SUPPLEMENTAL MATERIAL

SM Table 1: Treatments, replication, and planting containers for experiments (Exp) 1 and 2 in different seasons.

Species	Exp	Season	Treatment				Reps per treat[2]	Pots per treat[3]	Cuttings per species	Pot size (cm)
			Soak (d)	IBA (%)	Salix water	Smoke water				
Salix ssp.	1	Summer	0, 1, 3, 5, 10, 20	0, 0.1, 0.8			3	1	54	10x10x10
	1	Fall	0, 1, 3, 5, 10, 20	0, 0.1, 0.4, 0.8			6	2	144	10x10x10
	1	Spring	0, 1, 3, 5, 10, 20	0, 0.1, 0.4, 0.8			9	3	216	10x10x10
	2	Fall		0, 0.1, 0.4, 0.8	0.5, 1, 2	0.05, 0.1, 0.5	10	10	100	10x3x3

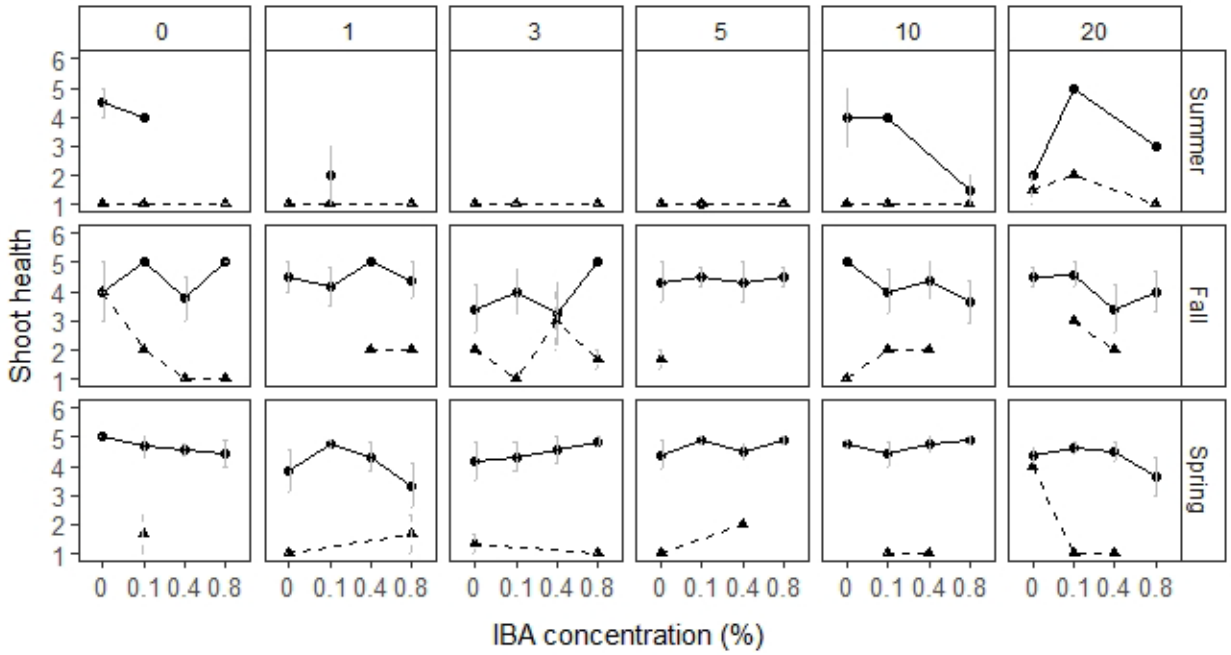
[1] Number of replicate cuttings per treatment
[2] Number of pots per treatment

SM Table 2: Summary statistics for maximum (max) and mean number of roots and longest root length for *Salix* ssp. cuttings in experiments (Exp) 1 and 2 at different times of year. SE = standard error. NR = no roots.

