

Dissecting lentil crop growth across multi-environment trials using unoccupied aerial vehicles

unpublished

Derek Michael Wright derek.wright@usask.ca

01-11-2023

Contents

Contents	3
AGILE & P²IRC Projects	3
Collaborators	3
Figures	4
Figure 1	4
Figure 2	5
Figure 3	6
Figure 4	7
Figure 5	8
Figure 6	8
Figure 7	9
Figure 8	10
Supplemental Tables	10
Supplemental Table 1	10
Supplemental Figures	11
Supplemental Figure 1	11
Supplemental Figure 2	12
Supplemental Figure 3	13
Supplemental Figure 4	14
Supplemental Figure 5	15
Supplemental Figure 6	16
Supplemental Figure 7	17

Additional Figures	18
Additional Figures 1	18
Additional Figures 2	20
Additional Figures 3	21
Additional Figure 4	26
Additional Figure 5	27
Additional Figures 6	28
Additional Figure 7	29
Additional Figures 8	31
Additional Figure 9	32
Additional Figure 10	33
Additional Figures 11	34
Additional Figures 12	38
Manhattan Plots	42
Markers	42

Derek Wright, Sandesh Neupane, Karsten Neilson, Tania Gioia & Kirstin E Bett. **Dissecting lentil crop growth across multi-environment trials using unoccupied aerial vehicles.** unpublished. (2023) 00: 1-10

which is follow-up to:

- Sandesh Neupane, Derek Wright, Raul Martinez, Jakob Butler, Jim Weller, Kirstin Bett. **Focusing the GWAS Lens on days to flower using latent variable phenotypes derived from global multi-environment trials.** *The Plant Genome.* (2022) 16(1): e20269.
 - https://github.com/derekmichaelwright/AGILE_LDP_GWAS_Phenology

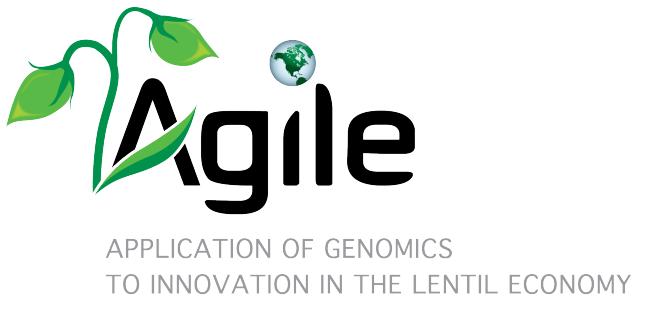
 - Derek M Wright, Sandesh Neupane, Taryn Heidecker, Teketel A Haile, Clarice J Coyne, Rebecca J McGee, Sripada Udupa, Fatima Henkrar, Eleonora Barilli, Diego Rubiales, Tania Gioia, Giuseppina Logozzo, Stefania Marzario, Reena Mehra, Ashutosh Sarker, Rajeev Dhakal, Babul Anwar, Debashish Sarker, Albert Vandenberg, and Kirstin E. Bett. **Understanding photothermal interactions can help expand production range and increase genetic diversity of lentil (*Lens culinaris* Medik.).** *Plants, People, Planet.* (2021) 3(2): 171-181.
 - https://github.com/derekmichaelwright/AGILE_LDP_Phenology
-

- https://github.com/derekmichaelwright/AGILE_LDP_GWAS_Phenology
- View as pdf
- View as HTML
- Source Code Vignette (Growth_Rates_Vignette.html)

Contents

- Figures
- Supplemental Tables
- Supplemental Figures
- Additional Figures

AGILE & P²IRC Projects



Collaborators

- Department of Plant Sciences and Crop Development Centre, University of Saskatchewan, Saskatoon, Saskatchewan, Canada
 - School of Agriculture, Forestry, Food and Environmental Sciences, University of Basilicata, Potenza, Italy
-

Figures

Figure 1

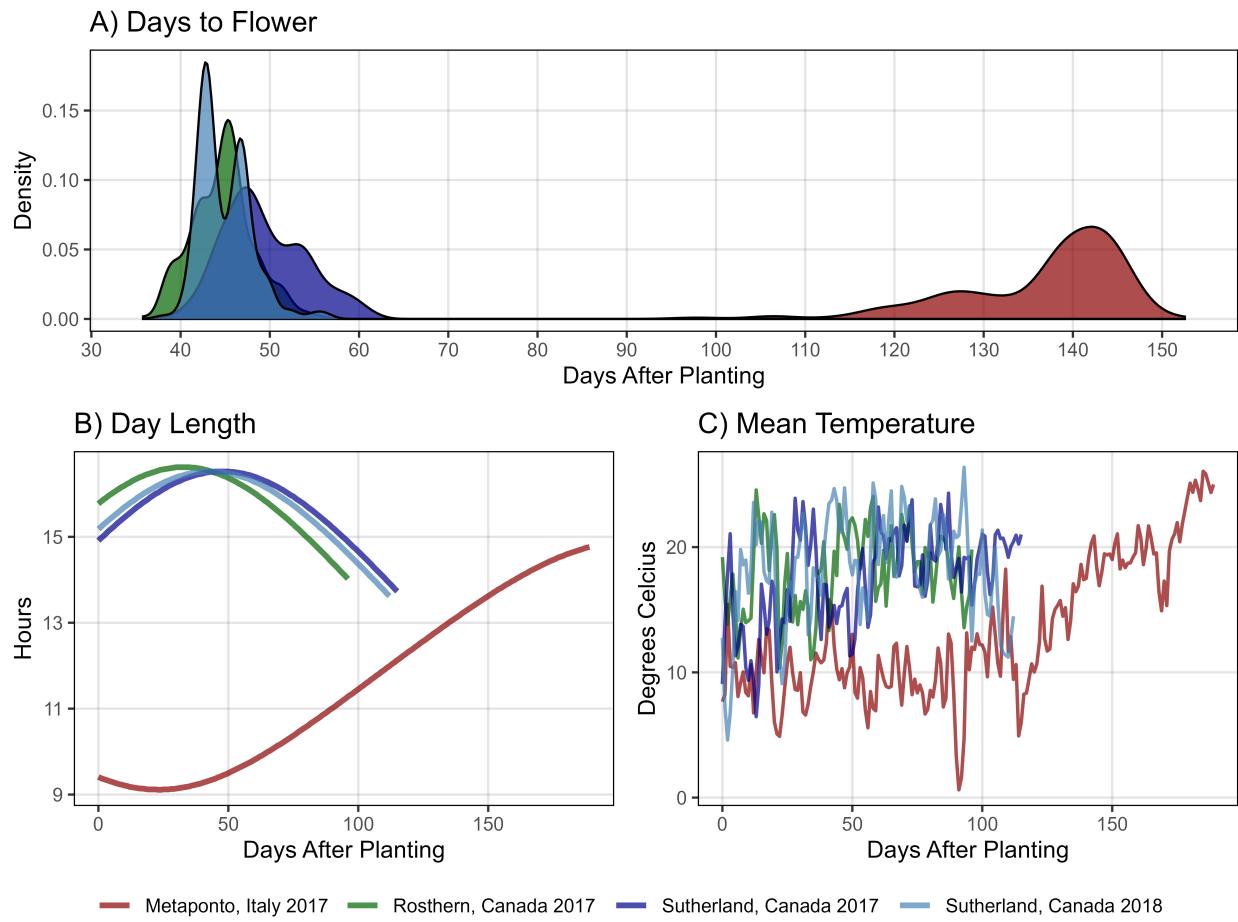


Figure 2

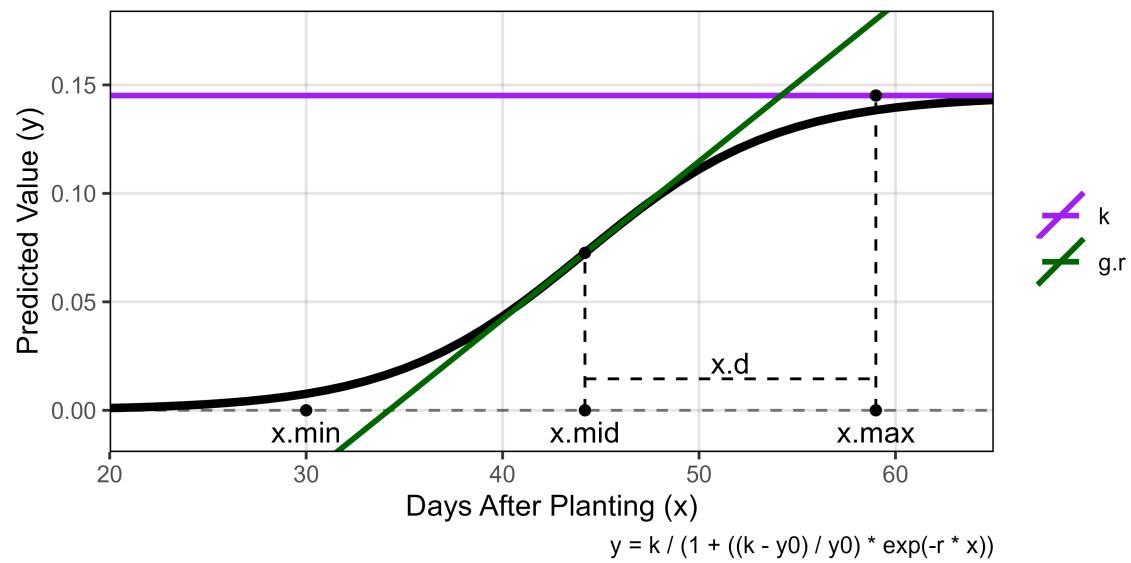


Figure 3

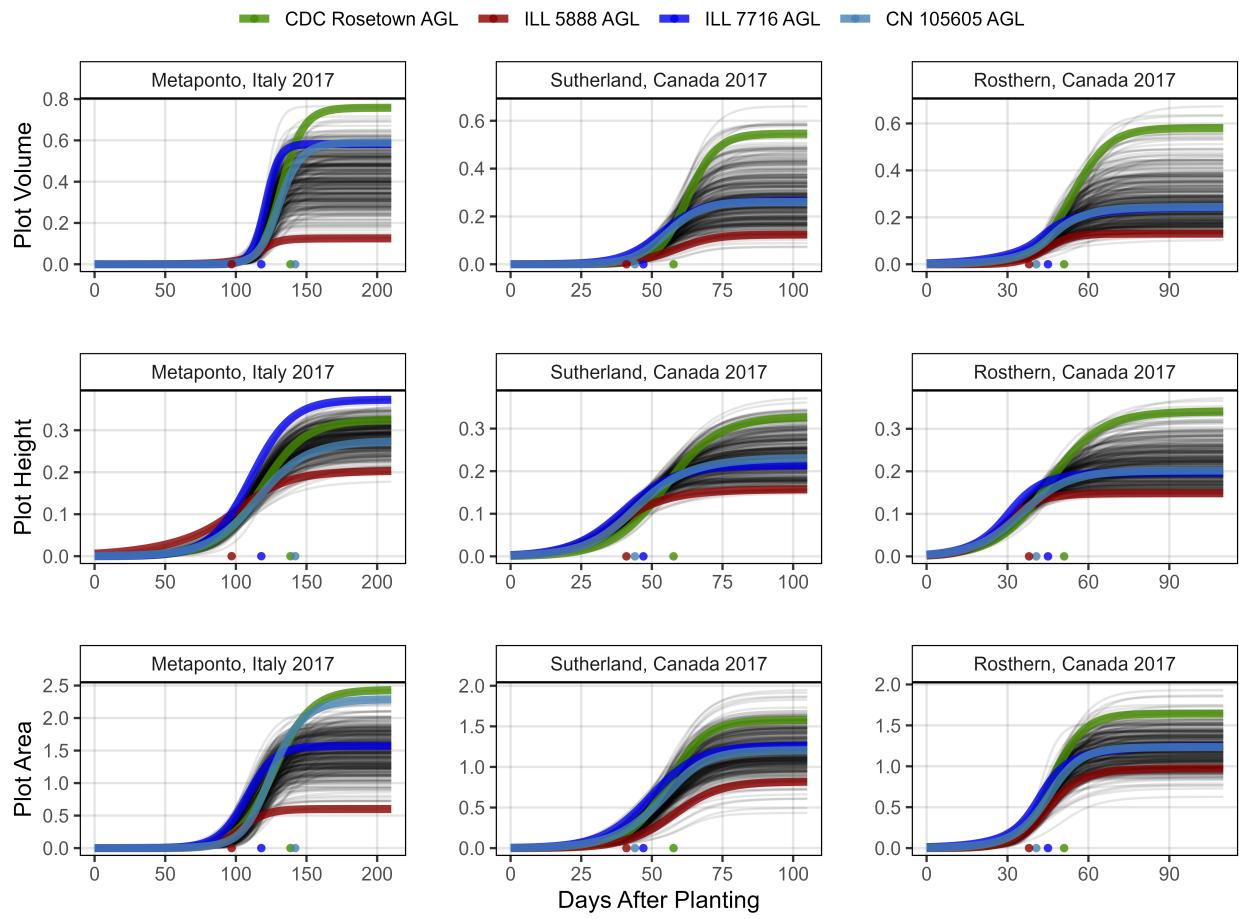
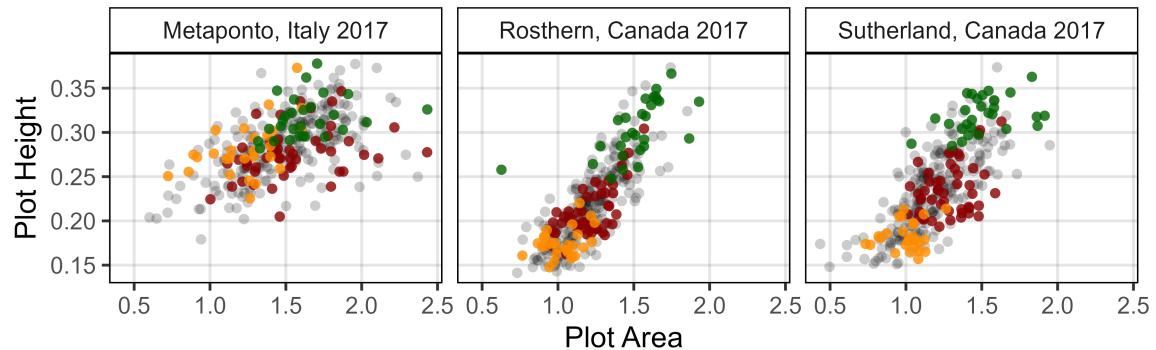


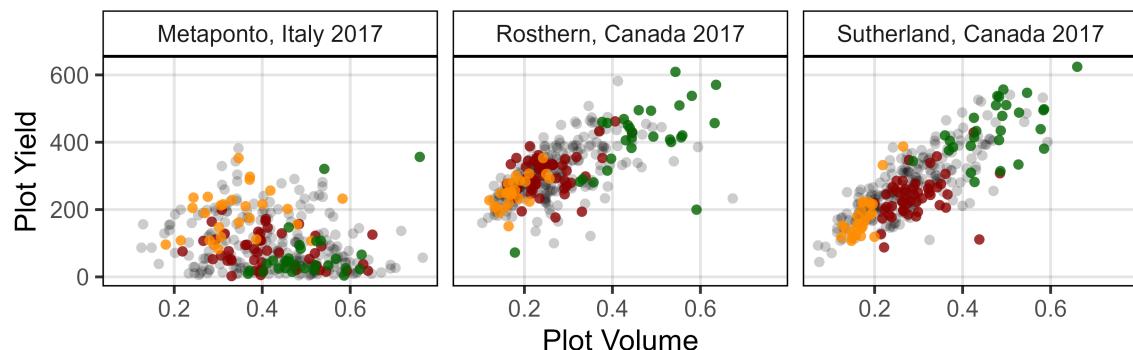
Figure 4

- Additional/Figure_04_A.html
- Additional/Figure_04_B.html
- Additional/Figure_04_C.html

