot nematodes (RKN)**

Saša Širca, KIS



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14.50-15.20

**Projekt NemDetect in hiperspektralno zaznavanje ogorčic koreninskih šišek (RKN)**

Nik Susič, KIS

14:50-15:20

**Project NemDetect and hyperspectral detection of root knot nematodes (RKN)**

Nik Susič, KIS

15.20-15.50

**Razprava**

15:20-15:50

**Discussion**

19.00

**Večerja**

19:00

**Dinner**

**2. dan (16. 9. 2021)**

**Day 2 (16. 9. 2021)**

**Terensko delo**

V poskusnem centru Jable  
Prevoz bo urejen

**Fieldwork**

At Jable experimental station  
Transport will be provided

9.00-16.00

**Zajem multi- in hiperspektralnih podatkov z brezpilotnim letalnikom**

Matej Knapič, KIS

9:00-16:00

**UAV multi- and hyperspectral data acquisition**

Matej Knapič, KIS

**Klasična fenotipizacija (LiCOR, PAM, LAI...)**

Andrej Vončina, KIS

**Classical phenotyping (LiCOR, PAM, LAI...)**

Andrej Vončina, KIS

18.00-20.00

**Poznopopoldanski izlet (voden ogled centra Ljubljane)**

18:00-20:00

**Late afternoon field trip (guided tour of Ljubljana city centre)**

**3. dan (17. 9. 2021)**

**Day 3 (17. 9. 2021)**

9.00-9.50

**Radiometrične korekcije in prostorsko preprocesiranje**

Matej Knapič, KIS

9:00-9:50

**Radiometric corrections and spatial image pre-processing**

Matej Knapič, KIS

9.50-10.40

**Segmentacija slik**

Janez Lapajne, KIS

9:50-10:40

**Image segmentation**

Janez Lapajne, KIS



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10.40-11.30

### **Spektralno predprocesiranje**

Uroš Žibrat, KIS

10:40-11:30

### **Spectral pre-processing**

Uroš Žibrat, KIS

11.30-12.20

### **Zlivanje podatkov in analize**

Uroš Žibrat, KIS

11:30-12:20

### **Data fusion and analysis**

Uroš Žibrat, KIS

12.20-13.00

### **Razprava in zaključki**

Uroš Žibrat, KIS

12:20-13:00

### **Discussion and closing remarks**

Uroš Žibrat, KIS

ZA DESET UDELEŽENCEV IZ DRŽAV Z NIZKO STOPNJO EKOLOŠKE PRIDELAVE IN/ALI NIMAJO ZADOSTNIH SREDSTEV ZA UDELEŽBO NA DELAVNICI, SO NA VOLJO **ŠTIPENDIJE** V VIŠINI 200€. ŠTIPENDIJA BO KRILA STROŠKE BIVANJA V LJUBLJANI DO VIŠINE 200€.

TEN **BURSARIES** AT A VALUE OF UP TO 200€ ARE AVAILABLE FOR PARTICIPANTS FROM COUNTRIES WITH A LOW UPTAKE OF ORGANIC AGRICULTURE AND/OR HAVE INSUFFICIENT FUNDS AVAILABLE TO ATTEND THE PHENOTYPING WORKSHOP. THIS BURSARY WILL COVER ACCOMMODATION COSTS IN LJUBLJANA IN A VALUE TO 200€.

#### **Vsebina prijave:**

- **CV** (Europass)
- **motivacijsko pismo** (obvezna vsebina: (i) znanstveno ozadje udeleženca, (ii) trenutne raziskave, (iii) način prenosa pridobljenega znanja drugim v njihovi organizaciji, (iv) pričakovani izidi udeležbe na delavnici)
- **prošnja za štipendijo** (po potrebi)
- izpolnjen pogoj **PCT**

#### **Application must include:**

- **CV** (Europass)
- **motivational letter** (must include the following: (i) scientific background, (ii) current research interest, (iii) means of transfer of acquired knowledge to others in their organization, (iv) expected outcomes of participation in the workshop)
- **request for a bursary** if needed
- **recovered-vaccinated-tested** requirements



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### **Kriteriji za izbor kandidatov za štipendije so:**

- popolnost prijave
- država (prednost imajo udeleženci iz držav z nizko stopnjo ekološke pridelave)
- nivo izobrazbe (najmanj MSc)
- zaželeno poznavanje programskih jezikov R in Python
- motivacijsko pismo

**Rok za oddajo prijav je 31.8.2021 do 14:00.**

Pridržujemo si pravico do sprememb programa in odpovedi delavnic zaradi epidemije covid-19.

### **Criteria for selecting candidates for scholarships are:**

- a complete application
- country (priority is given to participants from countries with a low organic production uptake)
- level of education (at least MSc)
- knowledge of R and Python programming language is advised
- motivational letter

**Application deadline is on the 31<sup>st</sup> of August 2021 at 14:00.**

We reserve the right to programme changes and workshop cancellation, due to covid-19 epidemic.



