

**The natural abundance of stable water isotopes method may
overestimate deep-layer soil water use by trees**

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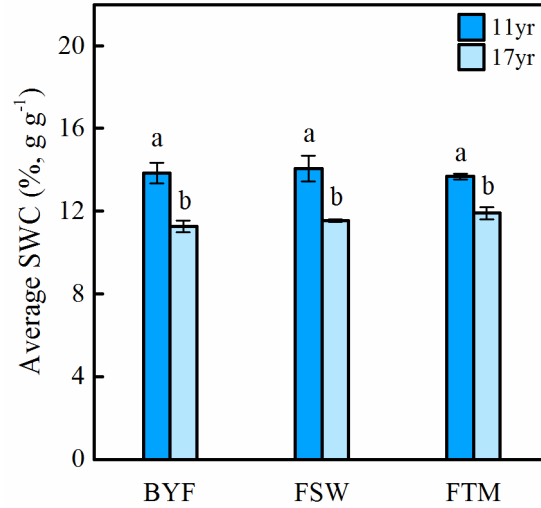


Figure. S1 Average soil water content (SWC) in three apple orchards. Error bars indicate standard errors of the means (N=3). Different lowercase letters indicate significant differences between different stand ages.

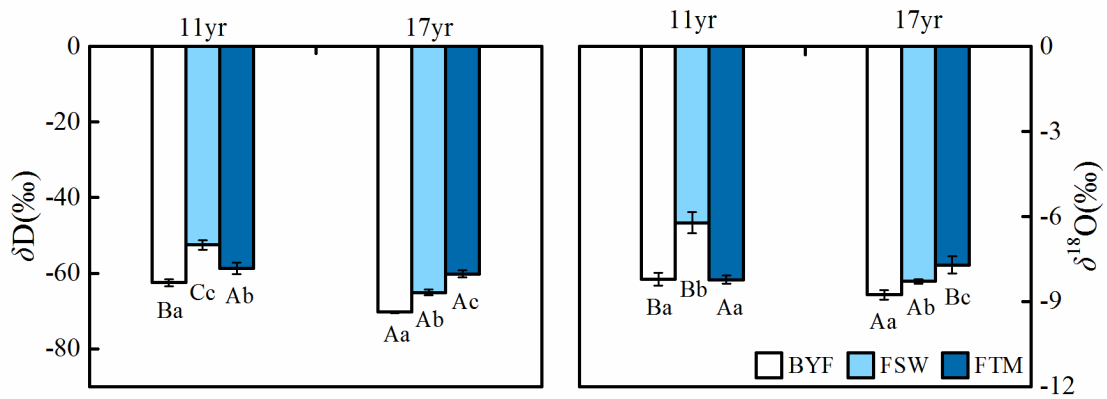


Figure. S2 Mean δD and $\delta^{18}O$ values in xylem water of 11- and 17-year-old apple trees with \pm SD (N=6). Different uppercase and lowercase characters indicate significant differences between stand ages and growing seasons, respectively.

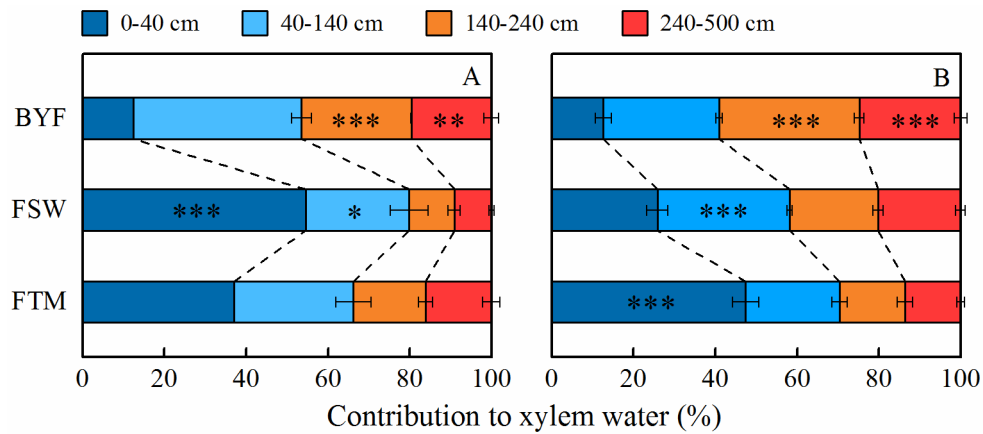


Figure. S3 Seasonal patterns of contribution of four potential water sources (0–5 m) to xylem water of 11-year-old (A) and 17-year-old (B) apple trees. Error bars indicate standard errors of the mean (N=3). Asterisks represent significant differences between different growing stages (*, $P < 0.05$; **, $P < 0.01$; ***, $P < 0.001$).

Table S1 Sensitivity of root water uptake to water source change in shallow soil layers at fruit swelling (FSW) stage for apple trees.

Soil depth (cm)	11-year-old	17-year-old
0–40	12.9	2.7