

Introducing MAPpoly2 and updates on QTLpoly: Supplementary Slides

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MAPpoly2

GitHub page and Rpubs

- <https://github.com/mmollina/mappoly2>
- [https://rpubs.com/mmollin/tutorial mappoly2](https://rpubs.com/mmollin/tutorial_mappoly2)
- [https://rpubs.com/mmollin/multi family simulation](https://rpubs.com/mmollin/multi_family_simulation)



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Inter-connected tetraploid alfalfa families



Genetic
Resources

ORIGINAL ARTICLE

Genetic Resources (2023), 4 (8), 55–63
DOI: 10.46265/genresj.EMOR6509
<https://www.genresj.org>
ISSN: 2708-3764

A public mid-density genotyping platform for alfalfa (*Medicago sativa* L.)

Dongyan Zhao^a, Katherine Mejia-Guerra^{a,b}, Marcelo Mollinari^c, Deborah A Samac^d, Brian M Irish^e, Kasia Heller-Uszynska^f, Craig T Beil^a and Moira J Sheehan^{*a}

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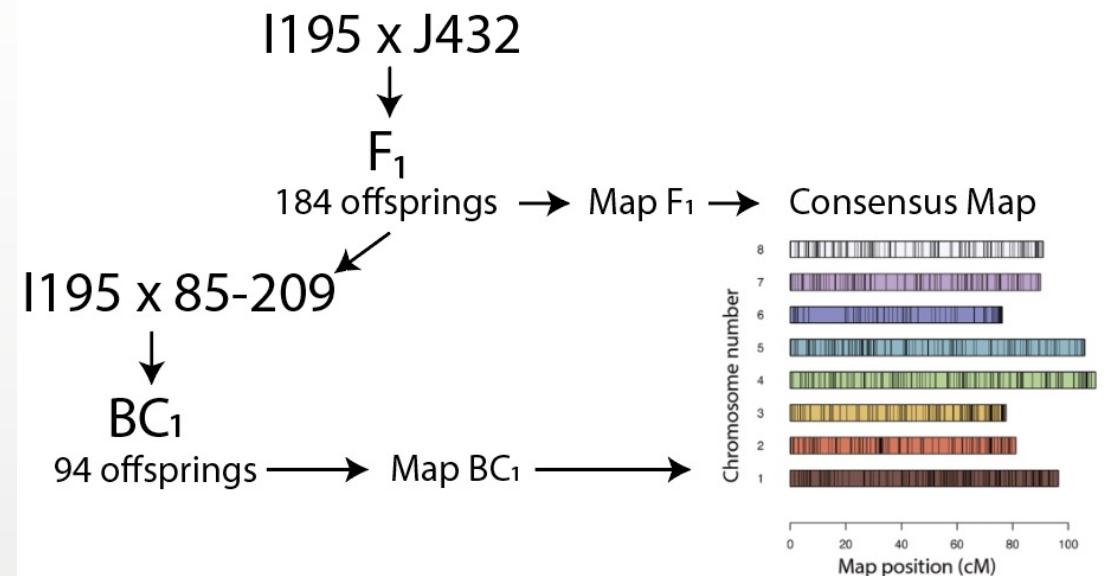
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^d Plant Science Research Unit, USDA-ARS, St. Paul, 55108, MN, USA

