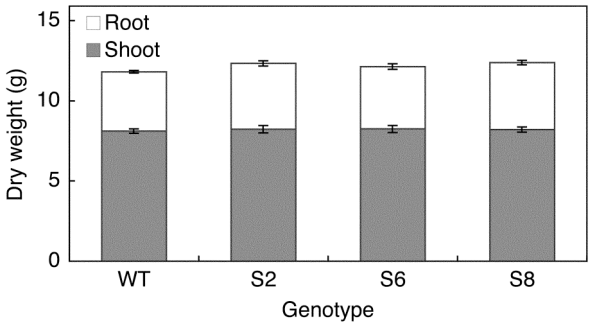
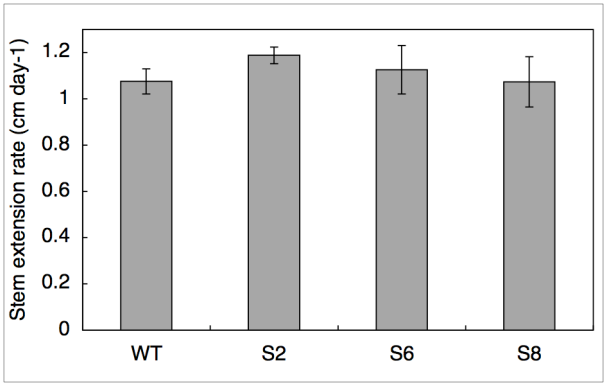


Supplemental Figure 1. Biomass accumulation of *N. sylvestris* lines.
Plants were grown at 500 μmol m^{-2} s^{-1} light for 7 weeks. Dry weight was determined after that 2 g (fresh weight) of shoot tissue had been removed from each plant for other analyses. Data are shown as means ± SEM for 6 plants.



Supplemental Figure 2. Stem extension rates in *N. sylvestris* lines.
The extension rate was determined at 8 cm height of the stem. The graph shows the average ± SEM for four growth experiments, each constituting 3-6 plants of each transgenic line.

Supplemental Table 1. Relative metabolite content of fully expanded leaves from *N. sylvestris*. Metabolites were determined as described in the Materials and Methods. Data are normalised with respect to the mean response calculated for the wild type. Values are presented as mean ± SE of determinations on six individual plants per line. Values set in bold type were determined by the *t*-test to be significantly different ($P < 0.05$) from the wild type.

