

Utilizing multi-environment trials to improve genome-wide association studies and our understanding of crop adaptation: a case study with lentil (*Lens culinaris* Medik.)

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Derek Wright, Sandesh Neupane, ... and Kirstin E. Bett. (2021) Utilizing multi-environment trials to improve genome-wide association studies and our understanding of crop adaptation: a case study with lentil (*Lens culinaris* Medik.). ???Journal???. .

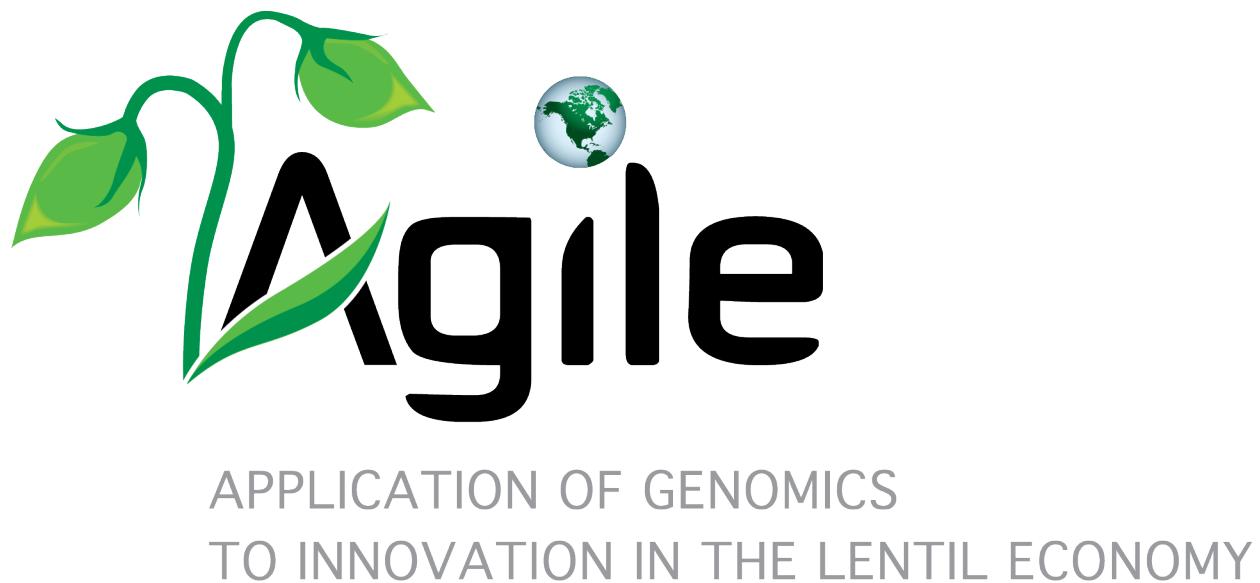
[View as pdf](#)

[Source Code Vignette \(GWAS_Phenology_Vignette.html\)](#)

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AGILE Project



Collaborators

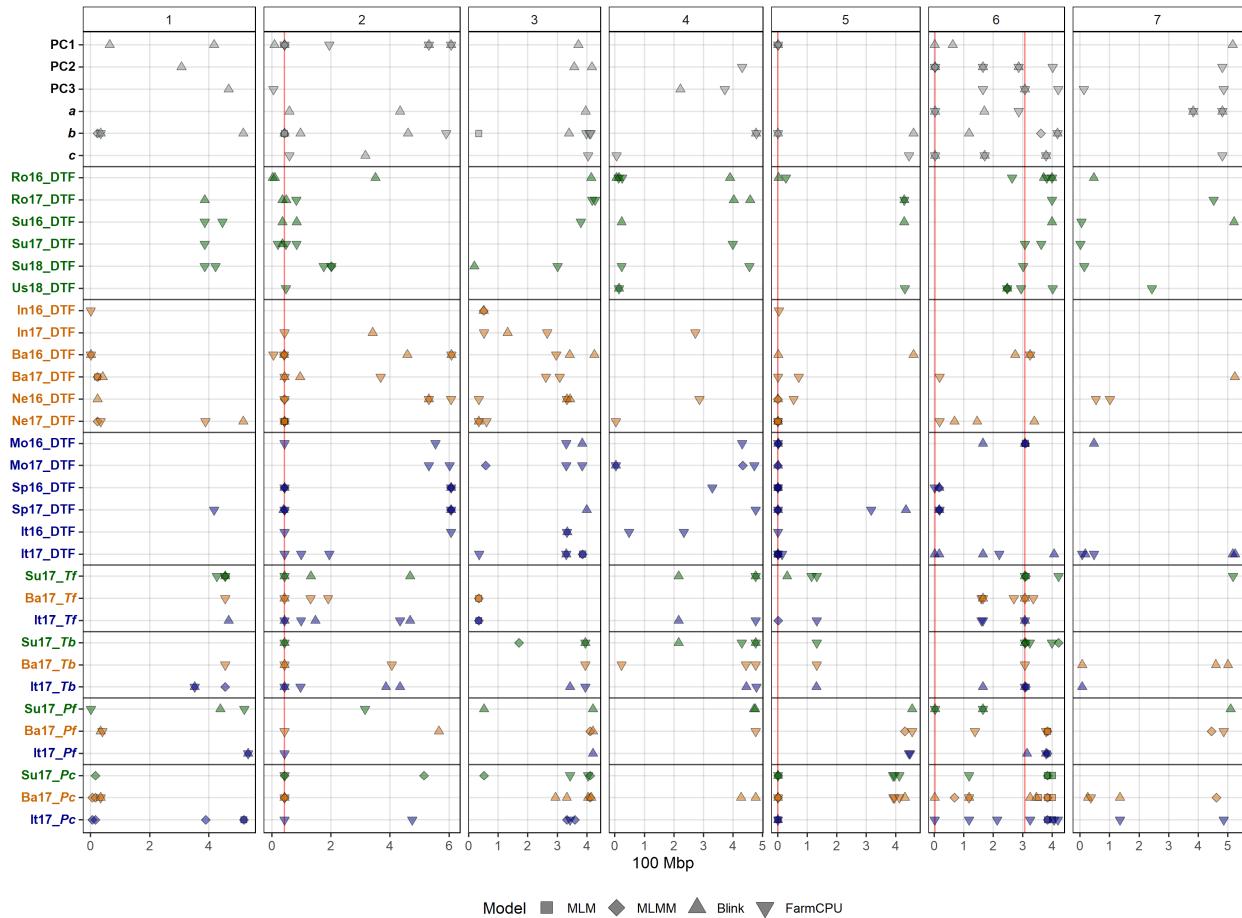
- Department of Plant Sciences and Crop Development Centre, University of Saskatchewan, Saskatoon, Saskatchewan, Canada
- UTAZ

Sponsors

-
- Saskatchewan Pulse Growers Association
 - Western Grains Research Foundation
 - GenomePrairie
 - GenomeCanada
 - Saskatchewan Ministry of Agriculture