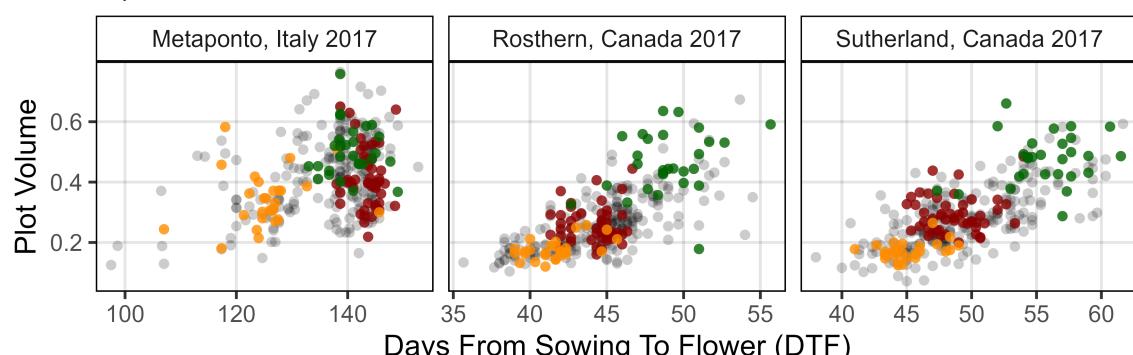
A) Height x Area



B) Yield x Volume



C) Volume x DTF



Accession Origin • Canada • India • Iran • Other

Figure 5

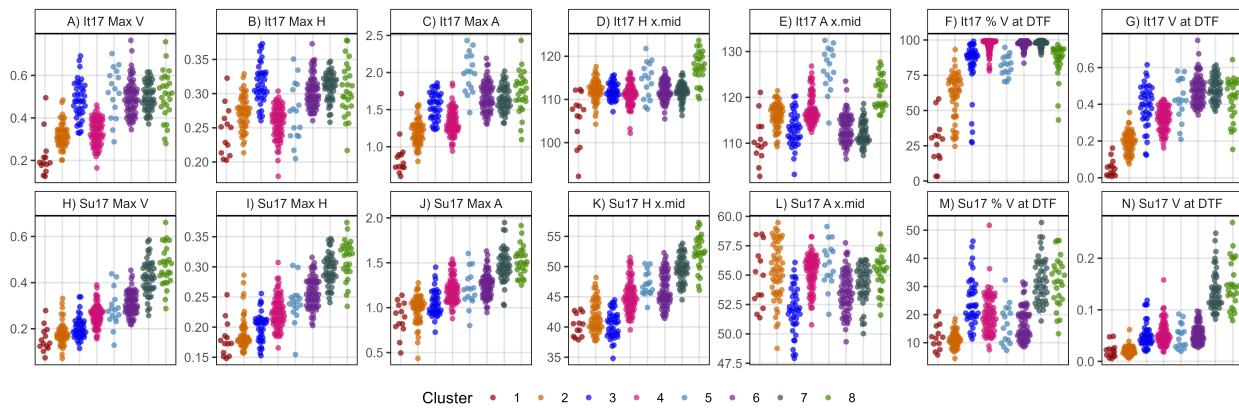


Figure 6

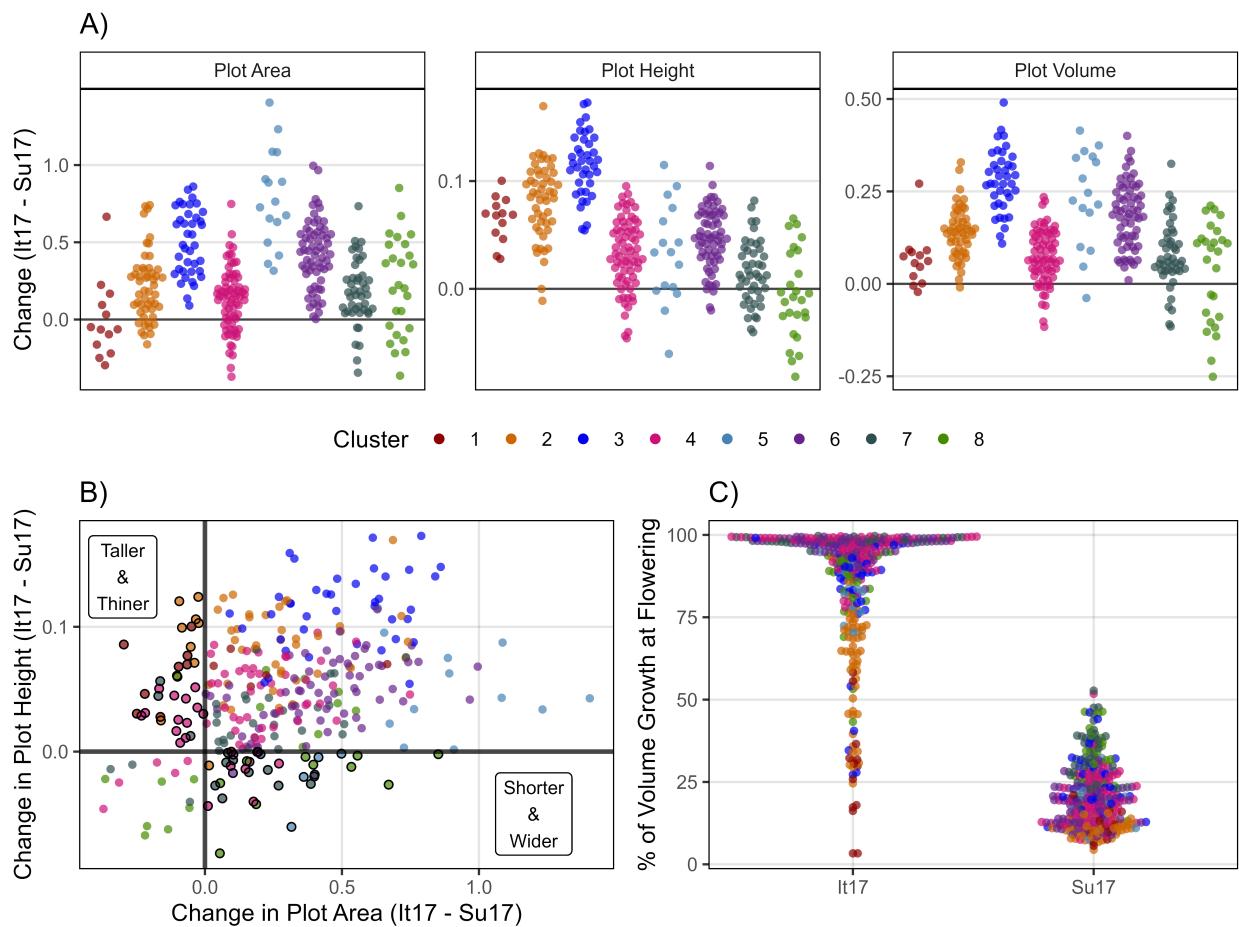


Figure 7

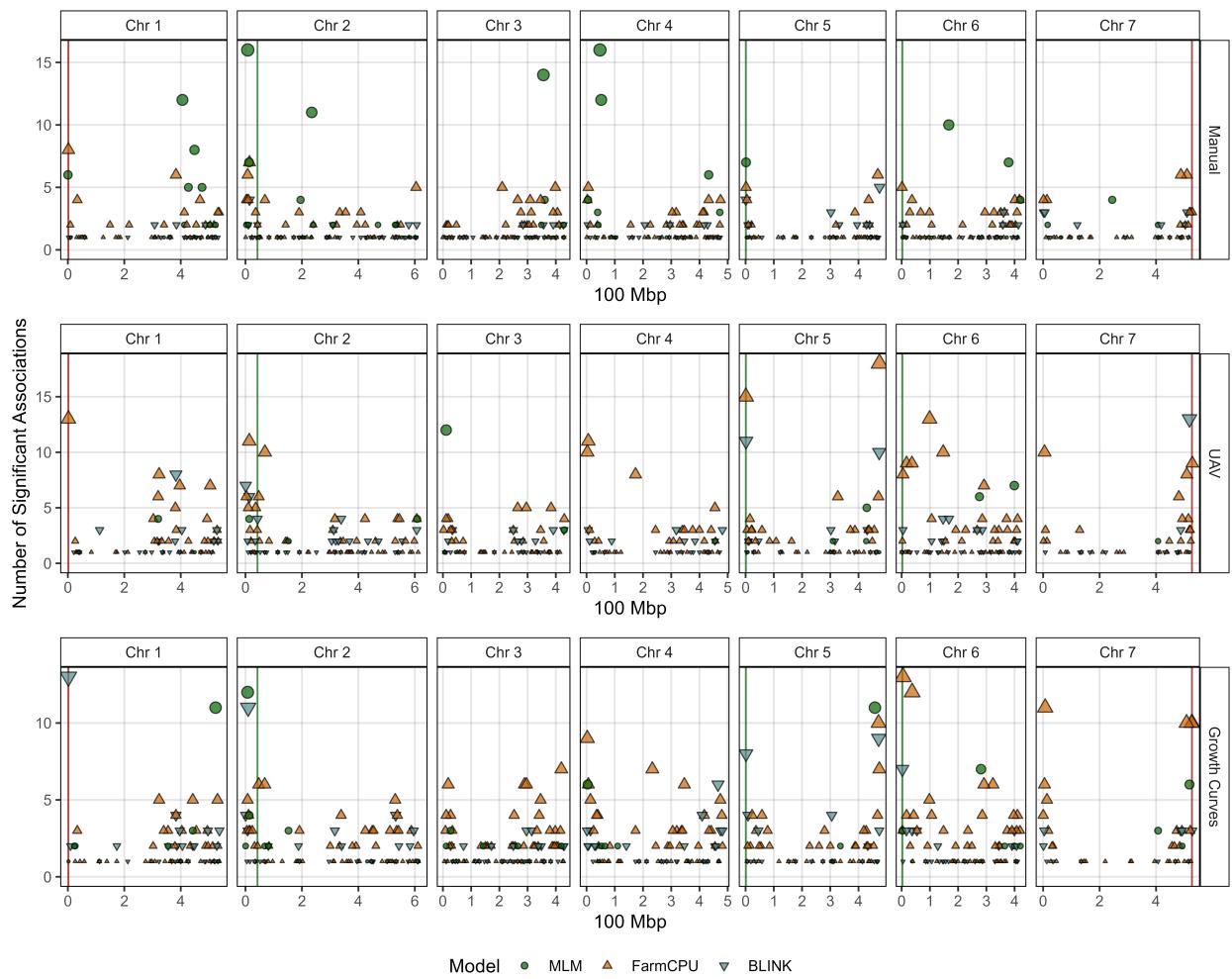
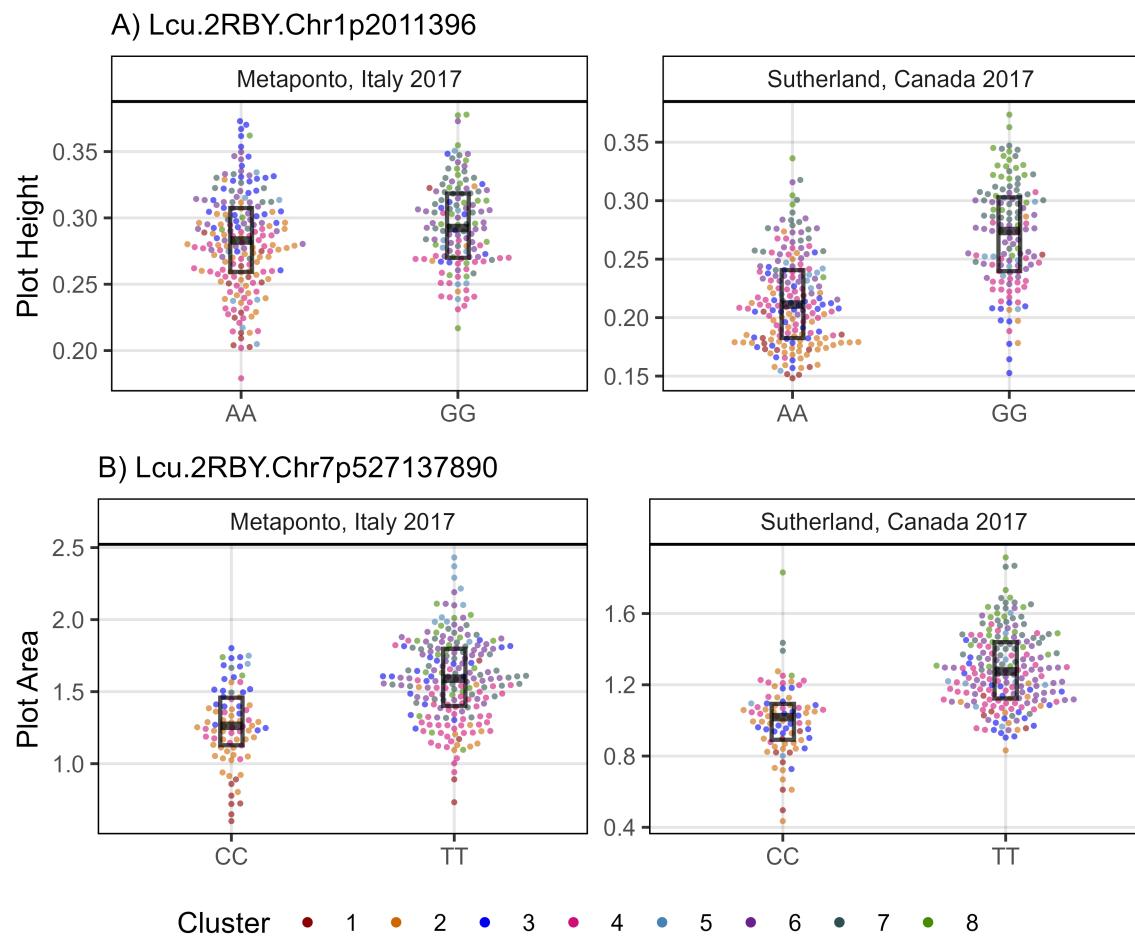


Figure 8



Supplemental Tables

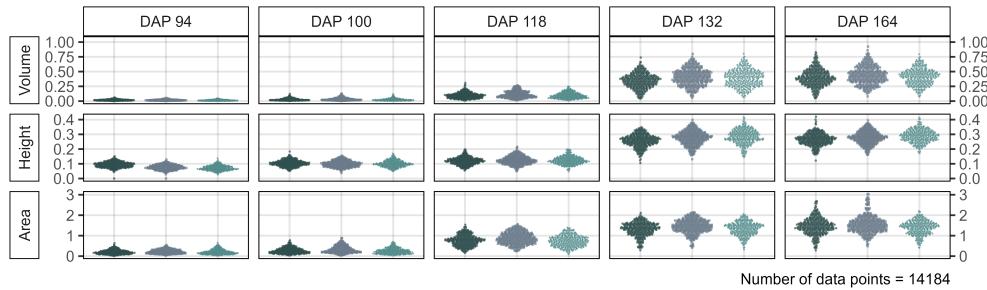
Supplemental Table 1

- Supplemental_Table_01.csv

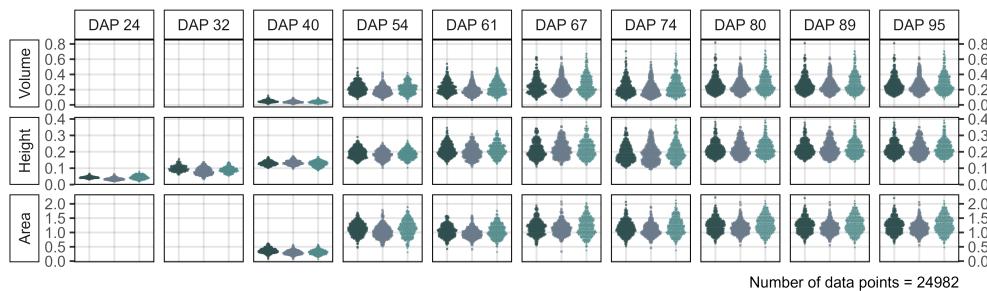
Supplemental Figures

Supplemental Figure 1

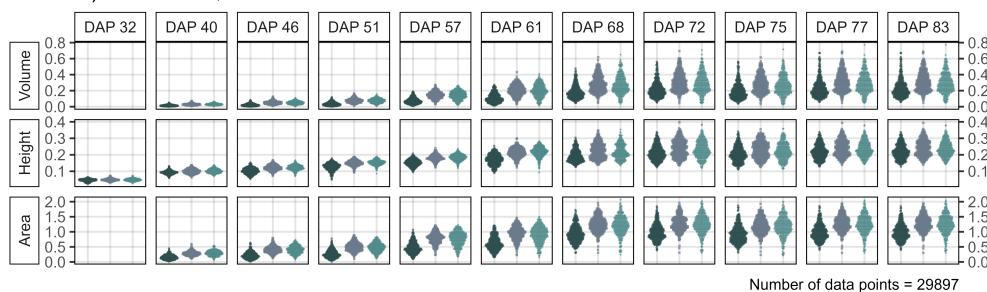
A) Metaponto, Italy 2017



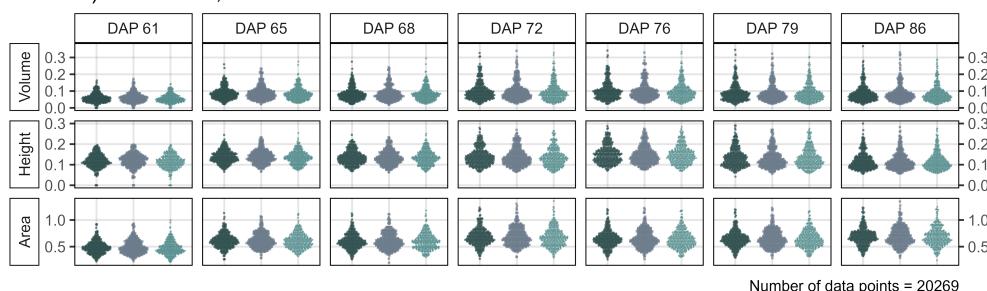
B) Rosthern, Canada



C) Sutherland, Canada



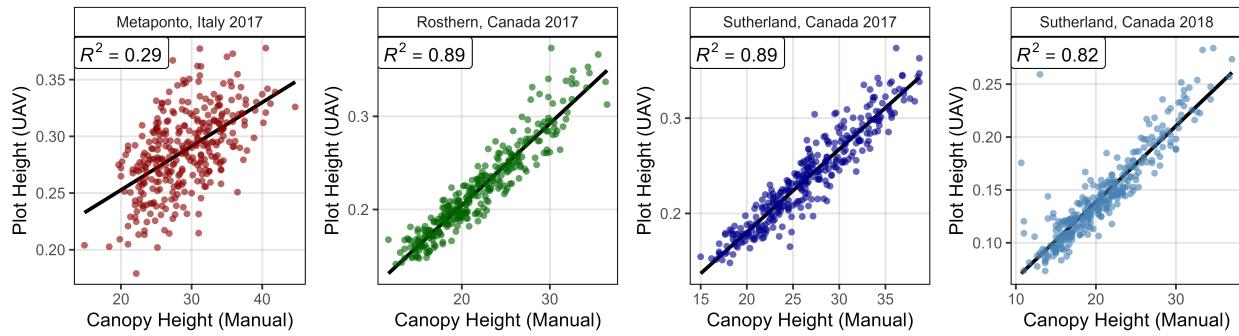
D) Sutherland, Canada 2018



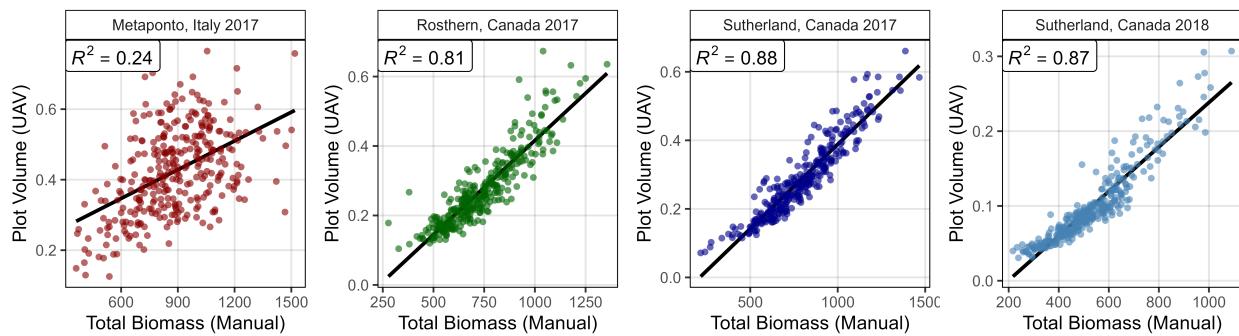
● Rep 1 ■ Rep 2 ◆ Rep 3

Supplemental Figure 2

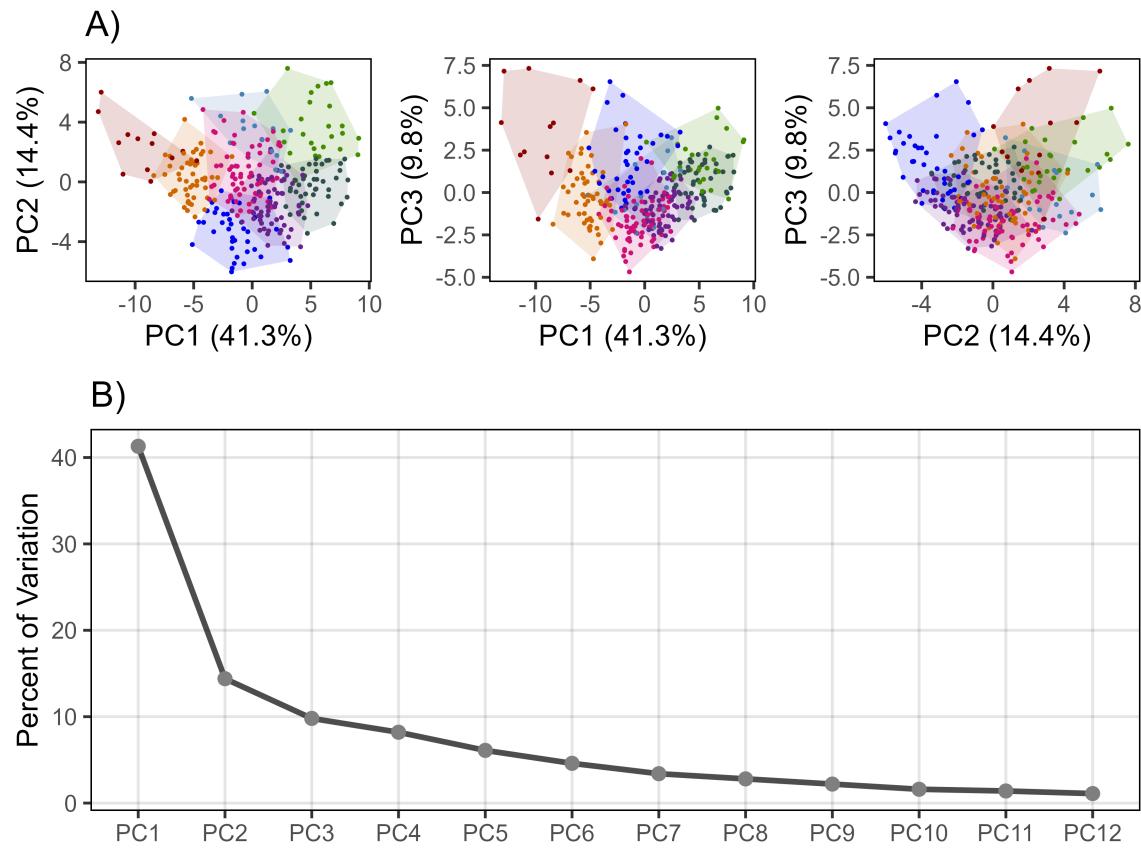
A) Plot Height (UAV) x Canopy Height (Manual)