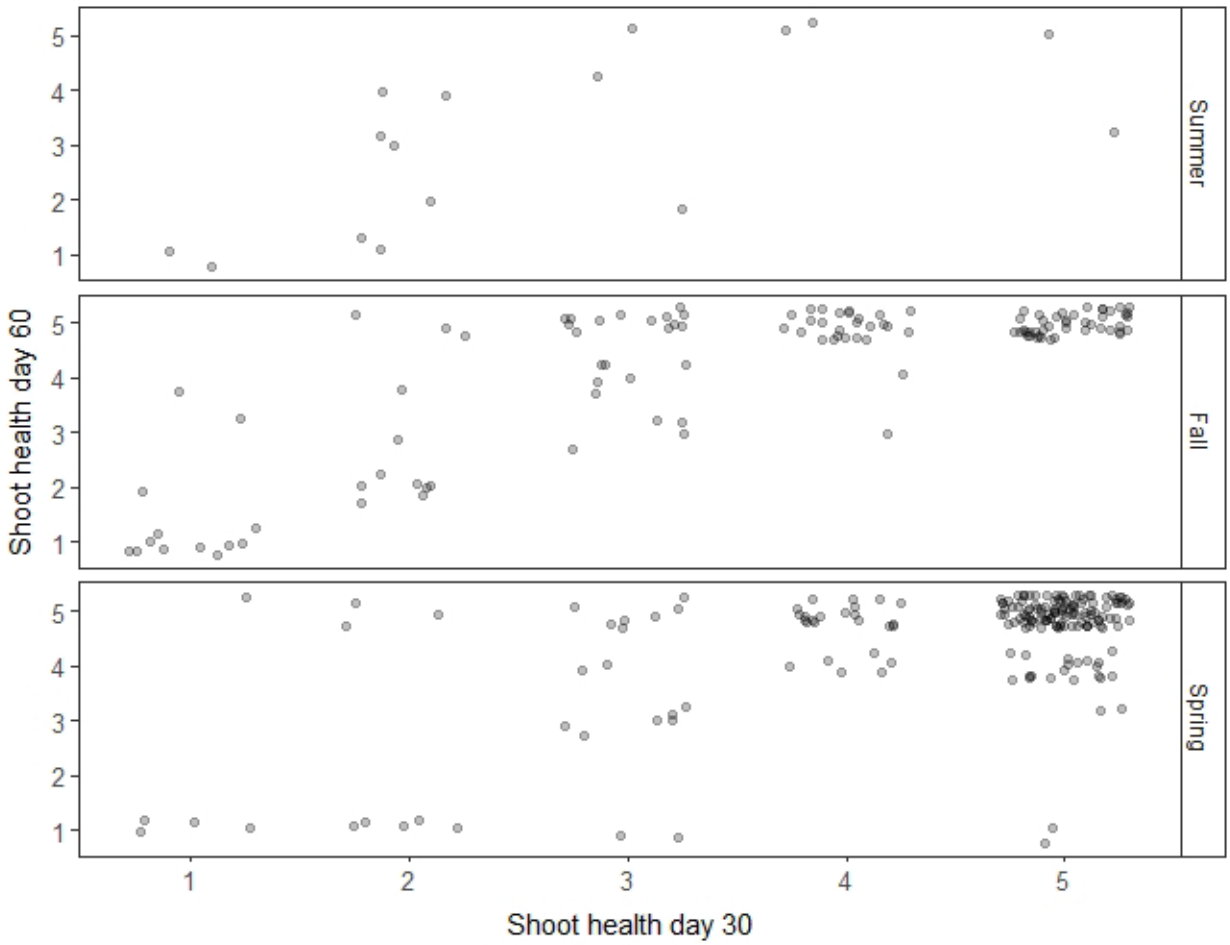
Species	Exp	Season	Percent rooting ± SE	Max # roots	Mean # roots (all cuttings) ± SE	Mean # roots (rooted cuttings) ± SE	Max length (cm)	Mean length (cm) ± SE	n rooted	n planted
Salix ssp.	1	Summer	29.6 (0.1)	9	0.9 (0.3)	3.1 (0.6)	55.5	13.5 (4.6)	16	54
		Fall	83.3 (0.0)	80	8.1 (0.8)	9.7 9 (0.9)	45.6	19.9 (1.0)	120	144
		Spring	88.0 (0.0)	52	10.5 (0.6)	11.9 (0.6)	41.0	17.0 (0.6)	190	216
	2	Fall	93.9 (0.0)	30	9.9 (0.7)	10.5 (0.7)	42.4	23.0 (0.9)	93	100

SM Table 3: Number of roots and longest root length for *Salix* ssp. cuttings separated by treatment (IBA concentration (%), soaking time (day), *Salix* water extract, smoke water extract) in fall and spring in experiments 1 and 2. Maximum (max) and minimum (min) number of roots and length of roots on second line in brackets.

