

**File S1:** Adjusted and location-specific genotype means. Statistical analyses were performed including and excluding Bärnkrafft. Adjusted means were estimated by a mixed model for each trait, separately. Location-specific genotype means for dry matter content, plant height and stem diameter were estimated by a linear model, whereas Friedman Test was used for biomass score and inflorescence volume score. Genotypes with the same letter are not significantly different.

Biomass score (BS)													
		Including Bärnkrafft						Excluding Bärnkrafft					
Entry	Genotype	Heidfeldhof		Eckartsweier		Adjusted Means		Heidfeldhof		Eckartsweier		Adjusted Means	
1	Bärnkrafft	3.0	d	3.0	e	1.50	e	x		x		x	
2	1101	20.0	bc	21.5	bc	6.00	bc	17.0	bc	18.5	bc	6.00	b
3	1115	33.0	a	31.5	a	8.17	a	30.0	a	28.5	a	8.17	a
4	1118	15.5	bc	21.5	bc	5.83	bc	14.5	bc	18.5	bc	5.83	b
5	1231	25.0	ab	18.5	c	6.17	bc	22.0	ab	15.5	c	6.17	b
6	1241	20.5	bc	18.5	c	5.83	bc	17.5	bc	15.5	c	5.83	b
7	1245	7.0	d	6.5	de	3.50	d	4.0	d	3.5	d	3.50	c
8	1283	19.0	bc	27.0	ab	6.33	bc	16.0	bc	24.0	ab	6.33	b
9	1290	24.5	ab	11.0	d	5.67	bc	21.5	ab	8.0	d	5.67	b
10	1299	17.0	bc	28.0	a	6.33	bc	14.0	bcd	25.0	a	6.33	b
11	1396	11.5	cd	11.0	d	4.83	cd	8.5	cd	8.0	d	4.83	bc

Inflorescence Volume Score (IVS)													
		Including Bärnkrafft						Excluding Bärnkrafft					
Entry	Genotype	Heidfeldhof		Eckartsweier		Adjusted Means		Heidfeldhof		Eckartsweier		Adjusted Means	
1	Bärnkrafft	24.0	a	29.0	ab	6.83	ab	x		x		x	
2	1101	30.5	a	31.5	a	7.67	a	27.5	a	29.5	a	7.67	a
3	1115	7.0	e	9.5	d	3.67	e	7.0	d	9.5	d	3.67	e
4	1118	20.0	abc	20.5	abcd	5.83	bc	19.5	ab	19.5	ab	5.83	bc
5	1231	22.0	ab	15.5	cd	5.67	bc	20.5	ab	15.5	ab	5.67	bcd
6	1241	19.0	abcd	17.0	bcd	5.50	bcd	18.0	abc	16.5	abc	5.50	bcd
7	1245	10.0	cde	10.0	d	4.00	de	10.0	bcd	10.0	bcd	4.00	de
8	1283	10.5	bcde	9.5	d	4.00	de	10.0	bcd	9.5	bcd	4.00	de
9	1290	25.0	a	13.5	cd	5.83	bc	23.5	a	13.5	a	5.83	bc
10	1299	7.5	de	17.0	bcd	4.33	ce	7.5	cd	17.0	cd	4.33	ce
11	1396	22.5	a	25.0	abc	6.17	ab	21.7	a	24.5	a	6.17	ab