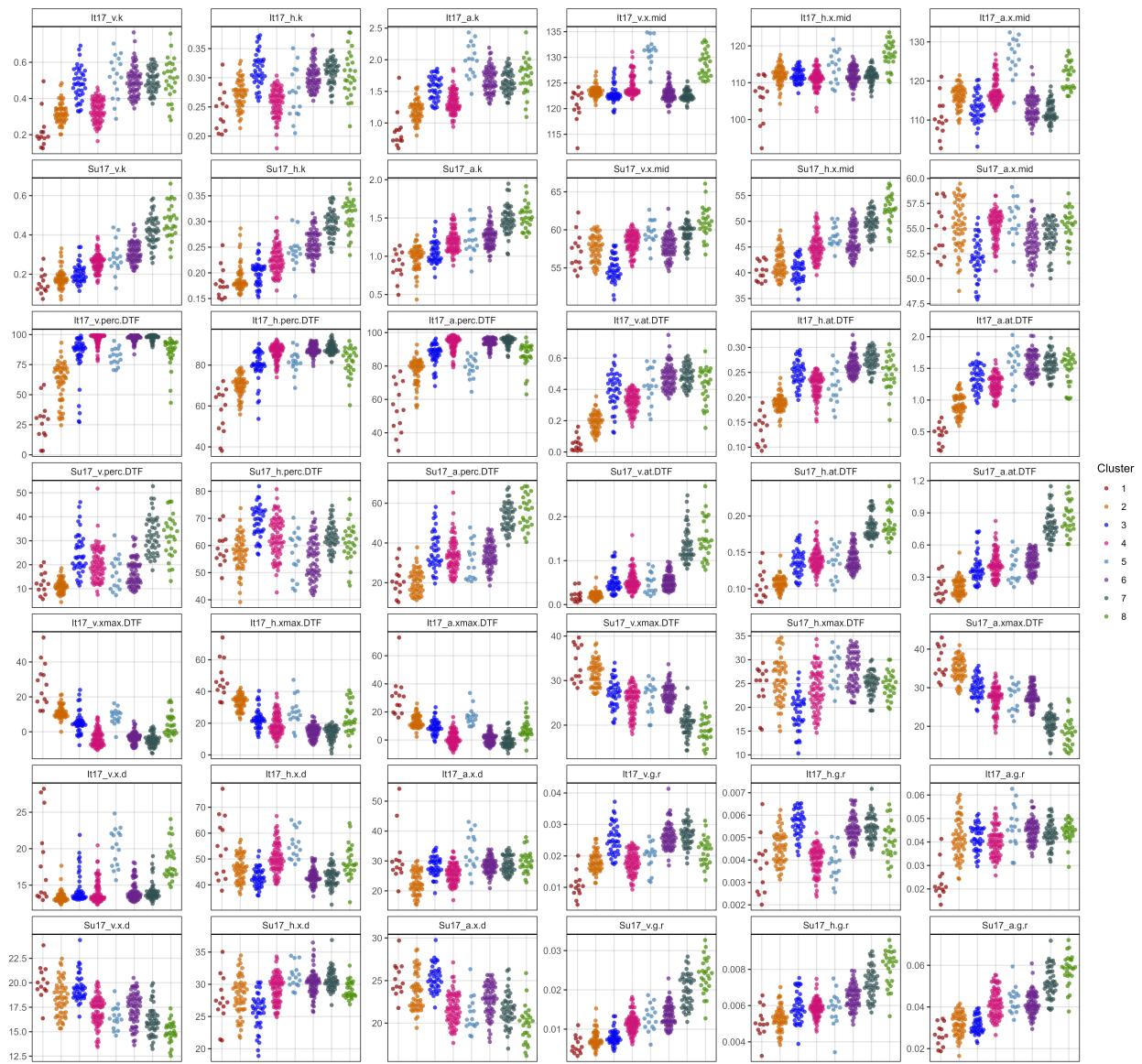
B) Plot Volume (UAV) x Biomass (Manual)