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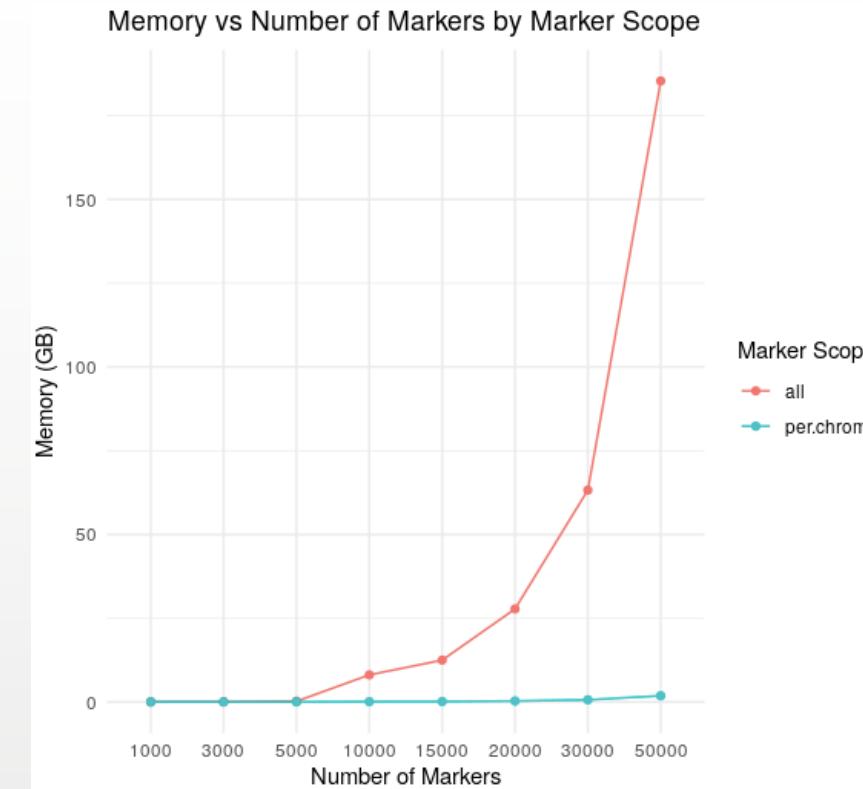
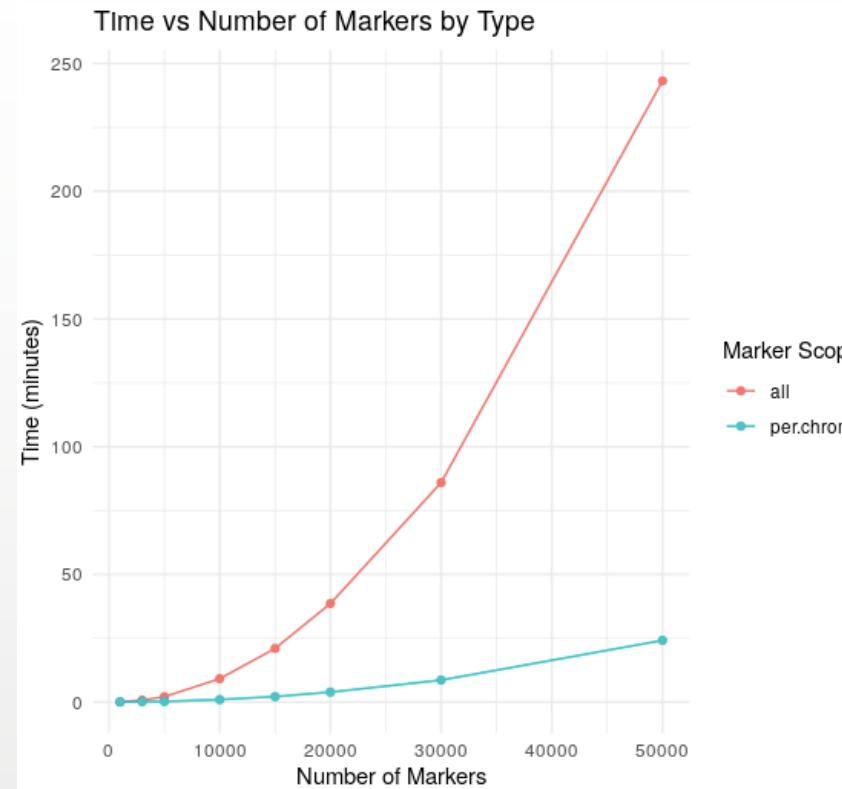
^f Diversity Arrays Technology, ACT 2617, Bruce, Australia