Figures

Figure 1



Additional/Figure_01_plotly.html

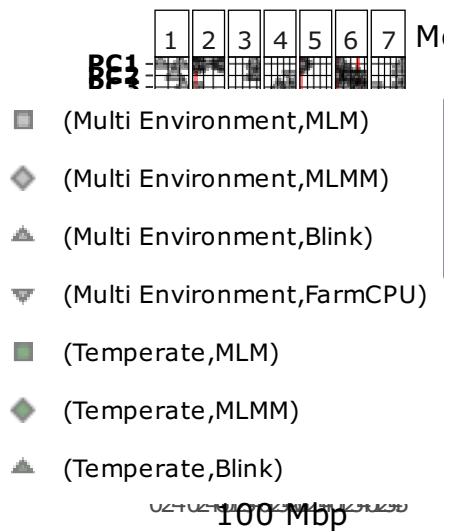


Figure 2

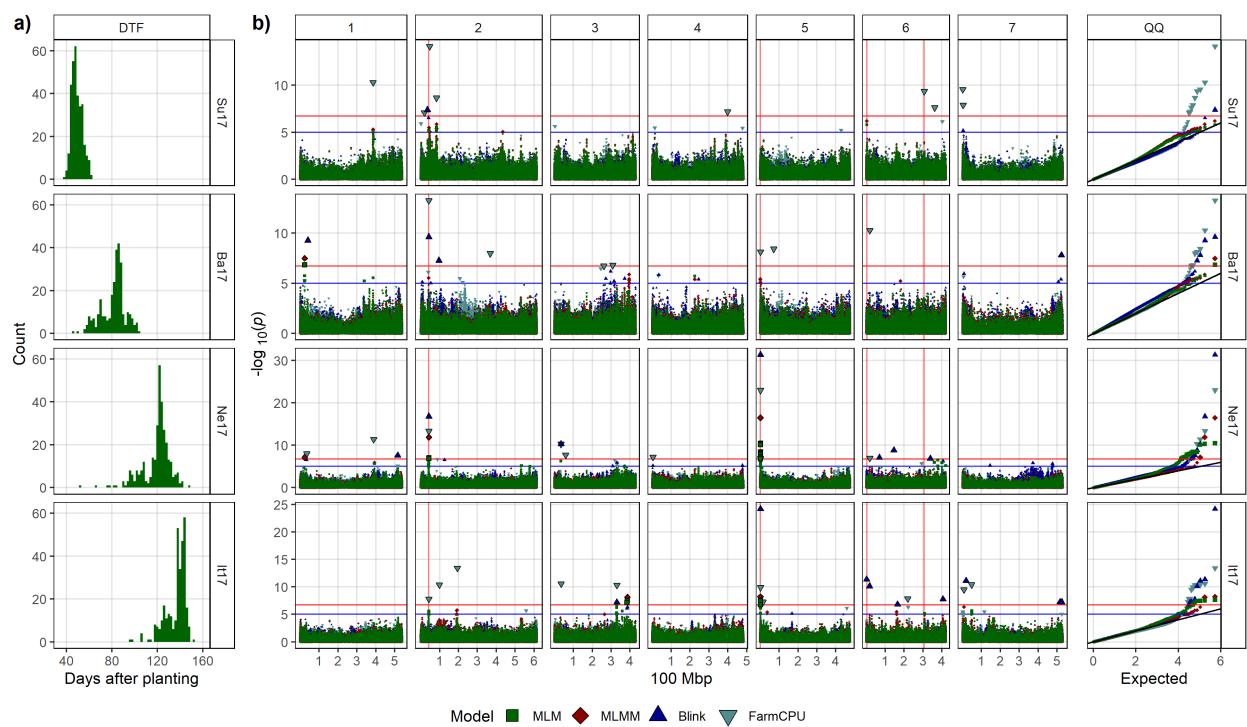


Figure 3

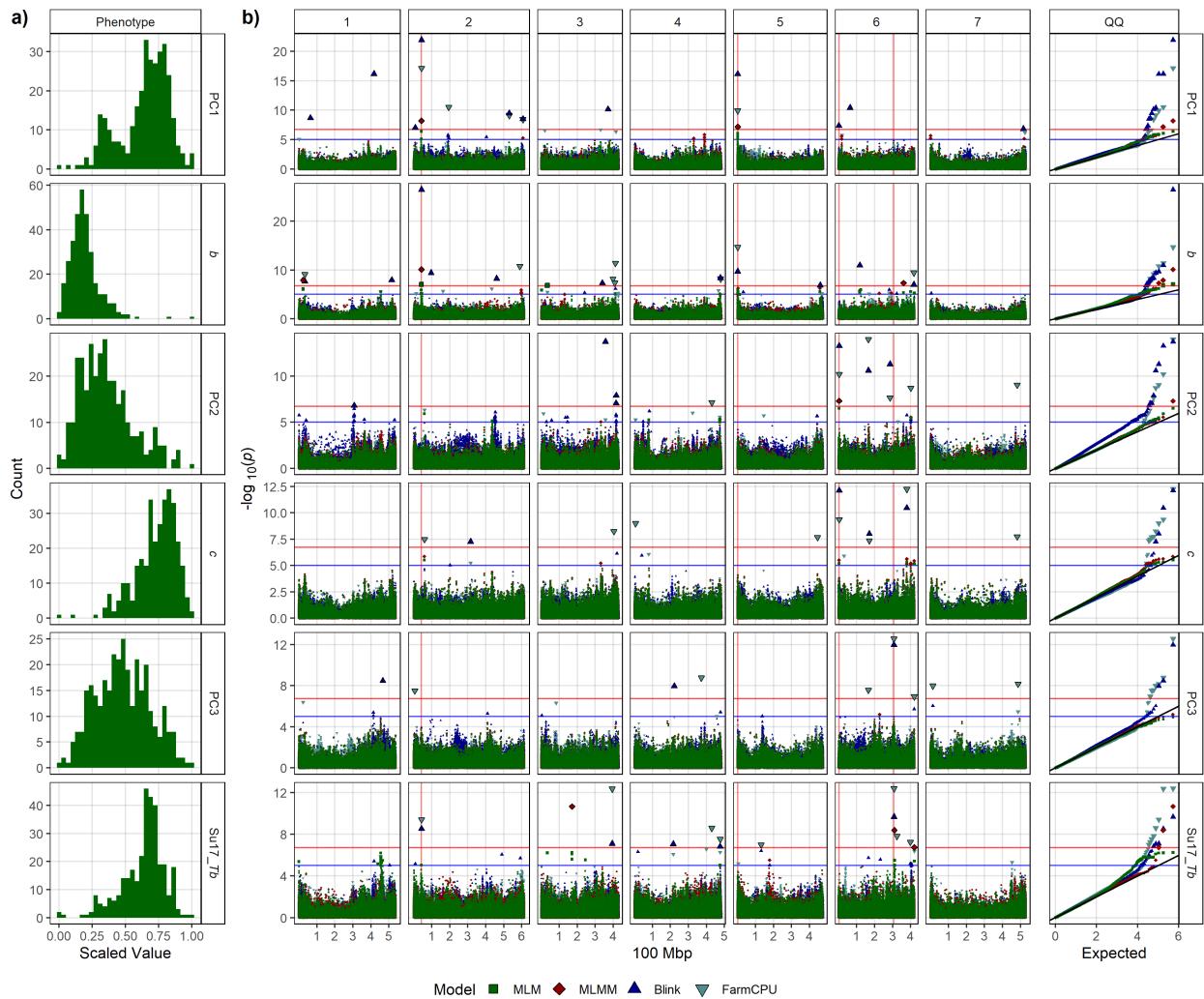


Figure 4

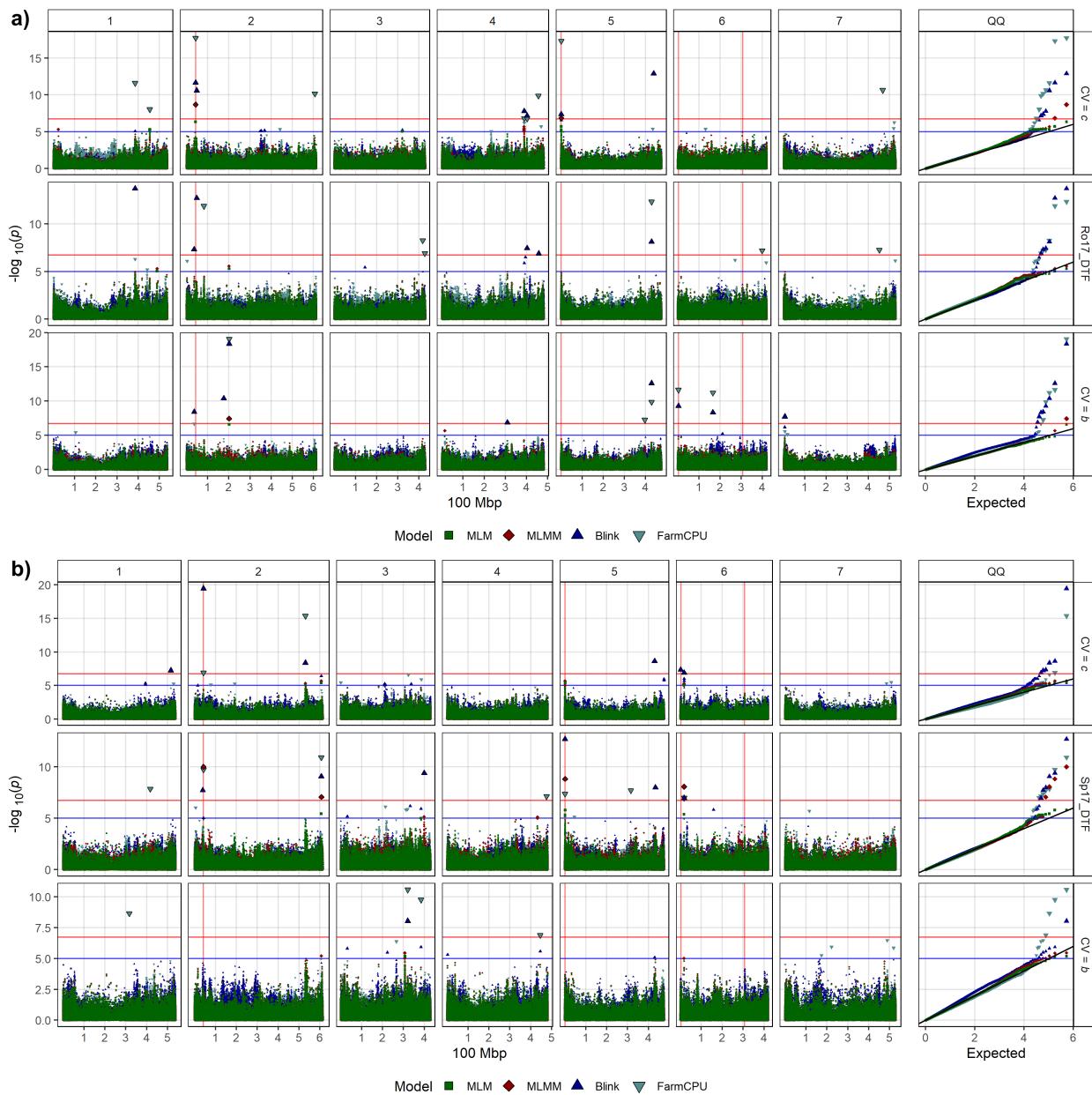
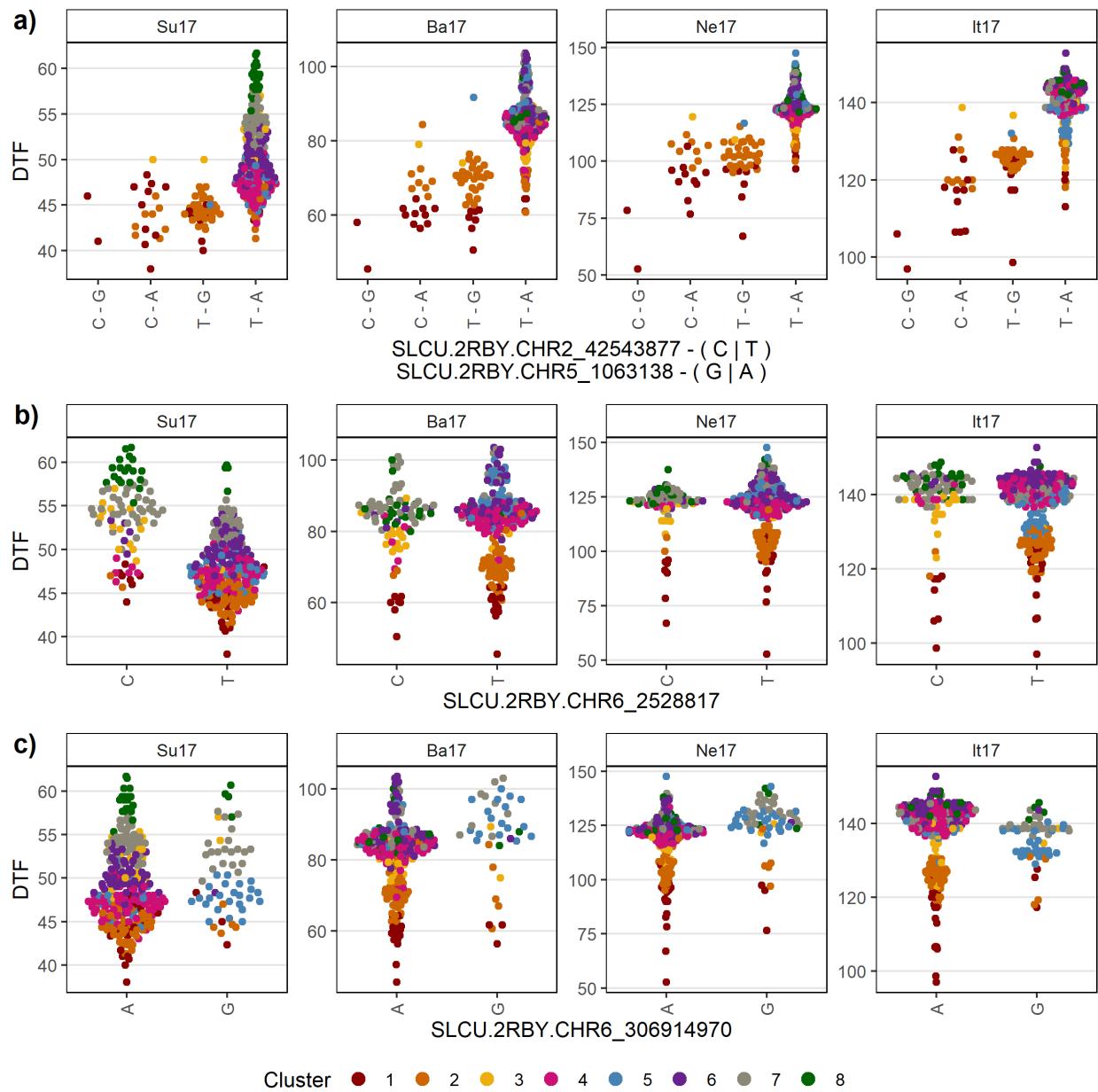