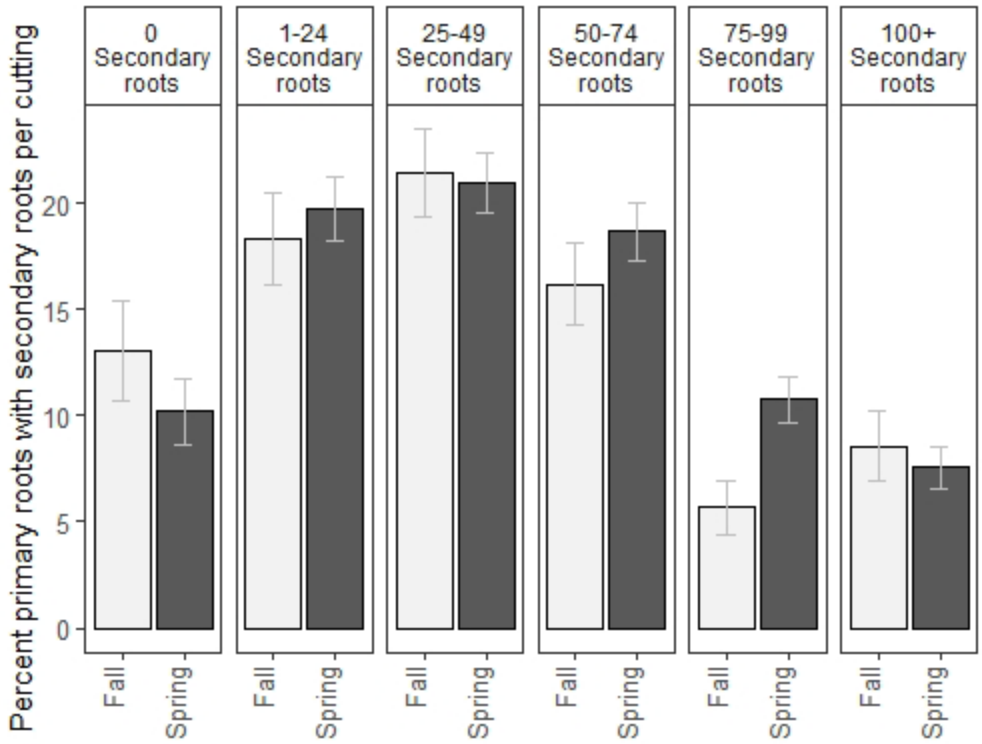
Treatment	Number roots ± SE (max/min)		Length longest root (cm) ± SE (max/min)		N	
Experiment 1						
	Fall	Spring	Fall	Spring	Fall	Spring
IBA %						
0	6.1±1.1 (18/1)	8.9±0.7 (20/1)	21.3±2.5 (42.0/0.1)	18.5±1.2 (33.7/0.6)	28	47
0.1	7.7±1.0 (21/1)	10.8±0.9 (25/1)	20.0±1.7 (38.0/ 0.1)	17.8±1.2 (41.0/0.6)	32	46
0.4	9.5±1.2 (30/1)	14.9±1.2 (44/2)	19.0±2.4 (45.6/2.5)	16.4±1.2 (33.0/1.3)	28	49
0.8	12.9±1.5 (32/1)	13.0±1.6 (52/1)	19.3±1.7 (34.5/2.5)	15.3± (32.0/1.8)	31	48
Soaking (day)						
0	11.2±1.9 (30/1)	10.1±1.1 (27/1)	22.6±2.9 (45.0/0.6)	14.9±1.3 (29.5/0.6)	18	33
1	9.1±1.5 (25/1)	8.9±1.1 (22/2)	23.1±2.4 (45.6/0.1)	14.5±1.5 (32.0/0.6)	21	31
3	6.7±1.5 (20/1)	9.6±1.0 (24/1)	17.3±3.3 (42.0/0.1)	15.9±1.4 (31/0.8)	17	30
5	10.6±1.4 (30/2)	14.1±1.5 (44/2)	17.7±2.3 (43.3/2.5)	16.9±1.2 (31.5/2.9)	21	34
10	8.4±1.7 (28/1)	15.0±2.0 (52/3)	20.6±2.4 (40.4/4.8)	22.0±1.4 (33.0/6.6)	20	31
20	8.6±1.7 (32/2)	13.8±1.5 (33/1)	17.9±1.9 (31.6/2.9)	17.8±1.9 (41.0/2.3)	22	31
Experiment 2						
Control	12.7±2.0 (23/3)		23.8±2.2 (36.3/14.2)		9	
IBA						
0.1	9.0±1.9 (18/2)		17.5±3.1 (33.8/2.9)		9	
0.4	14.0±2.1 (28/7)		25.5±2.0 (37.2/19.0)		9	
0.8	13.8±2.7 (30/6)		23.0±2.7 (41.8/11.5)		10	
Salix water						
0.5	7.9±1.1 (12/3)		19.2±3.8 (42.1/4.0)		10	
1	6.9±1.9 (22/1)		26.2±3.1 (40.8/8.9)		10	
2	7.9±1.6 (16/4)		26.2±4.9 (42.4/2.2)		7	
Smoke water						
0.05	12.5±1.9 (23/5)		20.1±2.1 (33.0/11.3)		10	
0.1	13.4±2.5 (24/5)		30.7±2.1 (38.0/20.2)		9	
0.5	7.5±1.7 (19/2)		19.6±1.9 (28.5/12.9)		10	



