

# ANABELLE LAURENT

## PhD. in Crop Production & Physiology

I'm a scientist interested by on-farm research, crop production, and data sciences. I enjoy combining statistical analysis and data visualization to make outcomes accessible to a broader audience.

## EDUCATION

2017  
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2020

● **Iowa State University & Université Paris Saclay**  
Doctorate of Philosophy (Ph.D.) in Crop Production & Physiology  
📍 Ames, USA

Thesis: On-farm research network: from farmers' fields to data analysis and visualization

2009  
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2012

● **Ecole Supérieure d'Agriculture**  
M.S. in Agroecology and Agronomic Innovation  
📍 Angers, France

Thesis: Effect of genetic diversity of wheat and field border on pest control in organic agriculture

## RESEARCH EXPERIENCE

2023  
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present

● **Postdoctoral Research Scientist**  
Corteva Agriscience  
📍 Johnston (IA) USA  
• member of the Biostatistics Team  
• focus on Virtual Phenotyping

2021  
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2022

● **Postdoctoral Research Associate**  
Iowa State University  
📍 Ames, USA  
• Collected data and built a database including 10,000 corn fields  
• Developed a data package and a web-application to visualize results  
• Performed statistical analysis of corn stalk nitrate data (GAMs)  
• Analyzed a network of trials for aphid management on sugar beet  
• Data visualization to communicate to a broad audience (Shiny web application)

2017  
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2020

● **Graduate Research Assistant**  
Iowa State University - INRAE (cotutelle programme) 📍 Ames, USA  
• Developed of a generic framework for the analysis of on-farm research  
• Developed a web-application to share data between farmers and agronomists  
• Computed prediction intervals using frequentist and Bayesian methods  
• Analyzed the effectiveness of biocontrol agents in organic vine production

## CONTACT INFO

✉ [alaurent@iastate.edu](mailto:alaurent@iastate.edu)

📄 [ResearchGate](#)

🌐 [Linkedin](#)

📄 [Professional Blog](#)

## SKILLS

Statistical analysis (frequentist and Bayesian).

Crop modeling

Mixed-effect linear model,  
generalized additive models,  
random forests

Skilled in R programming language

Web application development (R  
Shiny)

Oral and written communication  
skills

Adaptability and attentive learner

Ability to work with different  
cultures by being trilingual.

## LANGUAGES

French (native) English (proficient)  
Spanish (proficient)

*This resume was made with the R  
package [pagedown](#).*

*Last updated on 2023-05-17.*

2013  
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2016

● **Research engineer at INRA/AgroParisTech**

UMR Agronomy

📍 Thiverval-Grignon, France

- Meta analysis and development of statistical models for ranking energy crops.
- Design and ex-ante assessment of cropping systems including energy crops.
- Monitoring a network of agricultural fields and trials.



## PUBLICATIONS

2023

● **Late-season corn stalk nitrate measurements across the US Midwest from 2006 to 2018**

Nature - Scientific Data [DOI:10.1038/s41597-023-02071-9](https://doi.org/10.1038/s41597-023-02071-9)

A. Laurent, A. Cleveringa, S. Fey, P. Kyveryga, N. Wiese, M. Lefebvre, D. Newville, D. Quinn, J. McGuire, H. Tao, T.F. Morris, F.E. Miguez

2023

● **Assessment of non-neonicotinoid treatments against green aphids on sugar beets**

Crop Protection [DOI:10.1016/j.cropro.2022.106140](https://doi.org/10.1016/j.cropro.2022.106140)

A. Laurent, A. Favrot, F. Maupas, C. Royer, D. Makowski

2022

● **A yield comparison between small-plot and on-farm foliar fungicide trials in soybean and maize**

Agronomy for Sustainable Development [DOI:10.1007/s13593-022-00822-3](https://doi.org/10.1007/s13593-022-00822-3)

A. Laurent, E. Heaton, P. Kyveryga, D. Makowski, L.A. Puntel, A.E. Robertson, L. Thompson, F.E. Miguez

2021

● **On-farm trials reveal significant but uncertain control of *Botrytis cinerea* by *Aureobasidium pullulans* and potassium bicarbonate in organic grapevines**

Frontiers in Plant Sciences, section Plant Pathogen Interactions [DOI:10.3389/fpls.2021.620786](https://doi.org/10.3389/fpls.2021.620786)

