Abderrahim BOUHENACHE

Born in Mila, Algeria (1995)

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Agronomy Engineer

PhD candidate in Agricultural Sciences, CIRAD and University of Reims

for a more detailed *CURRICULUM VITAE*, click here

My skills lie in sustainable plant production and agroecology, with a strong background in field experimentation and agricultural surveys, and a particular interest in crop modeling. My expertise focuses on the design and assessment of cropping systems across Mediterranean (Algeria), temperate (France), and tropical (Zimbabwe) contexts. My research addresses issues of resource use efficiency, resilience, and adaptation to climate change.

PROFESSIONAL EXPERIENCE

Sep. 2022 - Today (Temporary contract as PhD candidate) Project: RAIZ	**The University of Reims Champagne-Ardenne (URCA)** - Mixed Research Unit FARE – Reims (France) / Research Unit AIDA – Harare (Zimbabwe) Subject: Impact of climate change on production and recycling of crop biomass and soil nitrogen use: a case study with maize under extreme rainfall events in sub-humid Zimbabwe ▪ Design and implementation of a field rainfall manipulation experiment in Zimbabwe ▪ Evaluation of crop performance drivers under contrasted management and rainfall ▪ Monitoring and analysis of *in-situ* surface crop residue decomposition dynamics ▪ Field assessment of nitrogen fertilizer fate in the soil–plant system via ^{15}N tracing ▪ Modeling water and nitrogen dynamics using the STICS soil-crop model
Feb. 2022 - Aug. 2022 (6-month contract as studies engineer) Project: AD'METHA	**L'Institut Polytechnique UniLaSalle** - Research Unit AGHYLE - Beauvais (France) Subject: Agronomic, economic and environmental assessment of cropping systems designed to supply the methanization sector ▪ Data curation and analysis of the results of cropping system trials ▪ Participation in project activities (meetings, field days) and writing of technical reports
Nov. 2020 - Nov. 2021 (12-month temporary contract) Project: EVADIVER	**L'institut agro AGROCAMPUS OUEST** - Mixed Research Unit SAS - Rennes (France) Subject: Design and ex ante assessment of diversified cropping systems to increase the provision of ecosystem services of interest in a crop-livestock region. ▪ Bibliography and conceptual modeling of ecosystem services in diversified cropping systems ▪ Co-design of diversified cropping systems with local actors
Apr. 2020 - Sep. 2020 (6-month internship) Project: ACCAF-OPERATE	**French National Research Institute for Agriculture, Food and Environment (INRAE)** - Mixed Research Unit AGIR - Toulouse (France) Subject: Multi-criteria assessment of climate change adaptation scenarios for the sunflower crop ▪ Development of simple epidemiological models for sunflower diseases ▪ Simulation of risk trends according to adaptation strategies under future climate ▪ Multi-criteria assessment (production, environment and health risk) of strategies
Feb. 2019 - Jul. 2019 (6-month internship) Project: ARIMNet2-SEMIARID	**Technical Institute of Field Crops** and the **Higher National Agronomic School** - Algiers (Algeria) Subject: Effects of the chickpea-durum wheat intercropping on water and nitrogen use efficiency ▪ Design, implementation and monitoring of a multi-site field experiment in Algeria ▪ Plant and soil sampling, lab/statistical analyses, and preliminary water balance simulations

EDUCATIONAL BACKGROUND

2020	**Master 2** from **CIHEAM-IAM / Paul-Valéry University Montpellier III** - Montpellier (France) Specialization **« Agricultural management and Territories »**, ranking: 1/15 students
2019	**Master 2** from the **Higher National Agronomic School (ENSA)** - Algiers (Algeria) Specialization « **Genetic resources and improvement of plant production** » ranking: 1/19 students
2019	**Agronomy engineer** of the **Higher National Agronomic School (ENSA)** - Algiers (Algeria) Specialization **« Plant production and improvement »**, ranking: 2/19 students

KNOWLEDGE AND SKILLS

Programming languages

- R ●●●●○
- C# ●●○○○
- GAMS ●●○○○

Statistics

- Statistica
- Tanagra
- R

Languages

- English (professional)
- French (bilingual)
- Arabic (native language)

Crop modeling

- STICS & APSIM ●●●○○ (in progress)
- CropSyst ●●○○○
- ModelBuilder (platform INRAE)

Cartography

- QGIS
- ArcGIS
- R packages: sf, raster, whitebox

Soft skills

- Autonomous, serious and responsible
- Scientific rigor, team spirit
- Learning and synthesis skills

PUBLICATIONS

1. **Bouhenache A**, Lashermes G, Clivot H, Recous S, Chikowo R, Shumba A, Mazungunye H, Matimba E, Alavoine G, Delfosse O, Falconnier GN, Affholder F, Corbeels M, Cardinael R. Intra-seasonal rainfall patterns and extremes drive maize productivity and nitrogen use in sub-humid Zimbabwe. Field Crops Res. 2025; 334:110126. https://doi.org/10.1016/j.fcr.2025.110126
2. Kherif O, Seghouani M, Justes E, Plaza-Bonilla D, **Bouhenache A**, Zemmouri B, Dokukin P, Latati M. The first calibration and evaluation of the STICS soil-crop model on chickpea-based intercropping system under Mediterranean conditions. *Eur. J. Agron.* 2022; 133. https://doi.org/10.1016/j.eja.2021.126449
3. Kherif O, Seghouani M, Zemmouri B, **Bouhenache A**, Keskes MI, Yacer-Nazih R, Ouaret W, Latati M. Understanding the Response of Wheat-Chickpea Intercropping to Nitrogen Fertilization Using Agro-Ecological Competitive Indices under Contrasting Pedoclimatic Conditions. *Agronomy*. 2021; 11(6):1225. https://doi.org/10.3390/agronomy11061225
4. Pret V, Falconnier GN, Descheemaeker K, Corbeels M, Chikowo R, Cardinael R, Couëdel A, Diop S, Murimwa J, Chinwa H, **Bouhenache A**, Kwenda IW, de Freitas M, Affholder F. Identifying the drivers of yield gaps in maize and legumes on smallholder farms in Zimbabwe using a locally calibrated crop model. Field Crops Res. (accepted).

ADDITIONAL INFORMATION

- Representative of non-titular staff at the UPR AIDA and at the UMR SAS
- Master's grant, GAT program, CIHEAM-IAMM (2019)

CENTERS OF INTEREST

Football, travel and long-distance journeys, North African and Mediterranean cuisine.