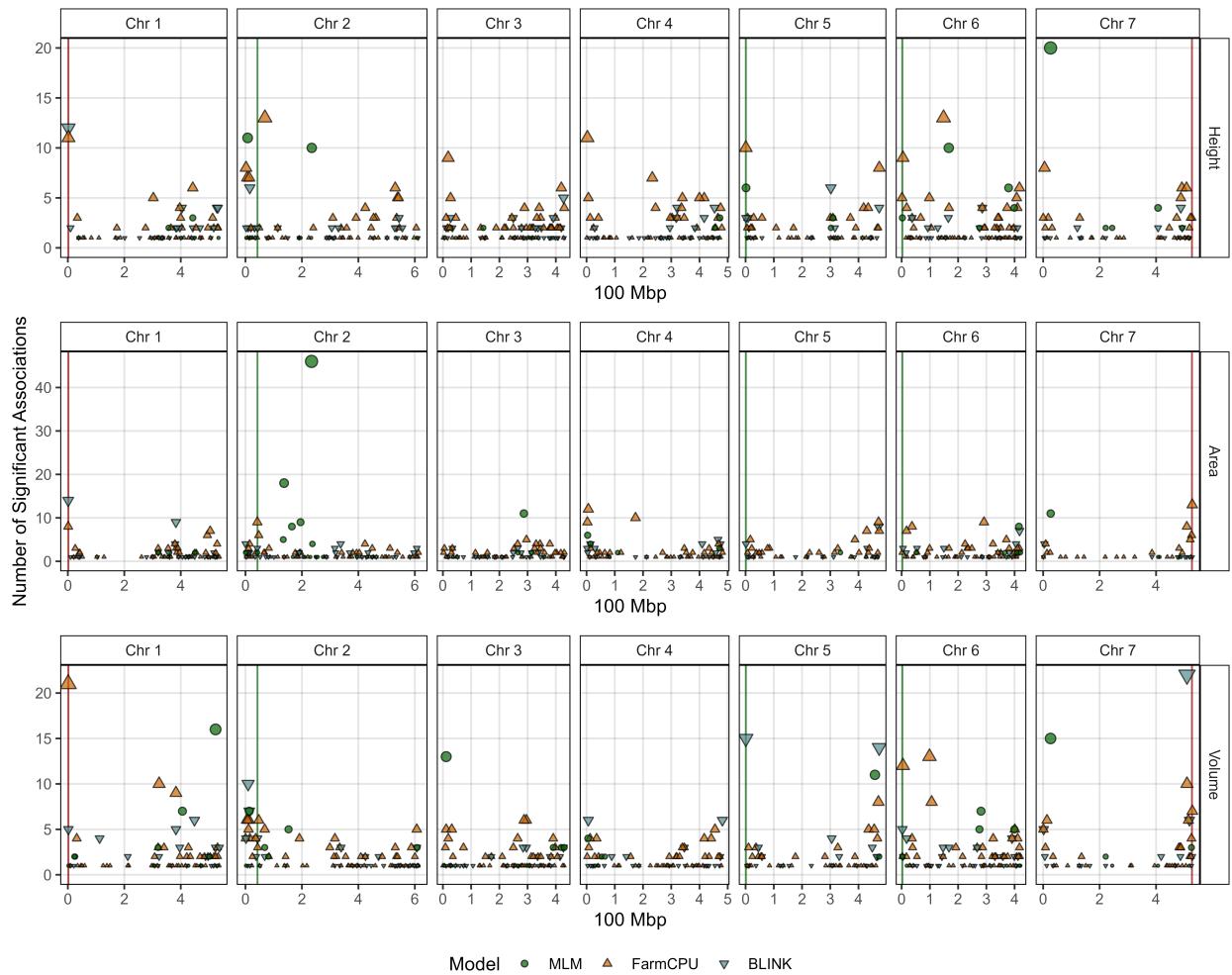
Supplemental Figure 3



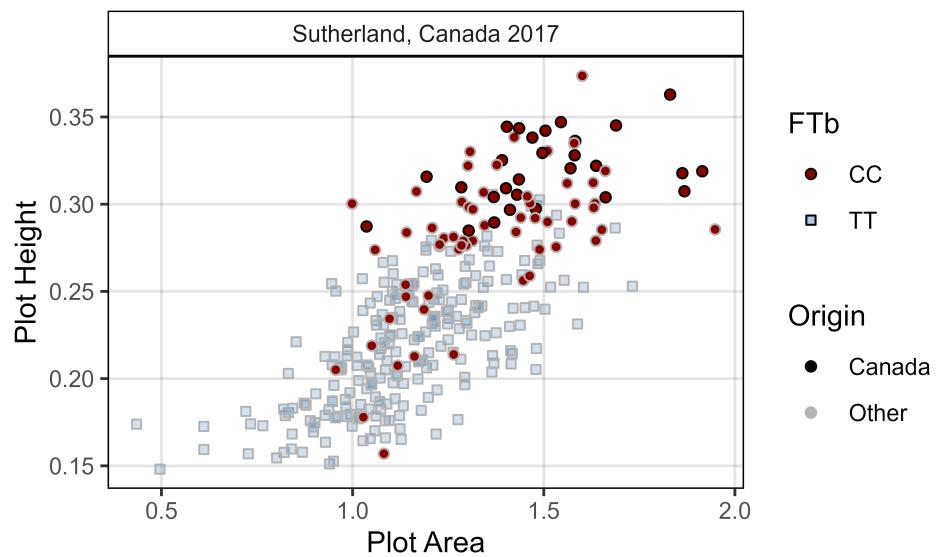
Supplemental Figure 4



Supplemental Figure 5

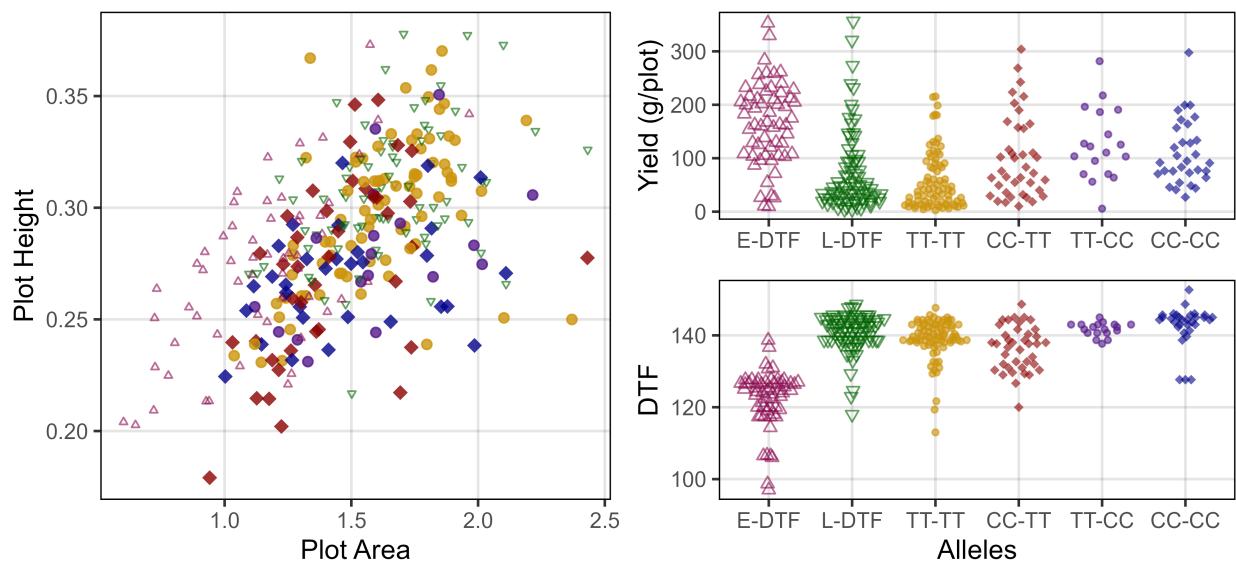


Supplemental Figure 6

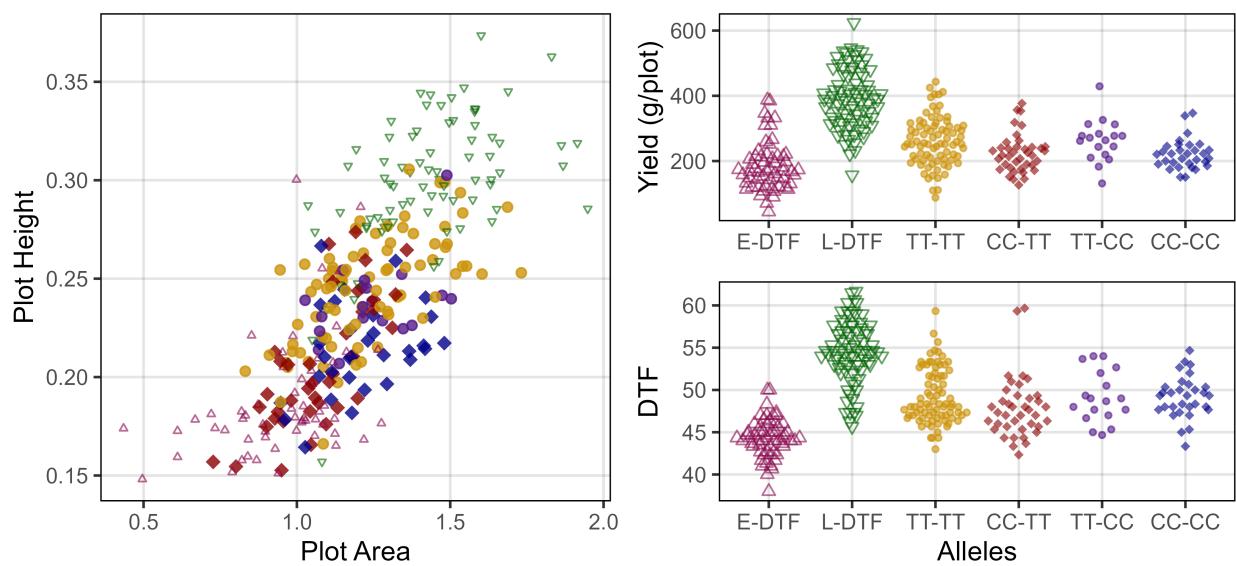


Supplemental Figure 7

A) Metaponto, Italy 2017

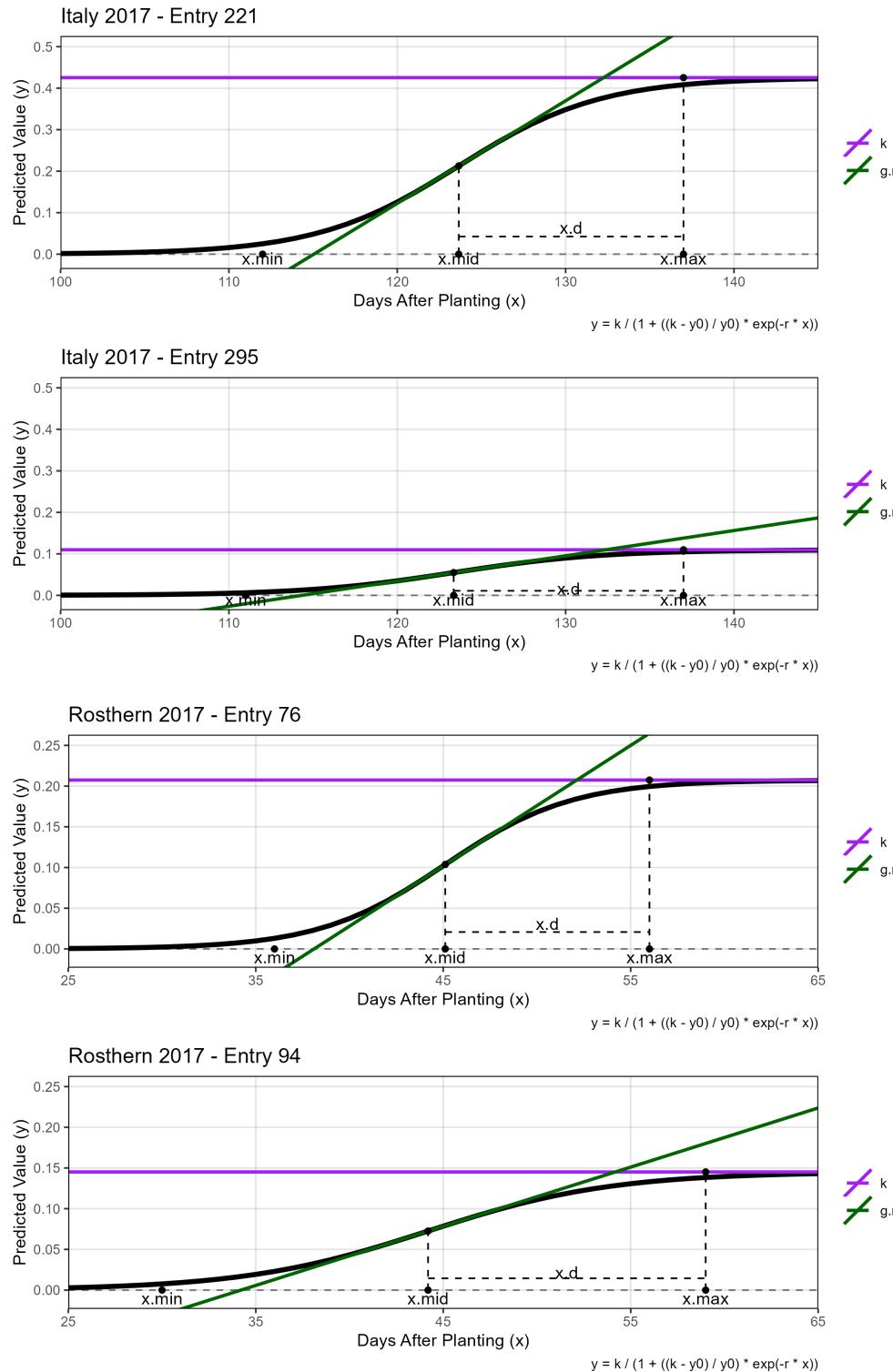


B) Sutherland, Canada 2017

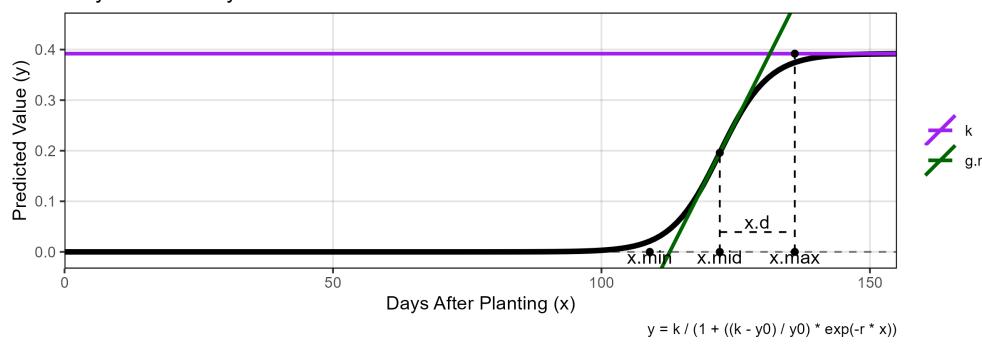


Additional Figures

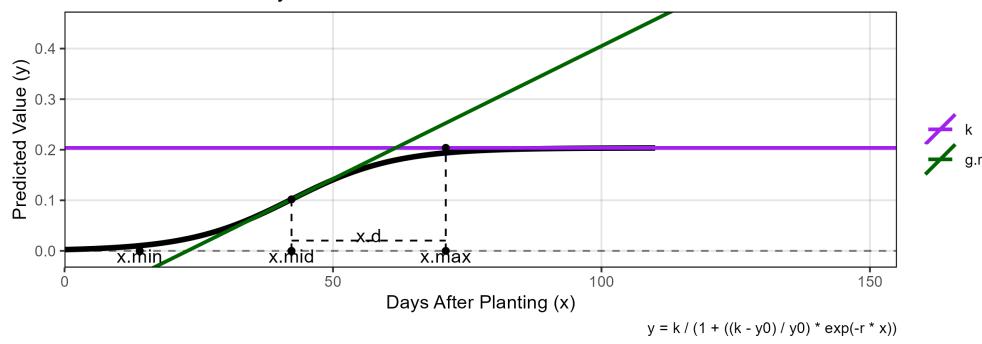
Additional Figures 1



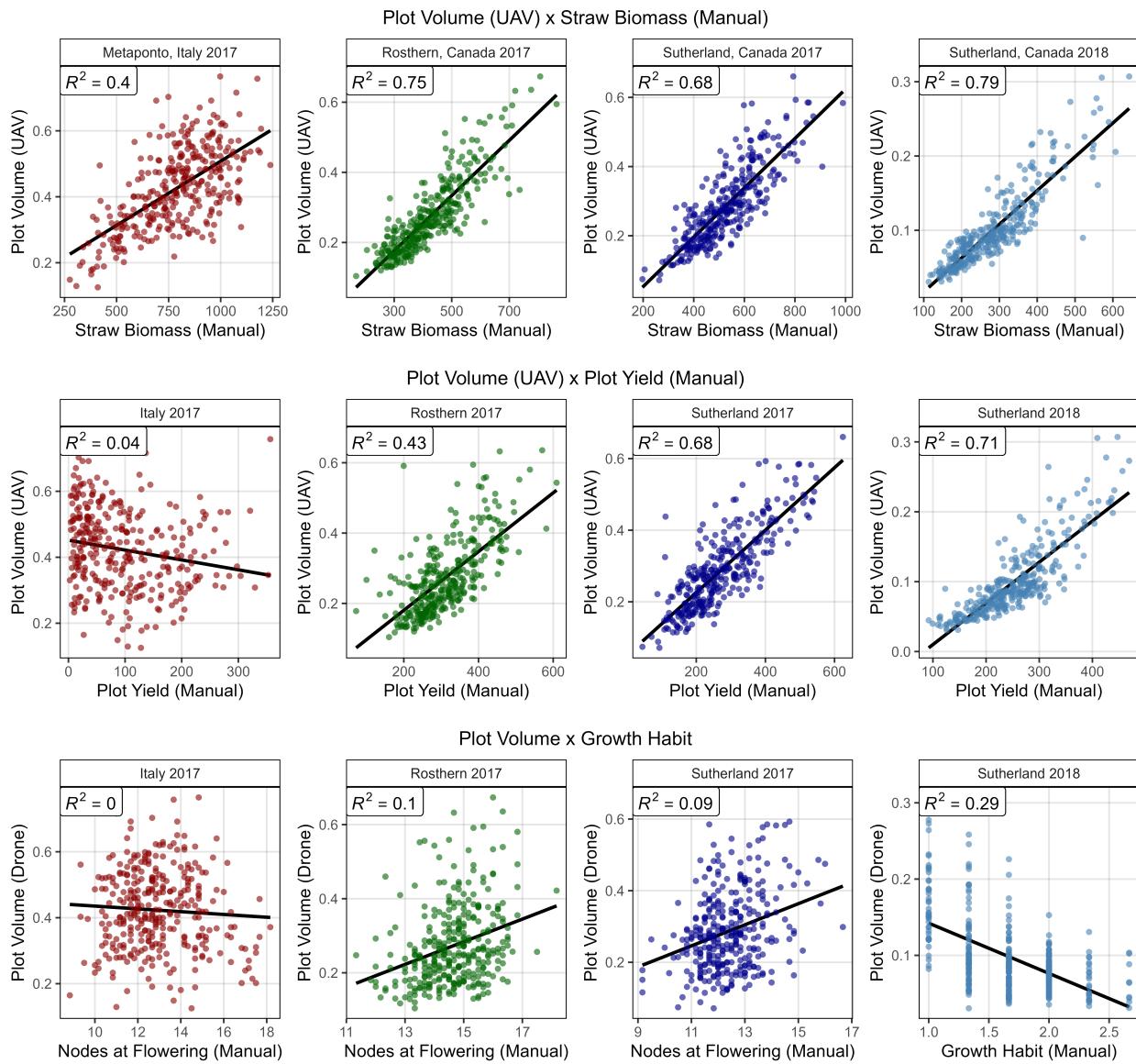