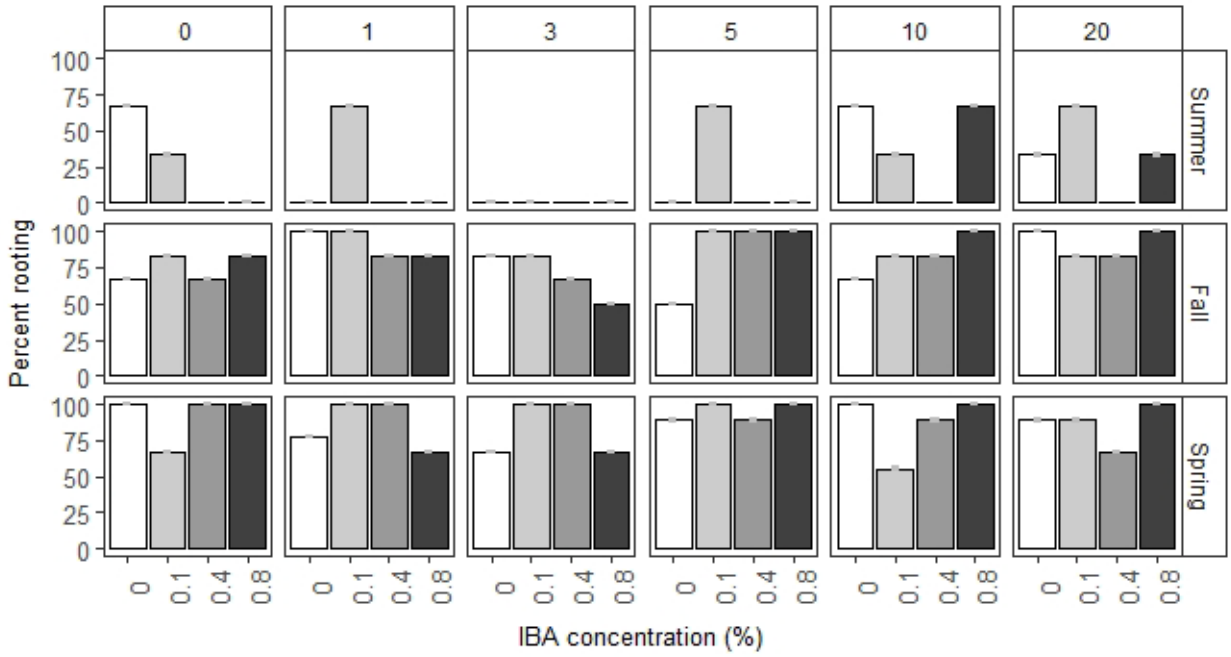
SM Figure 1: Shoot health at day 60 for *Salix* ssp. cuttings in experiment 1 that rooted (circle, solid line) and did not root (triangle, dashed line) by IBA concentration (%) (x-axis), season (horizontal panels), and soaking time (days) (vertical panels) with standard error of the mean. There were n = 3 (summer), n = 6 (fall), and n = 9 (spring) cuttings for each soaking x IBA treatment. Shapes without error bars represent a single cutting.