Figure 5



[Additional/Figure_05_a_plotly.html](#)

[Additional/Figure_05_b_plotly.html](#)

[Additional/Figure_05_c_plotly.html](#)

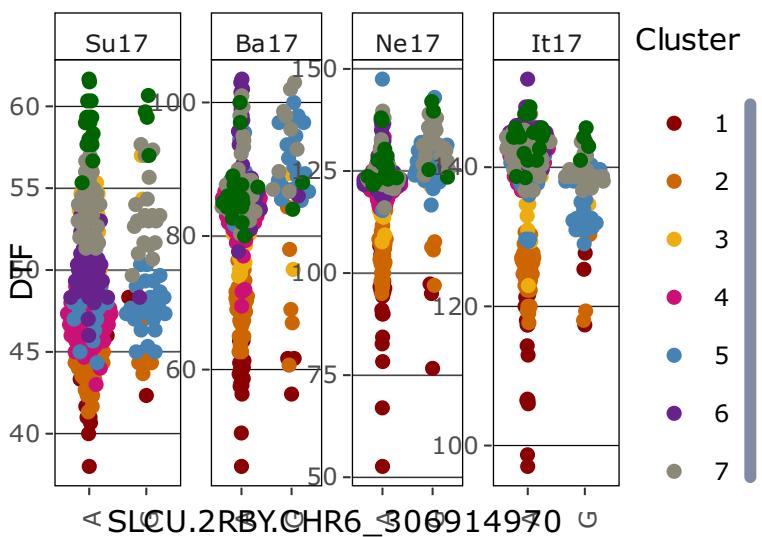
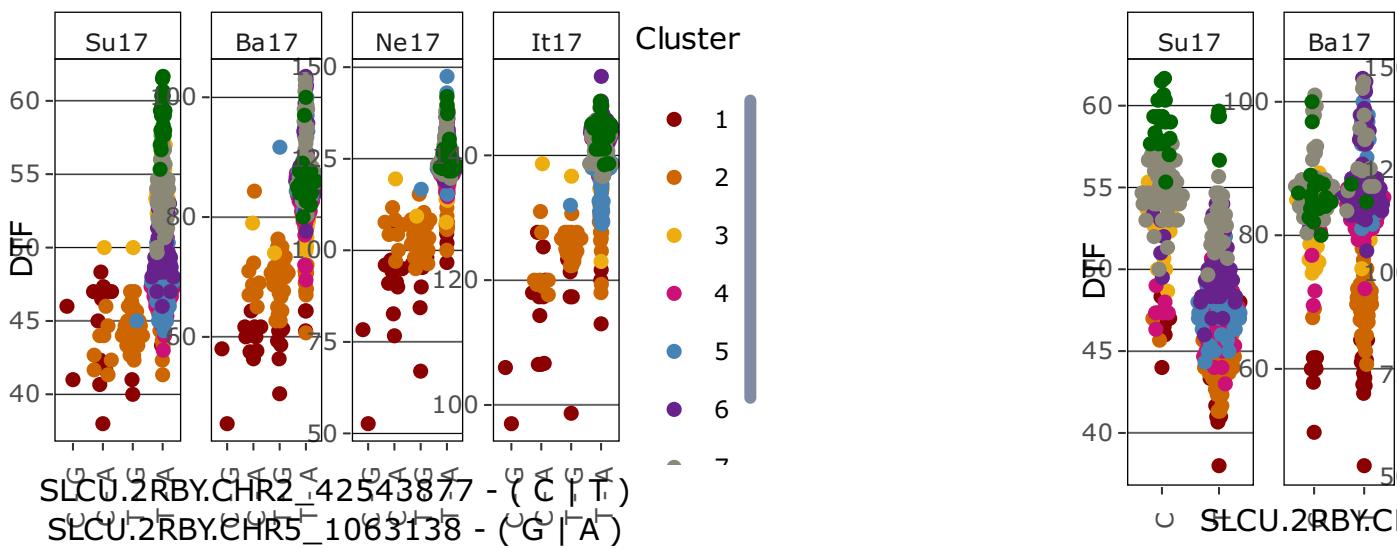
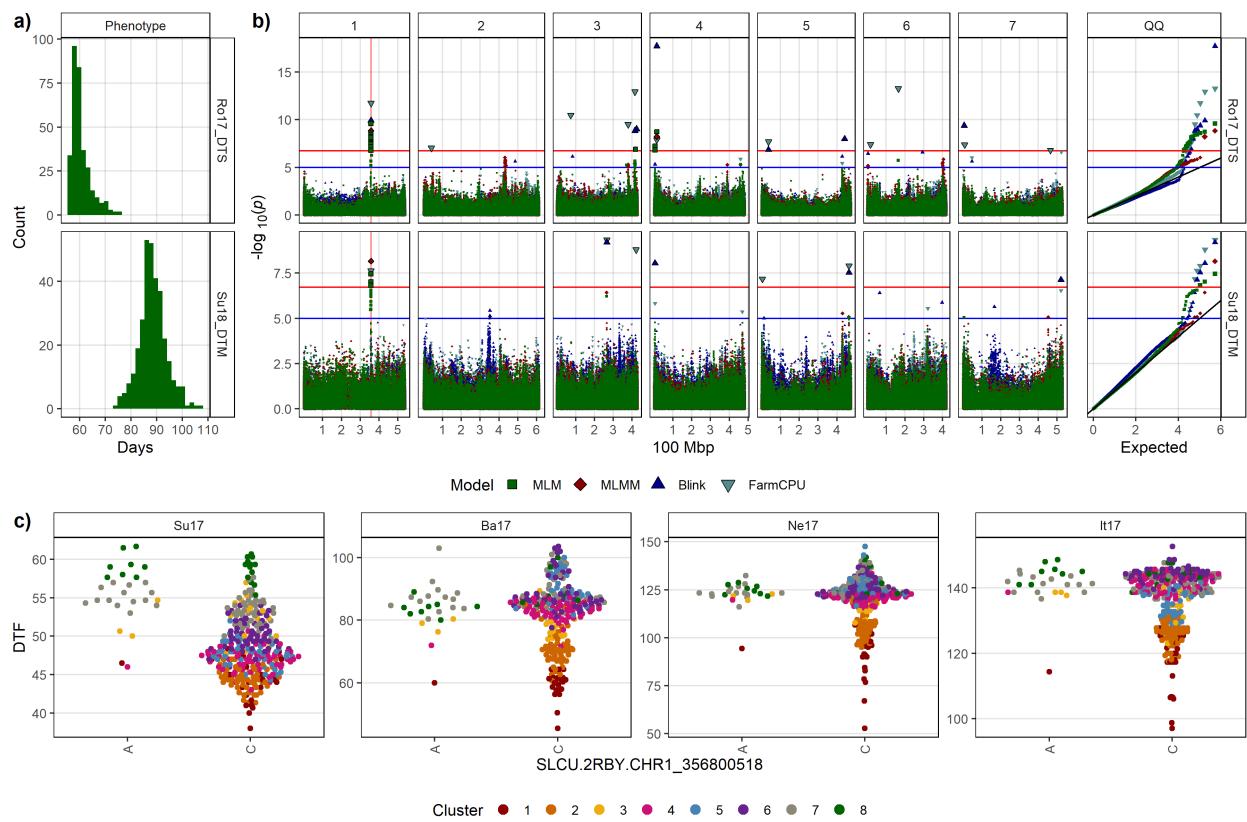
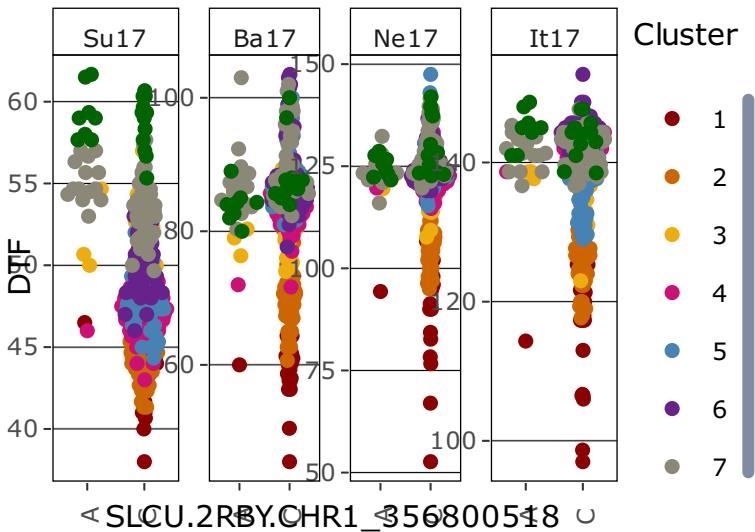


