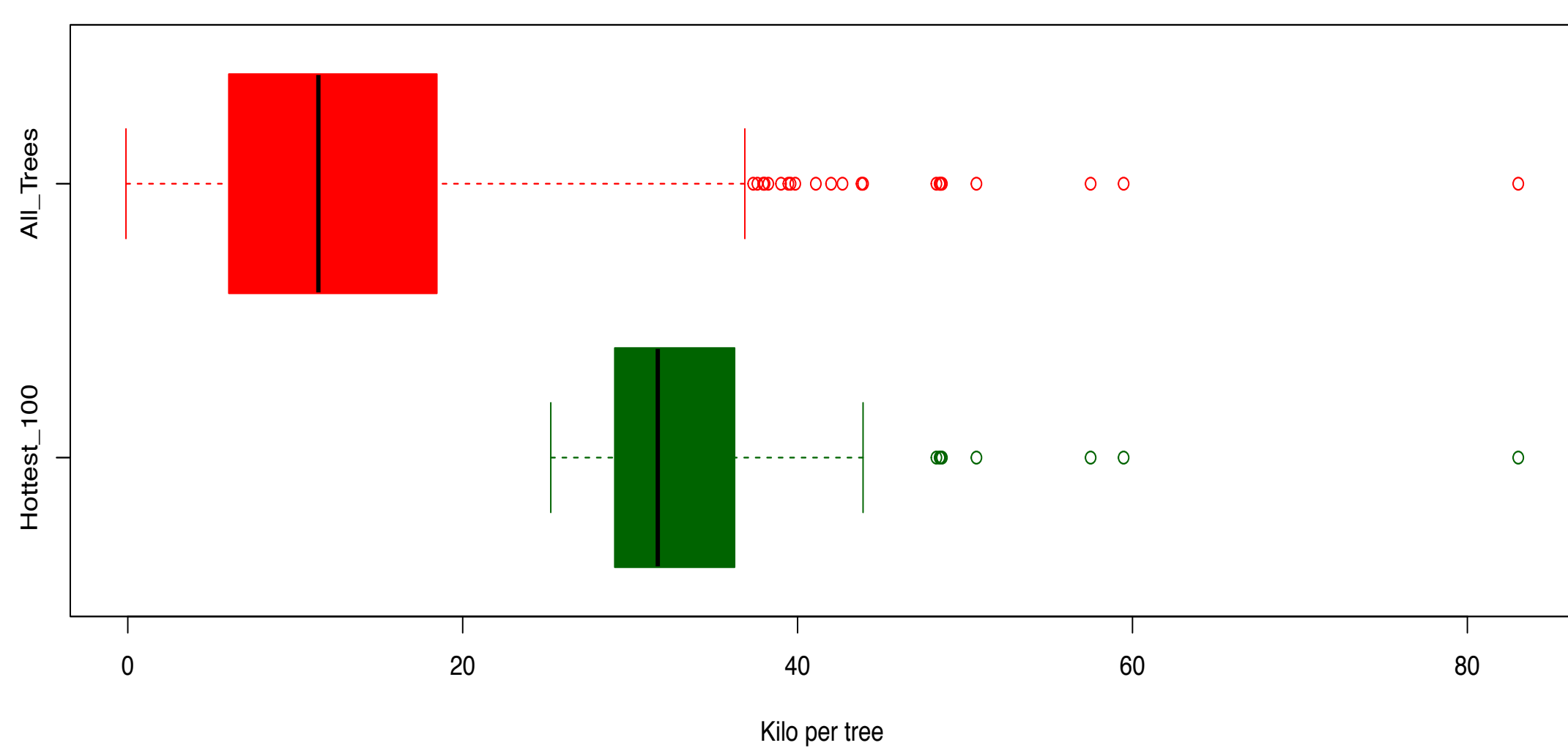


MARKER ASSISTED SELECTION IMPROVEMENT PROGRAM

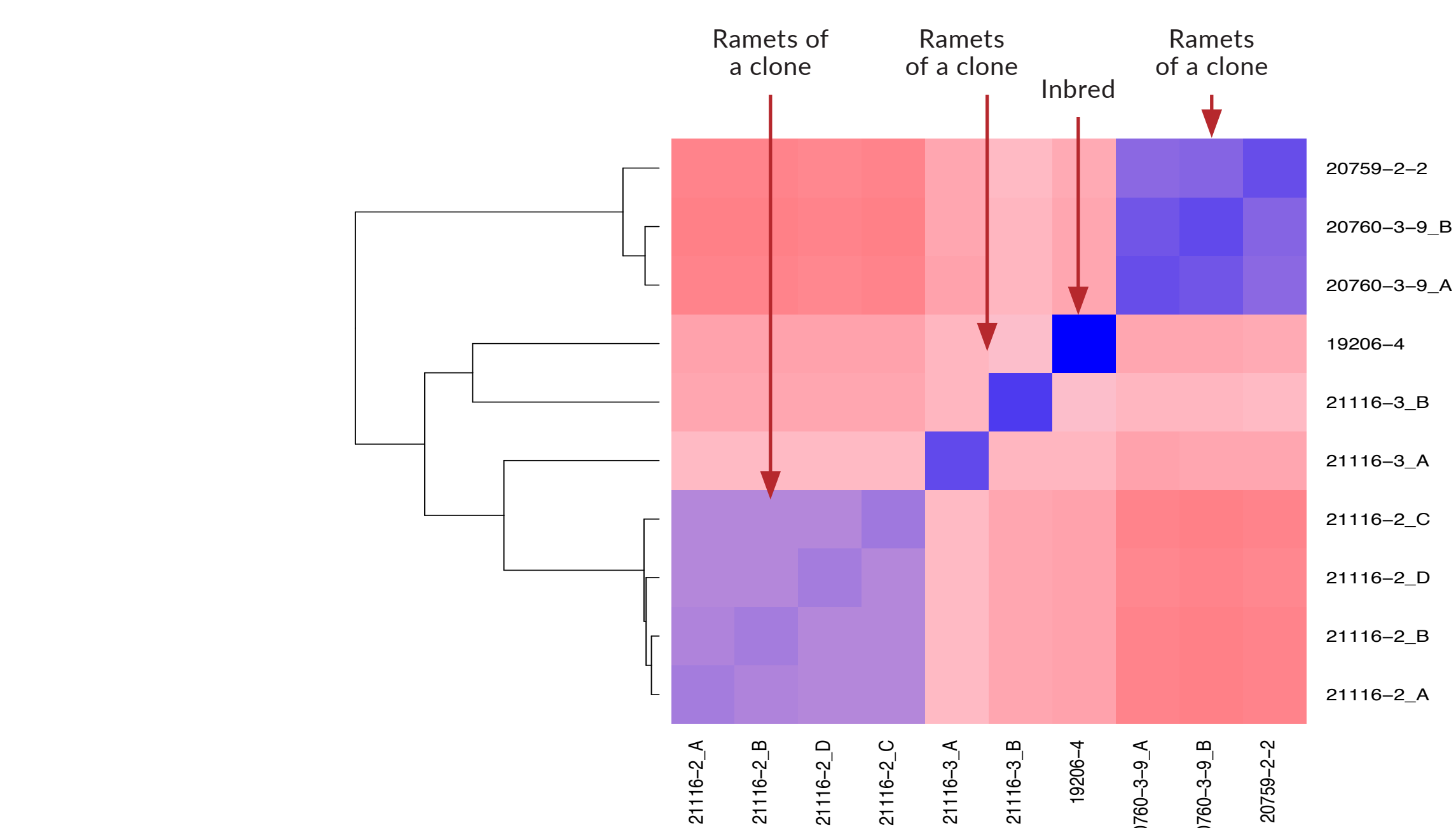
A partnership between New Forests and Gondwana Genomics to deploy MAS technology at two of New Forests' investments from its Tropical Asia Forest Fund.

Acacia Forest Industries of Sabah, Malaysia and Mekong Timber Plantations of central Laos are working together with Gondwana Genomics on this multi-year program of MAS eucalypt breeding. Gondwana Genomics have developed several genomic tools specific to each company to implement MAS. To enable MAS, genomic prediction models were developed to select superior clones for deployment and breeding. This project will help fast-track the deployment of higher quality germplasm from existing tree improvement programs. This poster highlights some of the key results of this project.