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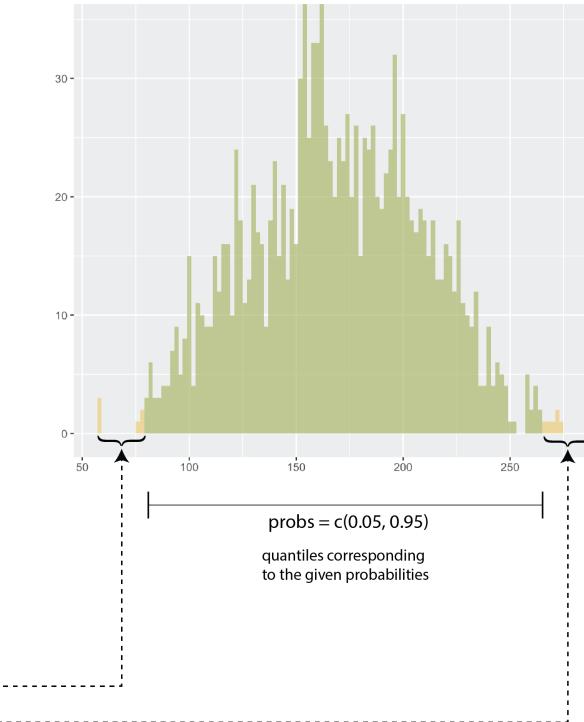
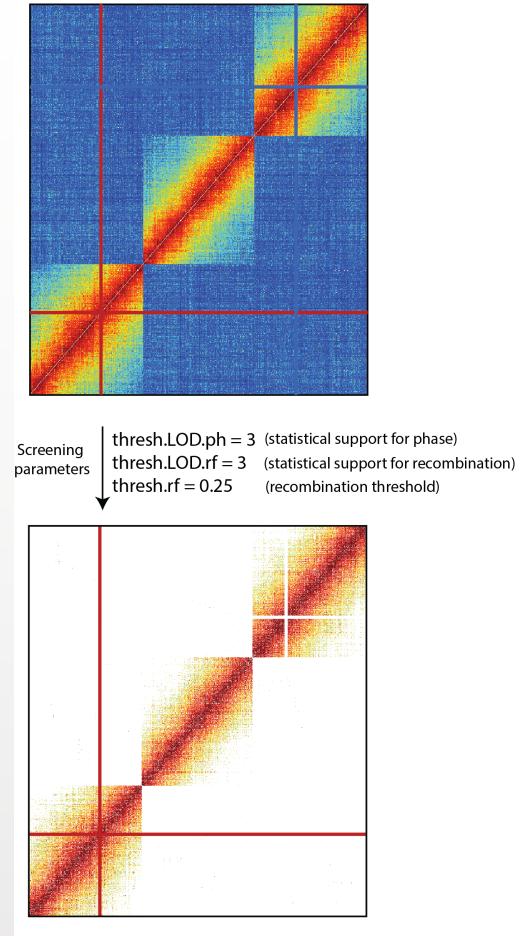
Pairwise recombination – Time and Memory



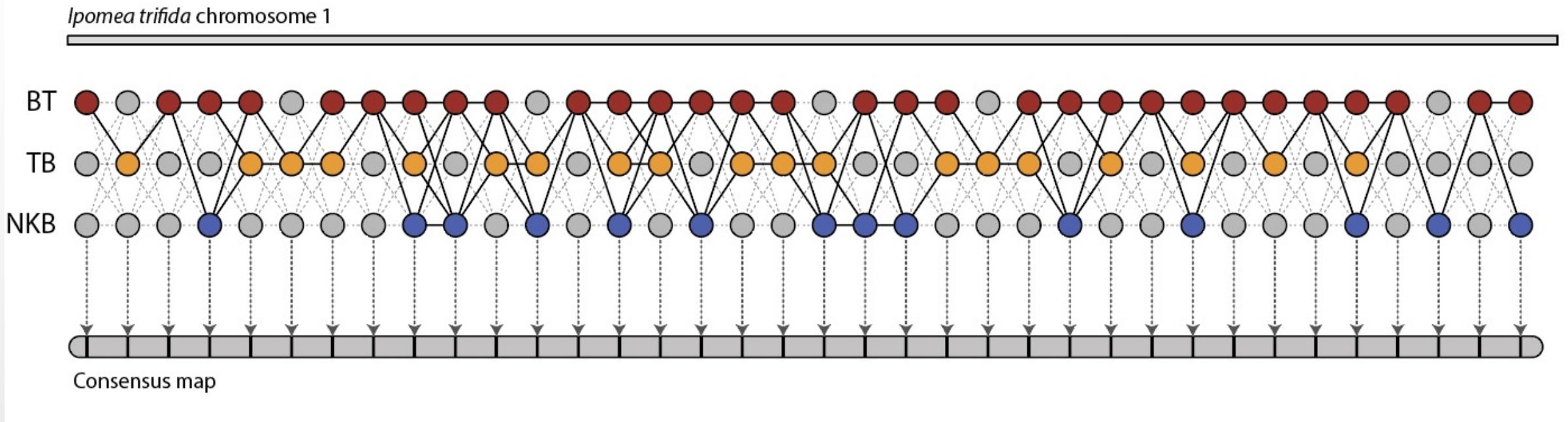
The simulation results showcased in this Figure were obtained using an Intel(R) Xeon(R) Gold 6226R CPU running at 2.90GHz, combined with 376 GB of RAM and 32 processing cores.

