

ECOLEG WORKSHOP

Ecosystem services provided by legumes in the agroecosystems

*at Ecole Supérieure d'Agricultures
55 rue Rabelais, Angers (France),*

30 May to 3 June, 2022

Presentation of the workshop

The EcoLeg workshop for young researchers is organised in the framework of the PRIMA [DiVicia project "Use and management of Vicia species for sustainability and resilience in biodiversity-based farming systems"](#).



EcoLeg is an opportunity for Ph.D students and other young researchers to present their work to the project partners, and to learn how to make a nodular diagnosis DiagNod in the field.

DiagNod aims to evaluate the agricultural and environmental feasibility of symbiosis between legumes and soil micro-organisms through a participatory approach in a network of farmers' plots, by carrying out field tests.

The 5-day EcoLeg workshop 2022 will take place in Angers (Western France) from May 30 May to June 3. It will also be possible to join the conference online.

Farmers and advisers involved in DiVicia, who would like to learn DiagNod method are invited to participate to field and lab sessions of EcoLeg in person.



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Provisional program

Monday May 30

8:30 - 18:00 Opening of the ECOLEG seminar:

Welcome at ESA - Visit of the reference agroecosystem
and removal of reference faba bean plants in the field for DiagNod

Tuesday May 31

8:30 - 13:00 Session 1

Environmental diagnoses - N, P & C biogeochemical cycles

Senior scientist presentation

For an integrated strategy in ecophysiology of symbiotic nitrogen fixation and agronomic engineering of legume ecosystem services

Jean-Jacques DREVON, DEVA (Domaine Expérimental du Val d'Ainan), Ex INRAE Eco&Sols, France

Young researchers' presentations

Evaluation of the response of seven chickpea genotypes to phosphorus-deficient soil in Algerian field and opportunities to improve P use efficiency

Insaf DJOUIDER, ERP (Eau, Roche et Plantes), University Djilali Bounaam Khemis Miliana, Algeria

Modelling phosphorus acquisition by faba bean in calcareous soils.

Najafi SARVENAZ, Department of Soil Science, College of Agriculture, Bu-Ali Sina University, Hamadan, Iran

Modeling of biogeochemical cycles of Carbon, Nitrogen and Phosphorus in an intercropping system (Wheat-Faba bean) or rotation.

Wahid SLIMANI, High National School of Agronomy, Plant Production Department, Laboratory for Integrative Improvement of Plant Productions, El Harrach, Algiers, Algeria,

Faba bean response to interspecific competition within complex service plant mixtures intercropped with oilseed rape

Xavier BOUSSELIN, LEVA (Légumineuses, Ecophysologie végétale), Ecole Supérieure d'Agricultures d'Angers, France

14:00 - 18:00 DiagNod, practical work

Removal of the legumes nodules, drying of the aerial parts, root systems and nodules, preparation of the rhizospheric soil

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Wednesday June 1

9:00 - 13:00 Session 2

Symbiotic and rhizospheric microbial interactions

Senior scientist presentation

BiofunctoolR®, a set of indicators to assess the effects of managements practices on soil health

Alain BRAUMAN, IRD (Institut de Recherche pour le Développement), UMR Eco&Sols (Ecologie Fonctionnelle & Biogéochimie des Sols & des Agro-écosystèmes ; Inrae, IRD, Montpellier SupAgro, Cirad), Montpellier, France

Young researchers' presentation

Diversification of crop to control biotic stresses in legumes

Ahmed AL-ASHQAR AMARNA, Institute for Sustainable Agriculture, CSIC (Consejo Superior de Investigaciones Científicas), Córdoba, Spain

Preliminary results of pathogenic *Fusarium oxysporum* on *Vicia* spp. in Eastern Algeria"

Imane LABED, National High School of Biotechnology, Algeria

Early root architecture phenotyping in peas under the influence of nitrate and rhizobial symbiosis for improved weed control in intercrops

Laure BOEGLIN, LEVA (Légumineuses, Ecophysiologie végétale), Ecole Supérieure d'Agricultures d'Angers, France

15:00 - 18:00 Practical work 2

Introduction to the platform of FTM network for nodular diagnosis and modeling; R software scripts for data analysis

Ghilès KACI, Laboratory for Integrative Improvement of Plant Productions, University M'Hamed Bougara of Boumerdes, Algeria

Thursday, June 2

8:30 - 13:00 Session 3

Innovative systems and assessment of sustainability

Senior scientist presentation

LCA applied to cereal-legume intercrops: significance of allocation for estimating environmental impacts

Christophe NAUDIN, LEVA (Légumineuses, Ecophysiologie végétale), Ecole Supérieure d'Agricultures d'Angers, France

Young researchers' presentations

Importance of intercropping system wheat- faba bean as a sustainable approach in Tunisian agrosystems.

Rihad ZAGOUB, Faculty of Sciences and techniques of Sidi Bouzid, University of Kairouan, Tunisia

Efficiency of the vetch-oat intercropping system: forage yield and quality in a field experiment.

XXXX, Faculty of Sciences and techniques of Sidi Bouzid, University of Kairouan, Tunisia

Pathways of European farmers introducing minor crops: motivations, learning, and interactions with value chains

Eva REVOYRON, INRAE, UMR SAD-APT (Sciences pour l'Action et le Développement - Activités, Produits, Territoires ; Inrae, AgroParisTech), France

Mixing faba bean and hybrid barley for high quality silage

Francesco ANGELETTI, University of Pise, Italy

15:00 - 18:00 DiagNod, practical work 3

Weighing of samples and data treatment

Friday, June 3

8:30- 13:00 Session 4

Physiological mechanisms and candidate genes of legume adaptation to their environment

Senior scientist presentation

Identification and characterization of pest and disease resistance in faba bean

Diego RUBIALES, Institute for Sustainable Agriculture, CSIC (Consejo Superior de Investigaciones Científicas), Córdoba, Spain

Young researchers' presentations

Agromorphological characterization and genetic diversity of an international collection of faba bean (*Vicia faba* L.)

Fatima HENKRAR, Plant Biotechnology and Physiology Laboratory, Faculty of Sciences, UM5R, Morocco

Conventional and molecular breeding tools and discoveries for herbicide tolerance in faba bean (*Vicia faba* L.)

Lynn ABOU-KHATER, International Center for Agricultural Research in the Dry Areas (ICARDA), Beirut, Lebanon

Candidate genes involved in common bean response to fusarium wilt and water deficit revealed by genome-wide association study and transcriptomics approaches"

Susana LEITAO, Institute of Chemical and Biological Technology António Xavier, NOVA University of Lisbon, Portugal

15:00 - 18:00 DiagNod, practical work 4

Interpretation of the nodular diagnosis data and perspectives