Mohammad Ghanbari

Senior Scientist

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plant breeding and quantitative genetics

Qualifications and research interests

I am a quantitative geneticist with over 20 years of experience in data analysis, specializing in plant breeding. I hold a PhD in plant breeding and have worked extensively in both university and R&D settings. My industry experience includes developing and implementing computational tools for analyzing multi omics data (such as phenomics, genomics, and metabolomics), as well as conducting QTL mapping, association analyses, and genomic prediction.

My primary interest lies in the application of genomic and marker-assisted selection techniques in plant breeding. Specifically, I aim to develop strategies that utilize cutting-edge genotyping and phenotyping techniques to improve populations and develop new plant varieties. I believe in bridging the gap between computational and practical breeding programs through engaging collaborations

Technical Skills

Proficient in machine learning and multi-omics data analytics, with expertise in R/Bioconductor, Python, SAS, Minitab, and SPSS. Familiarity with cloud computing architectures such as Azure, and experience working with data lakes and Databricks.

Education

Goerge August University — Goettingen,Germany
Ph.D. in Plant breeding — 2016

University of Tehran — Tehran, Iran
M. Sc. in Plant breeding — 2005

Experience

HZPC research B.V — The Netherlands
Biometrics and quantitative genetics scientist — 2016 - present

Some of the functions associated with the role include:

- Implementing a genomic prediction strategy in potato breeding programs.
- Designing research and production trials.
- Conducting data analysis for the breeding team, including field, greenhouse, and laboratory data.
- Analyzing QTLs and validating potential markers in biparental crosses.
- Developing and deploying Shiny applications with interfaces for the research and production departments.
- Leading data-driven breeding decisions with a focus on developing inbred lines and hybrid crosses.
- Defining crossing plans in pre-breeding programs to accelerate the integration of new genetic resources into the genetic pool.

Zabol University — Iran
University lecturer and researcher . — 2007 - 2013

With seven years of experience, I have been teaching various courses to graduate and undergraduate students, including:

- Statistics in Biology
- Experimental Design in agriculture
- Genetics
- Computer Science

Agricultural Research Center Karj, Iran
Cereal breeder 2005 - 2007

As a cereal breeder at ministery of agriculture, I have experience leading breeding programs and managing teams in the development and implementation of advanced genetic strategies. Some of my key responsibilities and achievements include:

- Proposing, designing, and executing breeding trials for various crops.
- Leading the selection and crossing programs to develop superior varieties with desirable traits.
- Conducting data analysis using statistical software and writing reports on the results of breeding trials.

Awards and Grants

PhD scholarship 2013 - 2016

Nominee for Researcher of the Year at Zabol University 2012

Achieved fourth place in the university entrance exam 2003

Publications

- **Ghanbari, M.**, Paul, M., & Möllers, C. (2020). QTL analysis of shoot elongation before winter in relation to vernalization requirement in the doubled haploid population L16×Express617 (Brassica napus L.). Euphytica, 216, 73. [PubMed]
- **Ghanbari, M.** & Möllers, C. (2018). Genetic variation for shoot elongation before winter and its correlation with vernalization requirement in winter oilseed rape (Brassica napus L.). Euphytica, 214, 186. [PubMed]
- Sallam, A., **Ghanbari, M.**, & Martsch, R. (2017). Genetic analysis of winter hardiness and effect of sowing date on yield traits in winter faba bean. Scientia Horticulturae, 224, 296-301. [PubMed]
- **Ghanbari, M.** & Javan, S.M. (2015). Study the response of mung bean genotypes to drought stress by multivariate analysis. International Journal of Agricultural Innovation and Research, 3, 1298-1302.
- **Ghanbari, M.** & Molashahi, M. (2014). Study the effects of super absorbent application on maize under drought stress condition. International Journal of Agricultural Innovations and Research, 3(4), 2319-1473.
- **Ghanbari, M.** & Mir, B. (2013). Genetic analysis of pre-harvest sprouting resistance in wheat cultivars. International Journal of Agronomy and Plant Protection, 4(9), 2260-2266.
- **Ghanbari, M.** & Ariafar, S. (2013). The effects of water deficit and zeolite application on growth traits and oil yield of medicinal peppermint. International Journal of Medicinal and Aromatic Plants, 3(1), 32-39.

References

References will be provided upon request.