|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Havelock North | | | | | | Palmerston North | | | | | | Motueka | | | | | | |
| Phenotype | Year | ‘M27’ | | ‘M9’ | | ‘M793’ | | ‘M27’ | | ‘M9’ | | ‘M793’ | | ‘M27’ | | ‘M9’ | | ‘M793’ | | |
|  |  | M | S | M | S | M | S | M | S | M | S | M | S | M | S | M | S | M | S | |
| Primary axis length (cm) | 1 | **123.6\***  **(3.3)** | **113.3\***  **(3.5)** | **119.3\***  **(3.7)** | **110.2\***  **(3.2)** | 136.9  (3.2) | 141.6  (3.7) | **115.3\***  **(5.3)** | **104.2\***  **(2.7)** | 114.2  (4.3) | 109.2  (3.1) | 132.0  (4.7) | 123.5  (2.9) | **118.0\***  **(3.3)** | **109.0\***  **(3.3)** | 119.5  (2.8) | 120.6  (4.7) | 133.3  (2.7) | | 125.2  (5.3) | |
| 2 | 156.6  (3.3) | 151.2  (3.3) | **169.8\***  **(3.3)** | **161.1\***  **(3.3)** | 182.7  (3.3) | 179.3  (3.3) | **132.9\*\***  **(3.5)** | **116.0\*\***  **(3.2)** | 135.9  (3.7) | 131.2  (3.0) | 150.2  (3.5) | 138.0  (3.2) | 106.8  (3.5) | 111.6  (3.5) | 118.9  (3.5) | 116.1  (3.5) | 127.5  (3.5) | | 129.9  (3.5) | |
| Primary axis node number | 1 | **57.4\*\***  **(1.3)** | **52.3\*\***  **(1.4)** | **59.0\*\***  **(1.5)** | **53.1\*\***  **(1.3)** | 64.4  (1.3) | 61.8  (1.5) | **51.8\***  **(2.1)** | **46.8\***  **(1.1)** | **54.0\*\***  **(1.7)** | **48.9\*\***  **(1.9)** | 58.6  (1.9) | 53.8  (1.2) | **55.9\***  **(1.3)** | **52.6\***  **(1.3)** | 59.8  (1.1) | 57.8  (1.9) | **63.0\***  **(1.1)** | | **56.8\***  **(2.1)** | |
| 2 | 68.8  (1.3) | 65.9  (1.3) | **72.2\*\***  **(1.3)** | **66.7\*\***  **(1.3)** | 78.8  (1.3) | 76.1  (1.3) | **63.2\*\***  **(1.4)** | **56.2\*\***  **(1.3)** | 60.0  (1.5) | 59.3  (1.2) | 69.3  (1.4) | 64.0  (1.3) | **52.6\*\***  **(1.4)** | **53.0\*\***  **(1.4)** | 54.7  (1.4) | 55.7  (1.4) | 59.0  (1.4) | | 58.0  (1.4) | |
| Trunk circumference area (cm2) | 1 | 1.9  (0.2) | 1.7  (0.2) | **2.3\*\***  **(0.2)** | **1.7\*\***  **(0.1)** | 3.3  (0.1) | 3.0  (0.2) | 1.8  (0.2) | 1.8  (0.1) | **2.6\*\***  **(0.2)** | **1.7\*\***  **(0.1)** | 3.1  (0.2) | 2.8  (0.1) | 2.2  (0.2) | 1.6  (0.2) | 2.0  (0.1) | 2.2  (0.2) | 3.1  (0.1) | | 3.2  (0.2) | |
| 2 | 3.1  (0.2) | 2.8  (0.2) | **4.5\***  **(0.2)** | **4.2\***  **(0.2)** | **4.7\*\***  **(0.2)** | **4.9\*\***  **(0.2)** | 1.2  (0.2) | 1.1  (0.1) | 2.1  (0.2) | 1.8  (0.1) | 2.4  (0.2) | 2.0  (0.1) | 2.2  (0.2) | 2.4  (0.2) | **3.1\***  **(0.2)** | **3.6\***  **(0.2)** | 2.9  (0.2) | | 3.5  (0.2) | |
| Sylleptic shoots per tree | 1 | **10.1\***  **(1.0)** | **6.8\***  **(1.0)** | **11.0\*\***  **(1.1)** | **7.5\*\***  **(0.9)** | 13.0  (0.9) | 12.9  (1.1) | 4.8  (1.5) | 3.7  (0.8) | **6.0\***  **(1.2)** | **3.3\***  **(0.9)** | 8.6  (1.4) | 7.1  (0.8) | **6.2\***  **(1.0)** | **4.0\***  **(1.0)** | **5.2\***  **(0.8)** | **3.2\***  **(1.4)** | 13.3  (0.8) | | 12.0  (1.5) | |