Italy 2017 - Entry 107



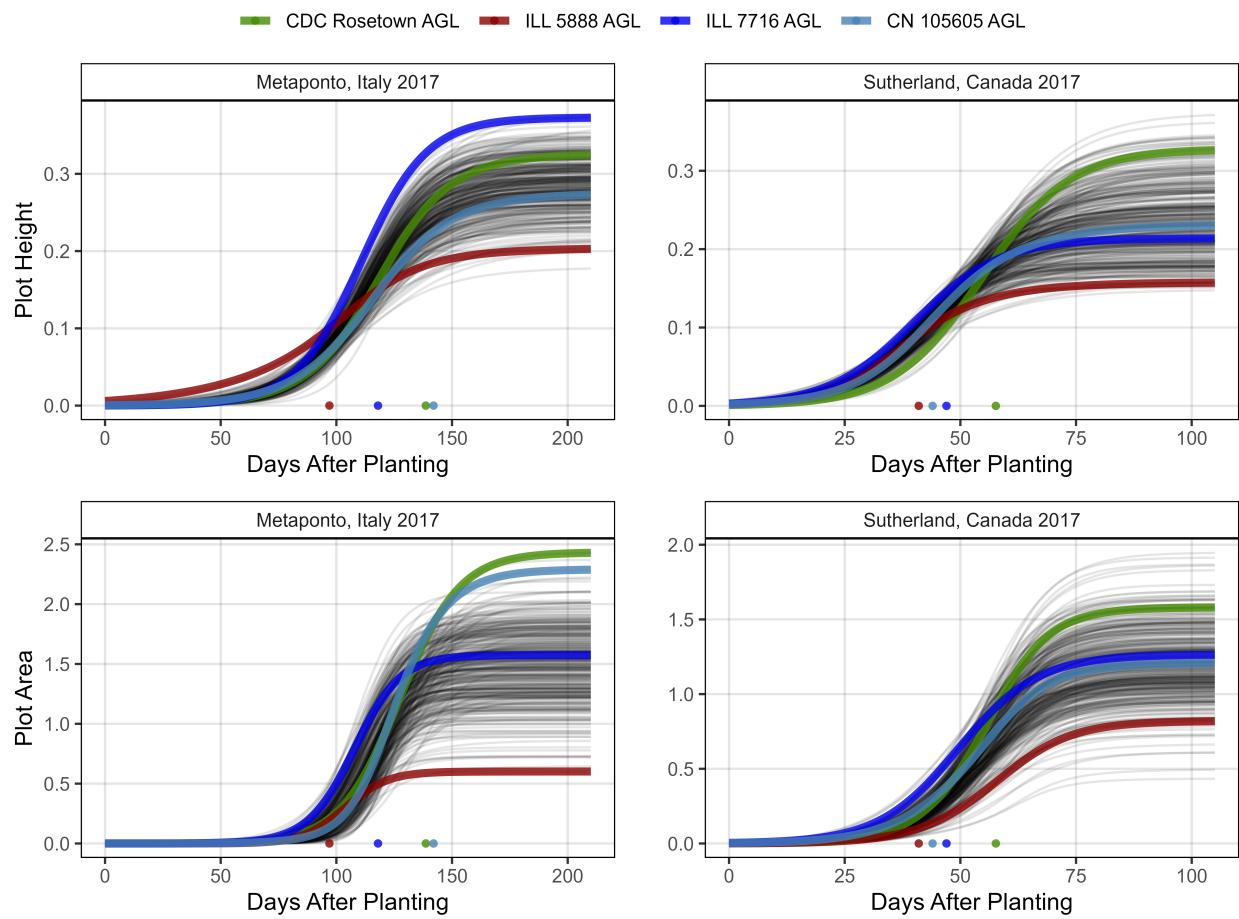
Rosthern 2017 - Entry 107

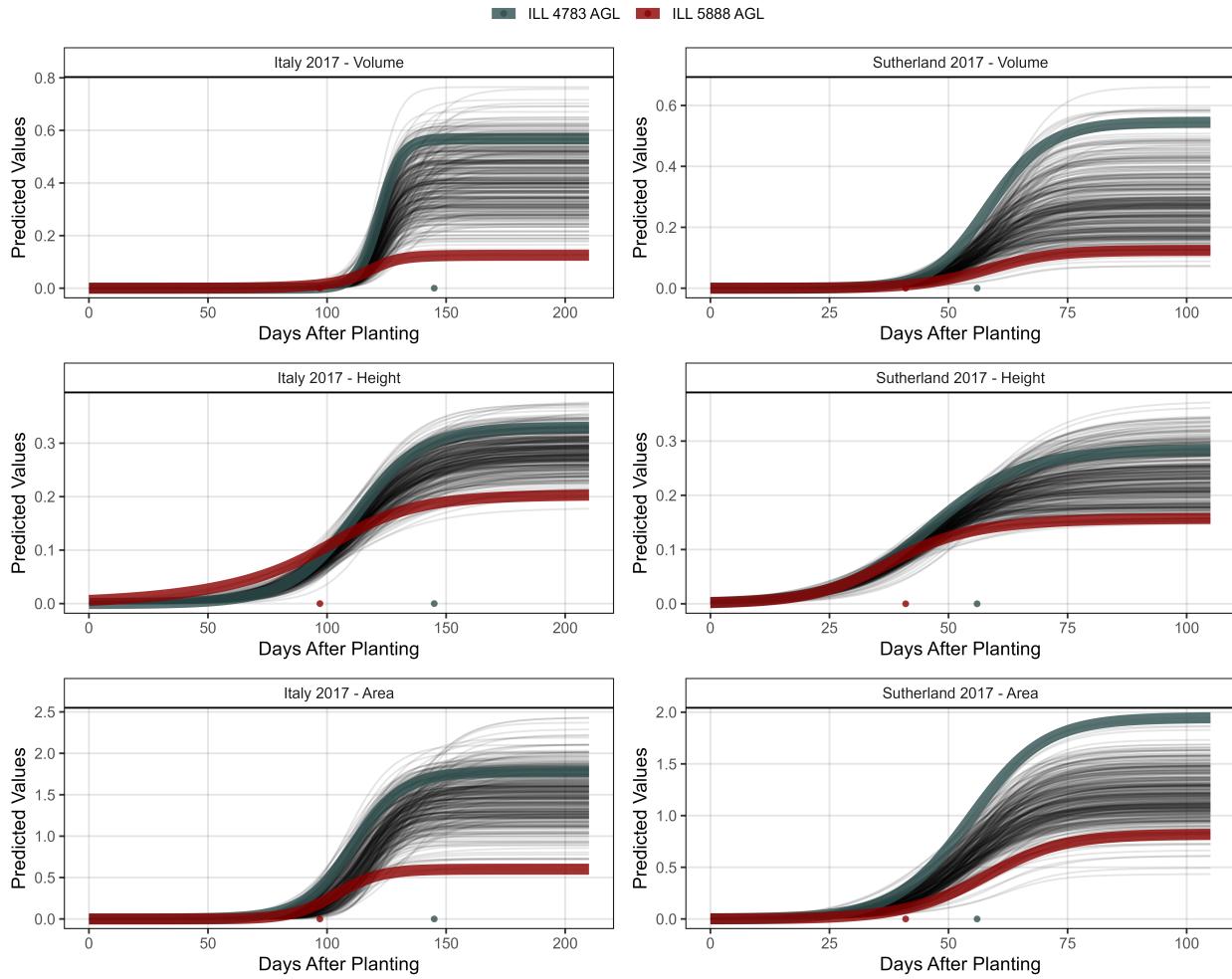


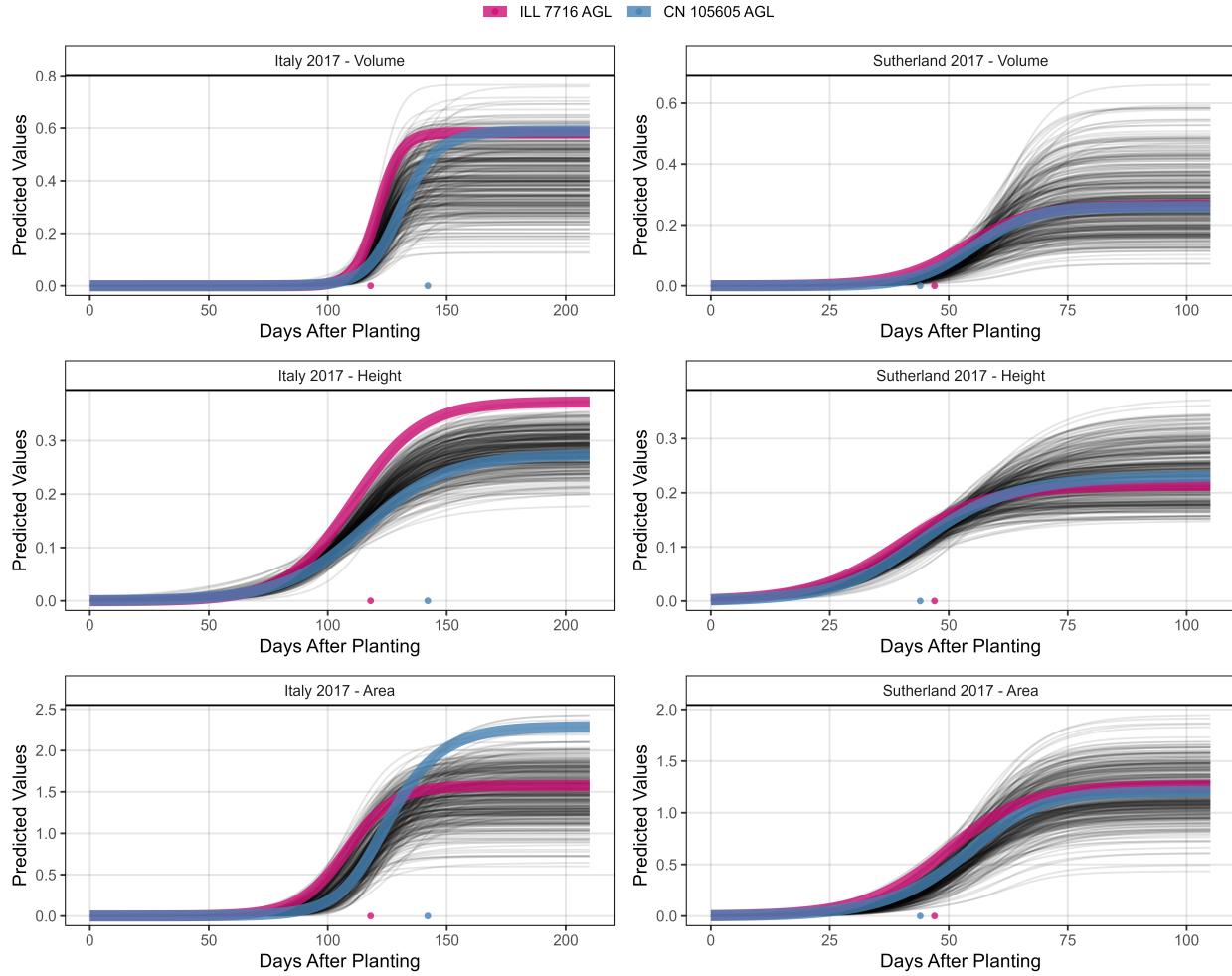
Additional Figures 2

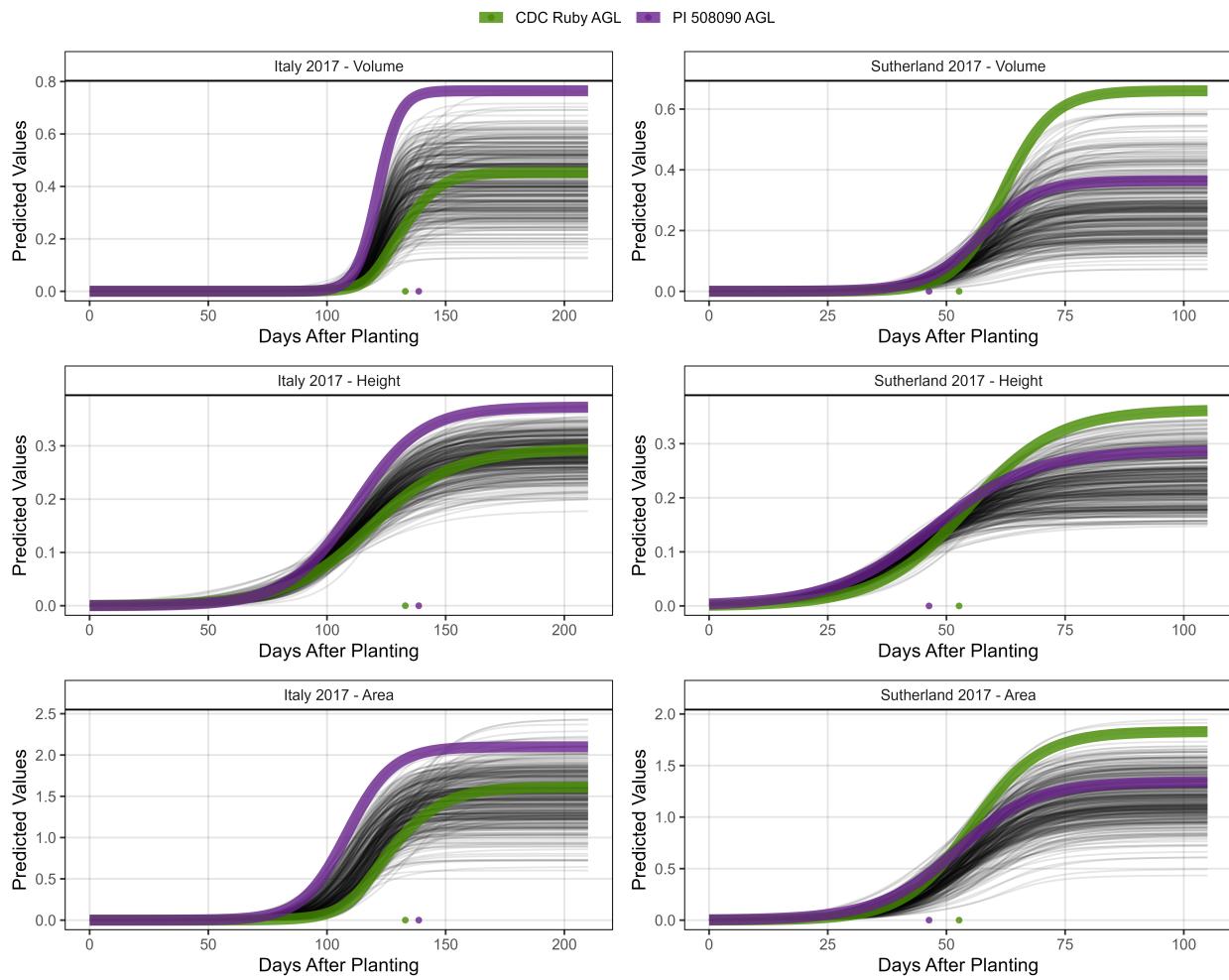


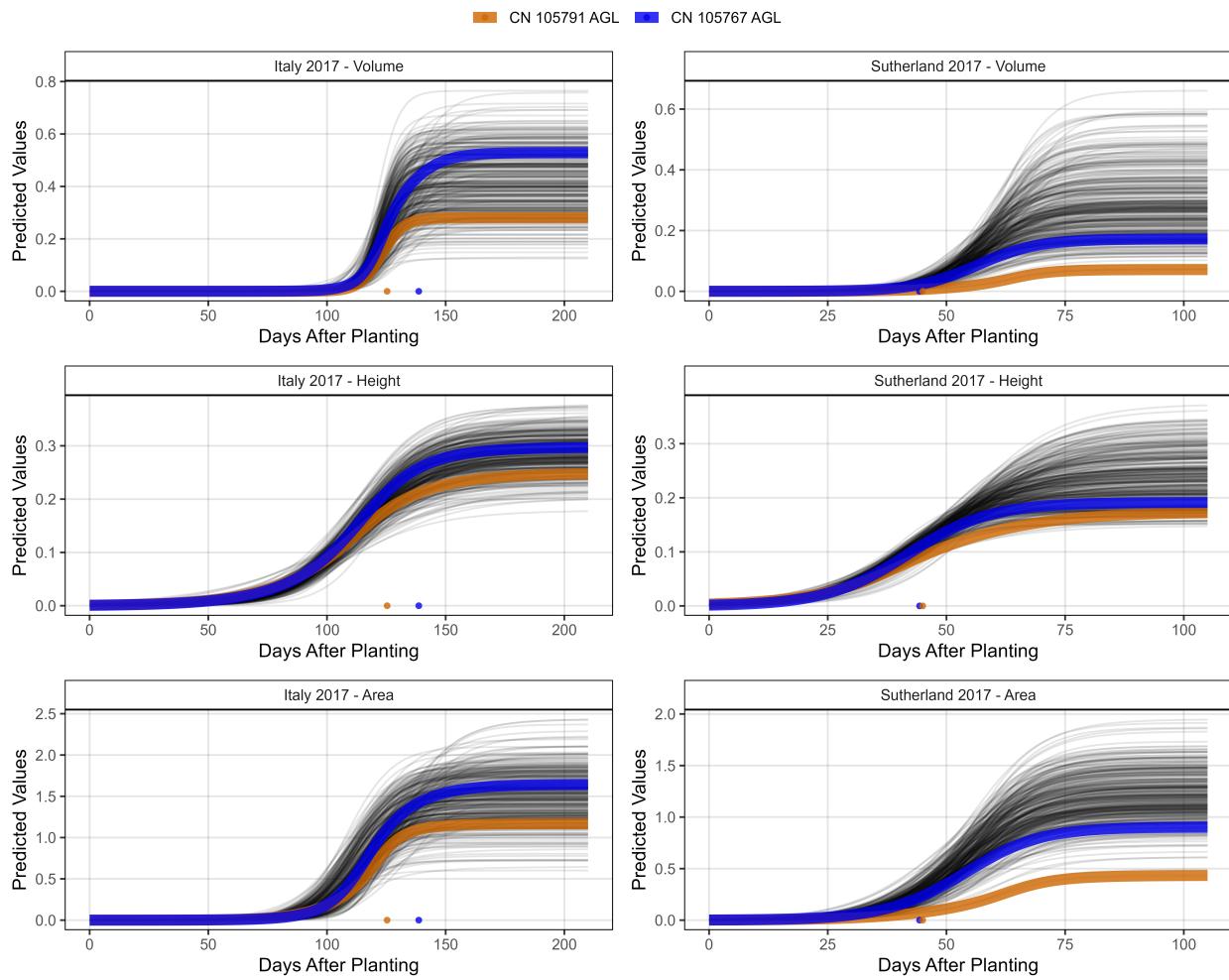
Additional Figures 3



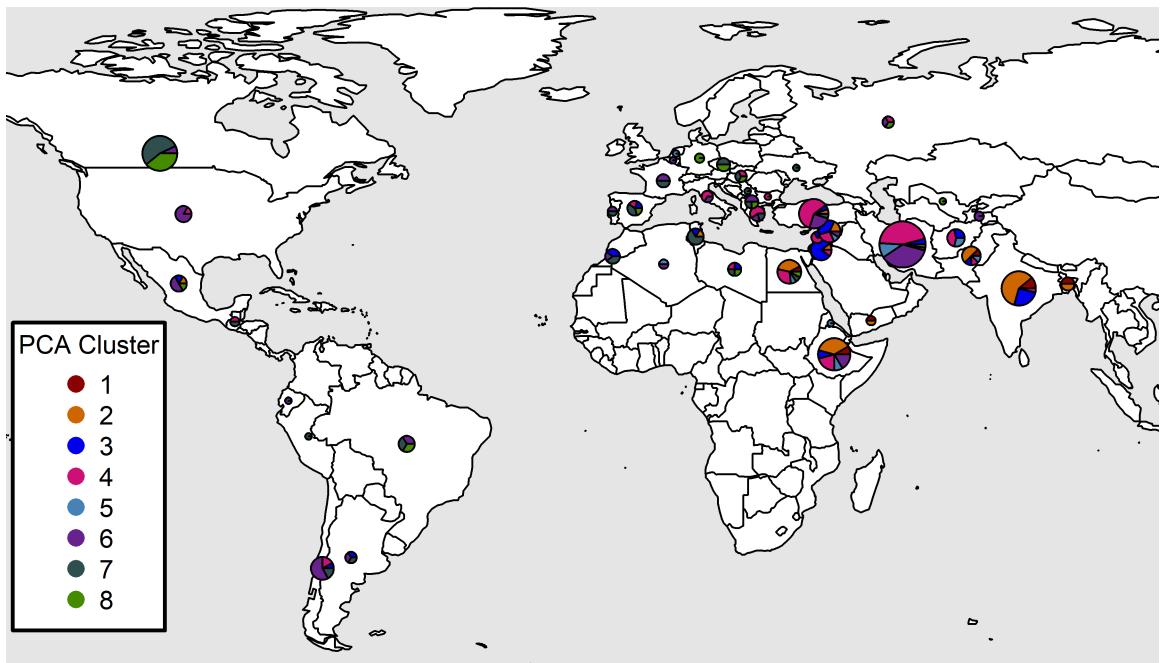




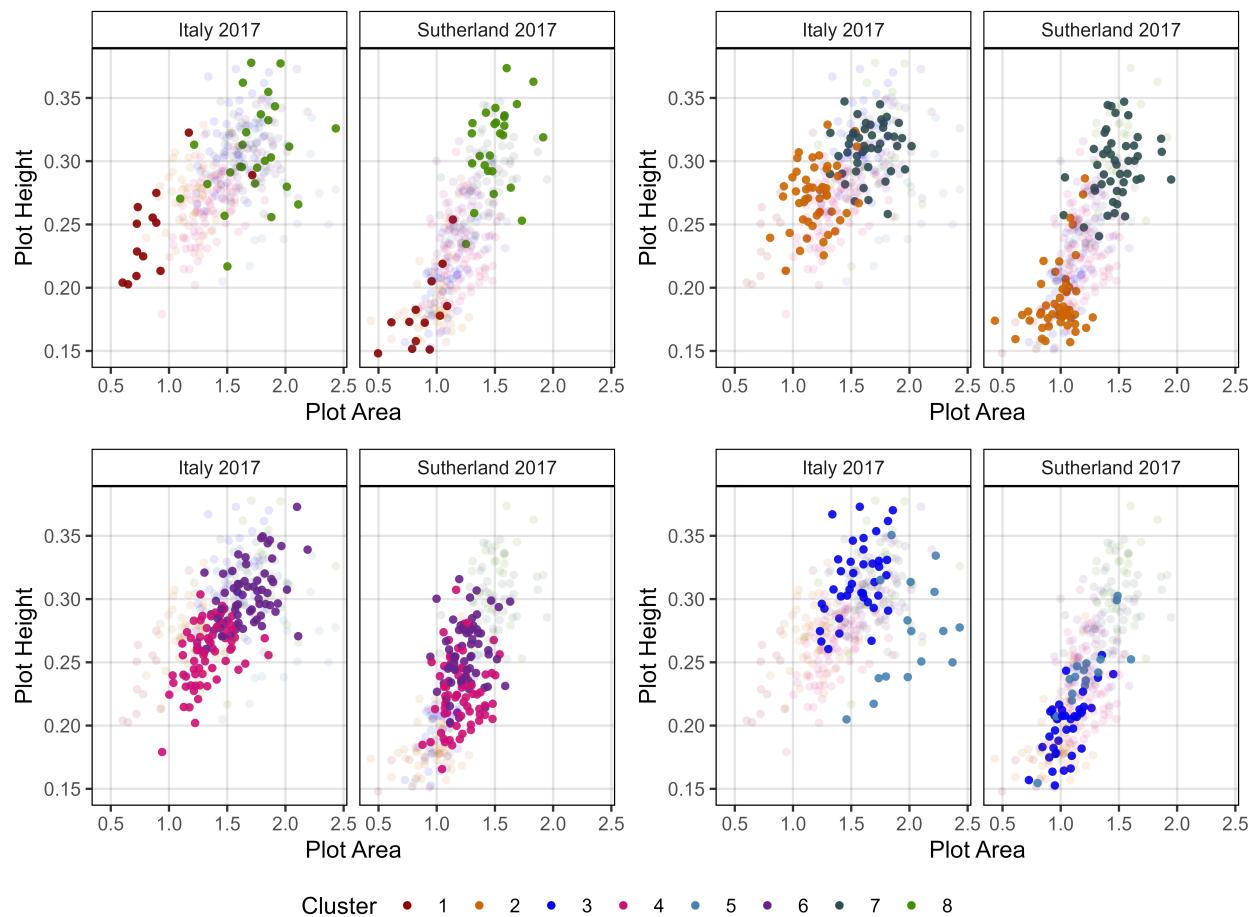




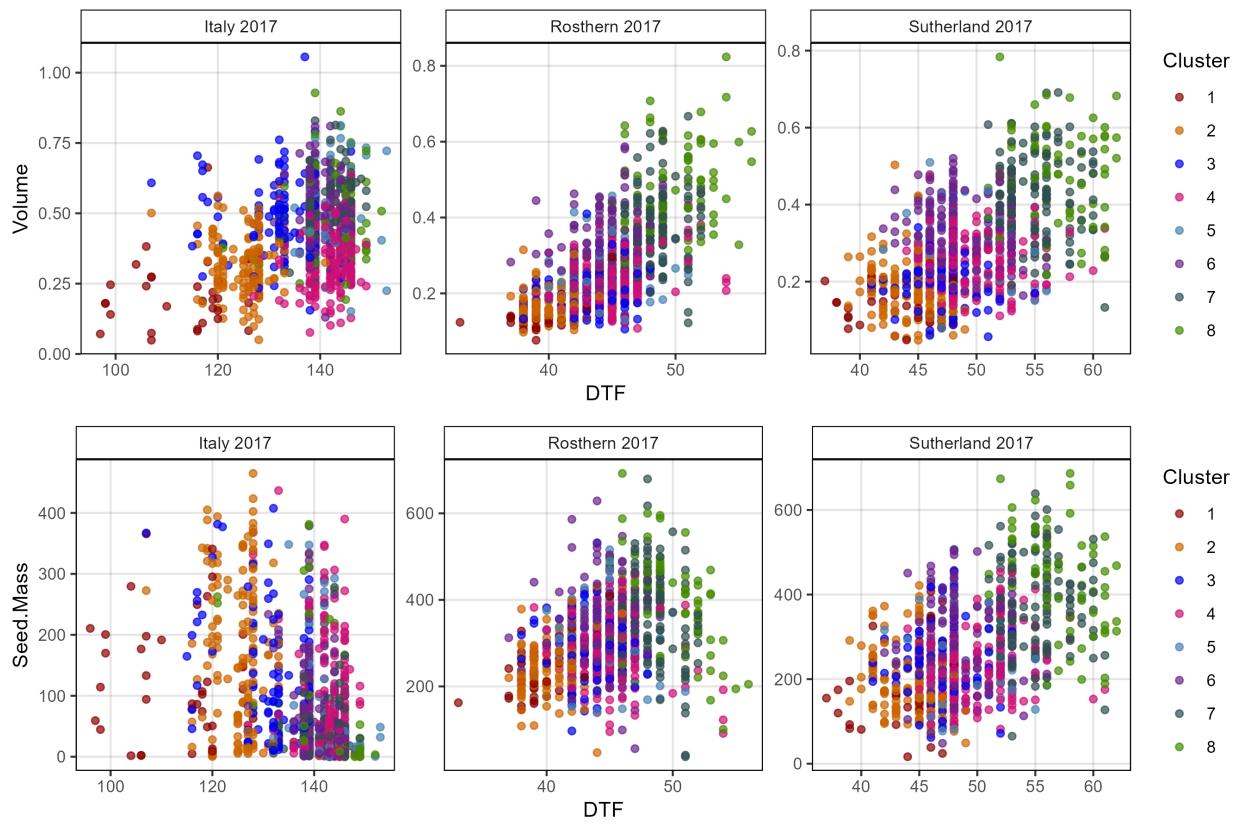
Additional Figure 4



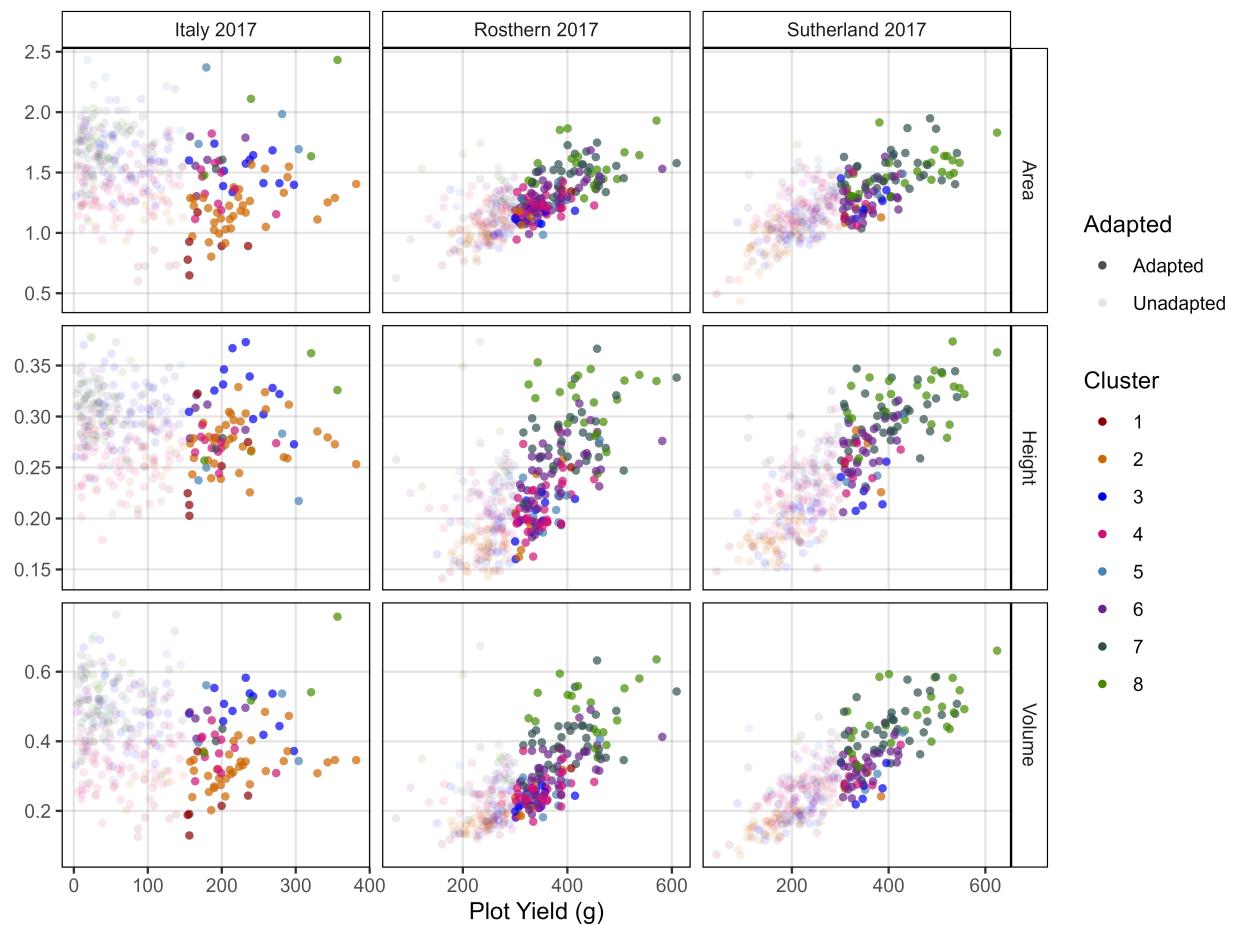
Additional Figure 5