10 chromosomes

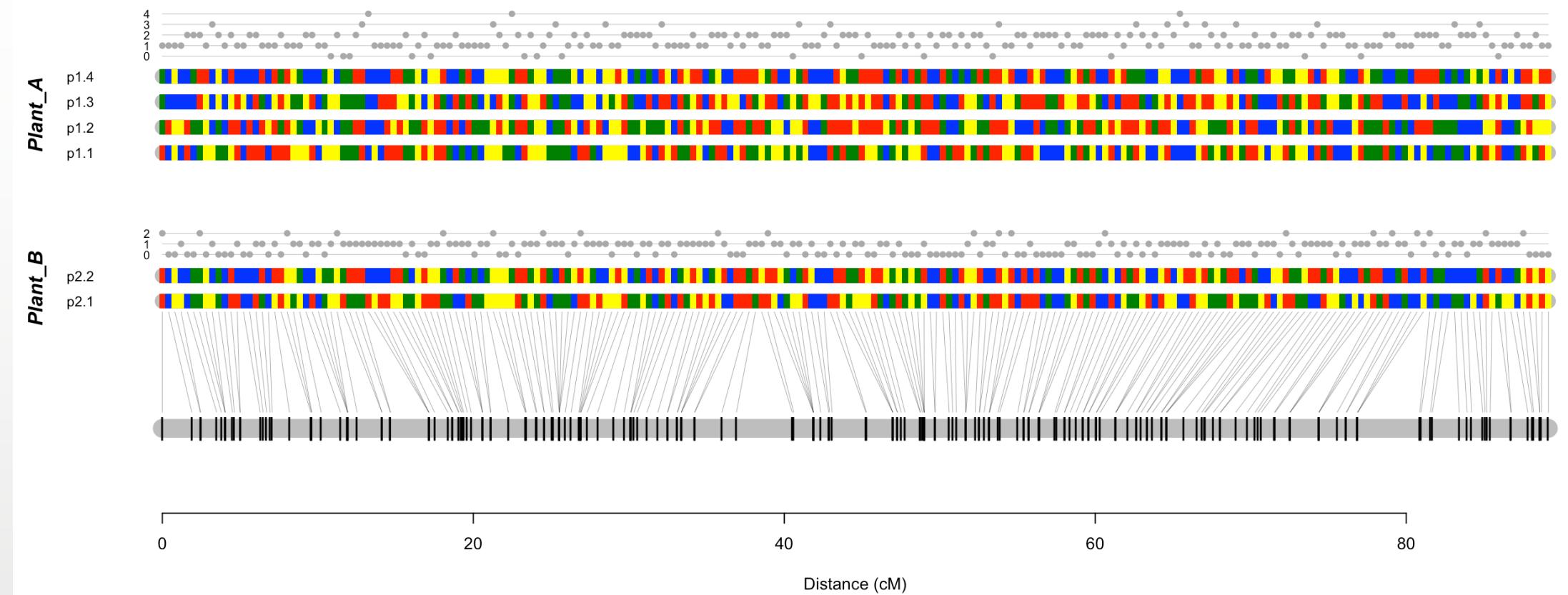
Recombination fraction-based filtering



HMM and propagation of information in multiple maps



Mixed-ploidy cross: 2 x 4