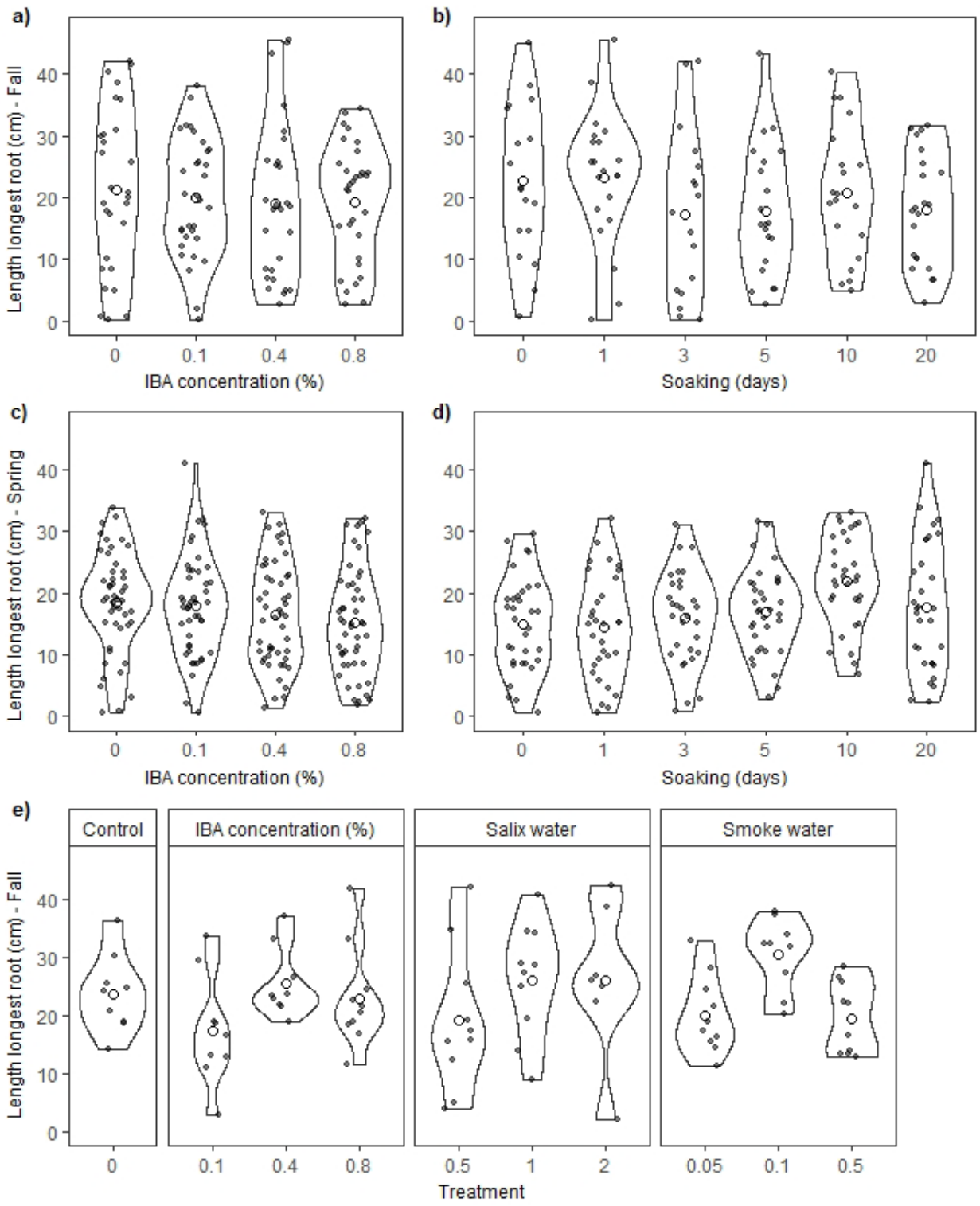
SM Figure 2: Jitter plot for correlation between shoot health at day 60 and shoot health at day 30 for rooted *Salix* ssp. cuttings in summer, fall, and spring in experiment 1. Each point in a jitter plot had a small value (between 0 and 0.3) added to both values on x and y axes to visually separate points.