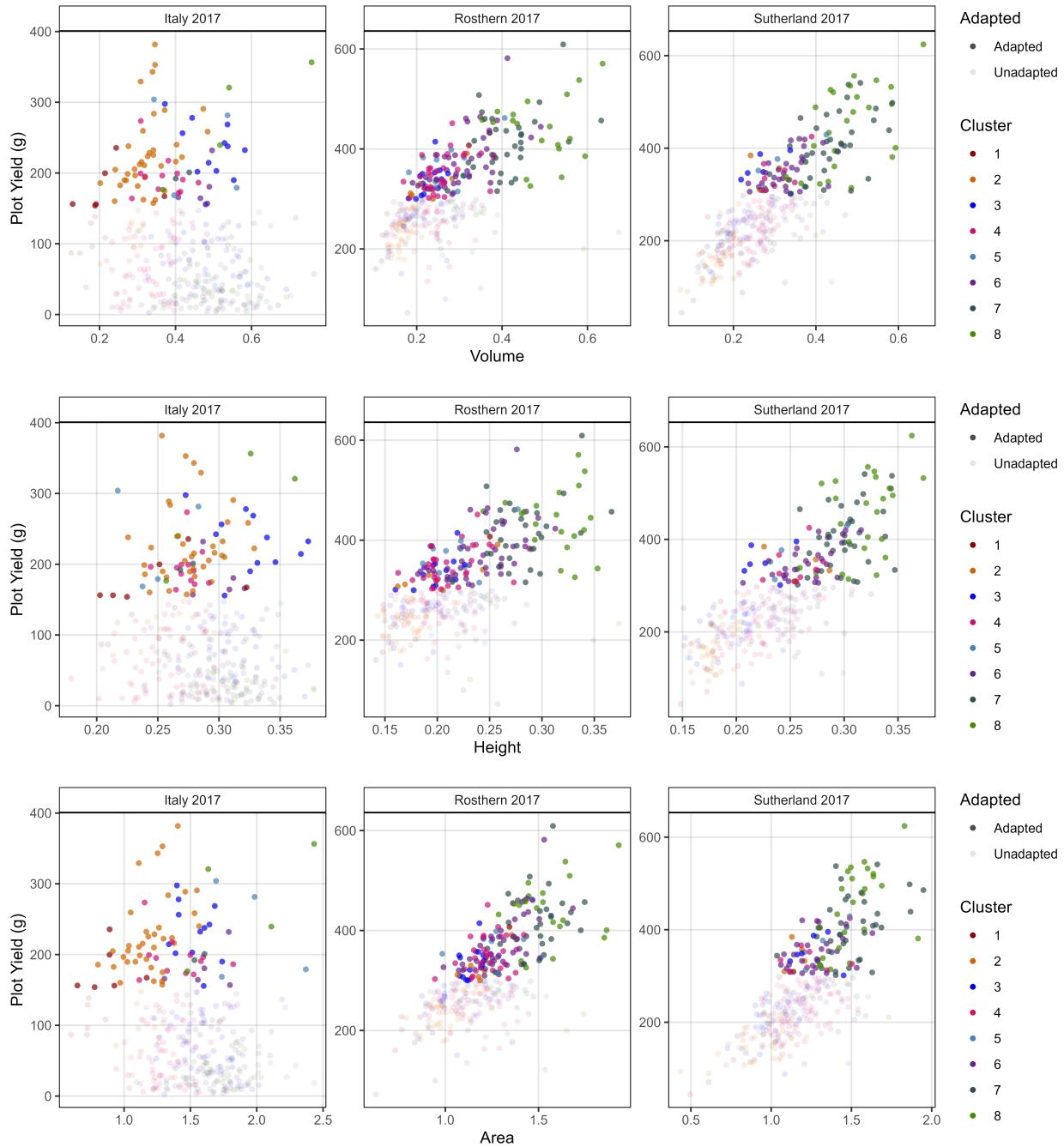


Additional Figures 6

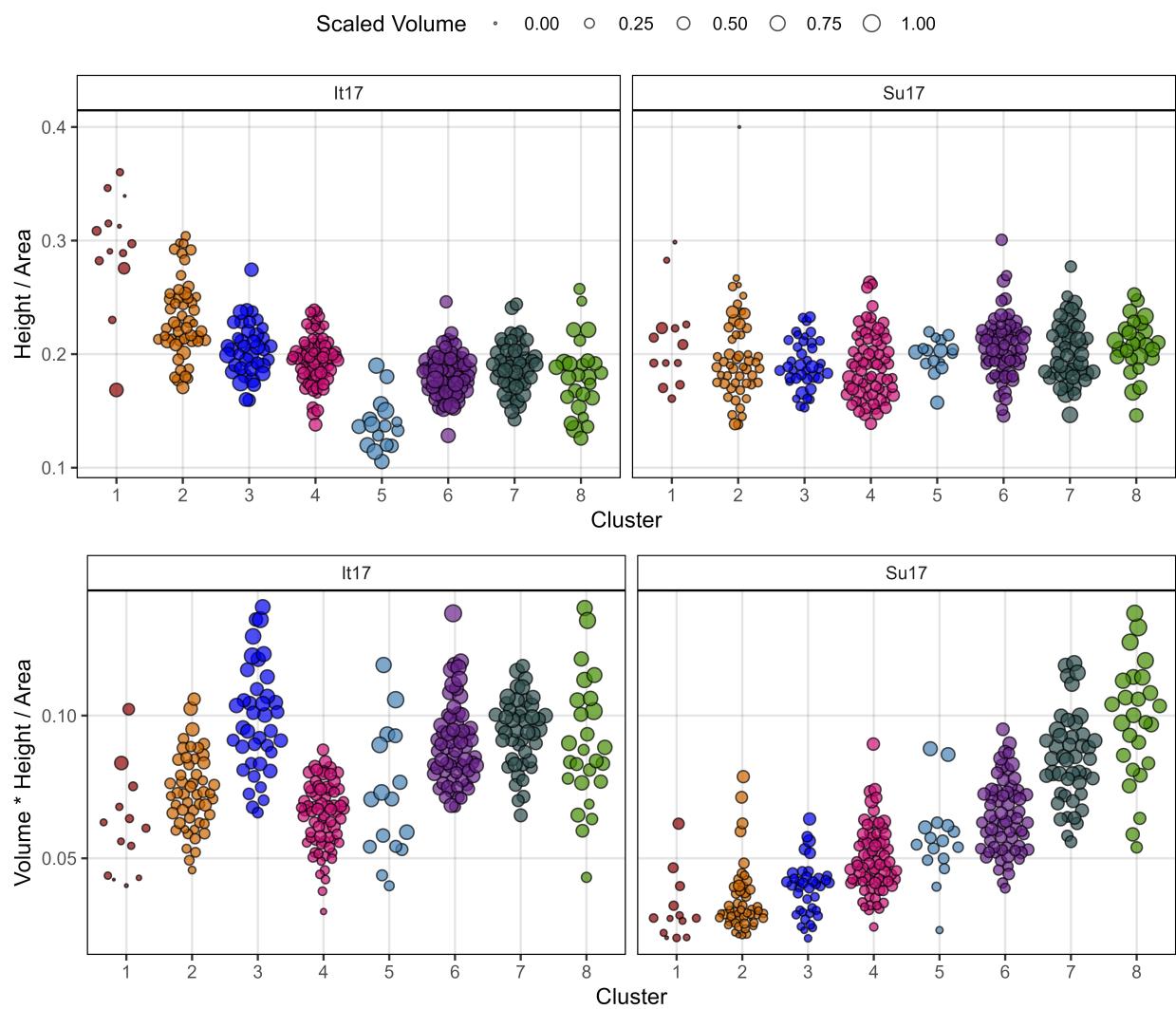


Additional Figure 7

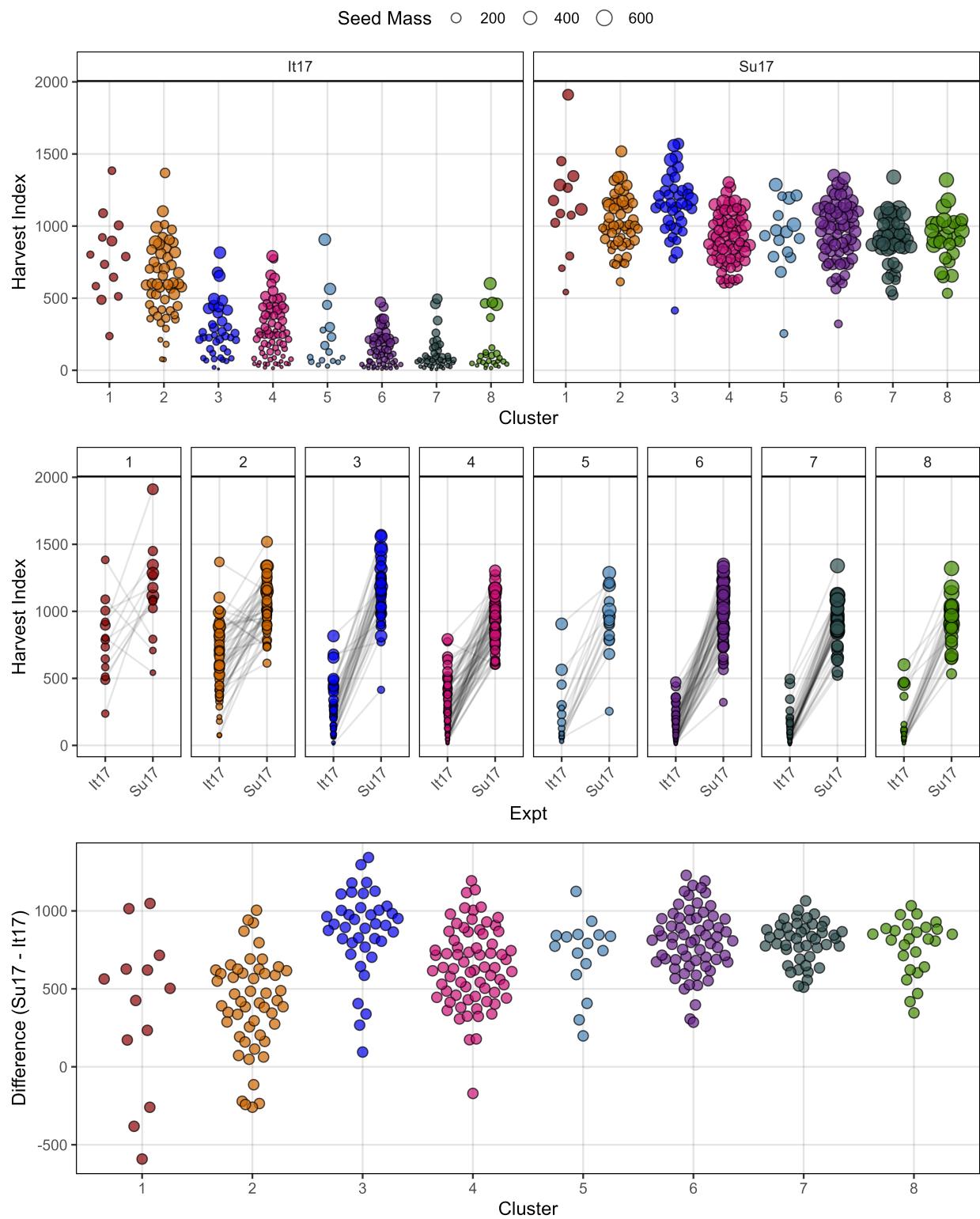




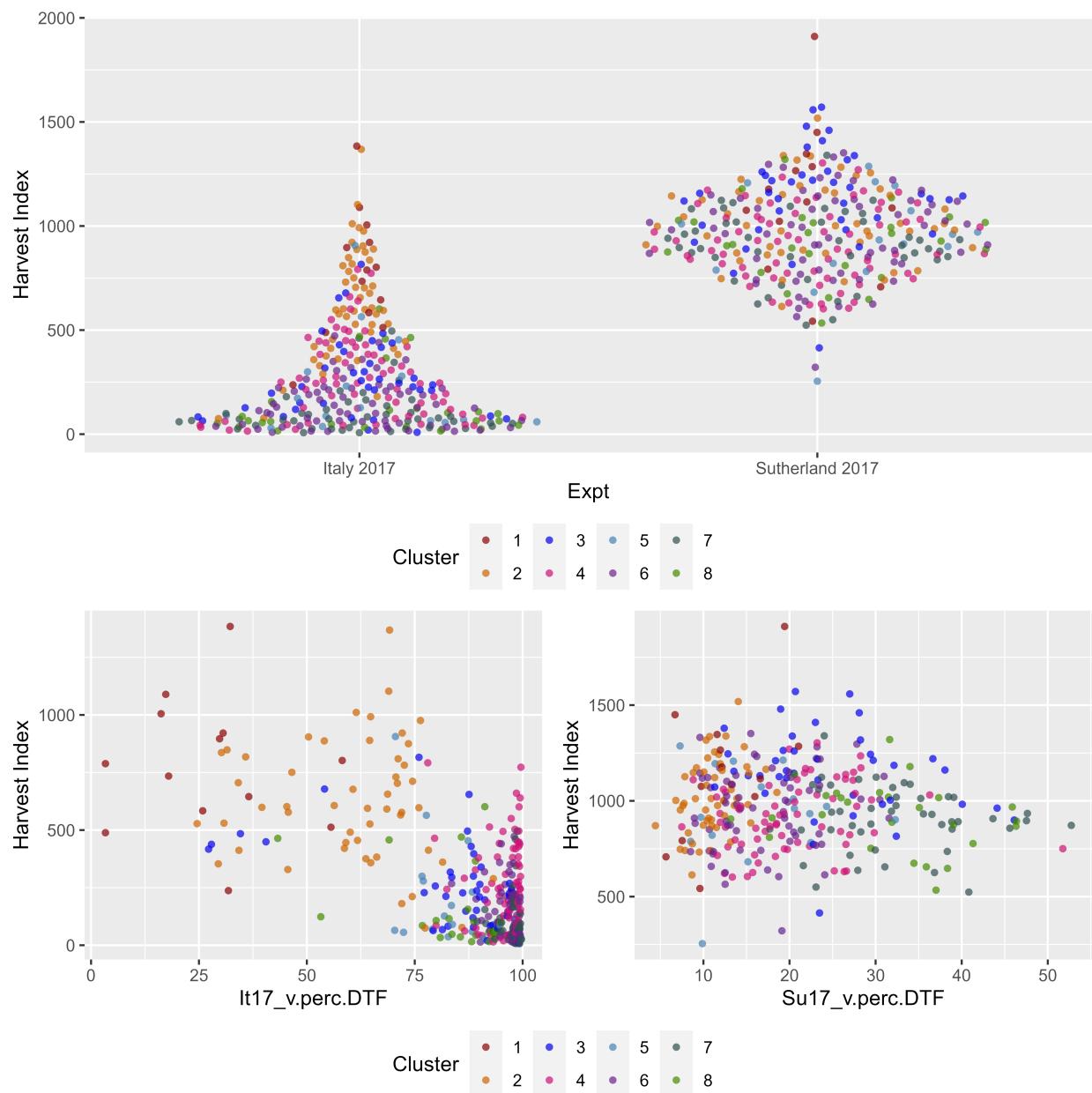
Additional Figures 8



Additional Figure 9

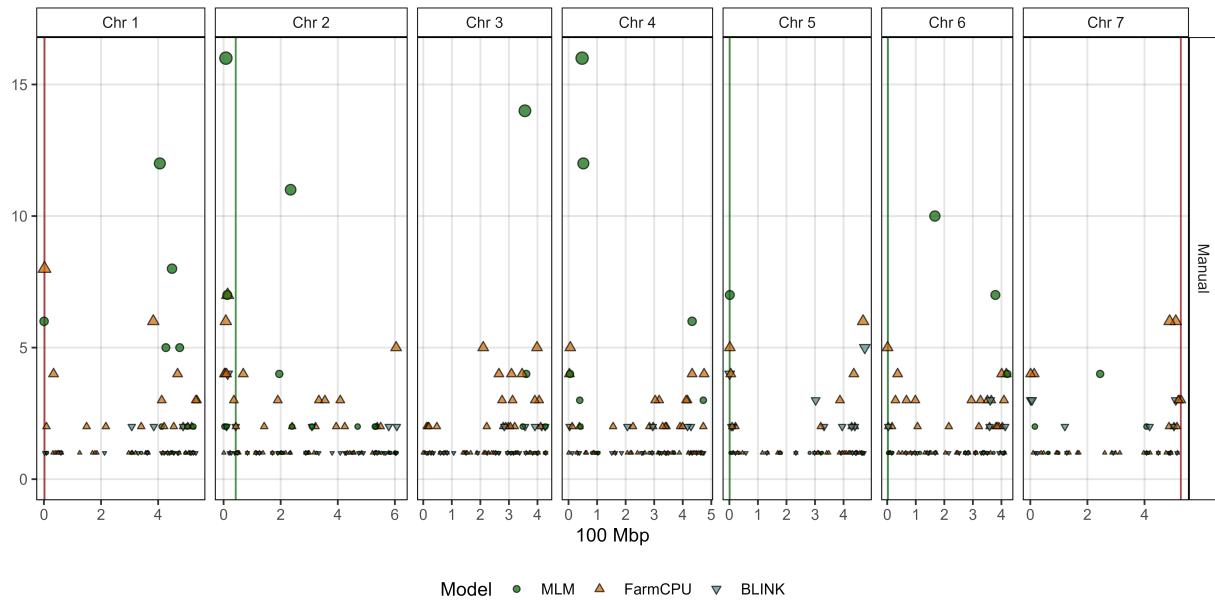


Additional Figure 10

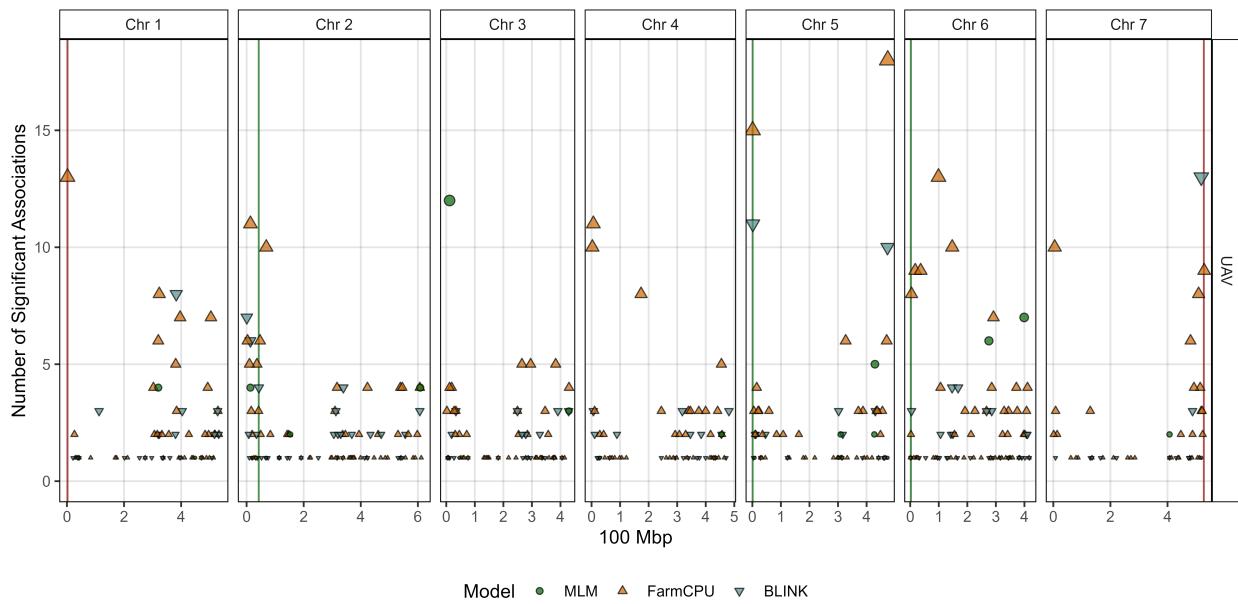


Additional Figures 11

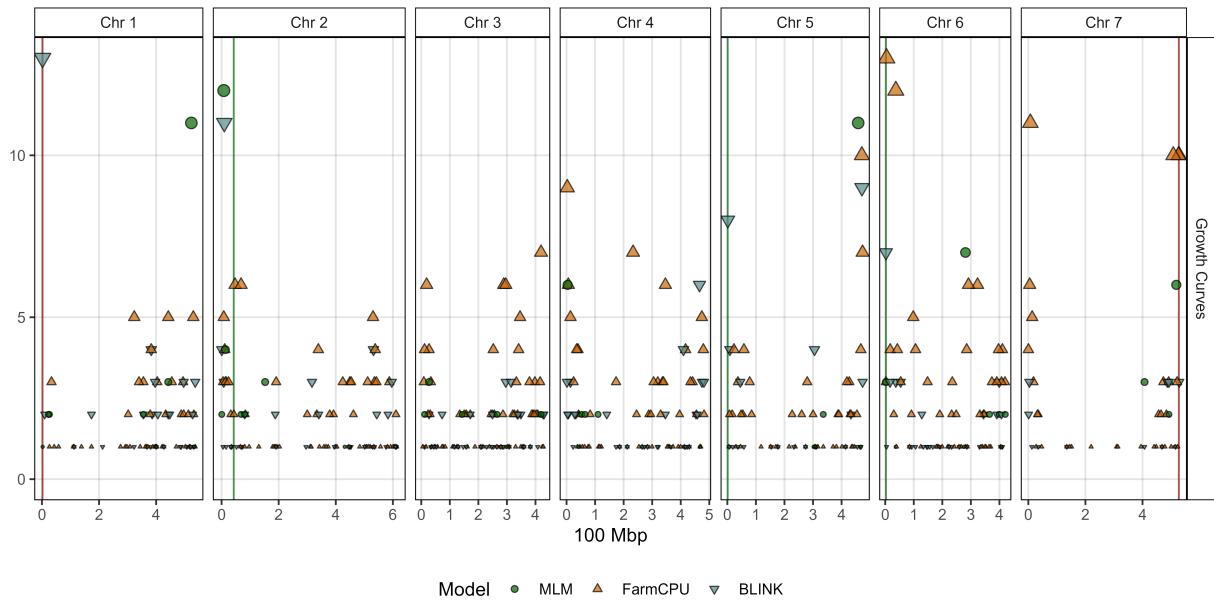
- Additional/Additional_Figure_11_1.html



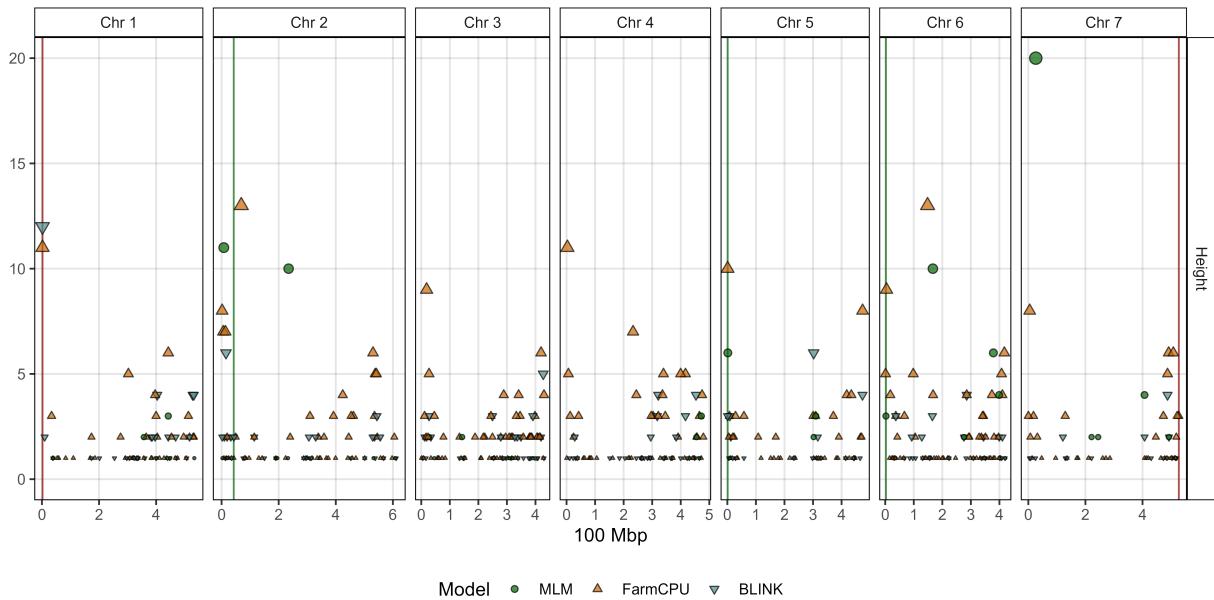
- Additional/Additional_Figure_11_2.html



