

**Table S6. The growth characteristics of silver birch non-transgenic clones and transgenic lines.**

Clone / Line	1 <sup>st</sup> growing season	2 <sup>nd</sup> growing season	3 <sup>rd</sup> growing season
<b>Stem height (m)</b>			
A	0.94 ± 0.1 (51)	1.86 ± 0.13 (44)	2.41 ± 0.12 (9)
A1	0.77 ± 0.09 (51) ***	1.7 ± 0.09 (41) ***	2.1 ± 0.05 (9) **
A2	0.58 ± 0.08 (51) ***	1.49 ± 0.13 (40) ***	1.93 ± 0.09 (9) **
A5	0.88 ± 0.09 (51) ***	1.85 ± 0.15 (44)	2.4 ± 0.01 (9)
E5382	0.84 ± 0.12 (51)	1.74 ± 0.1 (44)	2.08 ± 0.11 (9)
E5382/3	0.91 ± 0.11 (43) **	1.82 ± 0.11 (35)***	2.16 ± 0.06 (9)
<b>Stem diameter (mm)</b>			
A	NA	11.17 ± 0.92 (44)	12.77 ± 0.96 (9)
A1	NA	10.05 ± 0.76 (41) ***	13.17 ± 0.92 (9)
A2	NA	9.16 ± 1.23 (40) ***	12.8 ± 1.06 (9)
A5	NA	11.0 ± 0.89 (44)	13.73 ± 1.22 (9)
E5382	NA	9.36 ± 0.86 (44)	11.73 ± 0.67 (9)
E5382/3	NA	9.62 ± 0.86 (35)	11.86 ± 0.5 (9)
<b>Stem height (m)</b>			
E5396	0.14 ± 0.04 (60)	1.2 ± 0.27 (60)	NA
E5396/4	0.04 ± 0.01 (60) ***	0.2 ± 0.11 (60) ***	NA
<b>Stem diameter (mm)</b>			
E5396	3.73 ± 0.46 (60)	7.5 ± 0.87 (60)	NA
E5396/4	2.58 ± 0.33 (60) ***	3.54 ± 0.56 (60) ***	NA

Clone A and E5382 and lines A1, A2, A5 and E5382/3 were taken to greenhouse in June and were in the same experimental set-up for two years, which after the number of individual silver birches per clone/line was reduced to 9. The experimental set-up for clone E5396 and transgenic line E5396/4 was started one year later in August. The growth parameters were recorded in the end of each growing season. Pairwise comparison of non-transgenic clone and transgenic line according to the independent-samples t-test, or Wilcoxon test. The number of biological replicates in parentheses. \* =  $P < 0.05$ , \*\* =  $P < 0.01$ , \*\*\* =  $P < 0.001$ , NA = value not recorded

**Table S7. The phenology of autumn leaf senescence at the end of first growing season.**

Clone		26 Sept.	2 Oct.	9 Oct.
/ Line	Class	%	%	%
A	A	2		
	B	55		
	C	39	16	
	D	4	84	100
A1	A	12		
	B	84	10	
	C	3	61	
	D		29	100
A2	A	73	6	
	B	27	82	2
	C		10	39
	D		2	59
A5	A			
	B	82	10	
	C	18	37	2
	D		53	98
E5382	A			
	B	39		
	C	51	14	
	D	10	86	100
E5382/3	A	2		
	B	28		
	C	58	2	
	D	12	98	100

The yellowing of leaves was categorised to four classes at three dates (the 26<sup>th</sup> September, the 2<sup>nd</sup> of October, and the 9<sup>th</sup> of October). The classes were A) leaves are green; B) some yellowing leaves; C) less than 50% of leaves are yellowing; D) more than 50% of leaves are yellowing. Values represent percentages of plants falling to each class at separate dates within each clone/line.

**Table S8. Relative growth rates (mg/d) of lepidopteran larvae.** The leaves of silver birch (*Betula pendula*) clones (A and E5382) and lines (A1, A2, A5 and E5382/3) were offered to the larvae of *Aethalura punctulata*, *Cleora cinctaria*, *Epirrita autumnata*, and *Orthosia gothica*.

Species		Clone		Lines		Clone	Line
		A	A1	A2	A5	E5382	E5382/3
<i>A. punctulata</i>	I	0.26 ± 0.12 (13)	0.36 ± 0.1 (14)	0.29 ± 0.12 (15)	0.29 ± 0.07 (14)	0.32 ± 0.12 (15)	0.27 ± 0.10 (14)
	II	0.35 ± 0.2 (14)	0.29 ± 0.12 (12)	0.32 ± 0.11 (14)	0.30 ± 0.08 (14)	0.29 ± 0.1 (14)	0.29 ± 0.1 (15)
<i>C. cinctaria</i>	I	0.42 ± 0.09 (15)	0.39 ± 0.17 (12)	0.40 ± 0.17 (14)	0.40 ± 0.12 (10)	0.46 ± 0.1 (15)	0.49 ± 0.14 (13)
	II	0.37 ± 0.13 (14)	0.43 ± 0.18 (11)	0.44 ± 0.15 (13)	0.38 ± 0.19 (12)	0.35 ± 0.18 (12)	0.35 ± 0.16 (16)
<i>E. autumnata</i>	I	0.25 ± 0.06 (15)	0.28 ± 0.1 (11)	0.27 ± 0.11 (12)	0.22 ± 0.11 (10)	0.21 ± 0.1 (12)	0.16 ± 0.12 (10)
	II	0.23 ± 0.16 (13)	0.26 ± 0.06 (10)	0.28 ± 0.12 (10)	0.30 ± 0.13 (11)	0.28 ± 0.13 (13)	0.18 ± 0.12 (15)
<i>O. gothica</i>		0.40 ± 0.27 (10)	0.46 ± 0.28 (13)	0.51 ± 0.28 (8)	0.50 ± 0.27 (12)	0.44 ± 0.3 (12)	0.50 ± 0.27 (9)

Values represent RGR mean (±SD, number of biological replicates in parentheses).