
Doubled Haploid Workshop – 2024

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.

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Number of participants: 15 *Fee:* \$250 (\$180)

Dates: 8/1/2024 – 8/2/2024

Registration deadline: July 1st 2024

Preliminary schedule (subject to changes):

Thursday, August – 1st 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 1st - afternoon

Field visit

Induction nursery

Haploid nursery (Elizabeth)

Haploid Inducer Development

Visit of student experiments: *updated May 2024*

Friday, August 2nd – 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