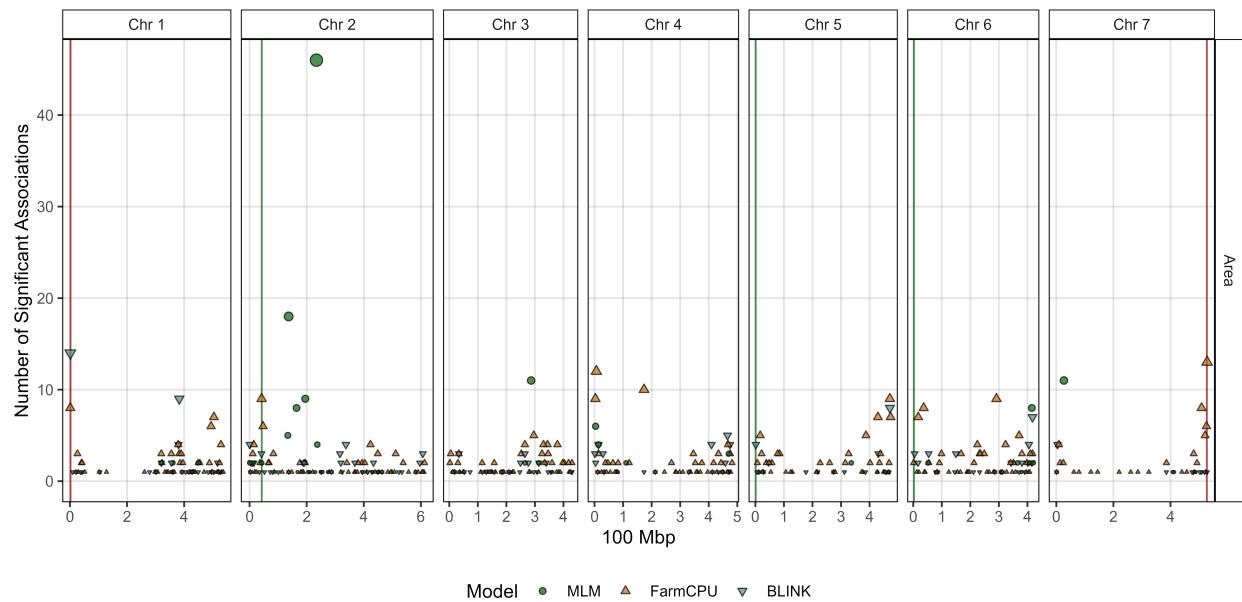
- Additional/Additional_Figure_11_3.html



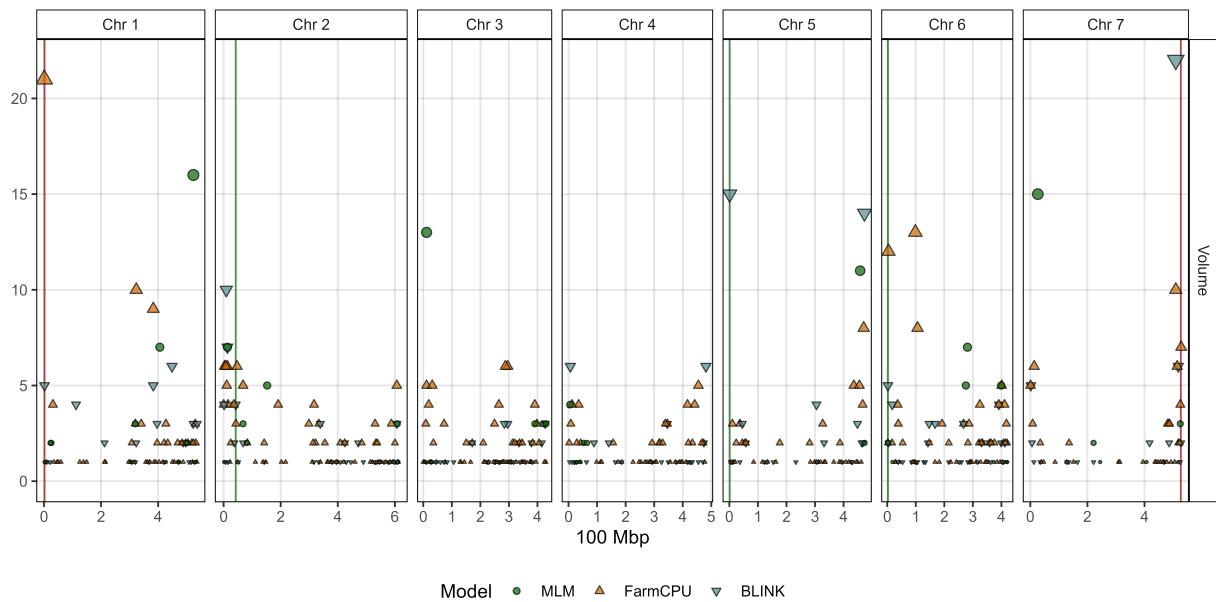
- Additional/Additional_Figure_11_4.html



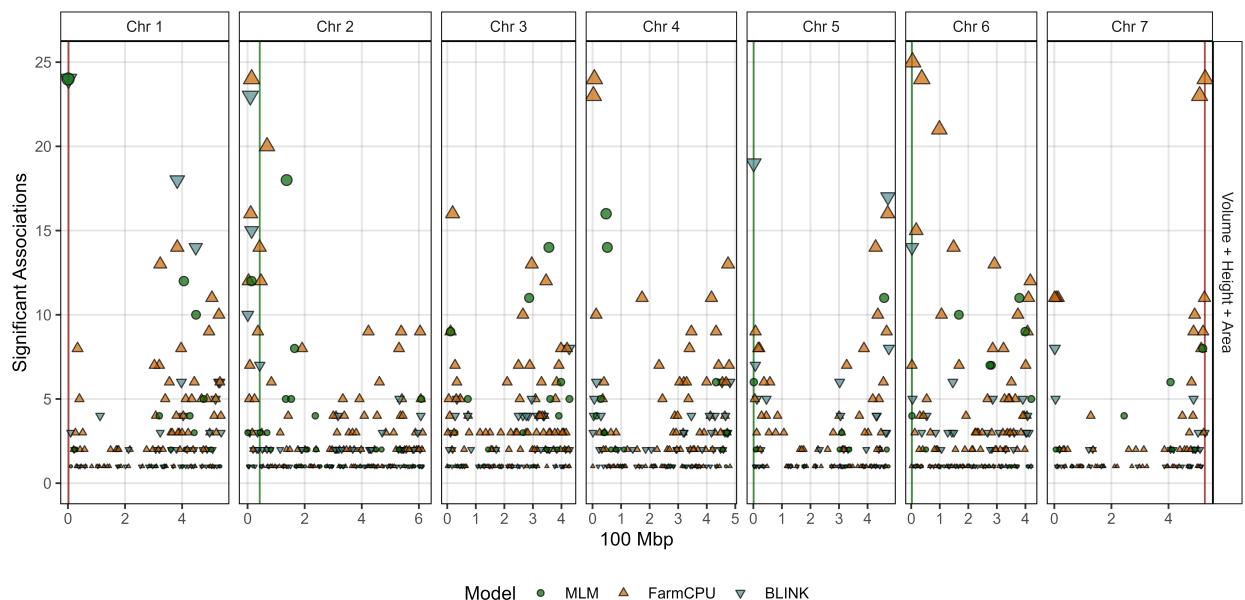
- Additional/Additional_Figure_11_5.html



- Additional/Additional_Figure_11_6.html

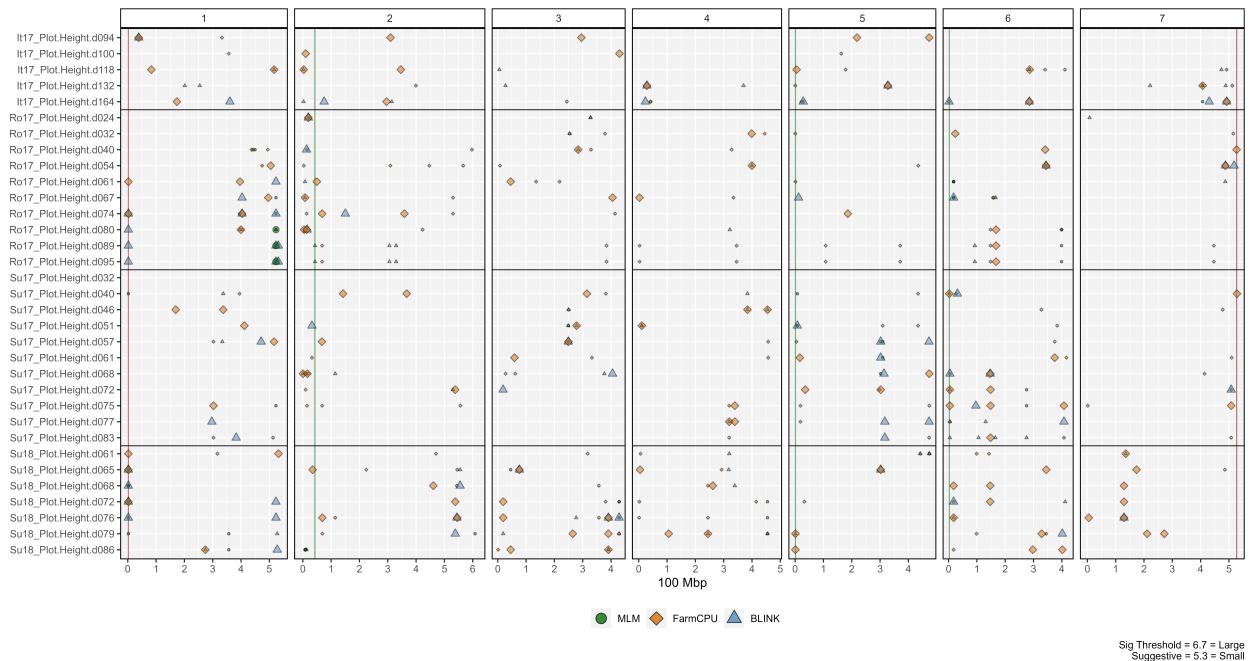


- Additional/Additional_Figure_11_7.html

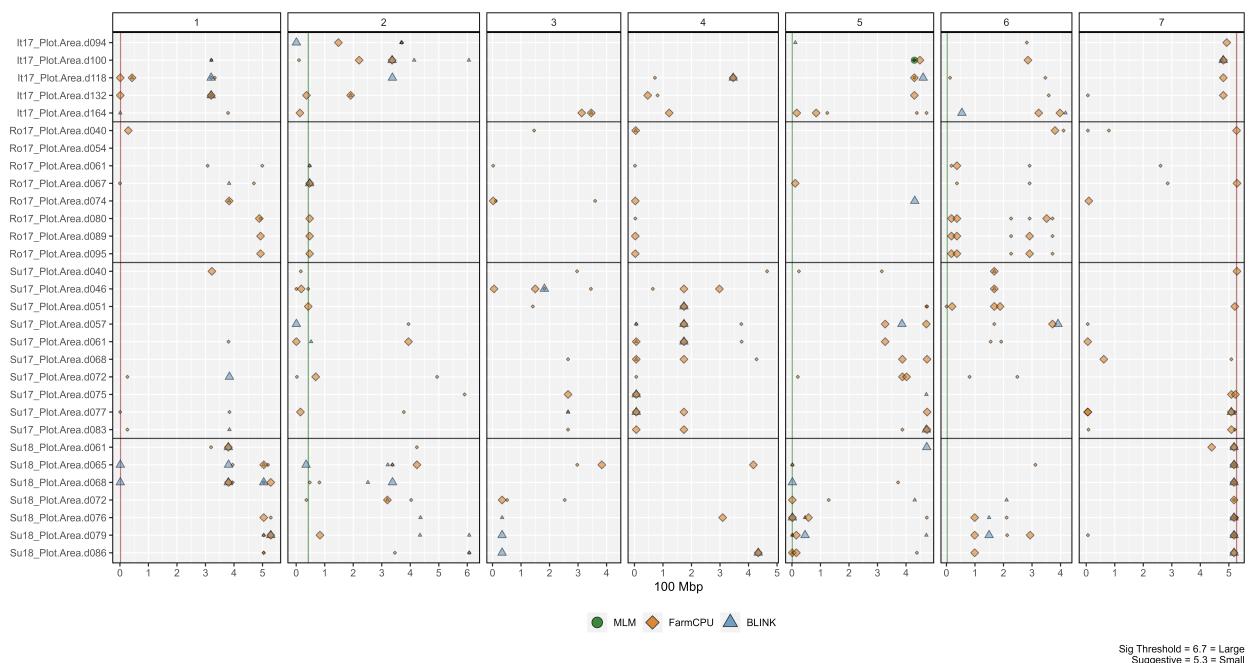


Additional Figures 12

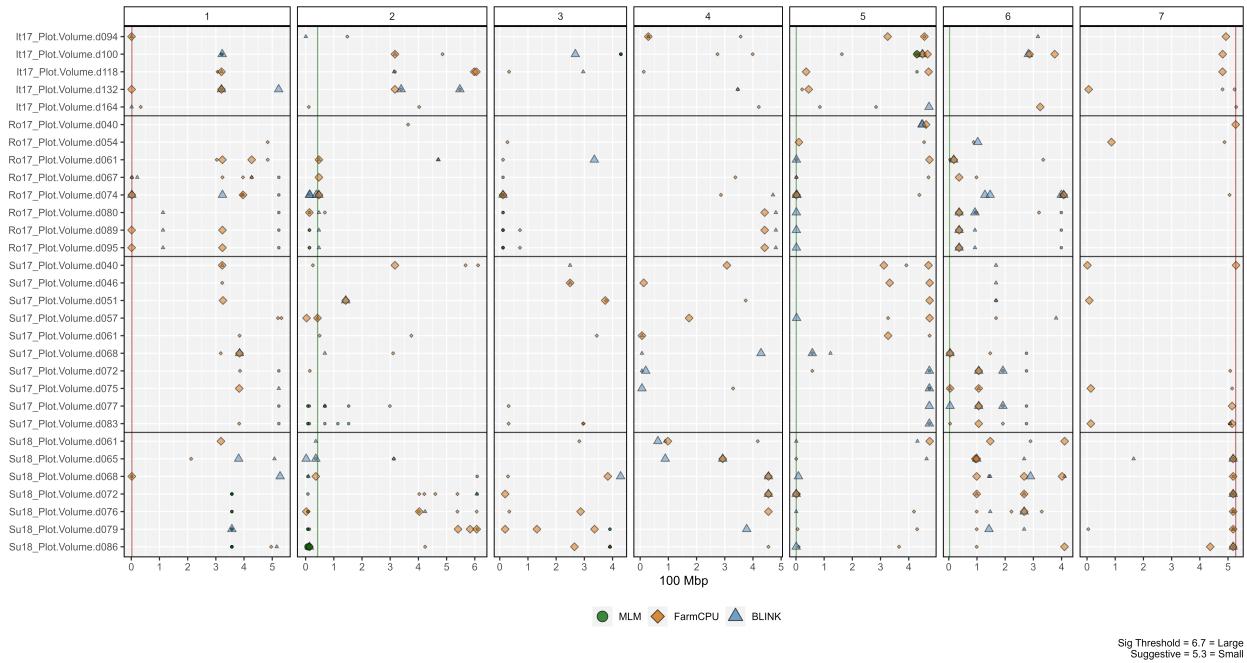
- Additional/Additional_Figure_12_1.html



