

Supplementary information

Table S1. ANOVA table showing means and significance for treatments from 2020 season.

Genotype	Nrate	FCR	Yield	TW	TGW	HVK	Screenings	GP	SKHI	SY	Semo Only	L*	a*	b*	MPT	RBD	WG	GI
	(kg N/ha)	(g/m)	(t/ha)	(Kg/hl)	(g)	%	%	% (11%mb)		%	%				(min)		%	
Jandaroi	0	0.0	2.3	78.6	41.8	99.7	3.4	13.9	88.4	73.6	52.0	80.9	-2.7	28.7	3.5	46.1	32.2	93.1
Jandaroi	0	0.5	1.9	78.6	39.9	99.9	3.5	13.9	88.3	73.7	51.9	81.0	-2.7	28.5	3.1	46.2	31.3	89.8
Jandaroi	0	2.0	1.9	78.1	37.6	99.9	3.9	14.1	85.8	74.2	52.3	80.6	-2.6	28.5	3.2	48.9	32.6	81.7
Jandaroi	50	0.0	2.6	78.8	38.0	100.0	2.7	14.3	88.5	74.0	52.0	80.7	-2.6	28.6	3.3	52.4	33.0	92.5
Jandaroi	50	0.5	2.2	78.0	39.8	99.7	5.1	14.0	87.1	73.7	52.0	80.8	-2.6	28.5	3.3	49.7	31.3	87.7
Jandaroi	50	2.0	1.7	77.3	37.0	99.6	6.0	14.4	86.4	73.8	52.0	80.7	-2.6	28.5	3.2	47.2	32.1	86.4
Jandaroi	100	0.0	2.4	78.7	39.9	99.9	2.5	14.5	88.8	73.9	51.8	80.9	-2.7	28.4	3.6	45.1	32.8	94.1
Jandaroi	100	0.5	1.8	77.5	38.2	100.0	5.9	14.7	86.8	73.7	51.7	80.7	-2.5	28.2	3.3	48.9	32.9	85.4
Jandaroi	100	2.0	1.8	77.1	37.6	99.9	6.2	14.6	87.8	73.9	51.8	80.6	-2.5	28.1	3.3	51.4	33.4	84.8
Jandaroi	150	0.0	2.3	78.8	40.4	99.8	2.8	14.8	87.6	74.2	51.8	80.8	-2.6	28.2	3.3	46.9	34.5	92.8
Jandaroi	150	0.5	1.8	77.6	36.4	99.9	5.4	14.6	86.2	73.6	51.6	80.6	-2.5	28.1	3.4	48.7	34.2	84.9
Jandaroi	150	2.0	1.8	77.6	41.3	99.9	4.2	14.7	88.4	73.8	51.5	80.8	-2.4	27.9	3.2	48.2	33.9	83.1
Jandaroi	200	0.0	2.5	78.6	38.9	99.9	3.1	14.9	88.3	74.0	51.6	80.5	-2.6	28.6	3.5	47.1	34.4	91.8
Jandaroi	200	0.5	1.9	77.7	37.2	99.8	5.1	15.2	85.8	74.2	51.8	80.5	-2.4	28.1	3.1	45.5	34.6	85.1
Jandaroi	200	2.0	1.8	77.6	38.9	99.8	4.6	14.8	84.7	74.0	51.9	80.7	-2.5	28.1	3.2	54.3	34.6	79.6
DBA Lillaroi	0	0.0	2.2	79.6	46.6	99.7	3.1	13.8	87.0	75.3	54.1	80.7	-3.3	31.4	2.8	53.3	34.1	71.3

