

TITLE: Fusarium head blight resistance exacerbates nutritional loss of wheat grain at elevated CO₂

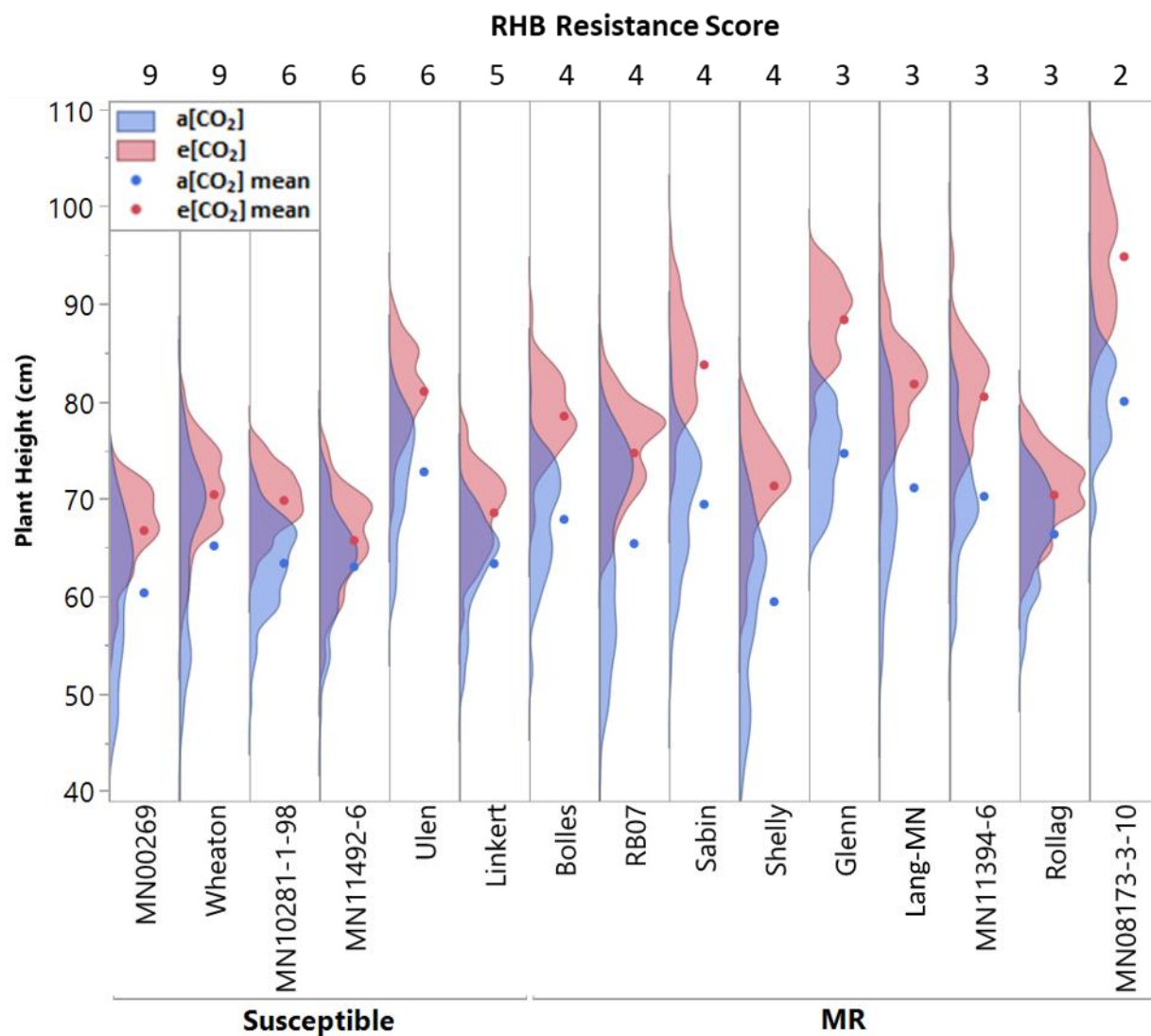
Supplemental:

