

Article

Differentiation and Non-Linear Responses in Temporal Phenotypic Plasticity of Seasonal Phenophases in a Common Garden of *Crataegus monogyna*

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Supplementary materials: Figures

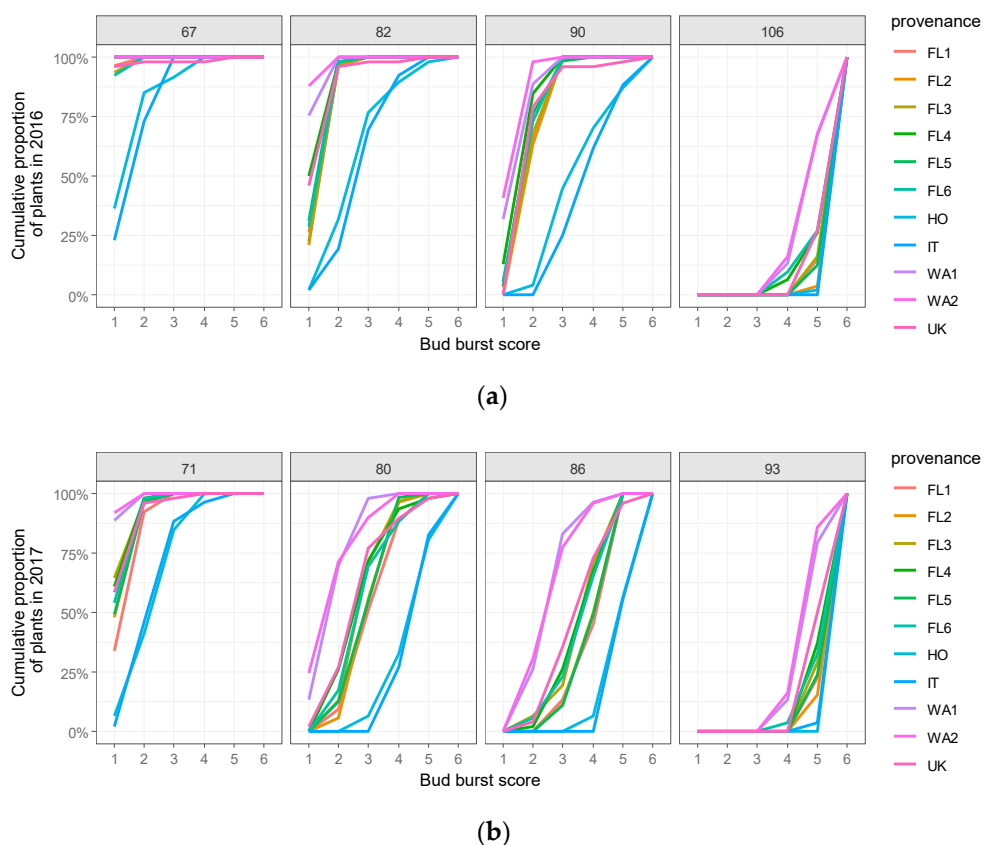
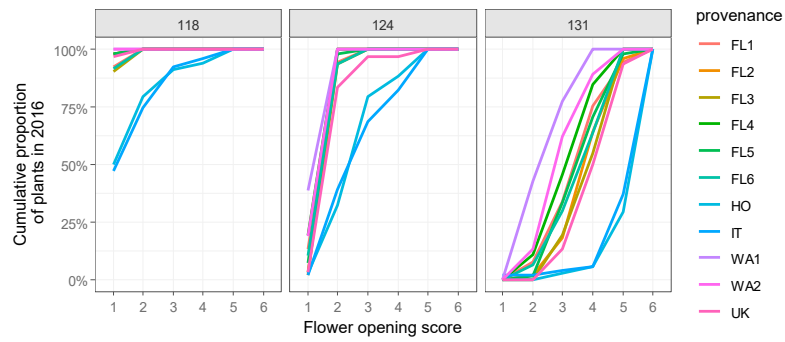
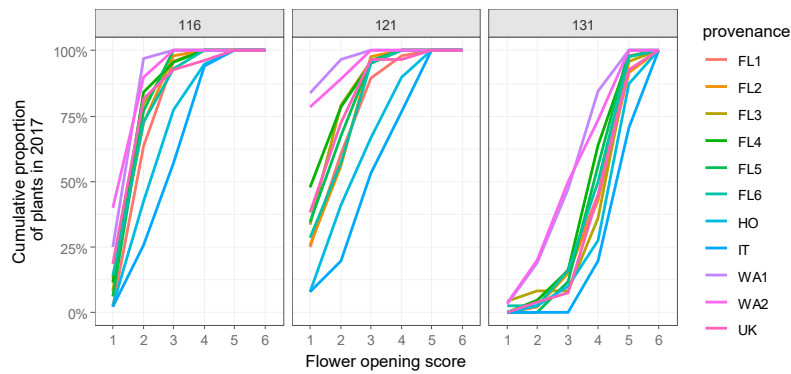


Figure S1. Scores of bud burst in the common garden on four observation days in the years 2016 (a) and 2017 (b). Provenance abbreviations are in Table 1. Descriptions of score levels are in Table 2.