DBA Lillaroï	0	0.5	2.0	79.2	45.6	99.8	3.7	13.8	87.0	75.6	54.5	80.6	-3.1	30.9	2.8	51.1	35.0	56.9
DBA Lillaroï	0	2.0	1.7	79.4	45.4	99.6	3.8	13.6	86.2	75.6	54.2	80.5	-3.1	31.0	2.8	60.1	35.0	52.4
DBA Lillaroï	50	0.0	2.3	79.0	44.3	100.0	3.0	13.8	87.8	74.9	53.9	80.7	-3.2	31.5	3.0	52.2	33.8	67.8
DBA Lillaroï	50	0.5	1.9	78.9	44.9	99.5	4.3	13.9	86.4	75.1	54.0	80.7	-3.1	31.0	2.6	59.8	35.3	55.0
DBA Lillaroï	50	2.0	1.9	79.5	44.6	99.8	3.8	13.7	85.0	75.9	54.5	80.3	-3.0	30.9	2.8	56.1	34.7	57.7
DBA Lillaroï	100	0.0	2.3	78.8	42.7	99.6	3.2	14.4	85.3	75.3	54.0	80.2	-3.0	31.3	2.7	45.8	36.1	67.5
DBA Lillaroï	100	0.5	2.1	79.3	44.5	99.8	3.1	14.1	85.2	75.2	53.9	80.5	-3.1	31.1	2.7	58.6	35.9	61.3
DBA Lillaroï	100	2.0	1.8	79.3	44.4	99.3	3.3	14.3	87.9	75.8	54.2	80.3	-2.9	30.8	2.7	55.4	36.3	53.4
DBA Lillaroï	150	0.0	2.4	79.6	47.7	100.0	3.1	14.6	85.7	75.3	54.1	80.3	-3.1	30.9	2.8	48.2	36.6	67.9
DBA Lillaroï	150	0.5	2.0	78.7	45.4	99.9	3.7	14.4	87.1	75.3	53.6	80.3	-2.9	30.7	2.9	52.2	36.4	58.9
DBA Lillaroï	150	2.0	1.5	78.6	44.7	99.5	3.6	14.3	86.7	75.5	54.1	80.5	-3.0	30.9	2.6	56.7	36.7	56.3
DBA Lillaroï	200	0.0	2.2	78.5	42.8	99.9	3.4	15.0	84.5	75.0	53.6	80.3	-3.0	31.2	2.7	53.7	38.1	64.2
DBA Lillaroï	200	0.5	1.8	78.4	42.5	99.7	4.2	14.8	85.4	75.1	53.8	80.2	-2.9	30.5	2.6	59.4	37.8	53.4
DBA Lillaroï	200	2.0	1.8	79.2	44.1	99.9	3.3	14.4	85.5	75.7	53.9	80.4	-2.9	30.4	2.6	63.9	38.4	49.3
LSD			0.08	0.52	2.27	0.05	0.98	0.31	0.82	0.33	0.35	0.26		0.73	0.12	4.10	1.03	3.88
Genotype			ns	<0.05	<.001	<.05	<.05	<.001	<.05	<.001	<.001	<.001		<.001	<.001	<.001	<.001	<.001
Nrate			ns	ns	<.05	ns	ns	<.001	ns	ns	<.05	<.05		<.05	ns	ns	<.001	ns
FCR			<.001	<.0010	ns	ns	<.001	ns	ns	<.05	ns	ns		<.05	<.05	<.05	ns	<.05
interactions			ns	VxFCR	ns	ns	VxFCR	ns	ns	ns	ns	ns		ns	ns	ns	ns	ns

ns=not significant,
P<0.05

Table S2. ANOVA table showing means and significance for treatments from 2021 season.

