**Supporting Information Table S1.** Similarity measures with the Euclidean distance using Ward’s minimum variance.

(a) Whole tree Scale traits (b) GU scale primary growth and branching traits

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| **cluster 1** |
| V1 | B\_area1 | 0,54 |
| V1 | Proj1 | 0,52 |
| B\_area1 | Proj1 | **0,04** |
| **cluster 2** |
| B\_area2 | H2 | 0,31 |
| Proj2 | H2 | 0,30 |
| V2 | H2 | 0,28 |
| V2 | Proj2 | **0,07** |
| V2 | B\_area2 | **0,06** |
| B\_area2 | Proj2 | **0,03** |
| **cluster 3** |
| Tr\_Bdiam2 | H1 | 1,47 |
| Tr\_Bdiam2 | Tr\_Bdiam1 | 1,35 |
| Tr\_Bdiam1 | H1 | **1,31** |

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| **cluster 1** |
| Nb\_AS1 | L1 | 0,85 |
| Nb\_M1 | Nb\_IN1 | 0,72 |
| Nb\_S1 | Nb\_L1 | 0,72 |
| Nb\_M1 | Nb\_L1 | 0,64 |
| Nb\_IN1 | L1 | 0,60 |
| Nb\_L1 | Nb\_AS1 | 0,57 |
| Nb\_S1 | Nb\_M1 | 0,54 |
| Nb\_AS1 | Nb\_IN1 | 0,51 |
| Nb\_L1 | L1 | 0,50 |
| Nb\_S1 | Nb\_IN1 | 0,49 |
| Nb\_L1 | Nb\_IN1 | 0,41 |
| Nb\_S1 | Nb\_AS1 | 0,39 |
| Nb\_M1 | Nb\_AS1 | **0,36** |
| **cluster 2** |
| Nb\_M2 | Nb\_L2 | 0,87 |
| Nb\_M2 | Nb\_IN2 | 0,82 |
| Nb\_AS2 | Nb\_IN2 | 0,55 |
| Nb\_M2 | Nb\_AS2 | 0,53 |
| Nb\_S2 | Nb\_IN2 | 0,53 |
| Nb\_S2 | Nb\_L2 | 0,52 |
| Nb\_L2 | Nb\_AS2 | 0,51 |
| Nb\_S2 | Nb\_M2 | 0,43 |
| Nb\_S2 | Nb\_AS2 | 0,17 |
| Nb\_L2 | Nb\_IN2 | **0,16** |
| **cluster 3** |
| L2 | M\_INL1 | 1,25 |
| IN\_Max1 | L2 | 1,15 |
| M\_INL2 | M\_INL1 | 1,10 |
| IN\_Max2 | M\_INL1 | 0,98 |
| IN\_Max1 | M\_INL2 | 0,97 |
| IN\_Max2 | L2 | 0,97 |
| IN\_Max2 | IN\_Max1 | 0,76 |
| IN\_Max2 | M\_INL2 | 0,68 |
| IN\_Max1 | M\_INL1 | 0,39 |
| L2 | M\_INL2 | **0,35** |