Figure 6



Additional/Figure_06_c_plotly.html



Supplemental Tables

Supplemental Table 1

Supplemental_Table_01.csv

SNP	Chromosome	Position	Model	Fst	Trait	Effect	Neg. log ₁₀ (p)	MAJ	Request of Model without SNP	Request of Model with SNP	HDR_Adjusted_P-value	FT_Gene	FT_Pos	FT_End	FT_Distance	FT_Distance_c	
1 SLCU.2R BY.CHR1_7708	1	7708	MLM	Ba17	Pc	0.0000053219393096	5.086491974268	0.7994264099576	0.1111111111111111	0.47744239040439	0.510507516469427	0.01048245552087	LoReLD	2407337	2412278	2326475	2326475
2 SLCU.2R BY.CHR1_100948	1	100948	FastP	Ba17	DTT	-4.239981781398-9	8.3679479372369	-3.93722234447264	0.4842782957748	0.06140778306657	0.06140778306657	0.06140778306657	LoReLD	2407337	2412278	2307289	2307289
3 SLCU.2R BY.CHR1_108306	1	108306	MLM	Ba16	DTT	0.0000051565054426	5.2455212949071	-0.1716006002207	0.251572127046025	0.28814138950305	0.3990711011498	0.17964424295061	LoReLD	2407337	2412278	2299031	2299031
4 SLCU.2R BY.CHR1_108306	1	108306	MLMM	Ba16	DTT	0.0000074424269130	5.1127573977981	0.251572127046025	0.45205105190504	0.28814138950305	0.3990711011498	0.17964424295061	LoReLD	2407337	2412278	2299031	2299031
5 SLCU.2R BY.CHR1_157985	1	157985	BIN	PC2	PCA	0.0000019427083748	5.7717414999432	0.16048144161452	0.02032019492919	0.02032019492919	0.02032019492919	0.02032019492919	LoReLD	2407337	2412278	2240452	2240452
6 SLCU.2R BY.CHR1_166983	1	166983	FastP	Ba17	DTT-c	4.257706144808-9	7.08148021245207	4.34347041818178	0.67001244570012	0.0054914191250585	0.0054914191250585	0.0054914191250585	LoReLD	2407337	2412278	2240452	2240452
7 SLCU.2R BY.CHR1_169053	1	169053	BIN	Ba17	DTT-c	4.223114686897-9	8.37454615866607	0.36116838487725	0.00000468720565591	0.00000468720565591	0.00000468720565591	0.00000468720565591	LoReLD	2407337	2412278	2230284	2230284
8 SLCU.2R BY.CHR1_178509	1	178509	MLM	Ba17	Ts	0.00000471419996745	5.56492779380724	12.2184304806137	0.06172059867284	0.046257014262068	0.077797167839668	0.042434537234661	LoReLD	2407337	2412278	2227448	2227448
9 SLCU.2R BY.CHR1_178509	1	178509	MLMM	Ba17	Ts	0.00000433775265396	5.132826124899068	0.06172059867284	0.06082638380642	0.06082638380642	0.06082638380642	0.06082638380642	LoReLD	2407337	2412278	2227448	2227448
10 SLCU.2R BY.CHR1_291609	1	291609	BIN	Ba16	DTT	3.32226550068749-9	8.47858733036087	0.160714287514286	0.0002822396718724	0.0002822396718724	0.0002822396718724	0.0002822396718724	LoReLD	2407337	2412278	211728	211728

Showing 1 to 10 of 2,544 entries

Previous

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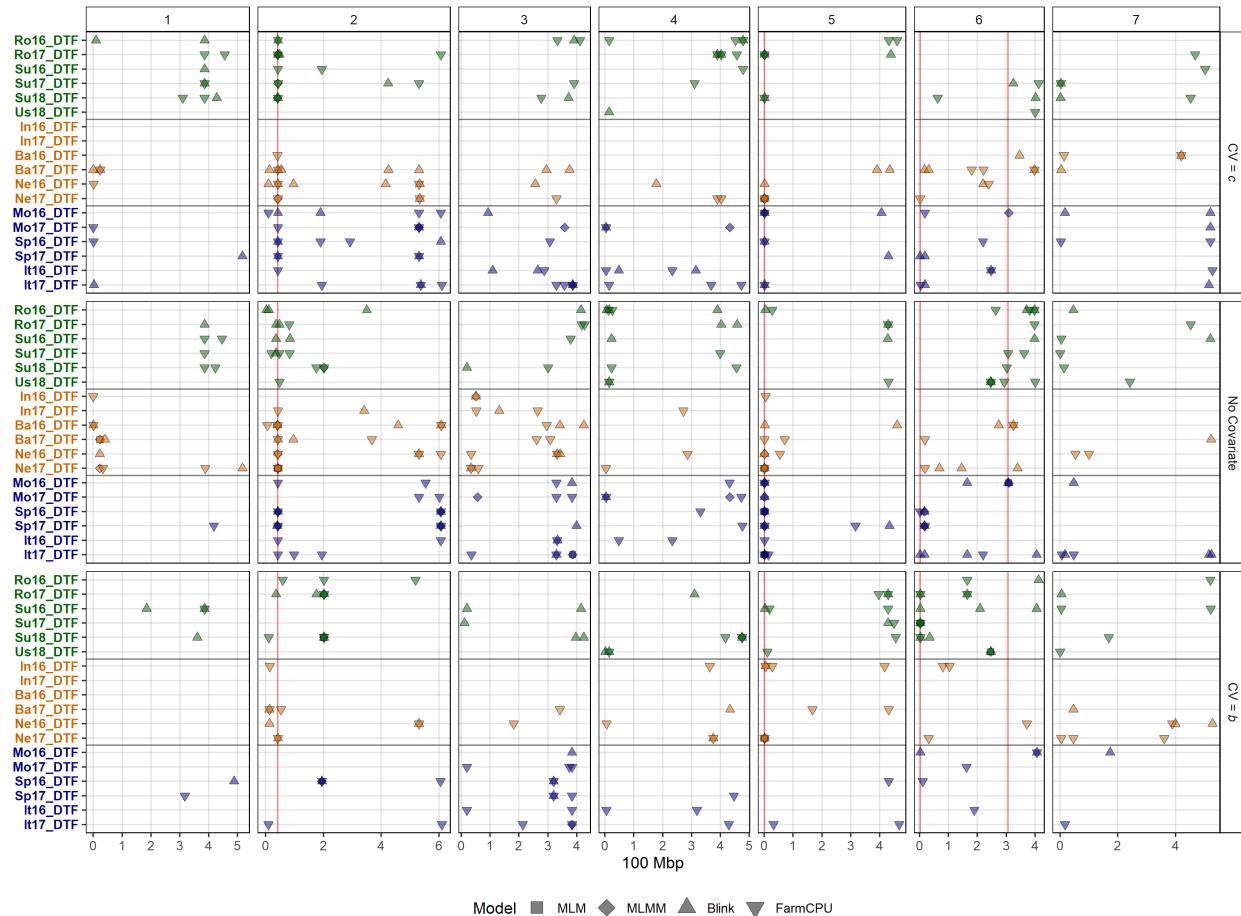
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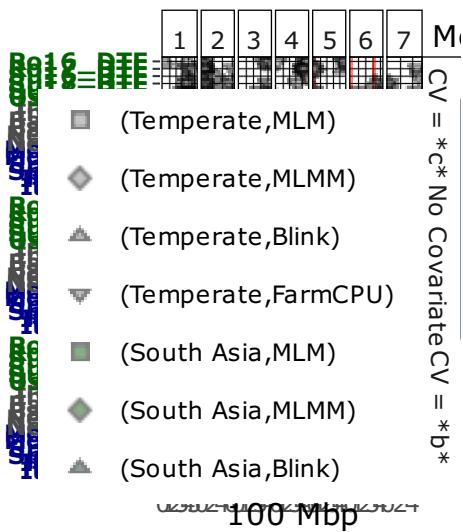
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Supplemental Figures