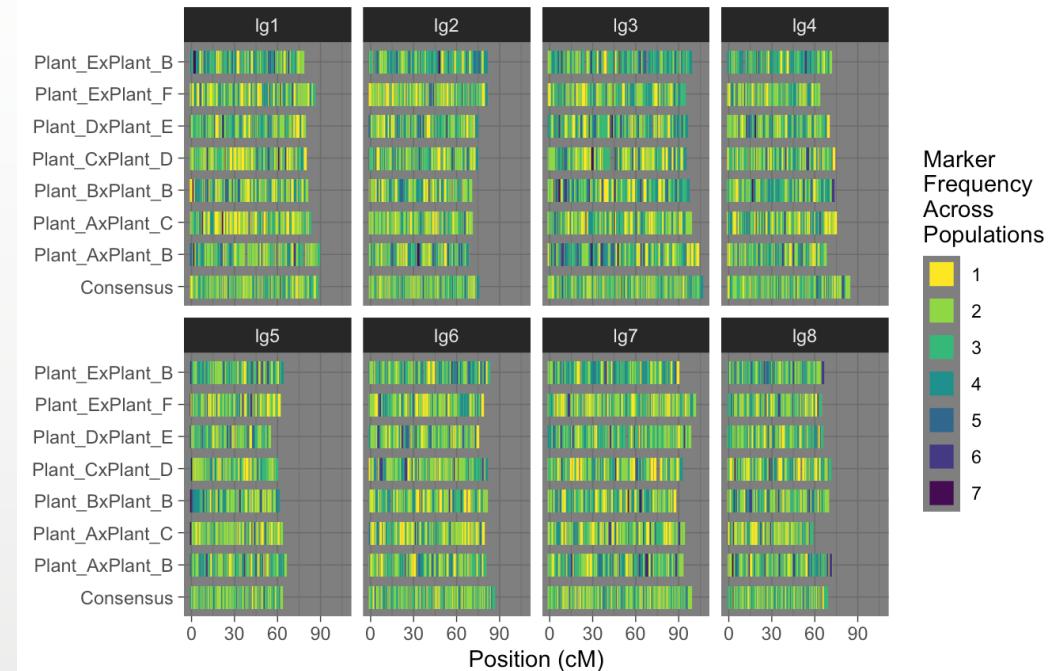
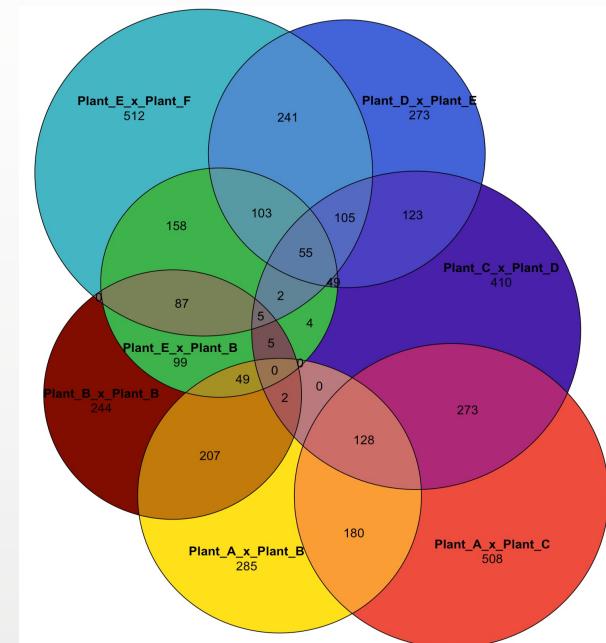
This project is funded by USDA NIFA Specialty Crop Research Initiative Award # 2020-51181-32156 (09/01/20 - 08/31/24)



