Dr. Jens Léon and Dr. Frank Ordon

Editors-in-Chief

Plant Breeding

La Molina, 17th june 2024

Dear Editors,

I hereby enclose the manuscript entitled “A high-throughput phenotyping pipeline for quinoa (*Chenopodium quinoa*) panicles using image analysis with convolutional neural networks” by Flavio Lozano et al. to be considered for publication in Plant Breeding.

This study introduces an automated image analysis pipeline for quinoa panicles, aiming to improve phenotyping efficiency and accuracy in breeding programs. Our pipeline, implemented in Python using Mask R-CNNs, addresses this by automating the segmentation and classification of quinoa panicles. Additionally, the pipeline enables the estimation of genetic parameters and the extraction of phenotypic traits from field trial images. To our knowledge, this is the first work utilizing deep learning for the analysis of quinoa panicles.

We think this manuscript is suitable for publication as the research reflects the aims and scope of your journal. The manuscript has not been published and is not under consideration for publication elsewhere. All authors have approved the manuscript and agree with its submission.

Yours sincerely,

Karl Schmid

Corresponding author