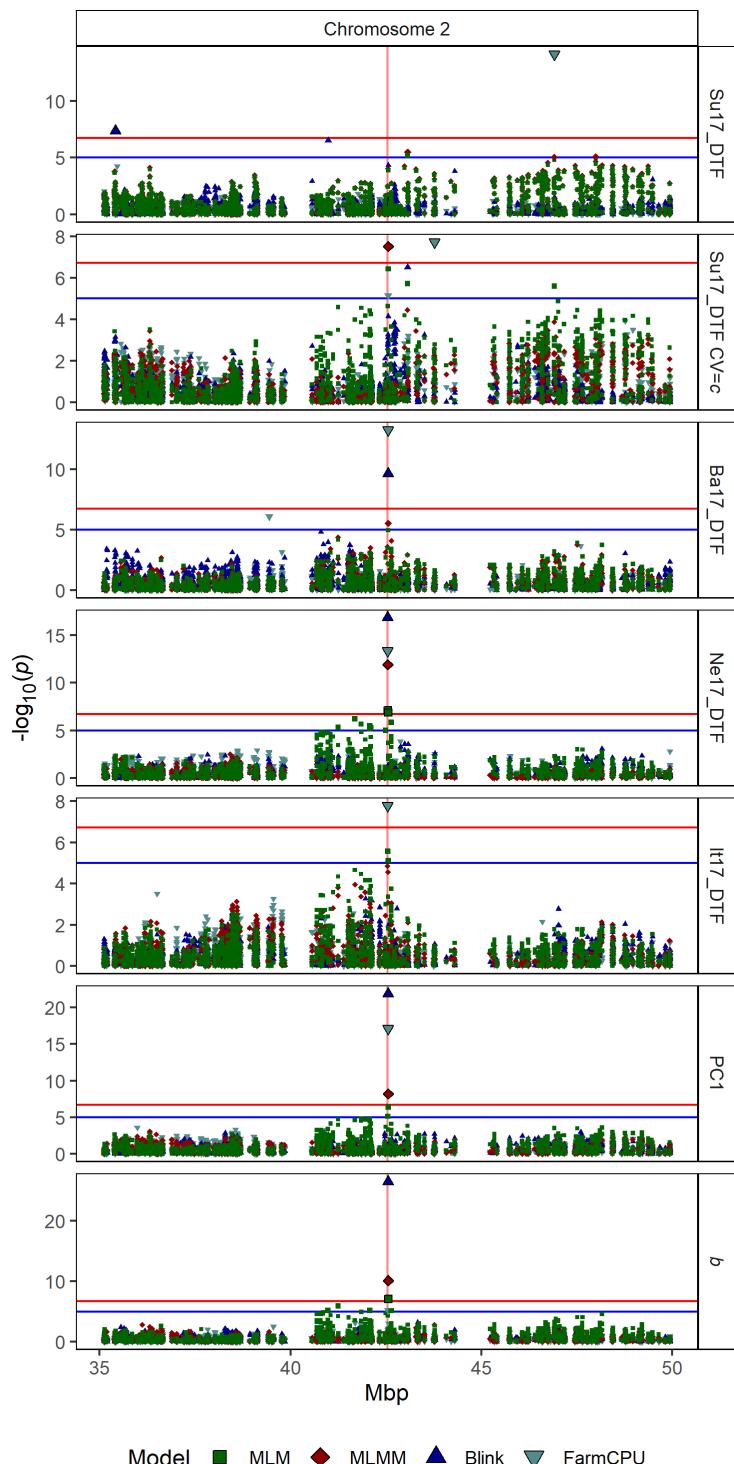
Supplemental Figure 1



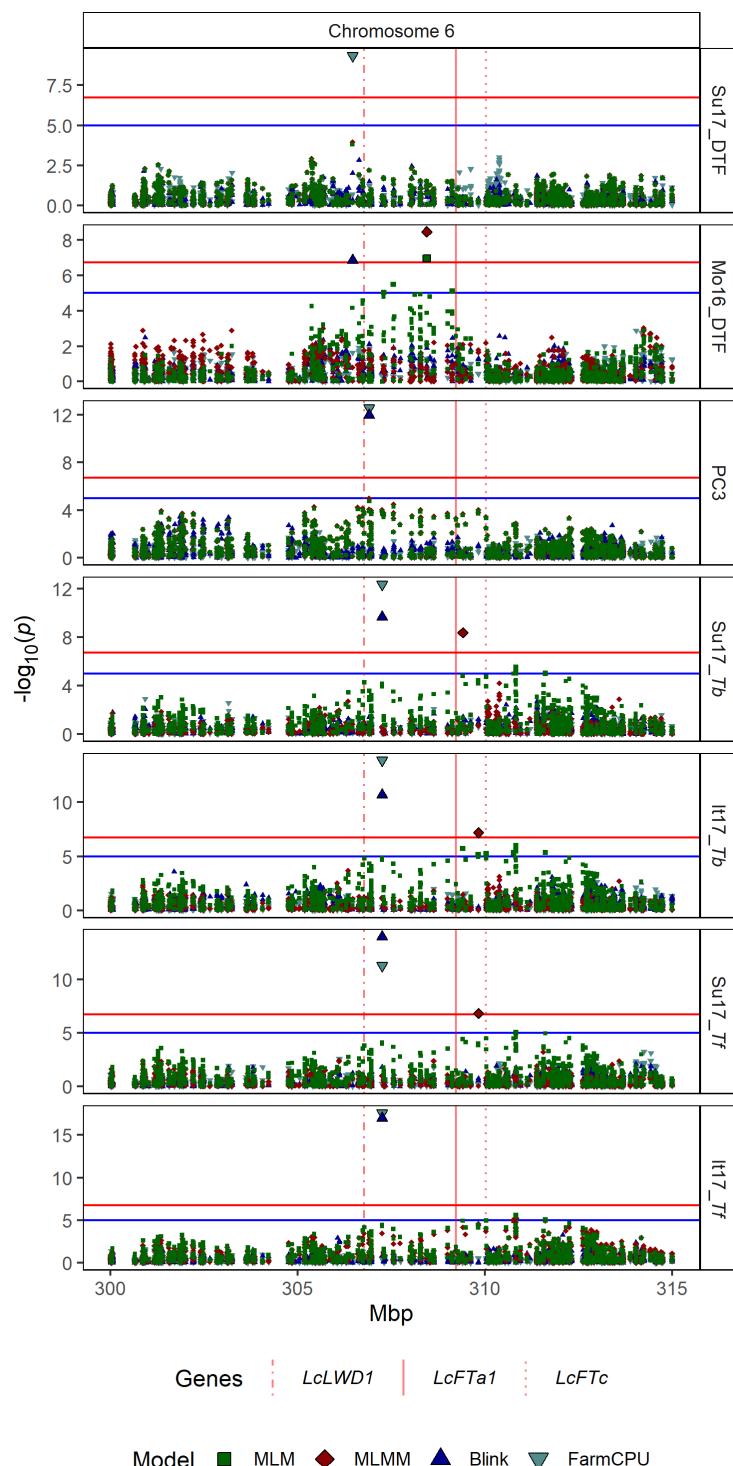
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Supplemental Figure 2