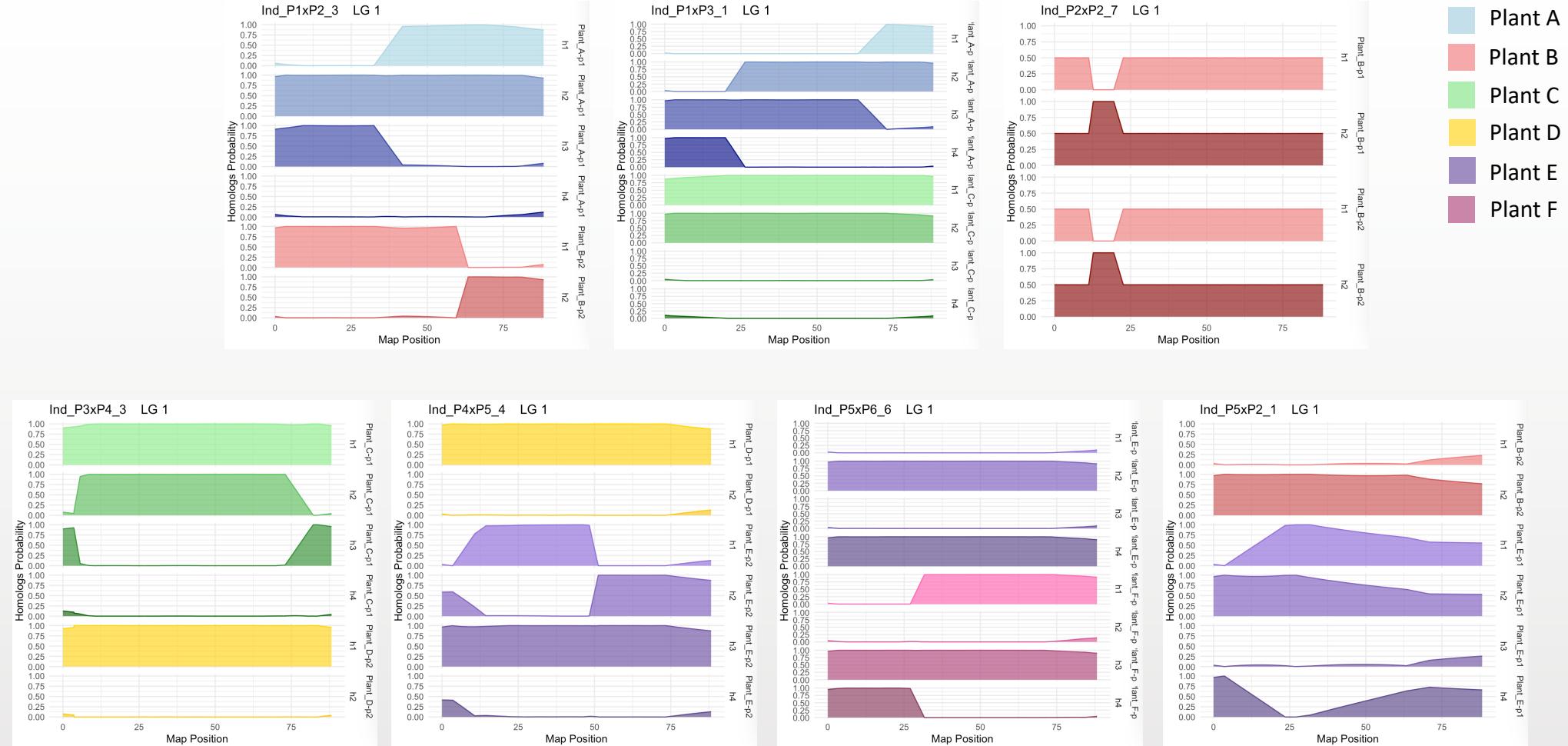
Seven populations, 6 parents

Consensus Map:					
Ploidy of founders:		4	2	4	2
Total No. individuals:		1400			
Total No. markers		3387			
Haplotype probability computed:	Yes				
Number of individuals per cross:					
Plant_B	Plant_C	Plant_D	Plant_E	Plant_F	
Plant_A	200	200	.	.	.
Plant_B	200
Plant_C	.	.	200	.	.
Plant_D	.	.	.	200	.
Plant_E	200	.	.	.	200

Consensus Map:					
LG	Map_length_.cM.	Markers.cM	Total.mrk	Max_gap	
lg1	88.2	4.966	438	1.01	
lg2	74.9	5.514	413	1.01	
lg3	106.26	4.065	432	1.01	
lg4	84.44	5.069	428	1.01	
lg5	63.31	6.539	414	1.01	
lg6	86.02	4.941	425	1.01	
lg7	98.51	4.324	426	1.01	
lg8	68.5	6	411	1.3	



Haplotype probabilities



Project Members



Cornell University



NC STATE
UNIVERSITY



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Project Members



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