Genotype	Nrate	FCR	Yield	TW	TGW	HVK	FN	SCR	GP	SKHI	SY	Semo Only	L*	a*	b*	MPT	RBD	WG	GI
	(Kg N/ha)	(g/m)	(t/ha)	(Kg/hl)	(g)	%	(sec)	%	% (11%mb)		%	%				(min)		%	
Jandaroi	0	0	4.2	79.2	45.9	81	269	0.8	10.4	91.5	70.6	60.3	81.4	-3.0	26.7	4.2	24	22.2	98
Jandaroi	0	0.75	4.2	78.9	45.4	76	275	1.0	10.5	92.2	70.9	60.5	81.5	-3.1	26.8	4.7	31	21.3	98
Jandaroi	0	1.5	3.7	78.9	45.7	81	290	1.0	10.4	91.5	70.7	60.2	81.4	-3.1	27.0	4.1	26	21.7	97
Jandaroi	20	0	4.9	79.0	45.1	84	274	0.8	10.4	95.2	70.9	61.0	81.0	-3.0	27.3	4.4	22	22.2	98
Jandaroi	20	0.75	4.8	78.9	44.6	81	264	0.9	10.9	94.9	70.8	60.7	81.0	-3.0	27.1	4.2	26	22.6	97
Jandaroi	20	1.5	4.3	78.9	44.2	84	268	1.0	10.5	94.5	70.7	60.6	81.4	-3.1	27.4	4.4	28	22.2	97
Jandaroi	40	0	4.8	78.8	44.7	88	277	1.1	11.0	97.8	71.0	61.2	81.0	-3.1	27.6	4.2	30	24.5	95
Jandaroi	40	0.75	4.9	79.1	45.0	89	279	0.9	11.0	95.9	70.9	60.9	81.2	-3.1	27.3	4.4	27	22.7	95
Jandaroi	40	1.5	4.7	79.0	44.5	89	253	0.9	11.3	98.8	71.4	61.5	80.9	-3.0	27.3	4.3	33	23.6	95
Jandaroi	80	0	5.3	78.7	44.7	95	249	0.8	11.6	95.9	71.0	61.3	80.6	-2.8	27.3	4.1	33	25.0	96
Jandaroi	80	0.75	4.9	78.9	44.4	94	258	1.0	11.9	99.8	71.0	61.1	80.8	-3.0	27.7	4.0	34	25.0	97
Jandaroi	80	1.5	4.9	78.6	43.7	92	245	1.0	11.7	98.2	71.1	61.0	80.8	-2.9	27.1	3.8	41	25.3	95
Jandaroi	160	0	5.5	78.4	45.1	98	215	0.7	13.0	93.6	70.8	60.4	80.5	-2.8	27.3	3.5	47	28.7	94
Jandaroi	160	0.75	5.4	78.2	44.6	97	203	0.9	12.8	97.9	71.0	60.7	80.5	-2.8	27.2	3.8	40	27.8	96
Jandaroi	160	1.5	5.2	78.0	44.1	98	213	0.9	12.8	96.3	71.1	60.8	80.4	-2.8	27.4	3.4	52	27.7	96
DBA Lillaroi	0	0	4.2	78.7	48.5	63	277	0.9	10.5	91.7	72.2	60.3	81.6	-3.7	29.8	3.8	29	21.1	92
DBA Lillaroi	0	0.75	4.1	78.3	48.0	54	276	1.0	9.8	79.6	71.9	59.1	82.1	-3.7	29.1	4.2	27	20.4	96
DBA Lillaroi	0	1.5	4.0	78.4	47.9	63	264	1.2	9.9	86.3	72.1	60.3	81.6	-3.6	29.6	4.3	26	21.5	89
DBA Lillaroi	20	0	5.0	78.8	48.5	74	247	0.9	10.7	90.1	72.1	61.5	81.0	-3.7	30.4	3.7	36	22.8	91
DBA Lillaroi	20	0.75	4.6	78.4	46.6	65	265	1.1	10.1	88.2	72.1	60.3	81.6	-3.7	29.8	4.2	28	20.8	94
DBA Lillaroi	20	1.5	4.8	78.7	47.5	64	276	0.9	10.3	87.0	72.2	60.5	81.3	-3.6	29.7	4.1	32	22.0	87
DBA Lillaroi	40	0	4.5	78.9	48.0	74	254	1.1	10.5	90.9	72.3	61.2	81.2	-3.7	30.5	3.6	30	22.8	88
DBA Lillaroi	40	0.75	5.1	79.1	49.0	82	260	1.0	10.6	92.1	72.7	62.2	80.6	-3.5	30.5	3.7	39	24.7	82
DBA Lillaroi	40	1.5	4.7	78.7	47.0	75	240	1.0	10.6	92.8	72.8	61.5	81.0	-3.5	30.2	3.6	38	22.9	89
DBA Lillaroi	80	0	5.4	78.8	48.3	86	241	0.9	11.3	92.8	72.5	62.4	80.5	-3.5	30.8	3.4	41	24.9	82
DBA Lillaroi	80	0.75	5.3	78.8	48.1	84	238	0.9	11.4	93.5	72.4	62.2	80.6	-3.5	30.7	3.5	49	25.4	83
DBA Lillaroi	80	1.5	4.7	78.5	47.5	83	237	1.1	11.4	93.7	72.8	62.4	80.5	-3.5	30.7	3.6	46	25.2	83

DBA Lillaroï	160	0	5.6	78.3	48.2	95	185	1.0	12.5	95.6	72.3	62.3	80.3	-3.5	31.0	3.1	55	29.2	79
DBA Lillaroï	160	0.75	5.7	78.5	48.7	95	211	0.8	12.3	92.6	72.7	62.9	80.1	-3.4	30.6	3.0	55	29.4	71
DBA Lillaroï	160	1.5	5.1	78.4	48.3	94	206	1.2	12.6	95.8	72.5	62.5	80.1	-3.3	30.8	3.2	48	29.1	77
LSD			0.35	0.29	1.43	5.96	16.36	0.07	0.42	2.95	0.34	0.52	0.22	0.10	0.36	0.35	6.57	0.80	3.42
Genotype			ns	<0.05	<.001	<.001	<.001	0.02	<.001	<.001	<.001	<.001	ns	<.001	<.001	<.001	<.001	ns	<.001
Nrate			<.001	<.001	<0.05	<.001	<.001	ns	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
FCR			<.001	ns	<0.05	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Interactions			ns	VxNrate	ns	ns	ns	ns	ns	ns	ns	VxN	VxNrate	ns	VxNrate	ns	ns	ns	VxNrate

Table S3. Means and LSD for % Fusarium infection for both varieties at different disease application rates - Tamworth 2021.

