



Review article (NWI-BM-REVIEWART): Next Generation Heat Resilience in Tomato Seeds

Background and introduction

Breeding to feed the world! That's our mission as an international vegetable breeding organization. Simply said, this means we develop new vegetable varieties. Our assortment consists of 1,200 different varieties across dozens of diverse crops; from bell peppers, tomatoes, cucumbers and lettuce to bitter melon, hot peppers and onions. Enza Zaden produces the seeds of these vegetable varieties and sells them worldwide.

Even though we are an international company with more than 2,500 employees worldwide, we still are an independent family business, which clearly shows in our business culture. You easily feel right at home and your ideas are valued. Entrepreneurship, teamwork, and taking responsibility are central values to our mission, and our employees are the heart and soul of the organization.

Breeding to feed the world is an ongoing challenge in a world that suffers from climate change. To grant people anywhere in the world access to our vegetables, we need varieties that are able to germinate well under high temperature (stress) conditions. This is especially required for crops cultivated in unprotected environments. The quality of seed is affected by the environmental conditions during production. We usually measure the performance of our seed by means of germination performance under optimal conditions. Due to climate change, we see an increasing demand to have seed available that performs well under suboptimal conditions such as high temperature.

Review article assignment

We are interested in the possible epigenetic effects during tomato seed production under high temperature conditions that influence the quality of seed (germination). This review article will therefore focus on heat induced epigenetic changes that may occur during seed production, and could improve the thermotolerance of the next (seed) generation.

In short the review article will entail at least the following topics;

- Effect of heat stress on tomato seed production
- Correlation between climatic conditions during seed production and seed behavior
- Induction of thermotolerance in tomato
- Epigenetic effects during seed production resulting in thermotolerance of tomato seeds

Conditions

- The review article will be written by a Master student with a background in (plant) biology
- The review article should be written in English during a fulltime 4 week period in November / December 2022 in accordance with the conditions of the course Review Article
- Student is responsible for contacting an internal supervisor (from the Radboud University) accountable for the final grade
- A kick-off literature list containing 5 – 10 articles will be provided to the student by Enza Zaden
- **Student will receive financial compensation for the delivered review article by Enza Zaden**

Please apply by sending a short motivation letter and c.v. before the 12th of October 2022 to j.geijsberts@enzazaden.nl. The selection procedure will take place end of October 2022.