DEREK M. WRIGHT

Job Application: **Research Chair in Lentil and Faba Bean Breeding**

2023-08-25

Dear Curtis Pozniak,

Please accept my application for the position of **Research Chair in Lentil and Faba Bean Breeding**. I am excited to be considered for this role and believe I would be a good candidate. I have a BSc in Biology from the University of Regina, a MSc in Agrobiotechnology from Justus-Liebig-Universität Gießen (University of Giessen) and have spent the last 7+ years at the University of Saskatchewan as a Research Assistant in the pulse crop breeding & genetics group working with lentils.

For the last 7+ years I have been in charge of field trials for various lentil populations including a diversity panel (LDP), a nested association panel and numerous inter-specific RIL populations, giving me an extensive knowledge of the phenotypic diversity within the *Lens* genus. My duties included planning of the field trial set-up, seed preparation, phenotyping, harvest and post-harvest processing, along with the data wrangling and analyses. I was also responsible for coordinating the import and export of seed for our international field trials.

In addition to overseeing our field trials, I have extensive experience in wrangling very large data sets and performing complex statistical procedures such as PCA, GWAS and QTL analyses. I am very comfortable working in R and have a passion for data visualization. My most recent unpublished work involves utilizing UAV imagery to model growth curves for the LDP across multi-environment trials and performing GWAS on novel traits derived from the analysis. In addition, I am also currently working with protein and amino acid analysis in the LDP, evaluating the breeding potential for increased protein content and utilizing GWAS to identify SNPs suitable for marker assisted selection. In my previous work for the AGILE project here at the U of S, I was part of a large experiment investigating phenology in the LDP across the major macroenvironments for cultivated lentils, modeling days to flower based on temperature and photoperiod. This was followed by GWAS investigation using a somewhat novel approach exploiting our large multi-environmental datasets. I also have experience working with Brassica crops for my MSc and during an internship I did with Cargil, where I briefly worked on nitrogen use efficiency and disease resistance.

I am confident my knowledge and experience in plant breeding and research will make me a good fit for this position. Thank you for your consideration, and I hope to hear from you soon.

Contact Info

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Social Media

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github.com/derekmichaelwright

Personal Website

www.dblogr.com/ or

derekmichaelwright.github.io/dblogr/

REFEREES

Dr. Kirstin Bett
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Dr. Harmeet Chawla
Professor, Department of Plant Science — University of Manitoba
• 204-474-7192 • harmeet.chawla@umanitoba.ca

Brent Barlow
Pulse Crops Field Lab Manager — Crop Development Centre
• 306-222-8933 • brent.barlow@usask.ca

DEREK MICHAEL WRIGHT

I graduated with a **BSc in Biology** from the *University of Regina* in 2012, followed by a **MSc in Agrobiotechnology** from *Justus-Liebig-Universität Gießen* (*University of Giessen, Germany*) in 2015. I now work in the Plant Sciences department at the *University of Saskatchewan* and have been involved in three research projects (**AGILE**, **EVOLVES** & **P2IRC**) with **lentil** (*Lens culinaris*).

I have done extensive work with a lentil diversity panel, NAM and inter-specific RIL populations. I am very fluent in R and have plenty of experience with data analysis such as PCA, GWAS and QTL analysis. I have recently been working with data acquisition from UAV and seed imaging systems and can handle data wrangling and visualization of large, high-throughput data sets.

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RESEARCH EXPERIENCE & EDUCATION

Current | 2015

University of Saskatchewan
Research Assistant — Saskatoon, Saskatchewan, Canada

- Coordinate field trials
- Seed setup
- Post-harvest processing
- Data collection & analysis
- Presentations
- Collaborations

2015

Cargil Specialty Seeds and Oils
Research Assistant (Internship) — Aberdeen, Saskatchewan, Canada

- Data collection & analysis
- Pathology (blackleg)

2015 | 2013

M.Sc. in Agrobiotechnology
University of Giessen — Giessen, Hesse, Germany

- Biotechnology and Genomics
- Molecular Phytopathology
- Plant Microbe Interactions
- Plant Protection and Bioengeneering
- Microbial-Food-Biotechnology
- Applied Statistics and Bioinformatics
- Risk Assessment, Bio-safety and Patent Law
- Molecular Plant Breeding
- Microbial Diagnostics
- Plant Pathogens and Symbionts
- Molecular Entomology
- Tissue Culturing and Genetic Transformation

2012 | 2007

B.Sc. Biology
University of Regina — Regina, Saskatchewan, Canada

- Limnology
- Environmental Microbiology
- Global Biogeochemistry
- Stable Isotope Ecology
- Vertebrate Animal Biology
- Advanced Plant Physiology
- Molecular Genetics
- Bacterial Genetics

R PACKAGES

agData: an R package containing agricultural data sets
https://derekmichaelwright.github.io/agData/
devtools::install_github("derekmichaelwright/agData")

gwaspr: an R package for plotting GWAS results
https://derekmichaelwright.github.io/gwaspr/
devtools::install_github("derekmichaelwright/gwaspr")

SKILLS

- Photography
- Biology
- Genomics
- Data Analytics
- Data Visualization
- The R Project

Contact Info

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Social Media

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Website

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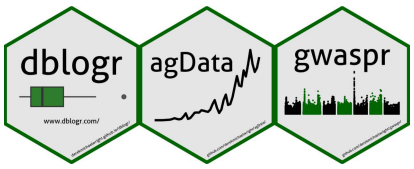

PUBLICATIONS

2023

Mass Spectrometry-Based Untargeted Metabolomics Reveals the Importance of Glycosylated Flavones in Patterned Lentil Seed Coats
Journal of Agricultural and Food Chemistry. 71(7): 3541–3549
Elessawy F, **Wright D**, *et al*.

data collection

2022

Focusing the GWAS *Lens* on days to flower using latent variable phenotypes derived from global multi-environment trials
The Plant Genome. 16(1): e20269.
Neupane S, **Wright D**, *et al*.

data collection
data analysis
data visualization
manuscript writing

2021

Strategic Identification of New Genetic Diversity to Expand Lentil (Lens culinaris Medik.) Production (Using Nepal as an Example)
Agronomy. 11(10): 1933.
Neupane S, Dhakal R, **Wright D**, *et al*.

data analysis
data visualization

2020

Genomic selection for lentil breeding: Empirical evidence
The Plant Genome. 13(1):e20002.
Haile TA, Heidecker T, **Wright D**, *et al*.

data visualization

2020

Understanding photothermal interactions can help expand production range and increase genetic diversity of lentil (*Lens culinaris* Medik.)
Plants, People, Planet. 3(2): 171-181.
Wright D, *et al*.

data collection
data analysis
data visualization
manuscript writing

2015

Influence of heterozygosity on nitrogen use efficiency in hybrid and purebred lines of *Brassica napus* (L.)
MSc Thesis
Wright D

UNPUBLISHED WORK

Dissecting lentil crop growth across multi-environment trials using unoccupied aerial vehicles and genome-wide association studies

data analysis
data visualization
manuscript writing

GWAS of predicted protein and amino acid content in lentil using near-infrared reflectance spectroscopy

data analysis
data visualization

Investigating seed size, shape, color, and patterning in a lentil diversity panel and inter-specific RIL populations

data analysis
data visualization

PHOTOGRAPHY

Saskatchewan Field Trials

Bangladesh Field Trials

Lentil Seed Diversity