A. Laurent, D. Makowski, N. Aveline, S. Dupin, F.E. Miguez

2021

● **Evolution of soil carbon stocks under *Miscanthus × giganteus* and *Miscanthus sinensis* across contrasting environmental conditions**

Global Change Biology Bioenergy [DOI:10.1111/gcbb.12760](https://doi.org/10.1111/gcbb.12760)

M. Ouattara, A. Laurent, F. Ferchaud, M. Berthou, E. Borujerdi, A. Butier, P. Malvoisin, D. Romelot, C. Loyce

2020

● **Interactive web-based data visualization and analysis tool for on-farm research networks.**

Research Synthesis Method, special issue Data Visualization [DOI:10.1002/jrsm.1440](https://doi.org/10.1002/jrsm.1440)

A. Laurent, X. Lyu, P. Kyveryga, D. Makowski, H. Hofmann, F.E. Miguez

2020

● **Effects of several establishment modes of *Miscanthus x giganteus* and *Miscanthus sinensis* on yields and yield trends.**

Global Change Biology Bioenergy. [DOI:10.1111/gcbb.12692](https://doi.org/10.1111/gcbb.12692)

M. Ouattara, A. Laurent, C. Barbu, M. Berthou, E. Borujerdi, A. Butier, P. Malvoisin, D. Romelot, C. Loyce

2020

● **Going beyond mean effect size; presenting prediction intervals for on-farm network trial analyses.**

European Journal of Agronomy, Special issue Evidence Synthesis [DOI:10.1016/j.eja.2020.126127](https://doi.org/10.1016/j.eja.2020.126127)

A. Laurent, F.E. Miguez, P. Kyveryga, D. Makowski.

2019

● **A framework for visualization and analysis of agronomic field trials from on-farm research networks.**

Agronomy Journal. [DOI:10.2134/agronj2019.02.0135](https://doi.org/10.2134/agronj2019.02.0135)

A. Laurent, P. Kyveryga, D. Makowski, F.E. Miguez.

- 2018 ● **Co-design and ex ante assessment of cropping systems prototypes including energy crops in Eastern France.**  
Biomass and Bioenergy. 116:205–215. DOI: 10.1016/j.biombioe.2018.06.013  
C. Lesur-Dumoulin, **A. Laurent**, R. Reau, L. Guichard, R. Ballot, MH. Jeuffroy, C. Loyce.
- 2015 ● **Using site-specific data to estimate energy crop yield**  
Environmental Modelling & Software. DOI:10.1016/j.envsoft.2015.09.008  
**A. Laurent**, C.Loyce, D.Makowski, E.Pelzer.
- 2015 ● **Ranking yields of energy crops: A meta-analysis using direct and indirect comparisons**  
Renewable and Sustainable Energy Reviews. DOI:10.1016/j.rser.2015.02.023  
**A. Laurent**, E.Pelzer, C.Loyce, D.Makowski.

## WEB APPLICATIONS

- 2019 ● **ISOFAST**  
<https://analytics.iasoybeans.com/cool-apps/ISOFAST/>
- 2022 ● **ONFANT**  
<https://onfant.agron.iastate.edu/>

## TALKS

- 2022 ● **How to share your code/dataset and how to communicate your research with broad audience using R Shiny web application?**  
ASA, CSSA & SSSA International meeting, November 06-09, Symposium of Statistical Communications Among Researchers  
📍 Baltimore, USA
- 2021 ● **Late-season corn stalk nitrate from farmer fields: development of an interactive app & data-analytics framework**  
ASA, CSSA & SSSA International meeting, November 07-10  
📍 Salt Lake City, USA  
**A. Laurent**, A. Cleveringa, P. Kyveryga, S. Fey, F. Miguez.
- 2021 ● **The analysis of data from on-farm research networks: data visualization and statistical approaches to test the efficacy of management practices**  
Farmer-centric On-Farm Experimentation (OFE2021), October 13-15  
📍 Montpellier, France  
**A. Laurent**, A. Cleveringa, P. Kyveryga, S. Fey, F. Miguez.
- 2019 ● **Going beyond mean effect size; assessing the risk of ineffective treatment in on-farm trial network**  
ASA, CSSA & SSSA International meeting, November 04-07  
📍 San Antonio, USA  
**A. Laurent**, P. Kyveryga, F. Miguez, D. Makowski.
- 2018 ● **Interactive graphics and analysis of on-farm research network data**  
ASA, CSSA & SSSA International meeting, November 10-13  
📍 Baltimore, USA  
**A. Laurent**, F. Miguez, D. Makowski, P. Kyveryga.