Cultivar						Heading (days)	Cultivar						Flowering (days)	
MN08173-3-10	A					47.8	MN08173-3-10	A						53.0
MN11394-6	A	B				47.2	Wheaton	A	B					51.5
Bolles	A	B	C			46.2	MN11394-6	A	B					51.3
MN11492-6	A	B	C			45.5	Bolles	A	B	C				50.5
Shelly	A	B	C			45.0	MN00269		B	C	D			49.7
Lang-MN	A	B	C			44.8	MN11492-6		B	C	D			49.7
Wheaton	A	B	C			44.8	Shelly		B	C	D			49.7
MN00269	A	B	C			44.3	Lang-MN		B	C	D			48.8
RB07		B	C	D		44.2	RB07		B	C	D			48.8
Linkert		B	C	D		43.7	Rollag		B	C	D			48.8
Rollag			C	D	E	43.5	Linkert			C	D	E		47.8
Sabin			C	D	E	43.5	Sabin				D	E	F	46.7
MN10281-1-98				D	E	40.7	Glenn					E	F	45.0
Glenn					E	40.0	Ulen						F	44.3
Ulen					E	40.0	MN10281-1-98						F	43.7

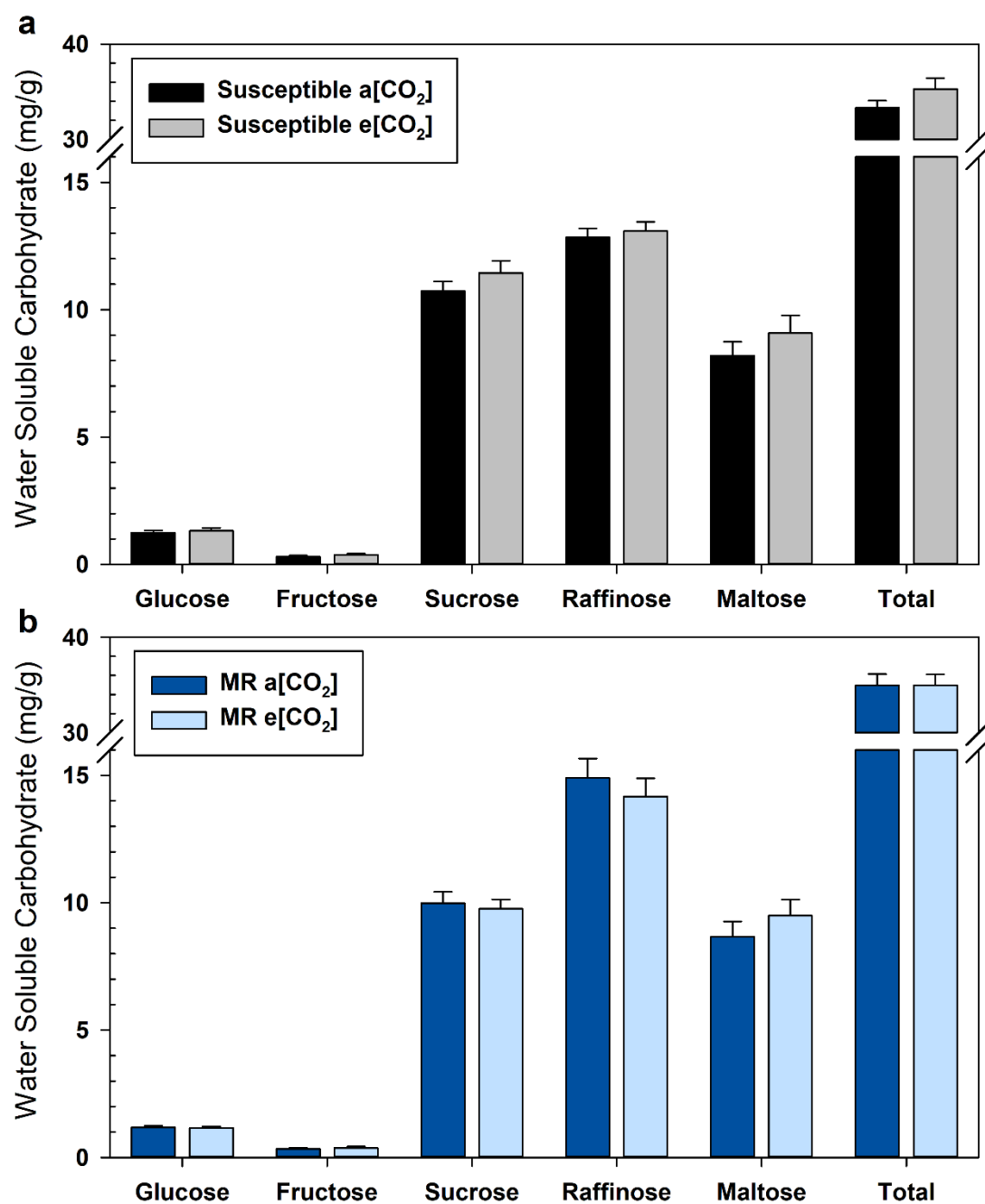
Supplemental Table 1. Wheat developmental timings, days after planting, for heading and flowering by cultivar. Different letters denote significant differences as determined by a Tukey adjusted generalized mixed model ANOVA ($\alpha = 0.05$; JMP V15.0).

