1   **Table S1** Basic sample plot information.

Thinning treatment	Thinning intensity	Altitude (m)	Aspect	Slope (°)	Stand age (a)	DBH (m)	Tree height (m)	Crown Width (m)
CK	0%	2298	North	22	35	15.04	14.25	2.55
LT	15%	2335	North	25	35	14.83	14.06	2.79
MT	35%	2345	North	23	35	16.05	15.90	2.94
HT	50%	2355	North	23	35	16.66	15.41	3.21

2   DBH: diameter at breast height, CK: control, LT: light thinning, MT: medium thinning, HT: high thinning.

3

4 **Table S2** Classification of microbial community types.

Microbial community types	PLFAs	Reference
Gram-positive bacteria	13:0 iso, 14:0 iso, 15:0 iso, 16:0 iso, 17:0 iso 18:0 iso, 19:0 iso, a15:0, a16:0, a17:0	Chen et al. (2017); Ma et al. (2015)
Gram-negative bacteria	15:1 w4c, 16:1 w6c, 16:1 w7c, 16:1 w9c, 18:1 w5c, 18:1 w7c, 18:1 w9c, 17:0 cyclo, 19:0 cyclo,	Lozano et al. (2014); Bowman et al. (1991); Ma et al. (2015); Chen et al. (2017); Nie et al. (2013)
Sap	18:2w6c, 18:2w9c	Smith et al. (2014); You et al. (2014); Nie et al. (2013)
AMF	16:1 w5c	You et al. (2014); Nie et al. (2013); Smith et al. (2014)
Actinomycete	10Me16:0, 10Me17:0, 10Me18:0, 10Me19:0	Brockett et al. (2012)

5 AMF: arbuscular mycorrhizal fungi, Sap: saprotrophic fungi.

Table S3 Soil parameters in different thinning treatments.

Months	Treatments	Soil water content	Soil pH	Soil organic carbon (g · kg⁻¹)	Soil total nitrogen (g · kg⁻¹)	The ratio of soil carbon to nitrogen	Soil microbial biomass carbon (mg · kg⁻¹)
Aug, 2015	CK	0.28 ± 0.05a	6.68 ± 0.20ab	53.43 ± 2.64b	4.15 ± 0.33b	12.91 ± 0.40a	1648.56 ± 417.86b
	LT	0.35 ± 0.08a	6.45 ± 0.03b	56.18 ± 1.42ab	4.51 ± 0.13b	12.48 ± 0.06ab	1931.63 ± 214.14ab
	MT	0.37 ± 0.11a	6.57 ± 0.20b	58.12 ± 0.21a	5.07 ± 0.19a	11.45 ± 0.25c	2202.65 ± 203.06a
	HT	0.37 ± 0.07a	6.86 ± 0.05a	53.01 ± 2.20b	4.36 ± 0.21b	12.19 ± 0.20b	2170.09 ± 180.42ab
Apr, 2016	CK	0.65 ± 0.13a	5.73 ± 0.18b	40.76 ± 7.48a	2.81 ± 0.41ab	14.46 ± 0.54a	689.29 ± 235.50a
	LT	0.55 ± 0.02a	6.08 ± 0.09ab	32.60 ± 8.64a	2.44 ± 0.37b	13.23 ± 1.7a	428.24 ± 67.95b
	MT	0.60 ± 0.02a	5.96 ± 0.26ab	51.10 ± 14.75a	3.62 ± 0.71a	13.97 ± 1.39a	510.81 ± 14.42b
	HT	0.66 ± 0.08a	6.21 ± 0.17a	50.62 ± 8.46a	3.27 ± 0.3ab	15.43 ± 1.7a	725.59 ± 76.77a
Jun, 2016	CK	0.43 ± 0.05b	5.94 ± 0.08a	47.90 ± 21.91b	3.25 ± 0.81a	14.36 ± 3.18a	602.66 ± 59.12a
	LT	0.43 ± 0.07b	5.95 ± 0.04a	41.65 ± 9.37c	2.79 ± 0.3a	14.89 ± 2.29a	623.24 ± 60.32a
	MT	0.49 ± 0.04ab	5.90 ± 0.04a	59.29 ± 0.50a	3.58 ± 0.04a	16.58 ± 0.33a	714.43 ± 21.47a
	HT	0.57 ± 0.06a	5.89 ± 0.05a	47.57 ± 1.29b	3.65 ± 0.61a	13.23 ± 1.78a	467.08 ± 132.43b
Aug, 2016	CK	0.32 ± 0.01a	6.19 ± 0.15a	50.38 ± 1.07ab	4.22 ± 0.14ab	11.94 ± 0.14a	727.45 ± 66.42a
	LT	0.52 ± 0.19a	6.07 ± 0.09a	47.03 ± 0.94b	3.9 ± 0.02b	12.05 ± 0.17a	641.28 ± 11.81a
	MT	0.45 ± 0.03a	6.14 ± 0.06a	59.90 ± 10.72a	5.23 ± 1.2a	11.57 ± 0.89a	812.11 ± 166.10a
	HT	0.44 ± 0.03a	6.16 ± 0.15a	52.46 ± 1.82ab	4.3 ± 0.12ab	12.21 ± 0.57a	877.41 ± 207.92a
Oct, 2016	CK	0.33 ± 0.05a	6.45 ± 0.06a	45.97 ± 0.97c	1.94 ± 0b	23.68 ± 0a	878.09 ± 80.14b
	LT	0.33 ± 0.11a	6.49 ± 0.11a	51.57 ± 6.41b	2.35 ± 0.49c	22.27 ± 2.86a	831.56 ± 53.77b
	MT	0.44 ± 0.02ab	6.51 ± 0.15a	65.61 ± 7.98a	5.34 ± 1.09a	12.42 ± 1.04b	954.71 ± 60.02a
	HT	0.47 ± 0.07b	6.50 ± 0.05a	55.36 ± 2.31abc	3.81 ± 0.92ac	15.06 ± 3.25b	991.82 ± 28.62a

The values are mean ± standard error. Different letters indicate significant differences (p < 0.05) among the four different thinning treatments. CK: control, LT: light thinning, MT: medium thinning, HT: high thinning.