Metabolites	WT	S2	S6	S8
Alanine	1.00 ± 0.16	0.86 ± 0.08	0.82 ± 0.08	0.84 ± 0.07
β-alanine	1.00 ± 0.13	0.85 ± 0.06	0.87 ± 0.05	1.00 ± 0.08
Valine	1.00 ± 0.04	1.16 ± 0.07	1.00 ± 0.07	0.94 ± 0.08
Proline	1.00 ± 0.16	0.81 ± 0.08	0.94 ± 0.10	1.14 ± 0.26
Serine	1.00 ± 0.12	0.84 ± 0.07	0.93 ± 0.04	1.11 ± 0.06
Isoleucine	1.00 ± 0.09	1.38 ± 0.14	1.20 ± 0.14	0.93 ± 0.16
Phenylalanine	1.00 ± 0.08	1.05 ± 0.05	0.99 ± 0.02	1.03 ± 0.08
Glycine	1.00 ± 0.06	0.99 ± 0.05	0.87 ± 0.05	0.91 ± 0.05
Threonine	1.00 ± 0.12	1.13 ± 0.04	1.25 ± 0.06	0.94 ± 0.05
Allo-threonine	1.00 ± 0.12	1.14 ± 0.04	1.26 ± 0.06	0.95 ± 0.05
Gamma-amino butyrate	1.00 ± 0.17	0.85 ± 0.11	1.01 ± 0.17	1.12 ± 0.16
Glycolate	1.00 ± 0.02	0.92 ± 0.04	0.91 ± 0.03	**0.90 ± 0.03**
Glycerate	1.00 ± 0.04	**1.15 ± 0.05**	1.01 ± 0.03	1.09 ± 0.09
2-Oxoglutarate	1.00 ± 0.12	0.95 ± 0.06	0.87 ± 0.08	0.84 ± 0.07
Succinate	1.00 ± 0.10	0.89 ± 0.03	0.84 ± 0.04	0.85 ± 0.04
Fumarate	1.00 ± 0.08	0.93 ± 0.05	0.97 ± 0.07	0.94 ± 0.04
Maleate	1.00 ± 0.11	0.74 ± 0.10	0.75 ± 0.10	0.84 ± 0.08
Citrate	1.00 ± 0.08	0.99 ± 0.07	1.29 ± 0.22	1.29 ± 0.15
Malate	1.00 ± 0.03	**1.17 ± 0.06**	1.04 ± 0.04	1.12 ± 0.09
Threonate	1.00 ± 0.03	1.10 ± 0.06	0.97 ± 0.05	1.09 ± 0.10
Nicotinate	1.00 ± 0.10	0.93 ± 0.02	0.86 ± 0.04	0.96 ± 0.07
2-methyl-malate	1.00 ± 0.11	**0.60 ± 0.07**	0.96 ± 0.06	1.19 ± 0.08
Dehydroascorbate	1.00 ± 0.07	1.14 ± 0.11	1.05 ± 0.09	0.97 ± 0.03
Ascorbate	1.00 ± 0.04	1.29 ± 0.24	0.90 ± 0.04	1.04 ± 0.09
Shikimate	1.00 ± 0.04	**1.28 ± 0.05**	**1.25 ± 0.04**	**1.20 ± 0.07**
Caffeic acid (trans)	1.00 ± 0.12	0.84 ± 0.13	0.83 ± 0.13	0.88 ± 0.09
Caffeoyl quinic acid (cis)	1.00 ± 0.15	0.86 ± 0.04	0.75 ± 0.08	0.66 ± 0.06
Caffeoyl quinic acid (trans)	1.00 ± 0.06	1.08 ± 0.05	1.03 ± 0.08	1.29 ± 0.12
Galactonic acid-1,4-lactone	1.00 ± 0.06	1.06 ± 0.03	1.06 ± 0.04	0.98 ± 0.01
Fructose	1.00 ± 0.06	**1.32 ± 0.05**	1.14 ± 0.04	1.11 ± 0.08
Raffinose	1.00 ± 0.12	0.69 ± 0.06	0.77 ± 0.09	0.80 ± 0.05
Maltotriose	1.00 ± 0.08	1.24 ± 0.10	0.96 ± 0.10	0.85 ± 0.08
Sorbose	1.00 ± 0.03	1.13 ± 0.05	1.03 ± 0.02	1.14 ± 0.08
Maltose	1.00 ± 0.07	0.88 ± 0.04	**0.79 ± 0.03**	1.00 ± 0.04
Trehalose	1.00 ± 0.07	1.02 ± 0.04	0.92 ± 0.02	0.94 ± 0.02
Isomaltose	1.00 ± 0.03	0.96 ± 0.10	0.77 ± 0.10	0.84 ± 0.07
Xylose	1.00 ± 0.08	1.05 ± 0.04	0.91 ± 0.07	0.91 ± 0.02
Sorbitol	1.00 ± 0.03	**1.15 ± 0.05**	1.03 ± 0.02	1.12 ± 0.08
Galactinol	1.00 ± 0.15	0.97 ± 0.15	0.90 ± 0.06	0.88 ± 0.12
Glycerol	1.00 ± 0.05	1.10 ± 0.14	0.92 ± 0.02	0.86 ± 0.05
Myo-inositol,	1.00 ± 0.05	1.20 ± 0.08	1.01 ± 0.06	1.20 ± 0.13
Glucose-6-phosphate	1.00 ± 0.13	1.12 ± 0.10	0.84 ± 0.10	0.86 ± 0.12
Phosphoric acid	1.00 ± 0.18	1.30 ± 0.12	1.18 ± 0.19	1.00 ± 0.15
4-hydroxy-pyridine	1.00 ± 0.05	0.99 ± 0.09	0.87 ± 0.05	0.89 ± 0.04
Urea	1.00 ± 0.12	0.81 ± 0.08	0.81 ± 0.09	0.78 ± 0.08
Benzoic acid	1.00 ± 0.02	1.10 ± 0.03	0.99 ± 0.03	1.09 ± 0.08

Supplemental Table 2. Relative metabolite content of stems from *N.sylvestris*. Metabolites were determined as described in the Materials and Methods. Data are normalised with respect to the mean response calculated for the wild type. Values are presented as mean ± SE of determinations on six individual plants per line. Values set in bold type were determined by *t*-test to be significantly different ($P < 0.05$) from the wild type.