Cultivar	CO ₂		Mean Height (cm)
MN08173-3-10	e[CO ₂]	A	95.18
Glenn	e[CO ₂]	A B	88.35
Sabin	e[CO ₂]	B C	83.44
Lang-MN	e[CO ₂]	B C D	82.40
Ulen	e[CO ₂]	B C D E	80.98
MN11394-6	e[CO ₂]	B C D E F	80.44
MN08173-3-10	a[CO ₂]	B C D E F G	79.97
Bolles	e[CO ₂]	B C D E F G H	78.59
RB07	e[CO ₂]	C D E F G H I	74.65
Glenn	a[CO ₂]	C D E F G H I	74.46
Ulen	a[CO ₂]	D E F G H I J	72.80
Lang-MN	a[CO ₂]	E F G H I J	71.27
Shelly	e[CO ₂]	E F G H I J	71.23
Wheaton	e[CO ₂]	E F G H I J K	70.46
Rollag	e[CO ₂]	F G H I J K	70.40
MN11394-6	a[CO ₂]	G H I J K	69.78
Sabin	a[CO ₂]	G H I J K	69.53
Linkert	e[CO ₂]	H I J K L	68.47
MN10281-1-98	e[CO ₂]	H I J K L	68.41
Bolles	a[CO ₂]	I J K L	67.79
MN00269	e[CO ₂]	I J K L	66.92
RB07	a[CO ₂]	I J K L	65.93
Rollag	a[CO ₂]	I J K L	65.85
Wheaton	a[CO ₂]	I J K L	65.82
MN11492-6	e[CO ₂]	I J K L	65.49
MN10281-1-98	a[CO ₂]	J K L	63.45
Linkert	a[CO ₂]	J K L	63.40
MN11492-6	a[CO ₂]	J K L	62.63
MN00269	a[CO ₂]	K L	60.56
Shelly	a[CO ₂]	L	58.86

