

Mladen Čučak, PhD

PROFESIONAL PROFILE

- Aspiring agricultural researcher in the field of plant pathology/epidemiology with global experience of technical and development issues in crop protection
- Motivated achiever with PhD in Plant Pathology focused on field-based agronomy, agrometeorology and quantitative methods
- Track record of developing integrated pest management tools for practical disease control outcomes
- Strong collaborative qualities, leads change to effect positive outcomes
- Proficient problem-solver with the analytical skills to evaluate risks and develop realistic and effective strategies
- Strong logistics and programme organisational skills
- Proven ability to adapt to new subject areas and roles, along with the ability to develop strong professional relationships at all levels
- Influential interpersonal communicator, negotiator, and presenter
- Farmer focused approach through hands-on experience

AREAS OF EXPERTISE

| | | |
|--------------------------------|-------------------------|--------------------------|
| Crop Protection | Statistical analysis | Agricultural development |
| General plant pathology | Statistical programming | Collaborative research |
| Integrated Pest Management | R language | Data Science |
| Epidemiology of Plant Diseases | Trial design | Agrometeorology |

EXPERIENCE

Date: February 2016 - May 2020

Employer: Teagasc, Crops Research Centre, Oak Park, Carlow R93 XE12, Republic of Ireland

Position: Doctoral researcher

Main achievement: Development of potato late blight risk prediction models, analytic and field evaluation, and integration in practical integrated management in the Republic of Ireland

Main tasks:

- Design, implementation and analysis of the crop protection *in vivo* and *in vitro* trials (including all relevant agricultural operations from planting to storage);
- Collection, curation and analysis of database with historical and forecasted hourly weather observations and implementation of an automated decision support system to guide pesticide applications;
- Sampling, isolation and molecular characterization of *Phytophthora infestans*;
- Presentation of results of IPM tools to producers and industry; national and international scientific meetings from different fields (agronomy, plant pathology, epidemiology, meteorology);
- Supervision of lab interns (six three- and six-months placements);
- Initiated, led and tutored data analysis and R programming language group at the institute;
- Intensive collaboration with European and international groups.

Date: December 2014 – December 2015

Employer: NIBIO Norwegian Institute of Bioeconomy Research, Plant Protection Division Høgskoleveien 7, 1430 Ås, Norway

Position: Intern (01.12.2014 – 10.06.2015) on project *Introduction of ICT in IPM in Bosnia and Hercegovina's agriculture*; Senior Research Technician (10.06.2015 – 15.12.2015) involved in several projects of Plant Pathology Department

Main tasks:

- Assisting project coordinator in project management;
- Monitoring pest and disease population and modelling risk of harmful organisms in agriculture;
- Work on the development and international promotion of decision support systems in agriculture;
- Facilitating international collaboration Norway – Balkans;
- Development of an automated insect trap.

Teaching:

- 2018 - 2019 GY310B – Tutoring group of 16 students writing Bachelor thesis.
2019 Intro to R workshop for colleagues from the institute (weekly sessions for 2 months).

Internships:

- 01.06.2013 - Plant protection department; Agricultural Institute of Slovenia, Kmetijsko gozdarska
01.07.2013 zbornica Slovenije; Vinarska ulica 14, 2000 Maribor, Slovenia
01.04.2009 - Phytopharmacy store. Trznica A.D. Jedinica: Poljoprivredna apoteka, Banja Luka, Bosnia
15.04.2009 and Herzegovina
01.04.2008 - Apple fruit orchard (200 Ha); Agroimpex, Laktasi, Gradiska, Bosnia and Herzegovina
15.04.2008

Volunteering:

- 2010 Youth engagement project: *Global exchange*. Three-month stays in Egypt and the UK
1998-2012 Youth and development organisations such as Scout club, IAESTE (International Organisation of Agronomy Students) and “Rada” (Society Of Agronomists And Tourism Workers)

EDUCATION

- | | | |
|-------------|-----|---|
| 2016 - 2020 | PhD | Plant Pathology/Epidemiology. Maynooth University/Teagasc; Ireland |
| 2012 - 2015 | MSc | Agronomy: Biomolecular Techniques and Plant Protection. Maribor; Slovenia |
| 2006 - 2011 | BSc | Plant Production - Plant Protection. Banja Luka; Bosnia and Herzegovina |

GRANTS, AWARDS AND SCHOLARSHIPS

- | | |
|-------------|--|
| 2021 | Co-PI on the project: Development of mummy berry decision support tool in north-west Washington state (21.000\$) |
| 2019 | Teagasc Walsh Fellowship Travel Award for three-month research stay at UC Davis (5000€) |
| 2016 | Student travel award for participation on EAPR Pathology and Pests section meeting |
| 2016 - 2020 | Doctoral fellowship at Maynooth University and Teagasc |
| 2014 | EEA grant for an internship at Norwegian Institute for Bioeconomy Research (3000€) |
| 2012 - 2014 | Erasmus Mundus scholarship for Master studies |

PROFESSIONAL ACTIVITIES

Synergistic Activities

Early career associate editor *Phytopathology* (APS)
Reviewer for *Plant Disease* (APS) and *Agronomy* (MDPI)

Membership in Professional Associations:

The American Phytopathological Society (APS)
EuroBlight group
Open Plant Pathology

PERSONAL

Driving license: Category B (license from Ireland)

Hobbies: sports, cooking, photography

SCIENTIFIC OUTPUTS

Peer-reviewed publications

Cucak, M., Moral, R., Fealy, R., Downes, P., Kildea, S. 2021 Opportunities for an improved potato late blight management in the Republic of Ireland: Field evaluation of the modified Irish Rules crop disease risk prediction model. *Phytopathology*
Website and supplementary material: <https://mladencucak.github.io/AnalysisPLBIreland/>

Kildea, S., Byrne, J., Cucak, M. and Hutton, F., 2020. First report of virulence to the septoria tritici blotch resistance gene Stb16q in the Irish *Zymoseptoria tritici* population. *New Dis. Rep.* 41(13), pp.2044-0588.

