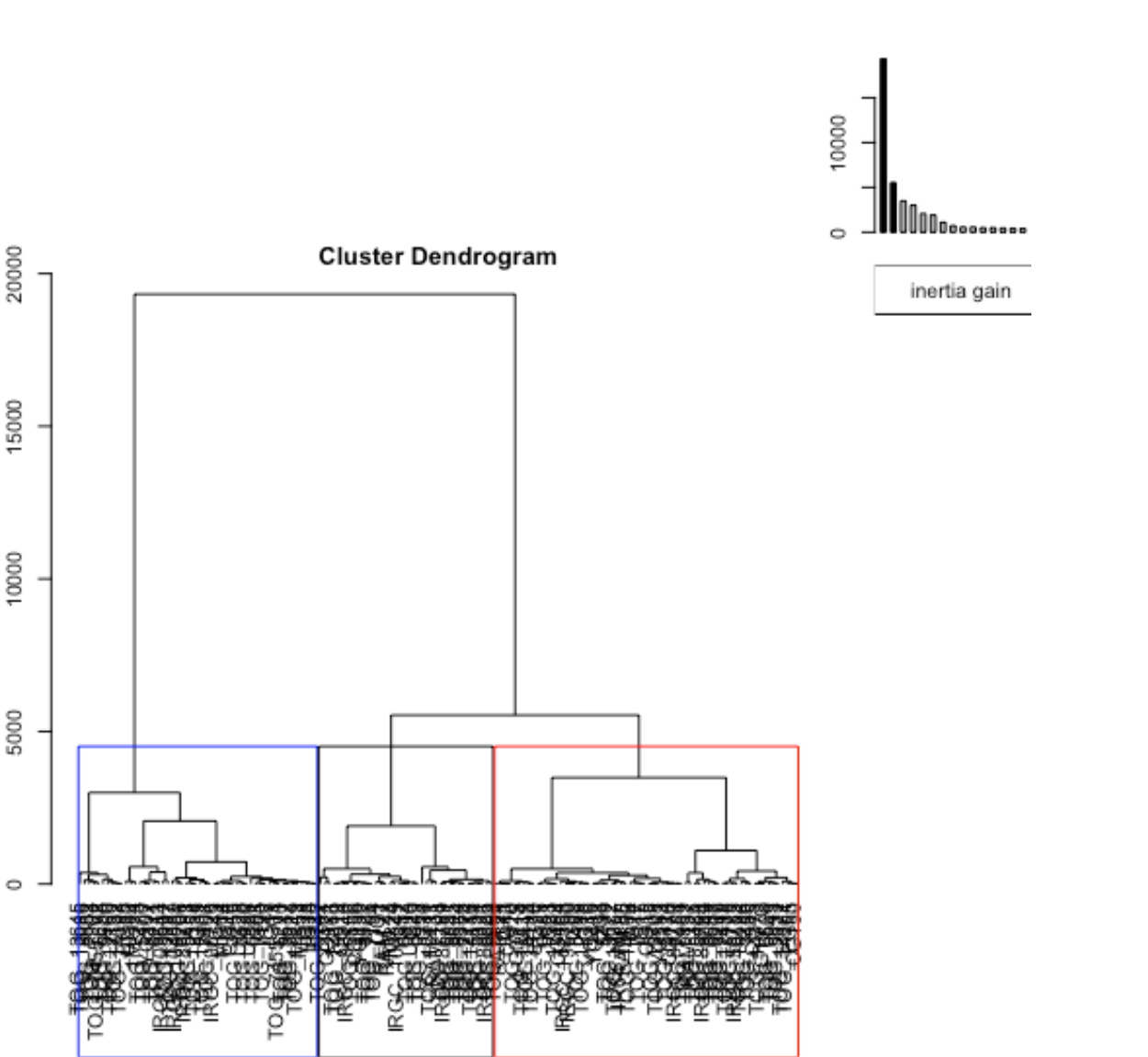


Supplementary Data File 7: This shows the Hierarchical Cluster analysis of key traits.