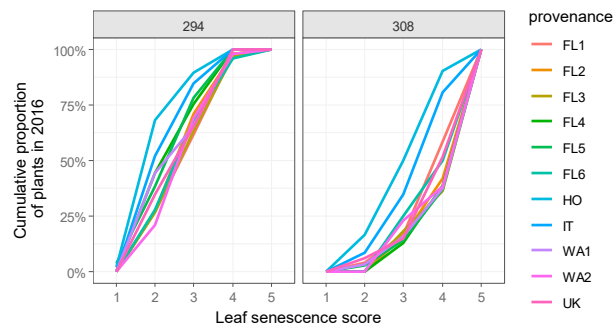


(a)

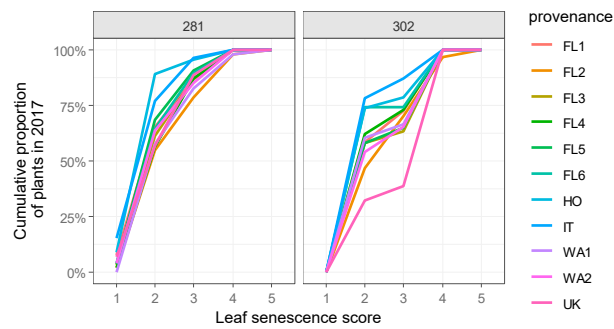


(b)

Figure S2. Scores of flower opening in the common garden on three observation days in the years 2016 (a) and 2017 (b). Provenance abbreviations are in Table 1. Descriptions of score levels are in Table 2.

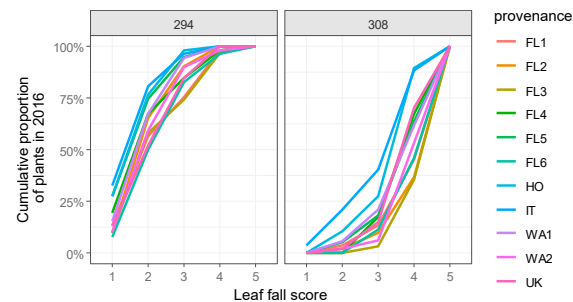


(a)

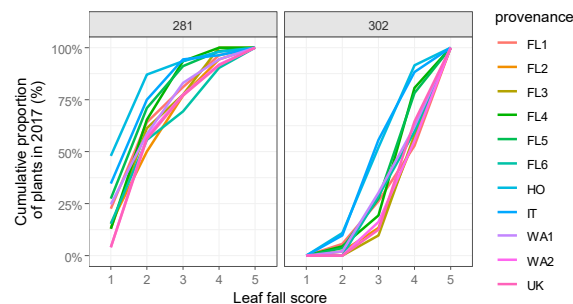


(b)

Figure S3. Scores of leaf senescence in the common garden on two observation days in the years 2016 (a) and 2017 (b). Provenance abbreviations are in Table 1. Descriptions of score levels are in Table 2.



(a)



(b)

Figure S4. Scores of leaf fall in the common garden on two observation days in the years 2016 (a) and 2017 (b). Provenance abbreviations are in Table 1. Descriptions of score levels are in Table 2.

Supplementary materials: Tables

Table S1. Model statistics for bud burst and flower opening. The provenance FL1 and the year 2017 are the standard levels for the categorical variables provenance and year, to which the other year, 2016, and the other provenances are compared. Provenance abbreviations are in Table 1.

