

Ergot alkaloid contents in hybrid rye are reduced by breeding

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Supplementary Materials

Table S1. Means of anther score (1-9), ergot severity (%), and ergot alkaloid contents (mg/kg) measured by HPLC and ELISA of 15 single-cross hybrids across all environments and the test environments after inoculation by *Claviceps purpurea*

Hybrid	All environments (N=11)				Test environments (N=2)							
	AS (1-9)		Ergot severity (%)		AS (1-9)		Ergot severity (%)		EA content HPLC (mg/kg)		EA content ELISA (mg/kg)	
K2	3.55	c	3.74	a	2.00	de	11.47	a	45.27	a	75.82	bcd
K5	3.50	c	3.29	a	1.75	de	6.76	b	16.35	b	88.48	abc
K4	3.23	c	2.37	b	1.50	e	5.12	bc	17.27	b	126.99	a
K3	3.68	c	2.01	b	3.00	cd	4.16	c	11.28	c	133.09	a
K15	5.36	b	1.11	c	4.00	bc	3.09	e	9.99	c	112.99	ab
K14	5.82	b	0.66	cde	4.75	b	1.63	e	6.48	de	51.29	cde
K12	7.27	a	0.97	cd	8.25	a	0.57	e	1.51	ef	18.30	e
K17	7.12	a	0.46	de	7.75	a	0.54	e	1.02	ef	28.40	de
K7	7.27	a	0.46	de	8.25	a	0.44	e	5.25	ef	32.64	de
K18	7.36	a	0.53	cde	7.50	a	0.43	e	1.72	ef	43.67	cde
K20	6.87	a	0.33	e	7.75	a	0.39	e	2.25	ef	27.06	de
K19	7.05	a	0.39	de	7.25	a	0.37	e	1.54	ef	27.28	de
K10	7.36	a	0.44	de	7.75	a	0.31	e	1.91	ef	55.85	cde
K8	7.27	a	0.49	de	8.00	a	0.25	e	0.57	f	20.94	de
K9	7.32	a	0.31	e	7.75	a	0.22	e	0.92	ef	22.13	e
Mean	6.00		1.17		5.82		2.38		8.22		57.66	

Table S2. Ergot severity (%) and individual and total ergot alkaloid contents (mg/kg) measured by HPLC of 15 hybrids across two environments

Geno- type	Ergot severity (%)	Ergot alkaloid content HPLC (mg/kg)												Total
		Ergo- metrin	Ergo- metrinin	Ergo- sin	Ergo- sinin	Ergo- tamin	Ergo- taminin	Ergo- cornin	Ergo- corninin	α -Ergo- cryptin	α -Ergo- cryptinin	Ergo- cristin	Ergo- cristinin	
K2	3.74	1.79	0.27	1.09	0.28	8.93	1.35	3.23	0.66	5.45	1.19	18.20	2.82	45.27
K5	3.29	0.80	0.09	0.56	0.14	2.06	0.44	1.81	0.37	3.30	0.67	5.45	0.67	16.35
K4	2.37	0.94	0.16	0.52	0.15	2.51	0.47	1.33	0.30	2.68	0.69	6.69	0.84	17.27
K3	2.01	0.56	0.08	0.35	0.10	1.67	0.32	0.72	0.15	1.64	0.41	4.53	0.75	11.28
K15	1.11	0.41	0.06	0.30	0.06	1.55	0.40	0.92	0.16	1.38	0.24	4.07	0.44	9.99
K12	0.97	0.08	0.00	0.09	0.02	0.18	0.04	0.38	0.08	0.34	0.07	0.21	0.02	1.51
K14	0.66	0.47	0.11	0.27	0.08	1.08	0.22	0.63	0.17	1.06	0.30	1.87	0.23	6.48
K18	0.53	0.17	0.02	0.09	0.02	0.19	0.04	0.17	0.04	0.35	0.09	0.48	0.07	1.72
K8	0.49	0.04	0.00	0.02	0.00	0.17	0.03	0.04	0.01	0.09	0.03	0.12	0.02	0.57
K17	0.46	0.08	0.00	0.05	0.01	0.11	0.03	0.13	0.02	0.28	0.06	0.21	0.03	1.02
K7	0.46	0.20	0.05	0.08	0.01	1.10	0.30	0.11	0.03	0.26	0.05	2.73	0.33	5.25
K10	0.44	0.31	0.11	0.14	0.04	0.06	0.00	0.22	0.06	0.73	0.16	0.07	0.01	1.91
K19	0.39	0.14	0.02	0.11	0.03	0.07	0.02	0.37	0.10	0.42	0.12	0.13	0.02	1.54
K20	0.33	0.13	0.02	0.16	0.05	0.12	0.02	0.60	0.13	0.57	0.16	0.25	0.03	2.25
K9	0.31	0.07	0.00	0.04	0.01	0.14	0.04	0.07	0.01	0.13	0.03	0.37	0.04	0.92