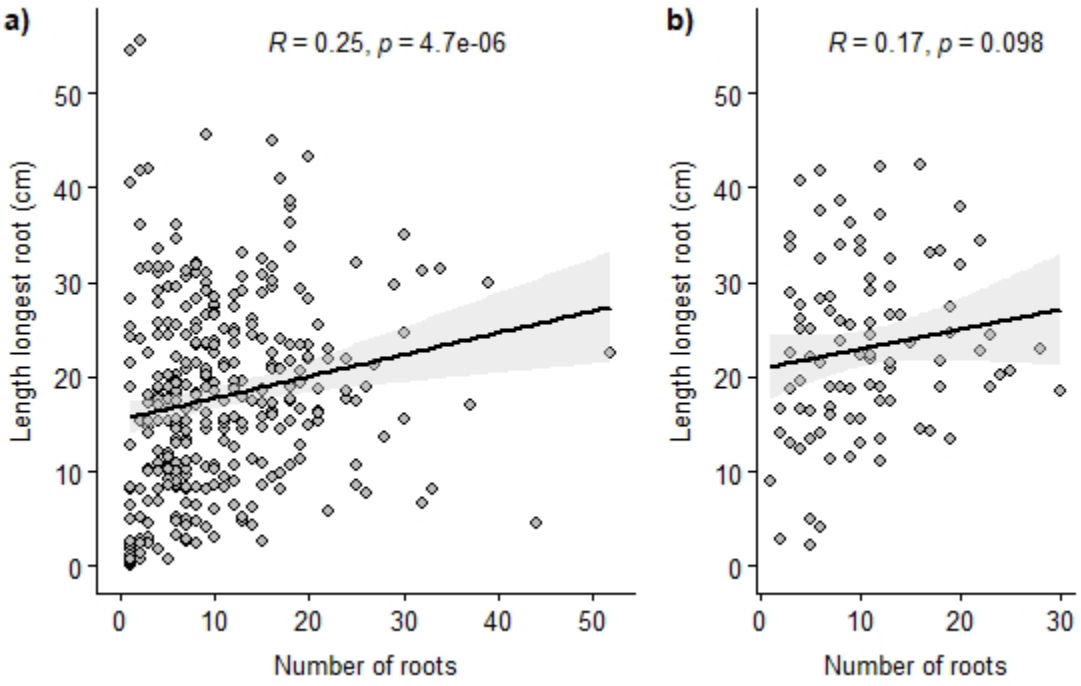
SM Figure 3: Percent of *Salix* ssp. cuttings with standard error in experiment 1 with secondary roots in different categories (vertical panels) in different seasons (x-axis). Fall bars are n = 120, spring bars are n = 190.