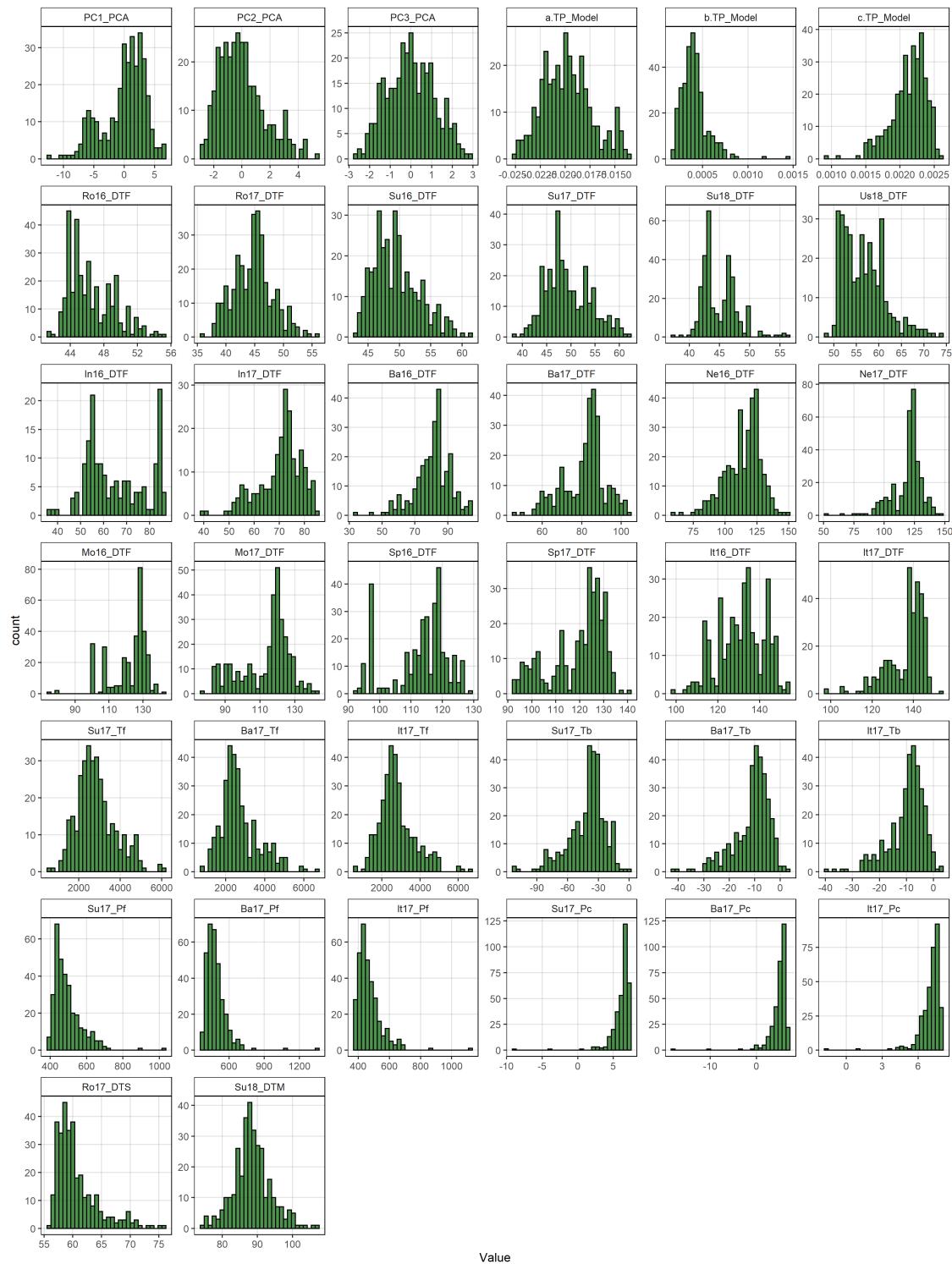


Supplemental Figure 3



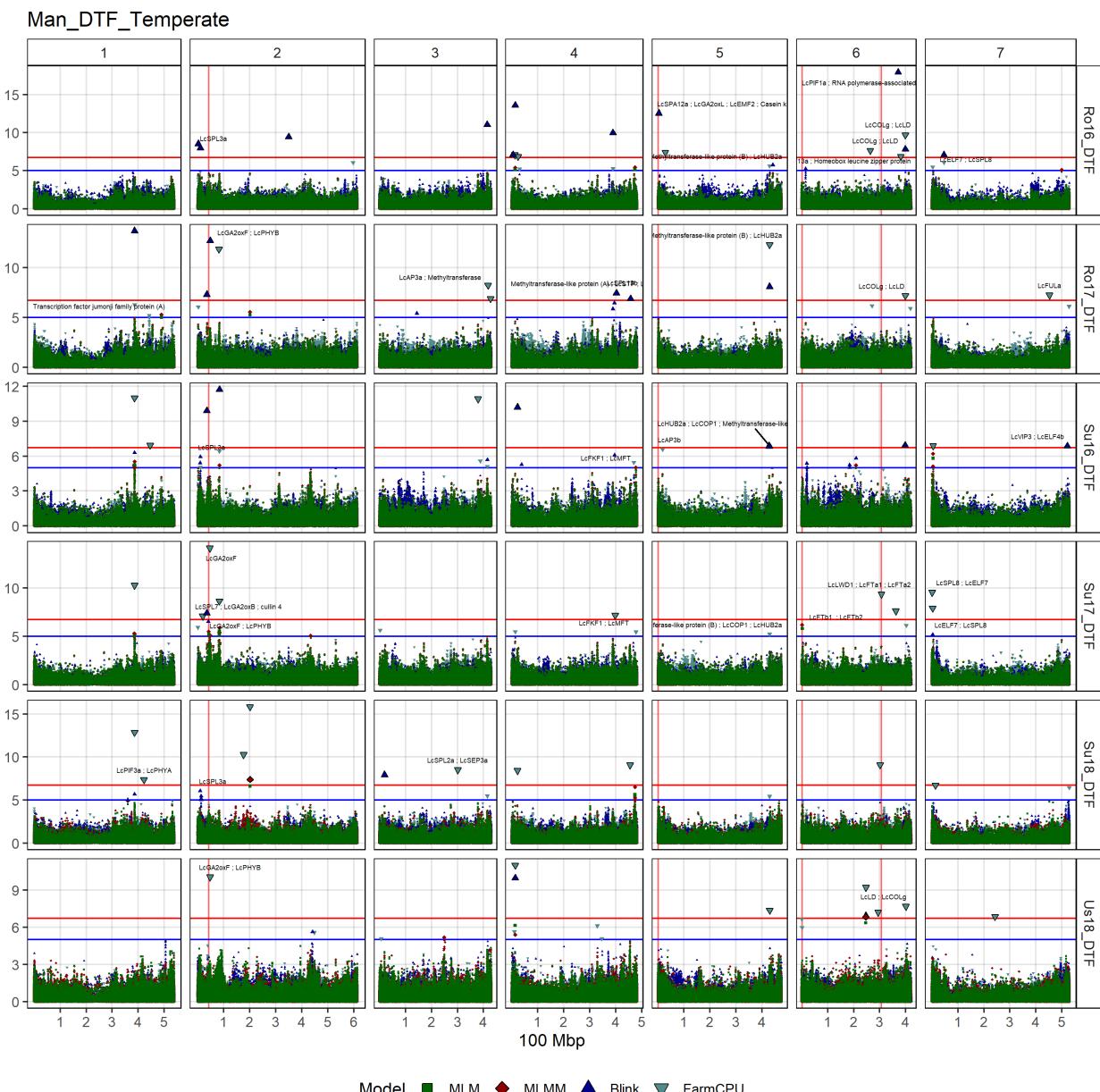
Additional Figures

Phenotype Data



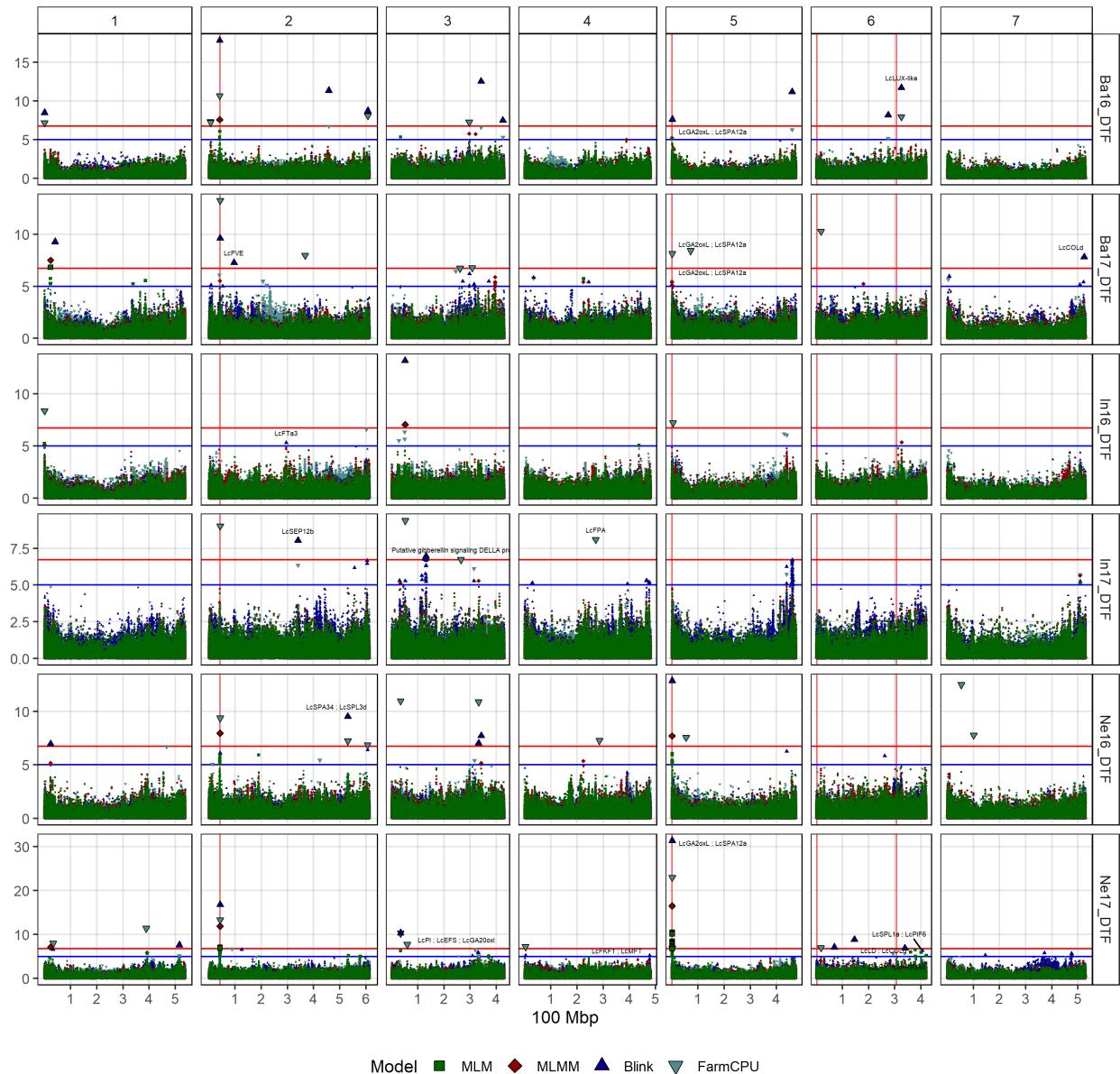
Grouped Manhattan Plots