SELECTION OF "HOTTEST" 100 CLONES

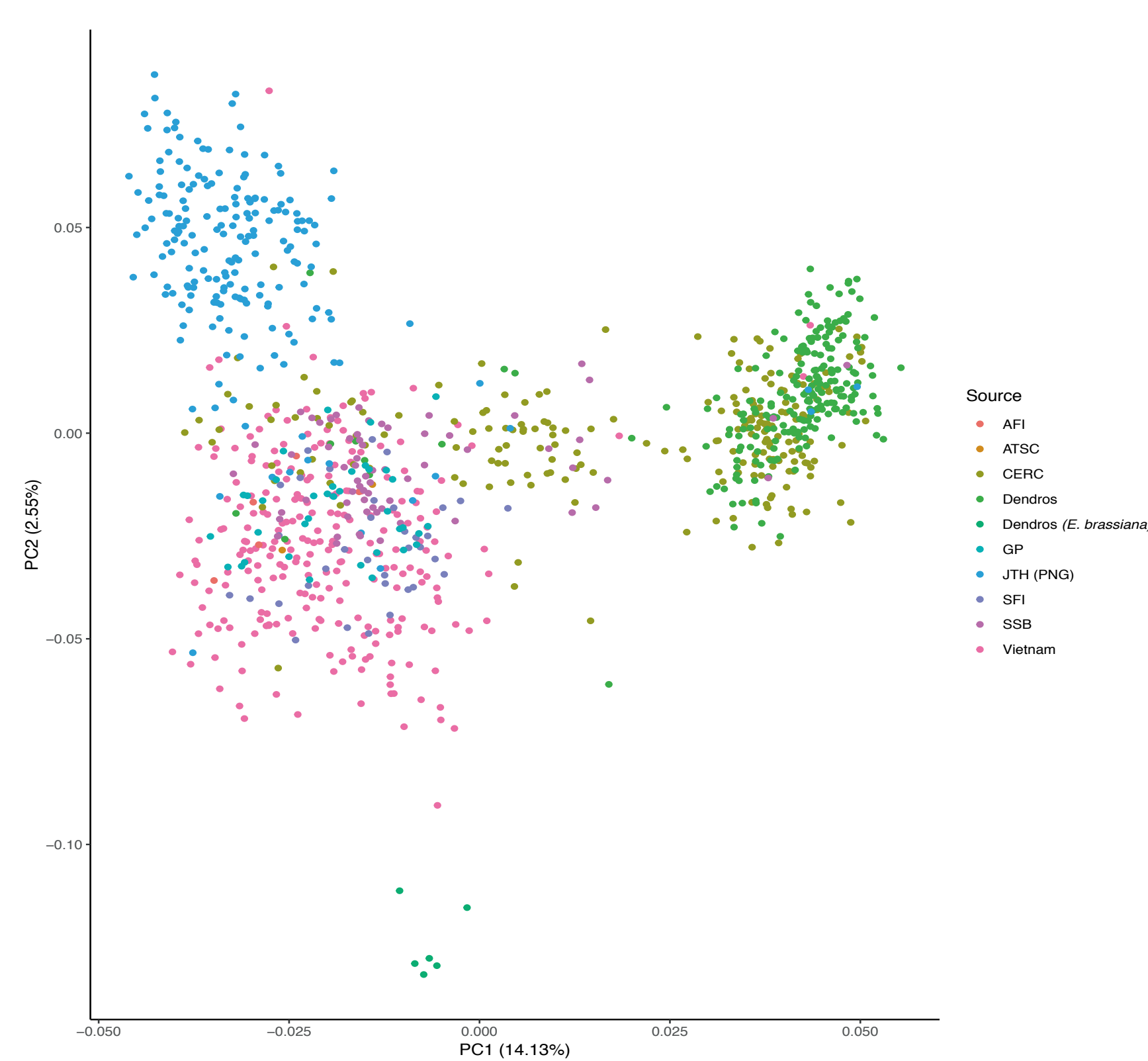
E. pellita genomic prediction model was used to screen candidate plus trees from *E. pellita* progeny trials to select 100 clones. These 100 trees had high Molecular Breeding Values and are genetically diverse. The boxplot shows the improvement in kilo per tree of selected 100 trees compared to all the sampled trees.



GENOMIC RELATIONSHIPS BETWEEN SEED ORCHARD PARENTS

Blue colours indicate higher relationships. Genomic relationship matrix is used to inform breeding decisions and avoid inbreeding.