Cucak, M., Sparks, A. H., Moral, R., Kildea, S., Lambkin, K., Fealy, R. 2019. Evaluation of Irish Rules, the potato late blight forecasting model and its operational use in the Republic of Ireland. *Agronomy* 2019. 9: 515
Website and supplementary material: <https://mladencucak.github.io/PLBFieldTrial/index.html>

Hansen, J.G., Lassen, P., Hjelkrem, A.-G.R., Eikemo, H., Cucak, M., Lees, A., Gaucher, D., Chatot, C., Kessel, G. (2017) Integration of pathogen and host resistance information in existing DSSs - introducing the IPMBlight2.0 approach. In: Proc. Sixt. Euroblight Workshop December 2017. PAGV Special Report No. 18: 147–158.

Available at: http://euroblight.net/fileadmin/euroblight/Workshops/AAarhus/Proceedings/20_Jens_Hansen-p147-158.pdf

Publications (accepted-under revisions):

Cucak, M., Esker, P., Kildea, S., Downes, P., Fealy, R. BlightR: a new potato late blight risk prediction model and approach. Submitted to *Plant Disease*.

Code repository: <https://github.com/mladencucak/BlightR>

Conference presentations

Cucak, M., Sparks, A. H., Fealy, R., Griffin, D., Lambkin, K., Kildea, S. (2018) Potato late blight risk forecasting in Republic of Ireland: Field validation. Society of Irish plant pathologists (SIP) Meeting. Dublin, 26-27 November 2018

Cucak, M., Sparks, A. H., Fealy, R., Griffin, D., Lambkin, K., Kildea, S. (2018) Revision of potato late blight risk forecasting in the Republic of Ireland. IEW12- 12th International Epidemiology Workshop. Lillehammer, 10-14th June 2018

Cucak, M., Sparks, A. H., Fealy, R., Griffin, D., Lambkin, K., Kildea, S. (2017) Potato late blight risk forecasting in Republic Of Ireland. Society of Irish plant pathologists (SIP) Meeting. Dublin, 5-6th December 2017

Cucak, M., Fealy, R., Griffin, D., Lambkin, K., Kildea, S. (2017) The use of agrometeorological data for crop disease risk forecasting in Ireland: a case of potato late blight. 17th EMS Annual Meeting: European Conference for Applied Meteorology and Climatology 2017. Dublin, 4-8th September 2017

T-E. Skog, M. Cucak, B. Nordskog, H. Eikemo, H. Hole, A. F. Schjøll, J. Netland, N. Trandem, T. Rafoss, R. Meadow. (2015) VIPS – an Open Source technology platform for prognosis and decision support and its implementation in Bosnia and Herzegovina. IV International Symposium and XX Scientific Conference of agronomists of Republic of Srpska. Bijeljina, Bosnia and Herzegovina.

Poster presentations

Cucak, M., Dalla Lana, F., Ojiambo, P., De Wolf, E., Paul, P., Esker, P. (2020) Into the new era of decision support in crop protection: Multifaceted disease management advisors based on machine learning and open science. APS Meeting, 10-14 August 2020

Cucak, M., Sparks, A. H., Fealy, R., Griffin, D., Lambkin, K., Kildea, S. (2017) Lowering thresholds of qualitative plant risk prediction algorithms: sensitivity versus specificity of Irish Rules for potato blight development. Arhus, Denmark. E In: Proc. Sixth Euroblight Workshop December 2017. PAGV Special Report No. 18: 231-232.
Available at: http://euroblight.net/fileadmin/euroblight/Workshops/AAarhus/Proceedings/Special_Report_18_Totaal.pdf (accessed 29 January 2019)

Cucak, M., Fealy, R., Griffin, D., Lambkin, K., Kildea, S. (2016) Can We Still Use Irish Rules to Forecast Potato Late Blight In Ireland? 7 - 11 August 2016, Dundee, Scotland, Meeting of Pest and Pathology Group of European Potato Research Society.

T-E. Skog, M. Cucak, B. Nordskog, H. Eikemo, H. Hole, A. F. Schjøll, J. Netland, N. Trandem, T. Rafoss, R. Meadow. (2015) VIPS – an Open Source technology platform for prognosis and decision support. Plant health for sustainable agriculture. Ljubljana, Slovenia.

Other

Master thesis:

Cucak, M. (2015) Analysis of possibilities for peach (*Prunus persica* L.) disease control without use of copper-based pesticides. University of Maribor, Maribor, Slovenia.
Available at: <https://dk.um.si/Dokument.php?id=70634&lang=eng>