Plant height (PH) [cm]													
		Including Bärnkrafft						Excluding Bärnkrafft					
Entry	Genotype	Heidfeldhof		Eckartsweier		Adjusted Means		Heidfeldhof		Eckartsweier		Adjusted Means	
1	Bärnkrafft	107.11	e	111.81	f	109.46	e	x		x		x	
2	1101	211.96	ab	246.96	ac	229.46	ab	211.96	ab	246.96	ac	229.46	ab
3	1115	239.60	a	267.12	a	253.36	a	239.60	a	267.12	a	253.36	a
4	1118	175.43	d	215.85	cd	195.64	bd	175.43	c	215.85	cd	195.64	bd
5	1231	208.27	bc	230.66	bc	219.47	ab	208.27	ab	230.66	bc	219.47	ab
6	1241	200.64	bd	222.42	c	211.53	bc	200.64	bc	222.42	c	211.53	bc
7	1245	171.15	d	151.56	e	161.36	d	171.15	c	151.56	e	161.36	d
8	1283	201.71	bd	232.12	bc	216.91	b	201.71	bc	232.12	bc	216.91	b
9	1290	171.24	d	185.12	d	178.18	cd	171.24	c	185.12	d	178.18	cd
10	1299	189.44	bd	259.97	ab	224.70	ab	189.44	bc	259.97	ab	224.70	ab
11	1396	179.59	cd	218.18	c	198.88	bc	179.59	bc	218.18	cd	198.88	bc

Stem diameter (SD) [mm]													
		Including Bärnkrafft						Excluding Bärnkrafft					
Entry	Genotype	Heidfeldhof		Eckartsweier		Adjusted Means		Heidfeldhof		Eckartsweier		Adjusted Means	
1	Bärnkrafft	15.18	c	13.40	f	14.29	e	x		x		x	
2	1101	20.67	ab	21.07	ab	20.87	ab	20.67	ab	21.07	ab	20.87	ab
3	1115	19.52	b	15.82	cdf	17.67	cd	19.52	b	15.82	cde	17.67	cd
4	1118	17.16	bc	17.49	bcde	17.33	cd	17.16	bc	17.49	bcde	17.33	cd
5	1231	24.61	a	22.30	a	23.46	a	24.61	a	22.30	a	23.46	a
6	1241	17.83	bc	18.66	ad	18.25	bc	17.83	bc	18.66	ad	18.25	bc
7	1245	14.68	c	15.13	df	14.91	de	14.68	c	15.13	de	14.91	d
8	1283	19.60	b	16.82	cdf	18.21	bc	19.60	b	16.82	cde	18.21	bc
9	1290	17.03	bc	14.44	ef	15.74	ce	17.03	bc	14.44	e	15.74	cd
10	1299	17.03	bc	19.37	ac	18.20	bc	17.03	bc	19.37	ac	18.20	bc
11	1396	20.82	ab	21.20	ab	21.01	ab	20.82	ab	21.20	ab	21.01	ab

Dry matter content (DMC) [%]													
		Including Bärnkrafft						Excluding Bärnkrafft					
Entry	Genotype	Heidfeldhof		Eckartsweier		Adjusted Means		Heidfeldhof		Eckartsweier		Adjusted Means	
1	Bärnkrafft	26.59	a	22.37	a	24.48	a	x		x		x	
2	1101	22.93	be	21.57	ac	22.25	b	22.93	ac	21.57	ab	22.25	ab
3	1115	22.58	be	20.98	ad	21.78	b	22.58	ac	20.98	ac	21.78	ab
4	1118	23.14	be	20.93	ad	22.04	b	23.14	ac	20.93	ac	22.04	ab
5	1231	21.34	e	17.84	e	19.59	c	21.34	c	17.84	d	19.59	c
6	1241	24.44	b	20.02	cd	22.23	b	24.44	a	20.02	bc	22.23	ab
7	1245	23.95	bc	21.90	ab	22.93	ab	23.95	ab	21.90	a	22.93	a
8	1283	21.68	de	20.31	bcd	20.99	bc	21.68	c	20.31	ac	20.99	bc
9	1290	22.55	be	21.25	ad	21.90	b	22.55	ac	21.25	ac	21.90	ab
10	1299	22.25	cd	20.74	ad	21.50	bc	22.25	bc	20.74	ac	21.50	ab
11	1396	23.36	bcd	19.68	d	21.52	bc	23.36	ac	19.68	c	21.52	ab