Variety	FCR Inoculation (g/m)		
	0	0.75	1.5
Jandaroi	1.60aA	45.60aB	69.40aC
DBA Lillaroi	1.40aA	49.40bB	69.60aC
LSD	3.03		

Values with the same lowercase letter in the same column are not significantly different and values with the same upper case letter in the same row are not significantly different, $p < 0.05$.

Table S4. Means and LSD for % Fusarium infection for both varieties at different disease and nitrogen application rates - Tamworth 2020.

Variety	FCR (g/m)	Nrate (kg/ha)				
		0	50	100	150	200
Jandaroi	0	2.0aA	6.0aA	7.0aA	6.0aA	6.0aA
	0.5	30.0bA	32.0bA	46.0bB	45.0bB	54.0bC
	2.0	72.0cA	72.0cA	76.0cAB	80.0cAB	83.0cB
DBA Lillaroi	0	5.0aA	6.3aA	4.0aA	7.3aA	4.0aA
	0.5	38.0bA	42.0dA	47.0bAB	53.0bBC	58.0bC
	2.0	75.0cA	77.0cAB	85.0cBC	86.0cBC	89.0cC
LSD		9.08				

Values with the same lowercase letter in the same column are not significantly different and values with the same upper case letter in the same row are not significantly different, $p < 0.05$.

Table S5. Mean SE-HLPC data for two durum wheat varieties at 4N rates and 2 FCR inoculations in mature grain from 2021 season.

Genotype	N rate (kg N/ha)	FCR (g/m)	P/M	Gli/Glu	UPP%	%SolA	%SolB	%SolC	%InsolA	%InsolB	%InsolC	Total Area
Jandaroi	0	0	1.01	0.74a	28.47	35.79	34.46a	12.62	14.19e	2.21	0.72	43752809
Jandaroi	0	1.5	1.02	0.73a	25.36	37.71	34.82ab	11.88	12.77de	2.13	0.70	43620193
Jandaroi	40	0	0.95	0.78abc	25.47	36.16	35.23abcd	13.33	12.34cd	2.17	0.76	44883926
Jandaroi	40	1.5	0.97	0.76ab	27.62	35.58	34.95abc	12.93	13.54de	2.23	0.76	44816265
Jandaroi	80	0	0.96	0.78abc	26.17	36.12	35.71abcdef	12.64	12.71de	2.13	0.69	46813416
Jandaroi	80	1.5	0.91	0.82bc	26.25	34.92	36.28cdefg	13.71	12.32cd	2.10	0.67	47870491
Jandaroi	160	0	0.98	0.78abc	28.04	35.52	36.11bcdefg	11.51	13.85de	2.32	0.69	54017130
Jandaroi	160	1.5	0.90	0.83bc	27.49	34.24	36.64efgh	13.11	13.04de	2.25	0.71	52463957
DBA Lillaroï	0	0	0.94	0.78abc	19.40	39.05	36.11bcdefg	13.01	9.37ab	1.80	0.66	43496710
DBA Lillaroï	0	1.5	0.90	0.79abc	21.22	37.14	35.03abcd	15.36	9.93ab	1.84	0.71	41210808
DBA Lillaroï	40	0	0.96	0.76ab	19.34	39.42	35.48abcde	13.37	9.45ab	1.69	0.59	42665147
DBA Lillaroï	40	1.5	0.92	0.80abc	19.13	38.69	36.34defgh	13.45	9.12ab	1.76	0.64	43772307
DBA Lillaroï	80	0	0.86	0.84c	19.43	37.18	37.01fgh	14.59	8.89a	1.72	0.61	46187819
DBA Lillaroï	80	1.5	0.92	0.81bc	18.85	38.94	37.39gh	12.57	9.01a	1.55	0.54	46761999
DBA Lillaroï	160	0	0.94	0.82bc	22.29	37.71	37.69h	11.07	10.79bc	2.09	0.64	52503063
DBA Lillaroï	160	1.5	0.90	0.84c	21.40	37.01	37.70h	12.65	10.12ab	1.91	0.62	51863401
Fpr		LSD	0.113	0.0711	3.37	2.996	1.379	2.942	1.761	0.238	0.046	
		Genotype	<0.05	<0.05	<.001	<.001	<.001	ns	<.001	<.001	<.001	
		Nrate	ns	<0.05	ns	ns	<.001	ns	<0.05	<0.05	ns	
		FCR	ns	ns	ns	ns	ns	ns	ns	ns	ns	
		Interactions	ns	ns	ns	ns	ns	ns	ns	ns	ns	

