

**Table S1.** Results of a two-way ANOVA (family, drought and family × drought) for root:shoot, stomatal conductance, net photosynthesis, water use efficiency, and changes in height and diameter of eight *Pinus contorta* families displaying source of variation, F-value and *p*-value. Significant sources of variation are highlighted in bold.

Source of Variation	F-value	<i>p</i> -value
<b>Root:Shoot</b>		
Family	2.520	<b>0.023</b>
Drought	0.760	0.388
Family × Drought	0.550	0.788
<b>Stomatal conductance (gs)</b>		
Family	0.490	0.823
Drought	39.180	<b>&lt;0.001</b>
Family × Drought	1.360	0.314
<b>Net photosynthesis (Pn)</b>		
Family	0.820	0.569
Drought	22.120	<b>&lt;0.001</b>
Family × Drought	0.780	0.605
<b>Water use efficiency (iWUE)</b>		
Family	0.660	0.703
Drought	70.320	<b>&lt;0.001</b>
Family × Drought	1.360	0.226
<b>Changes in height</b>		
Family	2.220	0.049
Drought	0.080	0.775
Family × Drought	2.030	0.070
<b>Changes in diameter</b>		
Family	1.49	0.194
Drought	9.73	<b>0.003</b>
Family × Drought	1.30	0.269

**Table S2.** Results of two-way ANOVA (family, drought and family × drought) for relative gene expression of five aquaporin genes (*PiconPIP1;2*, *PiconPIP2;1*, *PiconPIP2;2*, *PiconPIP2;3*, and *PiconTIP1;1*) from eight families of *Pinus contorta* displaying source of variation, F-value and p-value. Significant sources of variation highlighted in bold.

Source of Variation	F-value	p-value
<b><i>PiconPIP1;2</i></b>		
Family	27.45	<b>&lt;0.001</b>
Drought	30.05	<b>&lt;0.001</b>
Family × Drought	1.30	0.283
<b><i>PiconPIP2;1</i></b>		
Family	25.23	<b>&lt;0.001</b>
Drought	4.47	<b>0.042</b>
Family × Drought	10.05	<b>&lt;0.001</b>
<b><i>PiconPIP2;2</i></b>		
Family	22.70	<b>&lt;0.001</b>
Drought	2.42	0.129
Family × Drought	12.45	<b>&lt;0.001</b>
<b><i>PiconPIP2;3</i></b>		
Family	52.29	<b>&lt;0.001</b>
Drought	0.28	0.603
Family × Drought	6.27	<b>&lt;0.001</b>
<b><i>PiconTIP1;1</i></b>		
Family	9.08	<b>&lt;0.001</b>
Drought	0.01	0.921
Family × Drought	6.70	<b>&lt;0.001</b>

**Table S3.** Primer name and sequences for quantitative real-time PCR analysis of five aquaporins and two internal control genes.

<b>Primer name</b>	<b>Primer sequences</b>
<i>Pine_ACT7</i>	For: 5' - CCTTCCATCGTCCACAGAAA -3' Rev: 5' - CCACCATCATCTCAAGCAAAC -3'
<i>Pine_EF-1a</i>	For: 5' - CTGCGGTCAAGAAGGGTAAA -3' Rev: 5' - CTCGTGCATCAGAATCAGACA -3'
<i>PinePIP1;2_qPCR</i>	For: 5' - GGACTGGTAACACCTGTGTATTG -3' Rev: 5' - CAGATGGCTCTTGGCCTAAAT -3'
<i>PinePIP2;2_qPCR</i>	For: 5' - GTCAGTGTCTCAAGTCTGTAGG -3' Rev: 5' - ATTCTCCTCACTGTTGCTACTT -3'
<i>PinePIP2;1_qPCR</i>	For: 5' - AAAGTCCAGGGTGATGATGAG -3' Rev: 5' - CTGCTGCTACTGTGACTACAA -3'
<i>PinePIP2;3_qPCR</i>	For: 5' - CAGGTGGACTTGTCTGTGTATC -3' Rev: 5' - TTCTCTTACCGGTTTCTCATC -3'
<i>PineTIP1;1_qPCR</i>	For: 5' - GCGTATCTACGAGCTGTTA -3' Rev: 5' - GCCCTGTAAGAAGCCACTTTA -3'

**Table S4.** Aquaporin gene and primer sequences for cloning five aquaporin genes.

<b>Gene</b>	<b>Primer sequences</b>
<i>PiconPIP1;2</i>	For: 5' - ATGGCGACTTTCCTGTTTCTTT -3' Rev: 5' - CTAGGAGCGAGTTTTGAAGGG -3
<i>PiconPIP2;1</i>	For: 5' - ATGACAAAGGAAGAAAGGAAGGA -3' Rev: 5' - TTACACATTTGCGTTGCTTCG -3'
<i>PiconPIP2;2</i>	For: 5' - ATGGCTAAGGAAGGTGGCAA -3' Rev: 5' - GGGTTGCTGCGGAAGGAT -3'
<i>PiconPIP2;3</i>	For: 5' - ATGATAAATGAAGAAGGAGCTGTATCGG -3' Rev: 5' - TTACGCATTAACGTTGCCTCGGAAC -3'
<i>PiconTIP1;1</i>	For: 5' - ATGCCGTTCCGAGGAATTGC -3' Rev: 5' - TCAGTACTCGTTCGAGGGCAAC -3'

**Table S5.** Primer name and sequences for 3' rapid amplification of cDNA ends (RACE).

<b>Primer name</b>	<b>Primer sequences</b>
3'-RACE-Q0	5' - CCAGTGAGCAGAGTGACG -3'
3'-RACE-Q1	5' - GAGGACTCGAGCTCAAGC -3'
3'-RACE-QT	5' - CCAGTGAGCAGAGTGACGAGGACTCG AGCTCAAGCTTTTTTTTTTTTTTTTTT -3'
<i>PiconPIP2;3-GSP1</i>	5' - CTGCCGCTGATCTCATTGAC -3'
<i>PiconPIP2;3-GSP2</i>	5' - TTGGTTTACTGCACTGCTGG -3'
<i>PiconPIP2;1-GSP1</i>	5' - AGAAGTTGAGCAGCAGGGAT -3'
<i>PiconPIP2;1-GSP2</i>	5' - ATGTGGCCAAGGACTACACA -3'