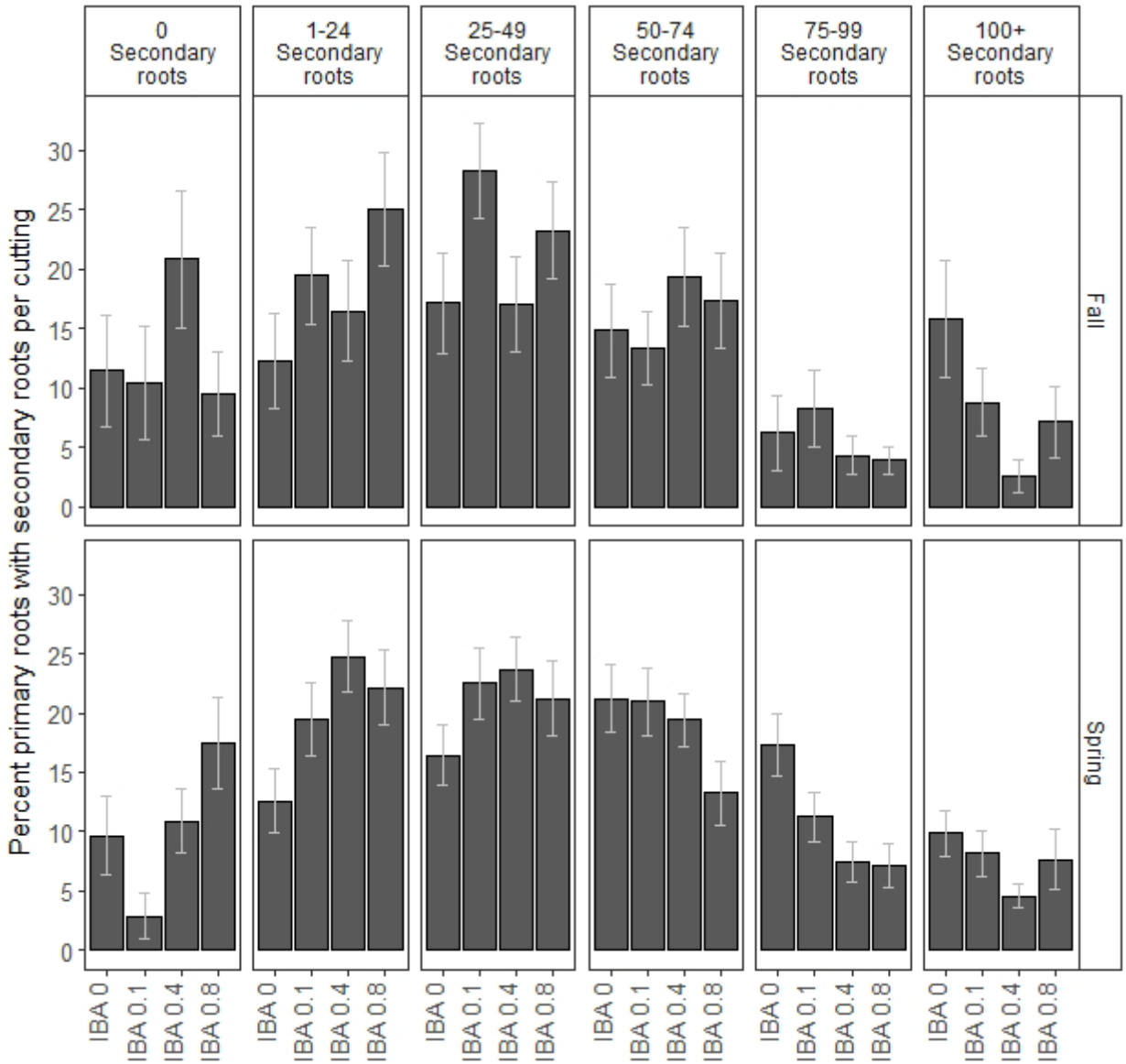
SM Figure 4: Percentage of rooted *Salix* ssp. cuttings with standard error in experiment 1 by soaking time (vertical panels, 0, 1, 3, 5, 10, 20 days), IBA concentration (0, 0.1, 0.4, 0.8 % IBA) and at different times of year (horizontal panels) Summer cuttings received three IBA concentrations (0, 0.1, 0.8 % IBA). Each bar is n = 3 (summer), n = 6 (fall), and n = 9 (spring).