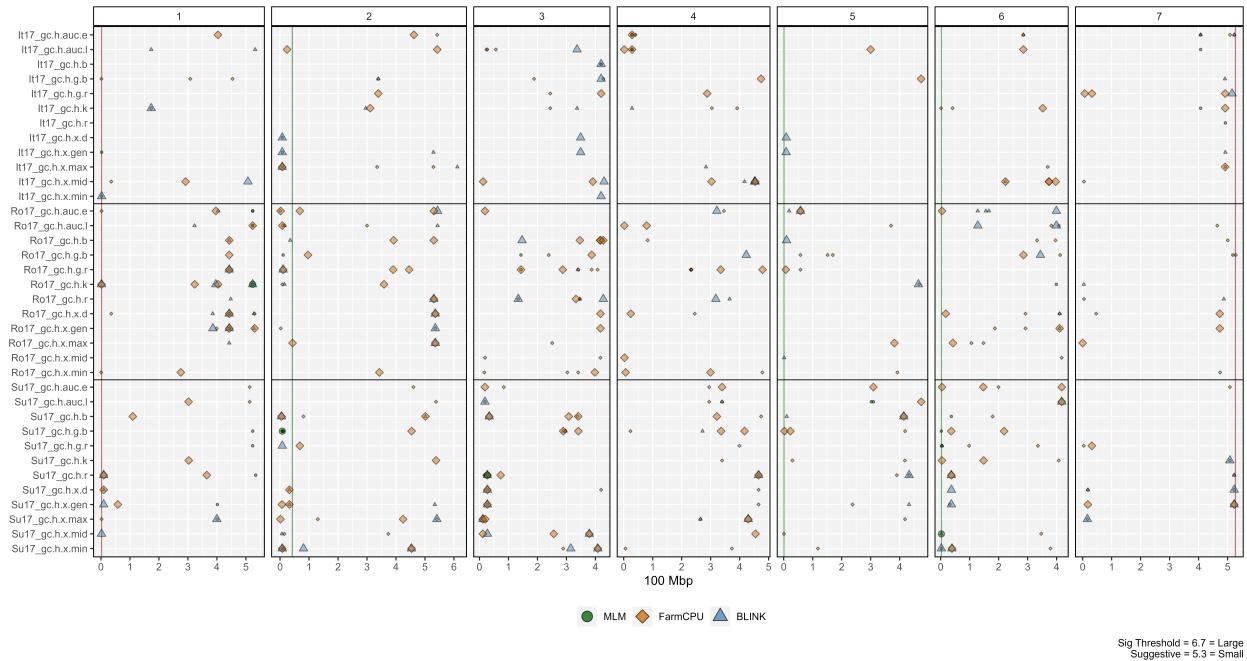
- Additional/Additional_Figure_12_2.html



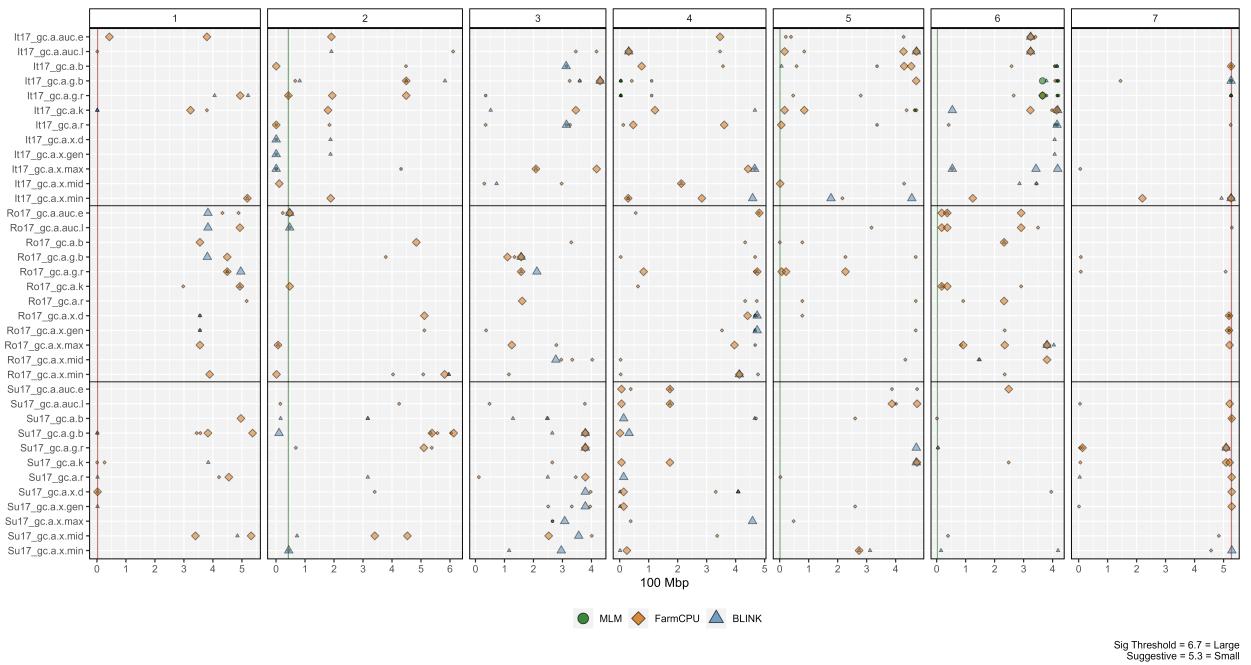
- Additional/Additional_Figure_12_3.html



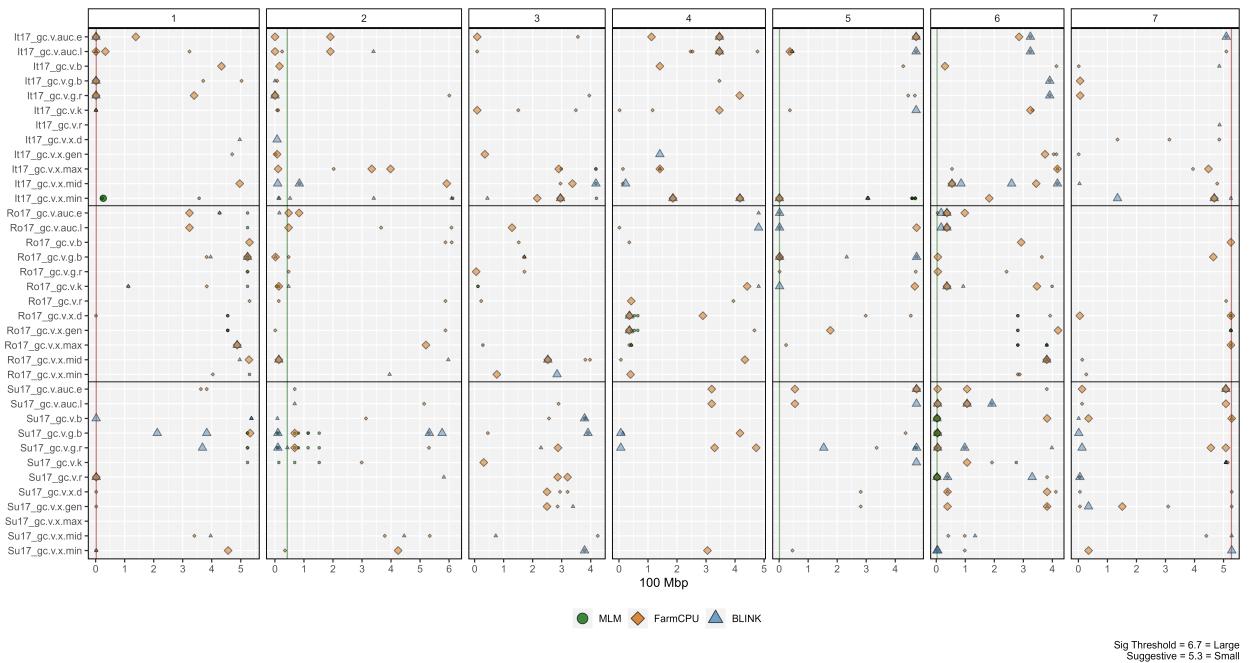
- Additional/Additional_Figure_12_4.html



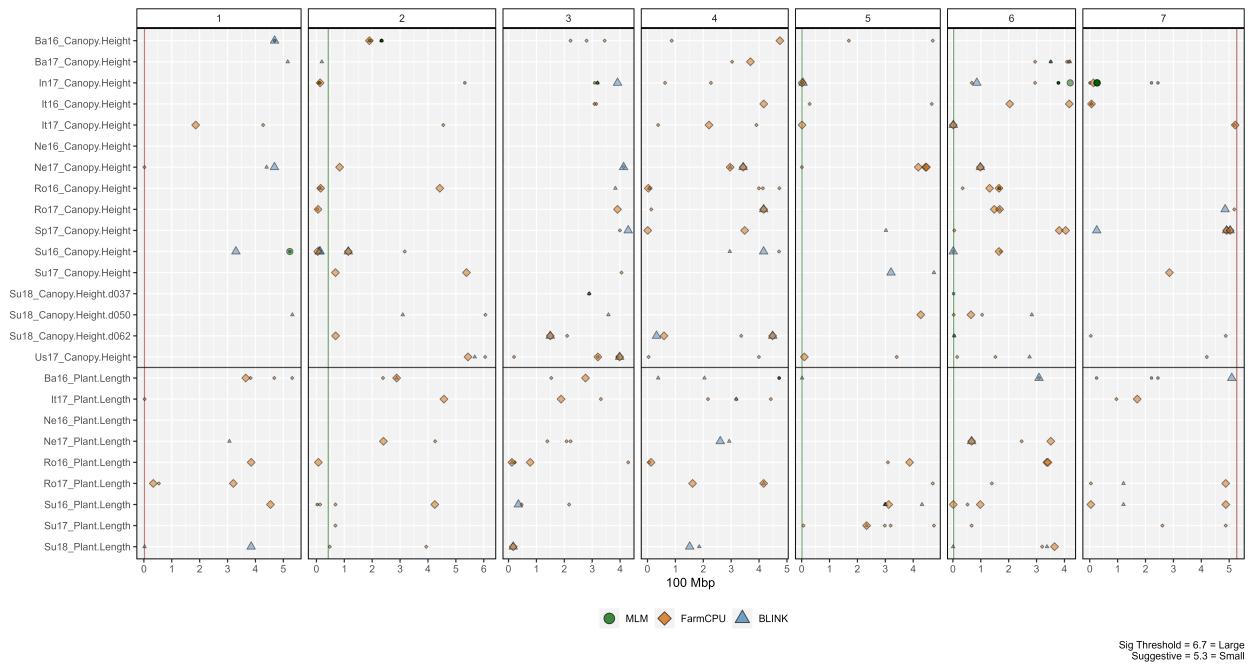
- Additional/Additional_Figure_12_5.html



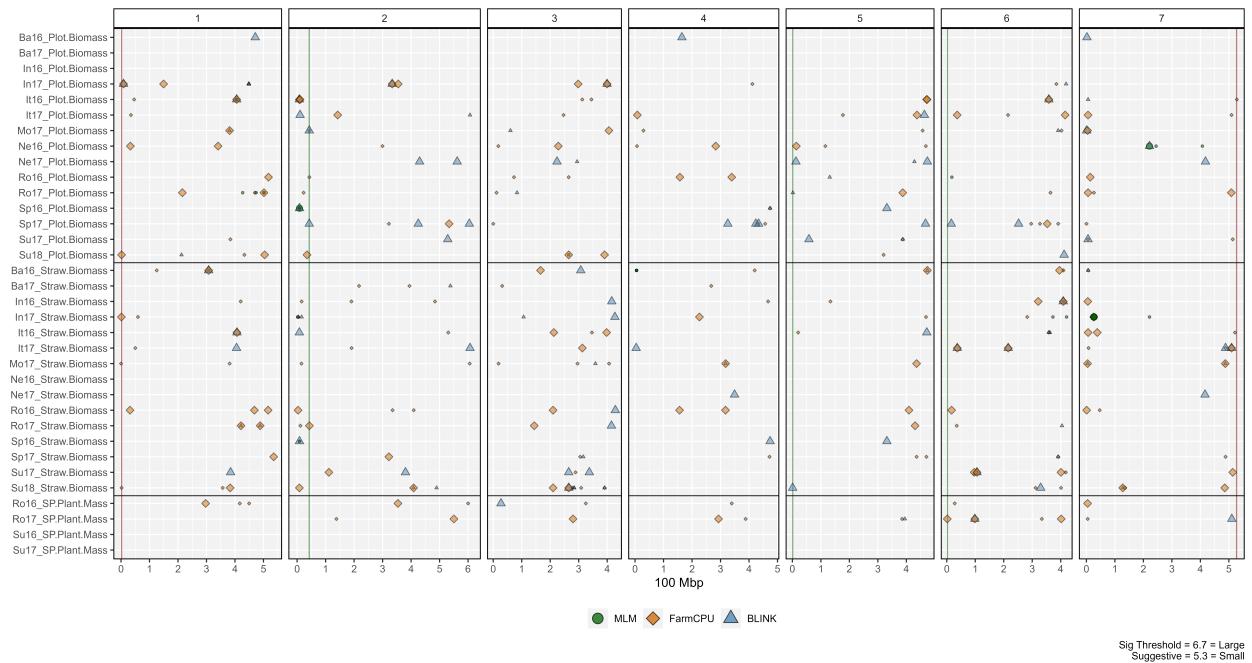
- Additional/Additional_Figure_12_6.html



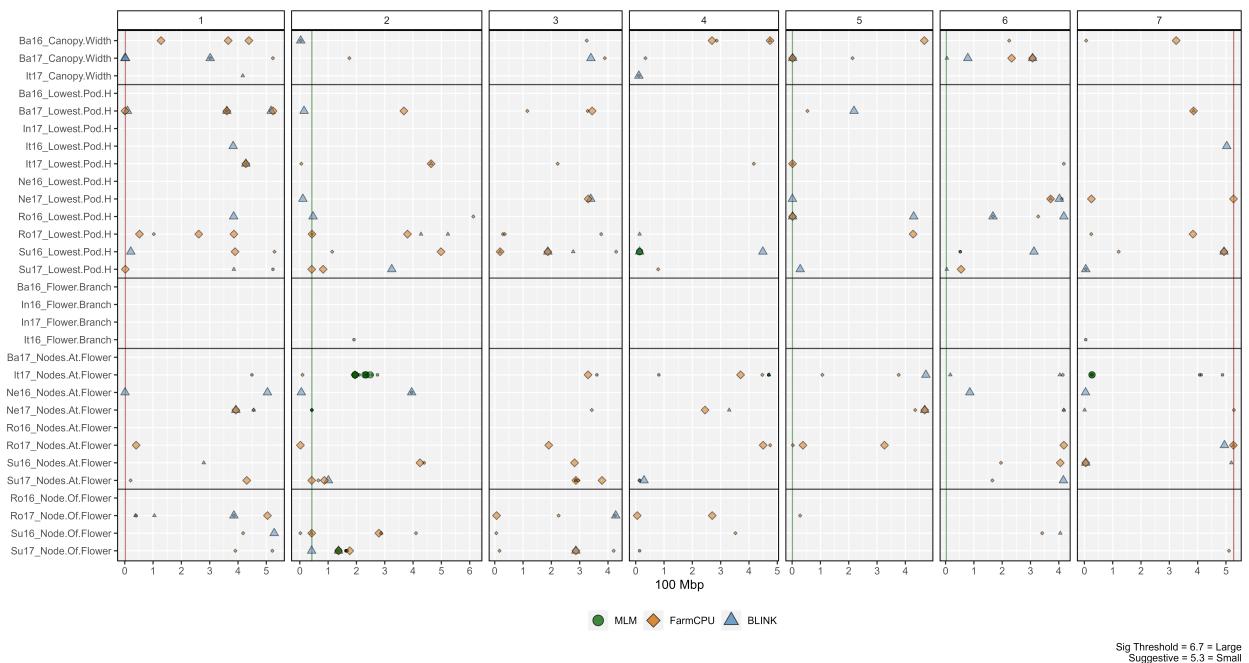
- Additional/Additional_Figure_12_7.html



- Additional/Additional_Figure_12_8.html



- Additional/Additional_Figure_12_9.html



Manhattan Plots

- Additional/ManH/

Markers

- Additional/Markers/Top
- Additional/Markers/Chr1
- Additional/Markers/Chr2
- Additional/Markers/Chr3
- Additional/Markers/Chr4
- Additional/Markers/Chr5
- Additional/Markers/Chr6
- Additional/Markers/Chr7