DTF Temperate



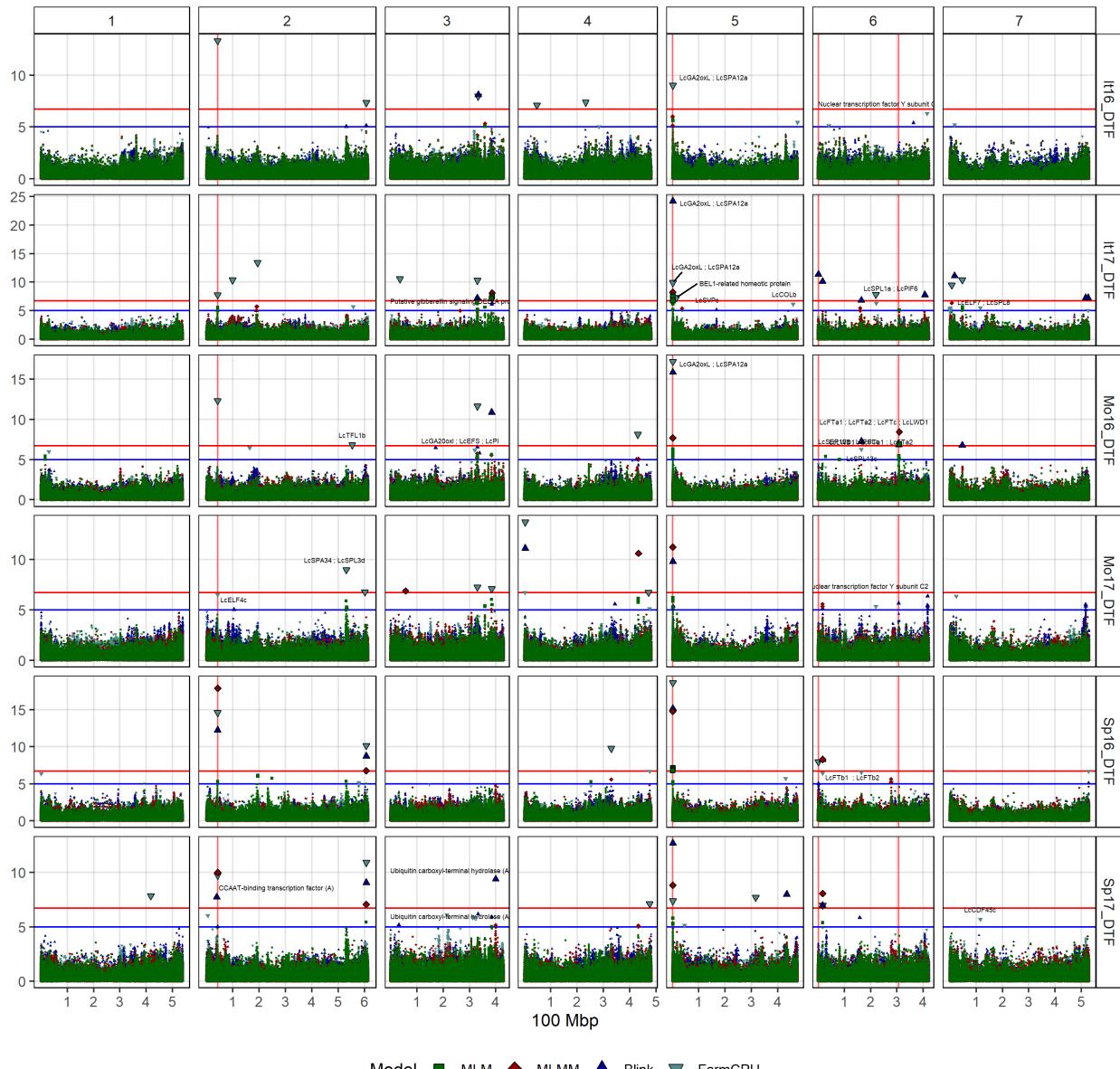
DTF South Asia

Man_DTF_SouthAsia



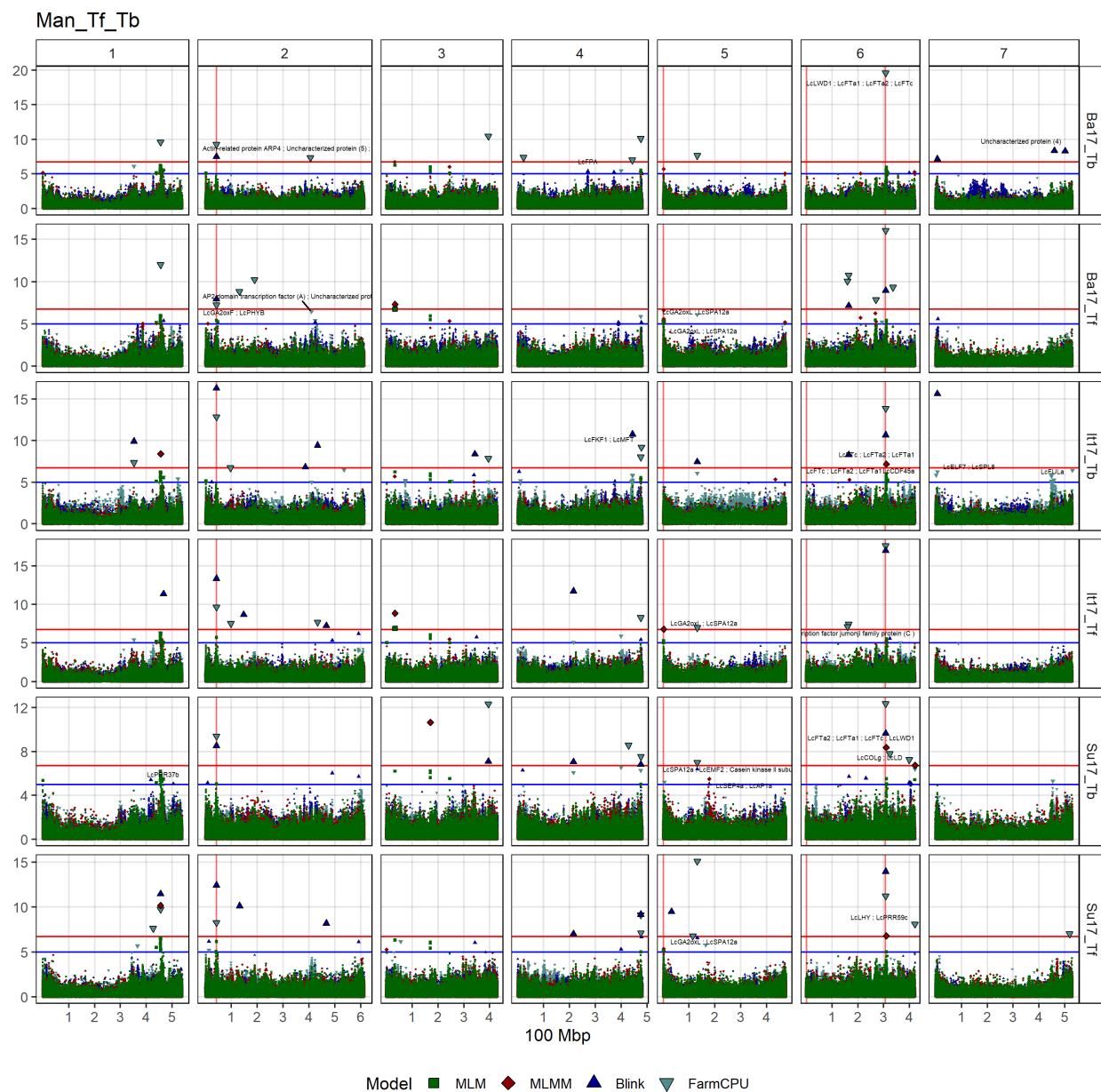
DTF Mediterranean

Man_DTF_Mediterranean