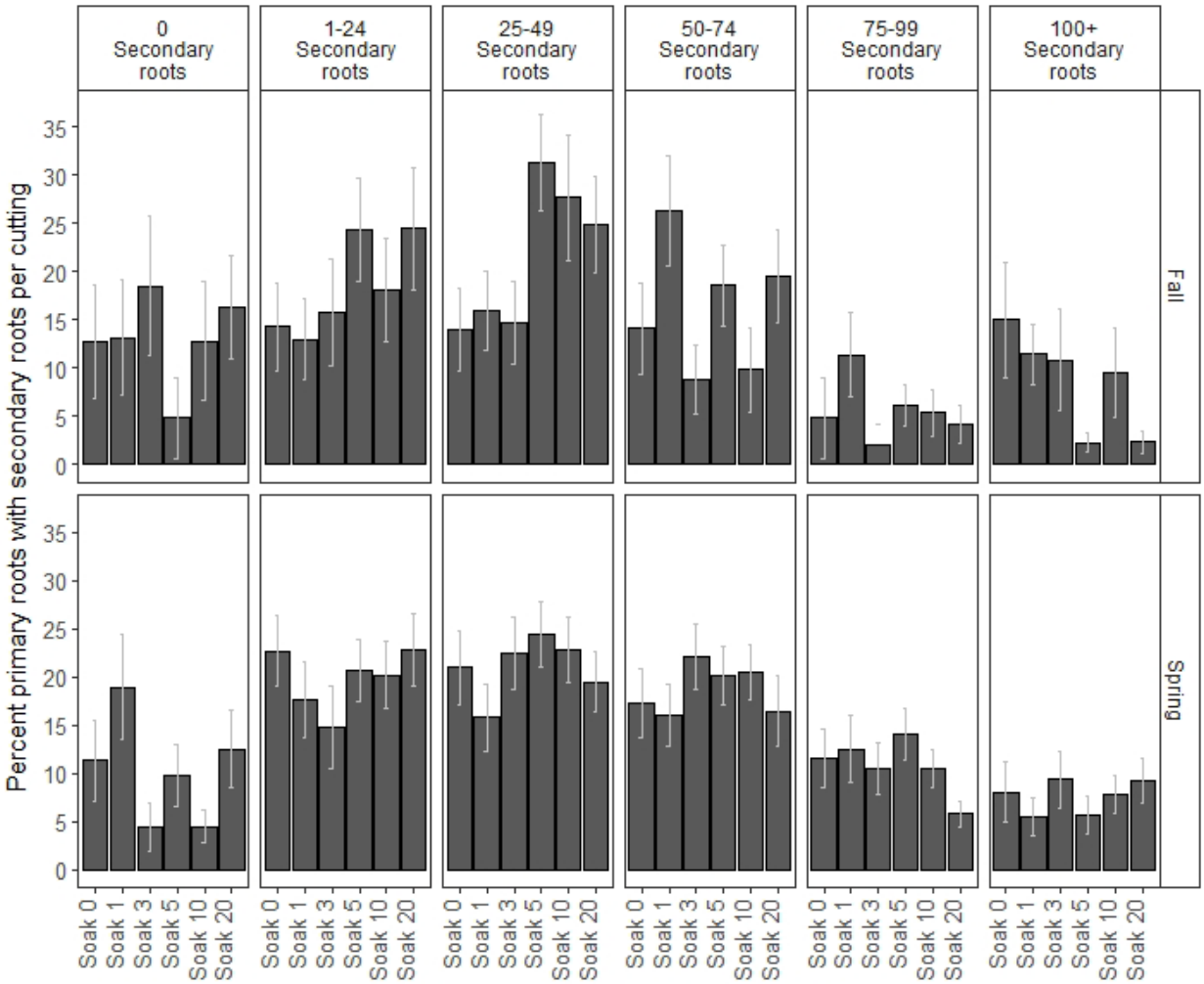
SM Figure 5: Violin and jitter plots for longest root length (cm) in fall (a, b, e) and spring (c, d) on rooted *Salix* ssp. cuttings from experiment 1 for IBA concentration (%) (a, c), soaking time (days) (b, d), and from experiment 2 by treatment (e). Closed circles represent individual roots, open circles represent treatment means. Each closed circle in the jitter plot had a small value (between 0 and 0.2) added to the value on the x axis to visually separate points. Black lines for each violin plot use density curves to show the data distribution, with wider areas having a higher frequency of data points than narrower areas.



SM Figure 6: Correlation between number of roots and longest root length for rooted *Salix* ssp. cuttings in experiment 1 a) (n = 326) and experiment 2 b) (n = 100).



SM Figure 7: Percent of *Salix* ssp. cuttings with standard error in experiment 1 with secondary roots in different categories (vertical panels) by IBA concentration (%) (x axis) in different seasons (horizontal panels). Fall bars are n = 36 and spring bars are n = 54.



SM Figure 8: Percent of *Salix* ssp. cuttings with standard error in experiment 1 with secondary roots in different categories (vertical panels) by soaking time (days) (x axis) in different seasons (horizontal panels). Fall bars are n = 24 and spring bars are n = 36.