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## GDPR

Dogodek bo potekal pod posebnimi pogoji za zajezitev širjenja okužbe z virusom Covid-19, ki smiselno sledijo priporočilom Nacionalnega inštituta za javno zdravje (NIJZ). Dogodka se lahko udeležijo le zdrave osebe, ki zadostijo pogojem PCT. Vaše osebne podatke iz liste prisotnosti bomo po potrebi posredovali na Nacionalni inštitut za javno zdravje (NIJZ) oz. ga bomo po enem mesecu uničili. Na dogodku bo potekalo fotografiranje in/ali snemanje z namenom promocije oz. poročanja o dogodku. S prihodom na dogodek soglašate z opredeljenimi pogoji. Obdelava osebnih podatkov poteka skladno z veljavnim nacionalnim Zakonom o varstvu osebnih podatkov (ZVOP) ter Uredbo (EU) 2016/679 Evropskega parlamenta in Sveta z dne 27. aprila 2016 o varstvu posameznikov pri obdelavi osebnih podatkov in o prostem pretoku takih podatkov ter o razveljavitvi Direktive 95/46/ES. Fotografije in posnetki dogodka bodo objavljeni na spletni strani oziroma socialnih omrežjih Kmetijskega inštituta Slovenije (KIS) in projektnih partnerjev, v elektronskih novicah, na portalih in kanalih medijskih hiš, ki bodo izkazale interes ter v publikacijah in drugih promocijskih aktivnostih KIS. Fotografije se bodo nanašale na dogodek na splošno in ne na posamezne udeležence.

UPRAVLJAVEC OSEBNIH PODATKOV: Kmetijski inštitut Slovenije, Hacquetova ulica 17, 1000 Ljubljana.

HRAMBA FOTOGRAFIJ IN POSNETKOV: Kmetijski inštitut Slovenije fotografije in posnetke hrani trajno oz. do preklica.

VAŠE PRAVICE V NAVEZAVI S FOTOGRAFIJAMI IN POSNETKI: Skladno z veljavno zakonodajo (vključno z izjemami ali odstopanji od te zakonodaje) imate pravico, da dostopate do svojih pomembnih osebnih podatkov, pravico do popravkov napak v svojih osebnih podatkih in pravico, da z upravičenimi razlogi ugovarjate k obdelavi svojih pomembnih osebnih podatkov. Prav tako imate pravico, da se v zvezi z obdelavo svojih osebnih podatkov pritožite pri ustreznem organu za varstvo podatkov. V primeru uveljavljanja pravic in v primeru vprašanj, prosimo, da nam pišete na [info@kis.si](mailto:info@kis.si)

VELJAVNA ZAKONODAJA: Upravljanje s fotografijami in posnetki, ki bodo narejeni na dogodku, bo potekalo v skladu z zakonodajo EU in Republike Slovenije in se razlaga v skladu z njo ter spada pod izključno pristojnost sodišč v Sloveniji. To ne vpliva na vaše zakonske pravice.

POOBLAŠČENA OSEBA ZA VARSTVO OSEBNIH PODATKOV V NAVEZAVI S FOTOGRAFIJAMI IN POSNETKI: Pooblaščen osebja za varstvo podatkov Kmetijskega inštituta Slovenije je ga. Maja Brajnik.

## GDPR

The event will take place under special conditions to curb the spread of the Covid-19 virus, which will follow the recommendations of the National Institute of Public Health (NIJZ). The event can only be attended by healthy people who meet the conditions of the PCT (recovered-vaccinated-tested). If necessary, we will forward your personal data from the attendance list to the National Institute of Public Health (NIJZ) or we will destroy it after one month. The event will be photographed and / or filmed for the purpose of promotion or reporting on the event. By coming to the event, you agree to the defined conditions. The processing of personal data takes place in accordance with the applicable National Personal Data Protection Act (NPDPA) and Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of individuals with regard to the processing of personal data and on the free movement of such data. Directive 95/46 /EC. Photos and recordings of the event will be published on the website or social networks of the Agricultural Institute of Slovenia (KIS) and project partners, in electronic news, on portals and channels of media houses that will show interest, and in publications and other promotional activities of KIS. Photos will refer to the event as a whole and not to individual attendees.

PERSONAL DATA MANAGER: Agricultural Institute of Slovenia, 17 Hacquetova ulica, 1000 Ljubljana.

STORAGE OF PHOTOGRAPHS AND RECORDINGS: Agricultural Institute of Slovenia keeps photographs and recordings permanently or until cancellation.

YOUR RIGHTS RELATING TO PHOTOS AND VIDEOS: In accordance with applicable law (including exceptions or derogations from this law), you have the right to access your important personal data, the right to correct errors in your personal data and the right to object to legitimate reasons and to the processing of their important personal data. You also have the right to complain about the processing of your personal data to the relevant data protection authority. In case of exercising rights and in case of questions, please write to us: [info@kis.si](mailto:info@kis.si)

APPLICABLE LEGISLATION: The management of photographs and recordings taken at the event will be carried out in accordance with the legislation of the EU and Slovenia and shall be interpreted in accordance with it and falls under the exclusive jurisdiction of the courts in Slovenia. This does not affect your legal rights.

AUTHORIZED PERSON FOR THE PROTECTION OF PERSONAL DATA IN RELATION TO PHOTOS AND VIDEOS: The authorized person for data protection of the Agricultural Institute of Slovenia is Mrs Maja Brajnik.