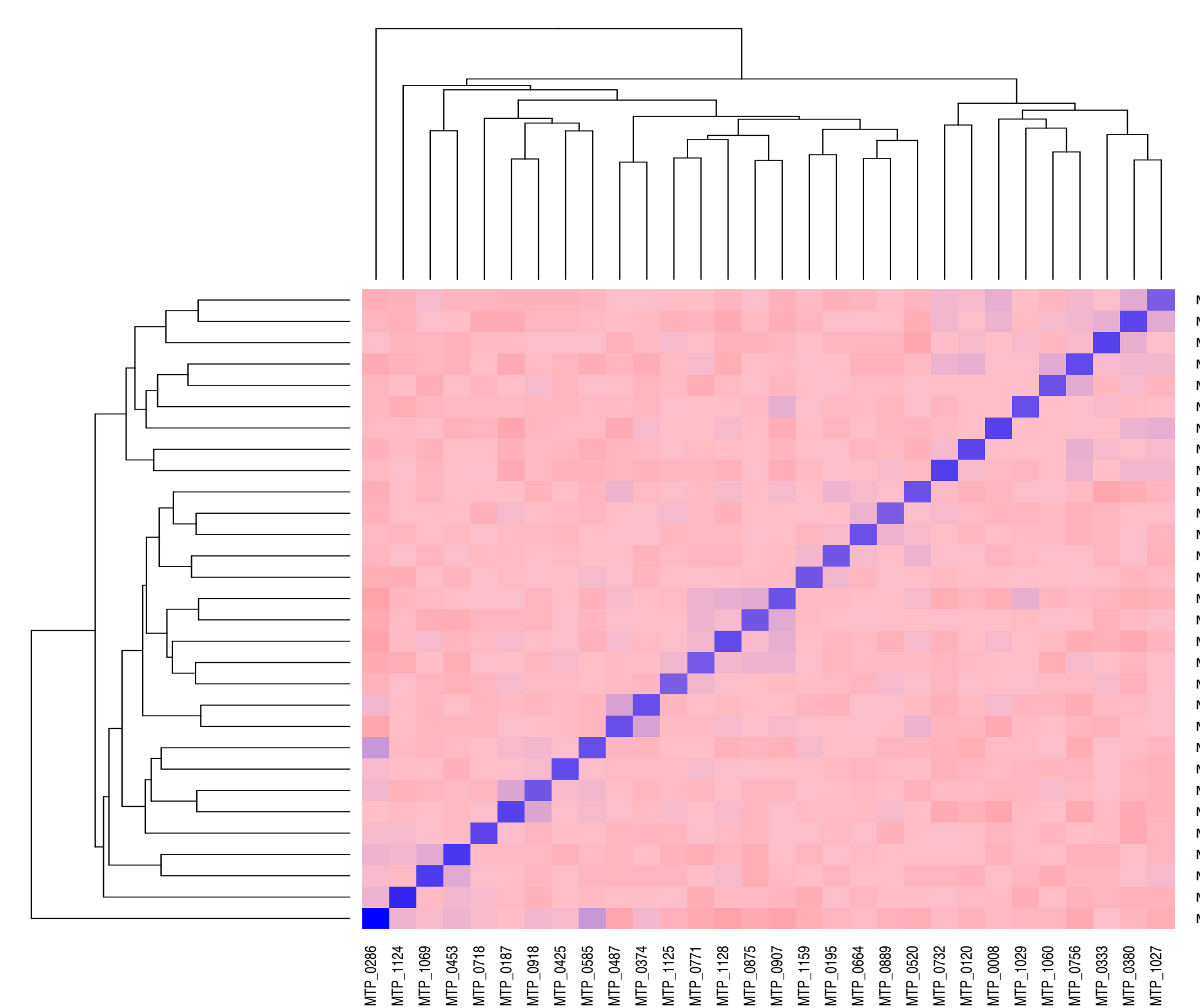
- 21116-2_A, 21116-2_B, 21116-2_C, 21116-2_D are ramets of a clone (confirmed)
- 21116-3_A and 21116-3_B are different clones
- 19206-4 is an inbred (selfed)
- 20759-2-2 is a ramet of clone 20760-3-9



GENETIC DIVERSITY OF AFI SAMPLES BASED ON A PRINCIPAL COMPONENT ANALYSIS USING GONDWANA GENOMICS' *E. PELLITA* MARKERS

Samples from CERC and Dendros sources are grouped together; JTH (PNG) and Vietnam forms two separate groups; Dendros (*E. brassiana*) is genetically very different to the rest of the samples because these are *E. brassiana* samples.

AFI: Acacia Forest Industries; ATSC: Australian Tree Seed Centre; CERC: China Eucalypt Research Centre; Dendros: Australian seed supplier; GP: Grand Perfect; JTH(PNG): JTH, Sabah; SFI: Sabah Forest Industries; SSB: Sabah Softwoods Berhad; Vietnam: Vietnam



SELECTION OF 30 TREES FOR BREEDING

Blue colour indicates higher relationship. Molecular genetic diversity analysis was used to select 30 diverse trees from the "Hottest" 100 clones for Clonal Seed Orchards.