- 2018 ● **Analysis of soybean data from on-farm research network to assess the efficacy of new management practices**  
 Research Seminar "Recent advances in soybean agronomic research", June 28 📍 Paris, France  
 A. Laurent, P. Kyveryga, D. Makowski, F. Miguez.
- 2018 ● **Share and summarize data from on-farm research network through a web application: a way to make agronomic decision**  
 Production Agriculture Symposium, University of Minnesota, February 15 📍 Minneapolis, USA  
 A. Laurent, P. Kyveryga, D. Makowski, F. Miguez.
- 2017 ● **Analysis of on-farm data using a Bayesian hierarchical model**  
 ASA, CSSA & SSSA International meeting, October 22-25 📍 Tampa, USA  
 A. Laurent, P. Kyveryga, D. Makowski, F. Miguez.
- 2014 ● **Ranking yields of energy crops: A meta-analysis using direct and indirect comparisons**  
 ASA, CSSA & SSSA International meeting, November 2-5 📍 Long Beach, USA  
 A. Laurent, E. Pelzer, C. Loyce, D. Makowski.

## POSTER PRESENTATIONS

- 2018 ● **On-line summaries of the ISA On-farm network: How to make agronomic decisions from on-farm trials?**  
 Production Agriculture Symposium, February 15th 📍 University of Minnesota, Minneapolis  
 A. Laurent, F. Miguez, P. Kyveryga.
- 2015 ● **Iterative design and ex ante assessment of cropping systems including energy crops in Dijon plain (France).**  
 5th International Symposium for Farming Systems Design, 7-10 September 📍 Montpellier, France  
 A. Laurent, C. Lesur, R. Reau, L. Guichard, M. Soulié, C. Loyce.

## COLLABORATIONS

- 2019 | 2020 ● **French Institute of Vine and Wine**  
 Analysis of the effect of biocontrol agents against *Botrytis cinerea* in organic vine production data from an on-farm research network 📍 Bordeaux, France
- 2019 | 2020 ● **Agricultural Cooperative Dijon Céréales**  
 Setting-up a new on-farm research network for testing alternative crops tolerant to water stress 📍 Dijon, France

## TEACHING EXPERIENCE

- October 25-29, 2021 ● **Seminario de Estadística Aplicada y R Studio**  
 Instructor for data wrangling, data visualization and labs 📍 Universidad Central del Ecuador
- Spring 2020 ● **Crop development, production and management**  
 Teaching assistant Iowa State University AGRON 280 📍 Iowa State University, USA  
 Held office hours and graded homeworks

2014  
|  
2021

- **R workshops (in English and Spanish)**  
dplyr, ggplot2, MCMCglmm

## PROFESSIONAL TRAINING

- **Introduction to research ethics and scientific integrity**  
6 hours

📍 Université Paris-Saclay, France

## AWARDS, GRANTS & FELLOWSHIP

- **Thesis prize in Sciences**  
Delivered by la Chancellerie des Universités de Paris
- **Research Excellence Award**  
Delivered by the Department of Agronomy Iowa State University
- **Outstanding Graduate Student Award**  
Delivered by the Department of Agronomy Iowa State University
- **GPSS Research Award**  
Delivered by the Graduate and Professional Student Senate
- **Fellowship**  
Recipient of Chateaubriand Fellowship 2018-2019
- **Graduate Scholarship**  
Recipient of the Fall 2018 Francis and Beatriz (Castro) Mar Graduate Scholarship
- **Travel grant**  
To attend the 2018 Production Ag Symposium

📍 University of Minnesota, USA

## LEADERSHIP

- **Co-leader R Ladies Ames**  
Workshops (organizer and speaker), social data project such as TidyTuesday
- **Agronomy Graduate Student Club**  
Social chair - Organization of social events for graduate students

📍 Ames, USA

📍 Iowa State University, USA