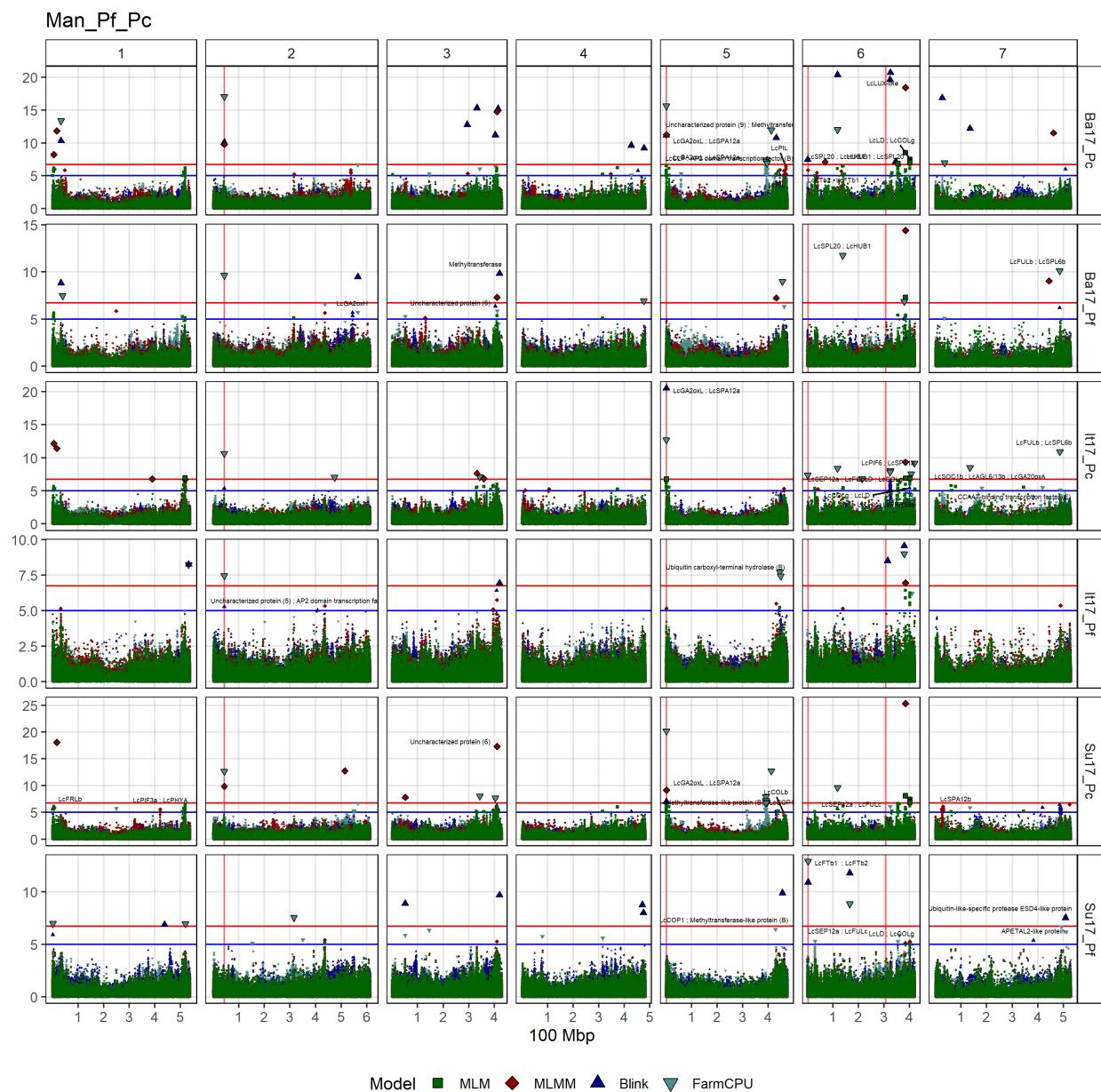


Model ■ MLM ◆ MLMM ▲ Blink ▼ FarmCPU

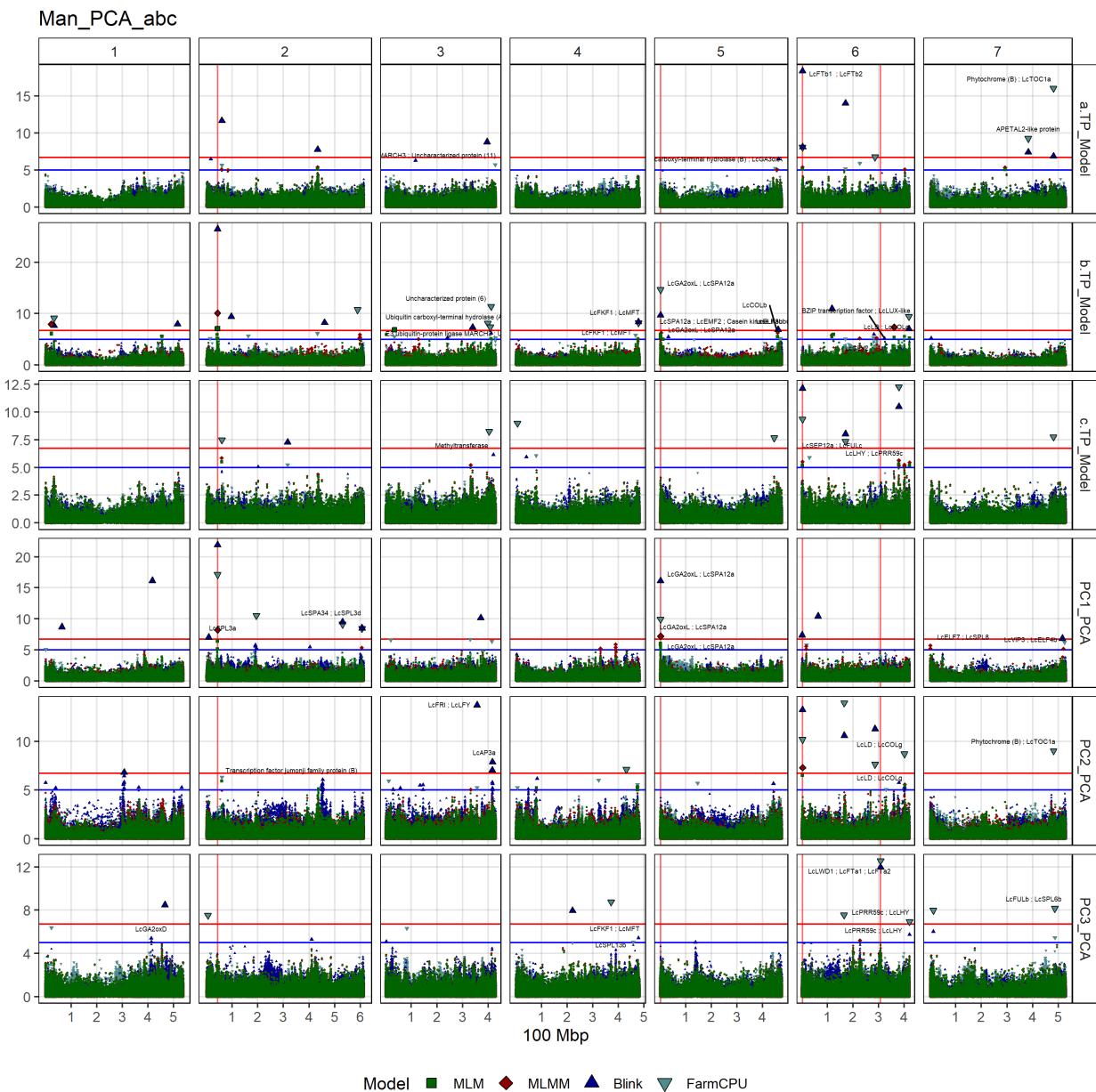
Tf and Tc



Pf and P_c



PCA + abc Coefficients



Facetted & Multi-Modeled Manhattan Plots