Metabolites	WT	S2	S6	S8
Alanine	1.00 ± 0.12	0.84 ± 0.12	0.70 ± 0.05	**0.63 ± 0.06**
β-alanine	1.00 ± 0.06	0.88 ± 0.04	0.86 ± 0.05	0.90 ± 0.05
Valine	1.00 ± 0.10	0.88 ± 0.07	1.08 ± 0.06	0.96 ± 0.07
Proline	1.00 ± 0.09	**0.64 ± 0.05**	0.81 ± 0.08	0.90 ± 0.12
Serine	1.00 ± 0.05	0.86 ± 0.04	0.95 ± 0.04	0.96 ± 0.04
O-acetyl-serine	1.00 ± 0.13	0.83 ± 0.04	0.93 ± 0.07	0.75 ± 0.07
Isoleucine	1.00 ± 0.11	1.16 ± 0.13	**1.48 ± 0.15**	1.24 ± 0.16
Methionine	1.00 ± 0.08	1.04 ± 0.08	1.02 ± 0.04	1.14 ± 0.14
Glutamate	1.00 ± 0.05	**0.79 ± 0.04**	**0.81 ± 0.03**	0.92 ± 0.10
Threonate	1.00 ± 0.06	0.98 ± 0.06	1.07 ± 0.07	0.94 ± 0.09
Glycerate	1.00 ± 0.07	1.10 ± 0.04	1.17 ± 0.09	0.86 ± 0.05
Gamma-amino buturate	1.00 ± 0.05	0.91 ± 0.07	0.83 ± 0.05	0.95 ± 0.10
Succinate	1.00 ± 0.05	1.04 ± 0.07	1.03 ± 0.05	0.99 ± 0.08
Fumarate	1.00 ± 0.12	1.05 ± 0.14	1.08 ± 0.17	0.91 ± 0.11
2-oxoglutarate	1.00 ± 0.04	1.06 ± 0.03	0.94 ± 0.05	**0.87 ± 0.02**
Malate	1.00 ± 0.06	0.99 ± 0.02	1.13 ± 0.06	1.01 ± 0.05
Citrate	1.00 ± 0.09	1.14 ± 0.08	1.02 ± 0.08	0.91 ± 0.08
Pyroglutamate	1.00 ± 0.04	0.89 ± 0.04	0.93 ± 0.03	1.04 ± 0.05
Shikimate	1.00 ± 0.07	0.94 ± 0.06	1.05 ± 0.08	0.89 ± 0.09
Xylose	1.00 ± 0.04	1.13 ± 0.05	1.15 ± 0.06	1.00 ± 0.03
Raffinose	1.00 ± 0.13	0.90 ± 0.08	0.94 ± 0.13	1.09 ± 0.20
Fructose	1.00 ± 0.08	0.97 ± 0.06	1.05 ± 0.08	0.98 ± 0.08
Galactose	1.00 ± 0.09	1.00 ± 0.06	1.09 ± 0.13	0.90 ± 0.13
Galactonic acid	1.00 ± 0.04	1.11 ± 0.02	1.02 ± 0.04	0.93 ± 0.03
Glucaric acid-1,4-lactone	1.00 ± 0.16	1.28 ± 0.13	1.02 ± 0.18	1.23 ± 0.17
Myo-inositol	1.00 ± 0.04	1.03 ± 0.04	1.07 ± 0.05	1.00 ± 0.03
Dehydroascorbate	1.00 ± 0.05	1.07 ± 0.04	0.92 ± 0.05	1.04 ± 0.09
Ascorbate	1.00 ± 0.18	1.02 ± 0.10	0.67 ± 0.07	**0.37 ± 0.08**
Glyceraldehyde-3-phosphate	1.00 ± 0.05	0.94 ± 0.04	1.08 ± 0.04	0.96 ± 0.05
Fructose-6-phosphate	1.00 ± 0.09	0.83 ± 0.01	0.94 ± 0.04	0.96 ± 0.06
Glucose-6-phosphate	1.00 ± 0.09	0.85 ± 0.03	0.96 ± 0.05	0.90 ± 0.06
Trehalose	1.00 ± 0.02	**0.88 ± 0.03**	**0.84 ± 0.03**	0.96 ± 0.04
Tyramine	1.00 ± 0.11	0.85 ± 0.08	0.87 ± 0.06	**0.59 ± 0.03**
Putrescine	1.00 ± 0.07	0.90 ± 0.10	0.85 ± 0.08	0.86 ± 0.10
Spermidine	1.00 ± 0.08	0.91 ± 0.06	1.06 ± 0.05	0.97 ± 0.03
Glycerol	1.00 ± 0.11	0.87 ± 0.04	0.99 ± 0.09	0.91 ± 0.10
4-hydroxy-pyridine	1.00 ± 0.09	0.88 ± 0.05	1.01 ± 0.09	0.86 ± 0.08
Quinic acid	1.00 ± 0.10	0.92 ± 0.06	1.04 ± 0.08	0.88 ± 0.09
Phosphoric acid	1.00 ± 0.07	0.93 ± 0.08	1.11 ± 0.09	0.97 ± 0.06
Benzoic acid	1.00 ± 0.25	0.59 ± 0.23	0.99 ± 0.30	0.97 ± 0.21
Uracil	1.00 ± 0.08	0.99 ± 0.10	1.07 ± 0.14	0.90 ± 0.09
Urea	1.00 ± 0.12	0.85 ± 0.07	1.13 ± 0.13	1.09 ± 0.08