Numbers with alike lower case letters in the same column are not significantly different, $p < 0.05$. Fpr=probability for significance and level for each factor.

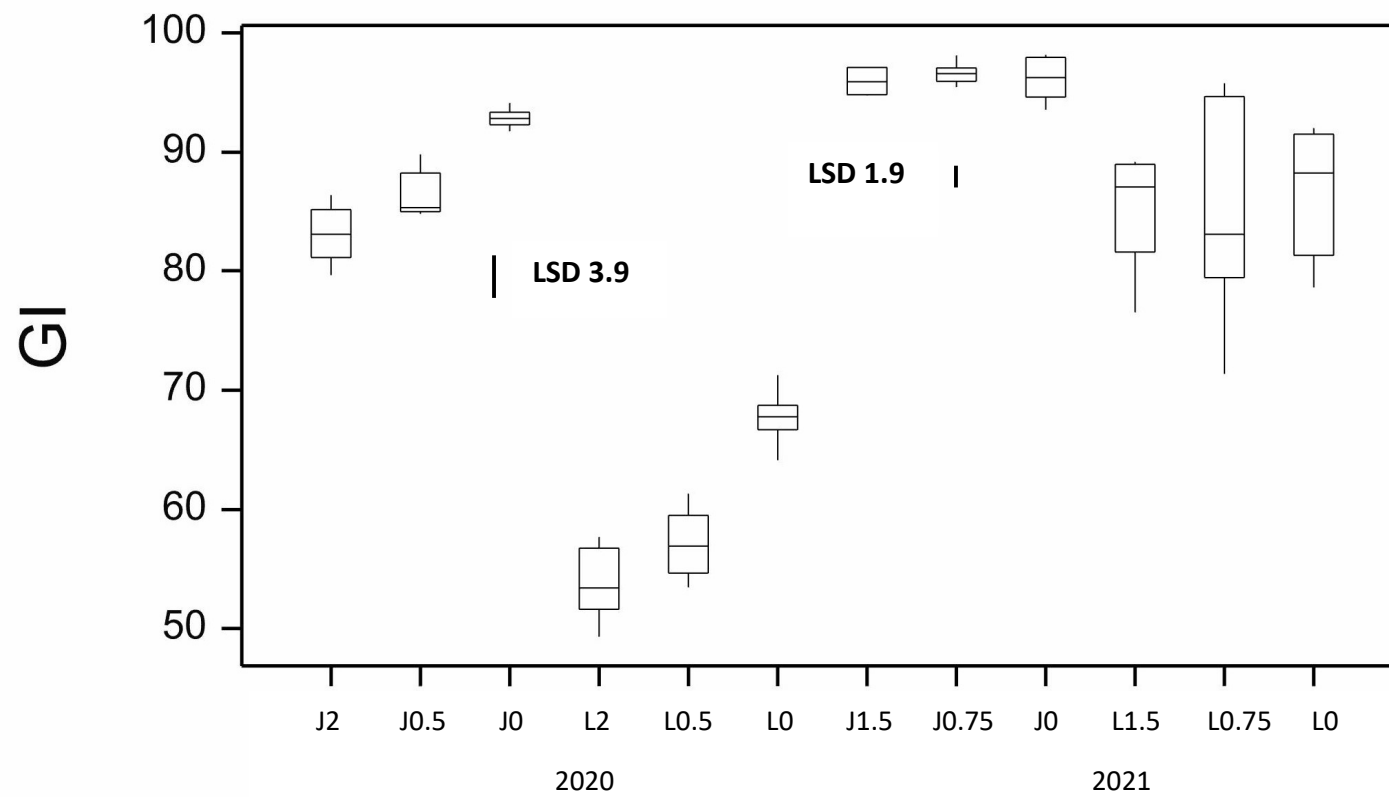


Figure S1. Boxplot showing gluten index (GI) for both varieties at different FCR inoculation rates (g/m) for 2020 and 2021 seasons. LSD statistic shown for each year