variable	bud burst				flower opening			
	estimate	std. error	z-value	p-value	estimate	std. error	z-value	p-value
DOY	-0,64	0,01	-44,97	< 0,001***	-0,46	0,01	-38,98	< 0,001***
2016	8,29	0,30	27,30	< 0,001***	2,84	0,24	12,06	< 0,001***
FL2	0,28	0,45	0,62	0,534	0,11	0,32	0,35	0,724
FL3	1,06	0,52	2,05	0,040*	0,30	0,38	0,80	0,426
FL4	1,23	0,46	2,66	0,008**	0,86	0,33	2,65	0,008**
FL5	0,41	0,44	0,93	0,351	0,46	0,31	1,50	0,135
FL6	1,02	0,45	2,28	0,023*	0,30	0,32	0,93	0,355
HO	-3,75	0,47	-7,90	< 0,001***	-1,11	0,33	-3,34	< 0,001***
IT	-3,99	0,46	-8,62	< 0,001***	-2,19	0,32	-6,94	< 0,001***
WA1	4,02	0,45	8,84	< 0,001***	2,37	0,36	6,55	< 0,001***
WA2	4,24	0,46	9,13	< 0,001***	2,28	0,37	6,11	< 0,001***
UK	1,37	0,46	3,01	0,003**	0,56	0,37	1,51	0,132**
2016:FL2	-0,56	0,34	-1,64	0,101	-0,39	0,33	-1,19	0,233
2016:FL3	-1,14	0,39	-2,94	0,003**	-0,77	0,39	-1,97	0,049*
2016:FL4	0,07	0,35	0,21	0,837	-0,44	0,34	-1,32	0,188
2016:FL5	-0,10	0,34	-0,31	0,761	-0,50	0,32	-1,56	0,119
2016:FL6	-0,51	0,34	-1,51	0,130	-0,40	0,33	-1,19	0,236
2016:HO	-2,44	0,37	-6,54	< 0,001***	-1,91	0,36	-5,30	< 0,001***
2016:IT	-3,15	0,36	-8,73	< 0,001***	-0,99	0,33	-3,05	0,002**
2016:WA1	-1,01	0,35	-2,91	0,004**	-0,90	0,38	-2,40	0,016*
2016:WA2	-0,62	0,36	-1,75	0,080	-1,59	0,39	-4,04	< 0,001***
2016:UK	-0,94	0,35	-2,73	0,006**	-1,21	0,39	-3,11	0,002**

Significant results: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Table S2. Model statistics for leaf senescence and leaf fall. The provenance FL1 and the year 2017 are the standard levels for the categorical variables provenance and year, to which the other year, 2016, and the other provenances are compared. Provenance abbreviations are in Table 1.

variable	leaf senescence				leaf fall			
	estimate	std. error	z-value	p-value	estimate	std. error	z-value	p-value
DOY	0,10	0,01	15,08	< 0,001***	0,27	0,01	31,88	< 0,001***
2016	1,32	0,33	4,06	< 0,001***	-1,89	0,29	-6,47	< 0,001***
FL2	0,66	0,38	1,75	0,081	0,66	0,47	1,41	0,159
FL3	0,30	0,44	0,68	0,498	0,50	0,54	0,93	0,354
FL4	0,10	0,38	0,26	0,798	-0,38	0,48	-0,80	0,422
FL5	-0,07	0,37	-0,19	0,853	-0,77	0,46	-1,67	0,094
FL6	-0,11	0,39	-0,29	0,770	0,38	0,47	0,81	0,417
HO	-1,21	0,40	-3,06	0,002**	-2,16	0,48	-4,49	< 0,001***
IT	-1,25	0,38	-3,25	0,001**	-1,68	0,47	-3,60	< 0,001***
WA1	0,47	0,38	1,24	0,215	-0,13	0,46	-0,27	0,788
WA2	0,29	0,39	0,74	0,460	0,76	0,48	1,59	0,111
UK	0,76	0,38	2,00	0,045*	0,66	0,48	1,38	0,168
2016:FL2	-0,73	0,45	-1,62	0,106	-0,79	0,41	-1,94	0,052
2016:FL3	-0,16	0,53	-0,31	0,757	-0,01	0,47	-0,02	0,984
2016:FL4	-0,20	0,45	-0,44	0,658	-0,43	0,41	-1,04	0,299
2016:FL5	-0,09	0,44	-0,21	0,834	-0,40	0,39	-1,02	0,308
2016:FL6	0,06	0,46	0,13	0,898	-0,22	0,41	-0,53	0,598
2016:HO	-0,39	0,46	-0,86	0,391	0,34	0,41	0,84	0,402
2016:IT	0,33	0,44	0,76	0,450	-0,66	0,40	-1,65	0,100
2016:WA1	-0,47	0,45	-1,05	0,294	-0,72	0,40	-1,80	0,072
2016:WA2	-0,19	0,46	-0,41	0,683	-0,99	0,41	-2,42	0,016*
2016:UK	-0,82	0,45	-1,81	0,070	-1,13	0,41	-2,76	0,006**

Significant results: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.