| 2 | **7.90\***  **(1.0)** | **6.10\***  **(1.0)** | **11.50\***  **(1.0)** | **7.60\***  **(1.0)** | **12.10\***  **(1.0)** | **10.30\***  **(1.0)** | 1.11  (1.0) | 0.40  (0.9) | **5.1\***  **(1.1)** | **0.9\***  **(0.9)** | **5.6\***  **(1.0)** | **1.3\***  **(0.9)** | 4.0  (1.0) | 4.1  (1.0) | 6.6  (1.0) | 5.9  (1.0) | 7.3  (1.0) | | 7.4  (1.0) | |
| Sylleptic shoot length | 1 | **244.6\***  **(26.4)** | **159.6\***  **(27.8)** | **258.2\*\***  **(29.5)** | **137.7\*\***  **(25.2)** | 371.5  (25.2) | 335.0  (29.5) | 113.0  (41.7) | 83.4  (21.6) | 140.9  (34.1) | 64.6  (24.1) | 263.0  (37.3) | 208.2  (23.1) | **89.7\*\***  **(26.4)** | **22.8\*\***  **(26.4)** | 46.4  (22.3) | 25.9  (37.3) | **178.8\***  **(21.6)** | | **146.0\***  **(41.7)** | |
| 2 | **305.2\***  **(26.4)** | **196.4\***  **(26.4)** | **507.8\*\***  **(26.4)** | **302.0\*\***  **(26.4)** | 557.9  (26.4) | 461.2  (26.4) | 33.0  (27.8) | 2.1  (25.2) | **147.8\*\***  **(29.5)** | **26.2\*\***  **(24.1)** | **163.2\***  **(27.8)** | **59.5\***  **(25.2)** | 62.4  (27.8) | 91.3  (27.8) | 150.6  (27.8) | 155.9  (27.8) | 123.3  (27.8) | | 174.5  (27.4) | |
| Sylleptic shoot node number | 1 | **173.3\***  **(14.4)** | **117.9\***  **(15.2)** | **183.0\***  **(16.1)** | **114.1\***  **(13.7)** | 241.6  (13.7) | 227.3  (16.1) | **80.8\***  **(22.8)** | **54.2\***  **(11.8)** | **96.0\***  **(18.6)** | **48.9\***  **(13.2)** | **145.2\***  **(20.4)** | **112.1\***  **(12.6)** | **74.1\***  **(14.4)** | **33.2\***  **(14.4)** | 41.1  (12.2) | 25.0  (20.4) | 141.5  (11.8) | | 119.5  (22.8) | |
| 2 | **153.5\***  **(14.4)** | **111.5\***  **(14.4)** | **237.2\***  **(14.4)** | **153.3\***  **(14.4)** | 246.1  (14.4) | 202.6  (14.4) | **19.2\***  **(15.2)** | **6.7\***  **(13.7)** | **83.4\*\***  **(16.1)** | **15.3\*\***  **(13.2)** | **88.6\***  **(15.2)** | **29.0\***  **(13.7)** | 46.8  (15.2) | 62.0  (15.2) | 106.9  (15.2) | 94.2  (15.2) | 89.1  (15.2) | | 106.9  (15.2) | |

**Supplementary Table S3.** **Pairwise comparison of mean values for architectural measurements between monopodial and sympodial primary axes.** After one year of growth, the final length and node number of the primary axis, trunk circumference area (TCA), the number, length and node number of sylleptic shoots per tree were measured. Monopodial (M) or sympodial (S) shoots grafted onto three rootstocks (‘M27’, ‘M9’ and ‘M793’) were grown in three sites, Havelock North, Palmerston North, and Motueka. Year 1 refers to 2011-12 and year 2 is 2012-13, standard error in parentheses. Data were fitted to a mixed linear model and values for monopodial and sympodial shoots were compared using Fisher’s least significant difference test. Bold indicates a significant difference between shoot types at, \*= p < 0.05, or \*\*= p < 0.01.