Doubled Haploid Workshop – 2023

Synopsis: The DH workshop at Iowa State University is a 1.5 day long submersion into DH production in maize: we offer a mix of class room presentations, hands-on activities in the greenhouse and field, and plenty of opportunity to discuss all practical and theoretical aspects of DH technology including a peek into the future of plant breeding acceleration.

The first day will guide the participants through the steps of DH production: from induction, haploid selection, chromosome doubling of haploids, to pollination of haploids in the field. The day will finish with a presentation of ongoing graduate student research at the DH Facility.

The second (half-) day is focused on the theoretical aspects of DH technology and its integration into the breeding process.

Contact: Ursula Frei, ufrei@iastate.edu
Dates: 8/3/2023 – 8/4/2023
Number of participants: 15 *Fee:* $250 ($180)
Registration deadline: July 1st 2023

Preliminary schedule (subject to changes):

Thursday, August – 3rd morning

Introduction:

Haploids in plant breeding
DH technology in maize

Haploid selection

Overview

Haploid selection in the kernel stage

- Visual selection by hand (demonstration in class room)
- Automated selection

Haploid selection in the young seedling (demonstration in the greenhouse)

Chromosome doubling in haploids (demonstration in the greenhouse)

- Submersion of 3-4 day old seedlings
- Root treatment
- Injection

Inducer development

- Strategies for new inducer development

Thursday, August 5th - afternoon

Field visit

Induction nursery

Haploid nursery (Elizabeth)

Haploid Inducer Development

Visit of student experiments: *to be updated May 2023*

Friday, August 4th – morning

Theoretical aspects of DH technology

Selection of an optimal donor population
Breeding schemes based on DH technology
DH technology and genomic selection
Future of breeding acceleration

Automated Selection – update from Alan Gaul, Seed Science Center

Discussion and Wrap-up