

**Supplemental Table 1: Complementation analysis of *ph2*, *ph3* and *ph4* mutants.**

mutant	tester line	Number of progeny with flower color phenotype <sup>1</sup>	
		“wild type” ( <i>PH</i> )	mutant ( <i>ph</i> )
<i>ph3-V2068</i>	V23 ( <i>ph1</i> )	18	0
<i>ph3-V2068</i>	V26 ( <i>ph2</i> )	6	0
<i>ph3-V2068</i>	R143 ( <i>ph3</i> )	0	18
<i>ph3-V2068</i>	V64 ( <i>ph4</i> )	14	0
<i>ph3-V2068</i>	W160 ( <i>an1</i> )	18	0
<i>ph4-V2153</i>	V23 ( <i>ph1</i> )	29	0
<i>ph4-V2153</i>	V26 ( <i>ph2</i> )	6	0
<i>ph4-V2153</i>	R143 ( <i>ph3</i> )	16	0
<i>ph4-V2153</i>	R144 ( <i>ph3-V2068</i> )	24	0
<i>ph4-V2153</i>	V64 ( <i>ph4</i> )	0	18
<i>ph4-V2153</i>	V63( <i>ph4</i> )	0	14
<i>ph4-V2153</i>	V69 ( <i>ph5</i> )	15	0
<i>ph4-V2153</i>	W160 ( <i>an1</i> )	16	0
<i>ph4-V2166</i>	V23 ( <i>ph1</i> )	18	0
<i>ph4-V2166</i>	V26 ( <i>ph2</i> )	6	0
<i>ph4-V2166</i>	R143 ( <i>ph3</i> )	18	0
<i>ph4-V2166</i>	V64 ( <i>ph4</i> )	1 (revertant)	13
<i>ph4-V2166</i>	R152 ( <i>ph4-G5037</i> )	2 (revertant)	15
<i>ph4-V2166</i>	V69 ( <i>ph5</i> )	18	0
<i>ph4-V2166</i>	W160 ( <i>an1</i> )	15	0
<i>ph4-X2377</i>	V23 ( <i>ph1</i> )	15	0
<i>ph4-X2377</i>	V26 ( <i>ph2</i> )	35	0
<i>ph4-X2377</i>	R144 ( <i>ph3-V2068</i> )	40	0
<i>ph4-X2377</i>	R152 ( <i>ph4-G5037</i> )	0	40
<i>ph4-X2377</i>	R150 ( <i>ph4-V2166</i> )	0	19
<i>ph4-X2377</i>	V69 ( <i>ph5</i> )	40	0
<i>ph4-X2377</i>	W160 ( <i>an1</i> )	40	0
<i>ph4-X2377</i>	R146 ( <i>ph7</i> )	40	0
<i>ph4-X2052</i>	V23 ( <i>ph1</i> )	12	0
<i>ph4-X2052</i>	V26 ( <i>ph2</i> )	34	0
<i>ph4-X2052</i>	R 152 ( <i>ph4-G5037</i> )	0	9
<i>ph4-X2052</i>	V69 ( <i>ph5</i> )	21	0
<i>ph4-X2052</i>	R159 ( <i>ph5-A2209</i> )	38	0
<i>ph4-X2052</i>	W160 ( <i>an1</i> )	13	0
<i>ph4-X2052</i>	R146 ( <i>ph7</i> )	8	0
<i>ph4-B3021</i>	V23 ( <i>ph1</i> )	20	0
<i>ph4-B3021</i>	V26 ( <i>ph2</i> )	44	0
<i>ph4-B3021</i>	R143 ( <i>ph3</i> )	40	0
<i>ph4-B3021</i>	R144 ( <i>ph3-V2068</i> )	20	0
<i>ph4-B3021</i>	R149 ( <i>ph4-V2153</i> )	0	37
<i>ph4-B3021</i>	V69 ( <i>ph5</i> )	20	0
<i>ph4-B3021</i>	W160 ( <i>an1</i> )	20	0
<i>ph4-B3021</i>	R146 ( <i>ph7</i> )	24	0
<i>ph4-C3540</i>	V23 ( <i>ph1</i> )	20	0
<i>ph4-C3540</i>	V26 ( <i>ph2</i> )	36	0
<i>ph4-C3540</i>	R143 ( <i>ph3</i> )	33	0
<i>ph4-C3540</i>	R149 ( <i>ph4-V2153</i> )	0	37
<i>ph4-C3540</i>	V63 ( <i>ph4</i> )	0	36
<i>ph4-C3540</i>	V69 ( <i>ph5</i> )	34	0
<i>ph4-C3540</i>	W160 ( <i>an1</i> )	35	0
<i>ph2-A2414</i>	V23 ( <i>ph1</i> )	30	0
<i>ph2-A2414</i>	V26 ( <i>ph2</i> )	1 (revertant)	66
<i>ph2-A2414</i>	R144 ( <i>ph3-V2068</i> )	35	0
<i>ph2-A2414</i>	R147 ( <i>ph4-X2052</i> )	28	0
<i>ph2-A2414</i>	R149 ( <i>ph4-V2153</i> )	40	0
<i>ph2-A2414</i>	V69 ( <i>ph5</i> )	30	0
<i>ph2-A2414</i>	W138 ( <i>an1-W138</i> )	40	0

<sup>1</sup> In crosses with the *HFI* lines V23, V26, V64 and V69 a wild type phenotype (*PH*) was seen as a “reddish-violet” flower color, whereas a mutant phenotype (*ph*) appears as “blue-violet” color, similar to the colors shown in Figure 2H and 2 J. In crosses with the *hflhf2* lines R143, R149, W160 and R146 the *PH* phenotype is seen as a “red” flower color (cf Figure 2A), whereas, a mutant (*ph*) phenotype is seen as a “purplish” color (cf. Figure 2C and 2D).