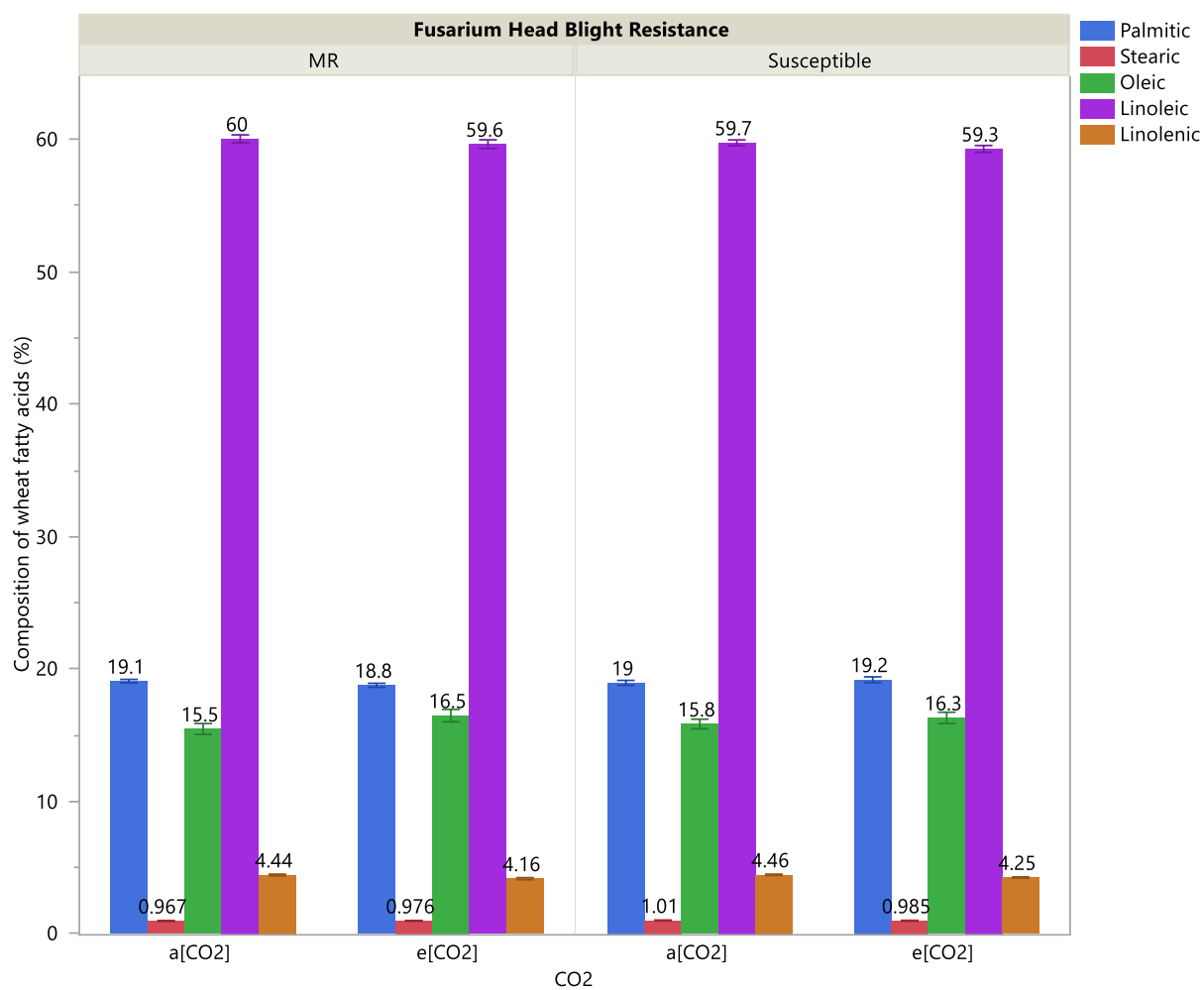
Supplemental Table 2. Significant differences in plant height as determined by wheat spike height (cm) at ambient (a[CO₂]) and elevated (e[CO₂]) carbon dioxide concentration. Different letters indicate significant differences as determined by a Tukey HSD ($\alpha = 0.05$) JMP 15.0.



Supplemental Figure 1. Histogram of plant height of various wheat cultivars at Feekes 11.3. Blue and red areas represent the percent distribution of tiller heights at ambient CO₂ (a[CO₂]) and elevated CO₂ (e[CO₂]), respectively. Wheat cultivars were ordered by FHB resistance score at the top of the figure panel. Blue and red points represent mean plant height (cm) for cultivars at ambient CO₂ or elevated CO₂, respectively.



Supplemental Figure 2. Grain water soluble carbohydrates extracted from susceptible (**a**) and MR (**b**) cultivars grown at either ambient (a[CO₂]) or elevated CO₂ (e[CO₂]). Error bars represent the standard error of the mean.



Supplemental Figure 3. Composition of total fatty acids extracted from MR and susceptible wheat grain grown at ambient (a[CO₂]) and elevated CO₂ (e[CO₂]). Error bars represent the standard error of the mean.