### Classification

Dataset res.PCA





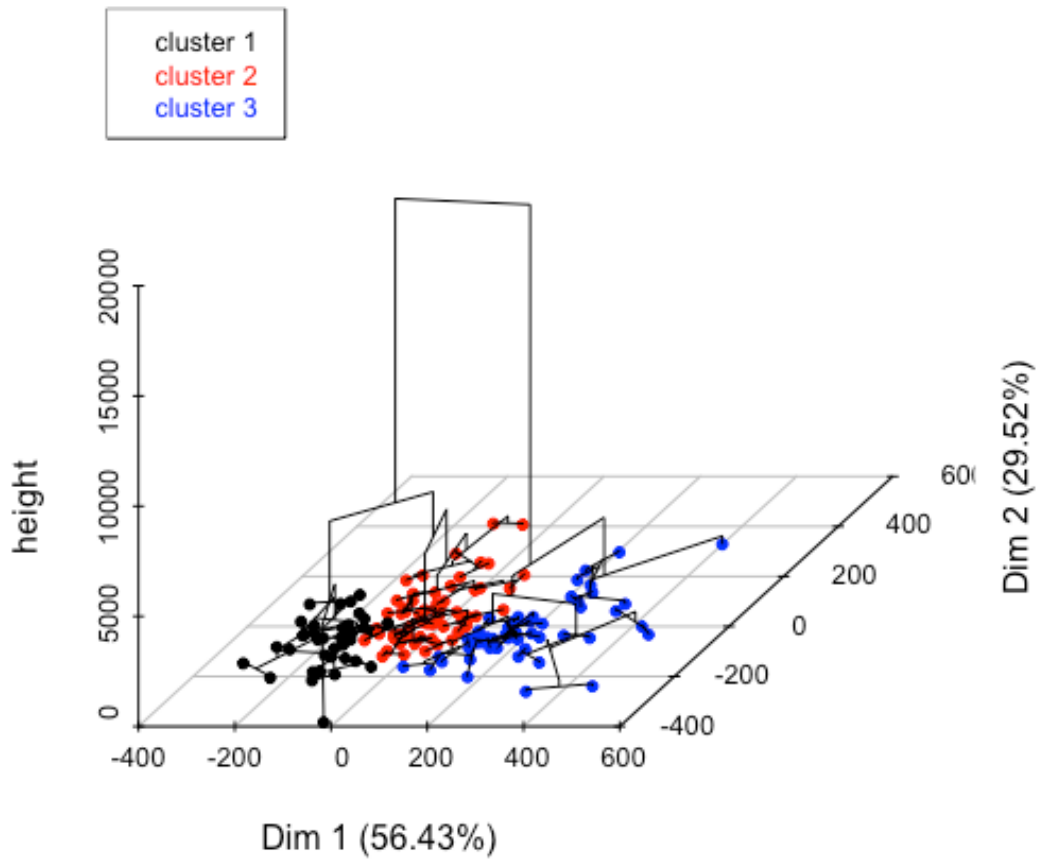
- high values for variables like *gs\_r\_90*, *gs\_r\_50*, *gs\_r\_10*, *gsmax*, *gs\_i\_min*, *ShootRoot\_ratio*, *NPQ\_i\_rate*, *A\_r\_rate\_PredMean*, *gs\_r\_max* and *gs\_i\_max* (variables are sorted from the strongest).
- low values for variables like *gs\_r\_min*, *gs\_r\_slope*, *A\_r\_ED90*, *A\_r\_Slope*, *A\_r\_ED50*, *Vpdl\_*, *NPQ\_i\_90*, *Root\_biomass\_*, *A\_i\_50* and *WUE\_* (variables are sorted from the weakest).

The **cluster 2** is made of individuals such as *TOG\_5953*. This group is characterized by :

- high values for the variables *gs\_r\_slope*, *gs\_r\_min*, *Vpdl\_*, *A\_r\_ED90*, *A\_r\_Slope*, *A\_i\_50*, *NPQ\_r\_max*, *WUE\_* and *NPQ\_* (variables are sorted from the strongest).
- low values for variables like *gs\_r\_90*, *gs\_r\_50*, *Shoot\_area\_*, *gsmax*, *Shoot\_biomass\_*, *PHiPS2\_*, *ETR\_*, *Total\_plant\_biomass\_*, *gs\_r\_10* and *gs\_i\_max* (variables are sorted from the weakest).

The **cluster 3** is made of individuals such as *TOG\_5969* and *RAM 137*. This group is characterized by :

- high values for the variables *Total\_plant\_biomass\_*, *Shoot\_area\_*, *Root\_biomass\_*, *Shoot\_biomass\_* and *A\_i\_max* (variables are sorted from the strongest).
- low values for the variables *gs\_r\_90*, *gs\_r\_50* and *NPQ\_r\_min* (variables are sorted from the weakest).



**Figure 1.3 - Hierarchical tree on the factorial map.**

The hierarchical tree can be drawn on the factorial map with the individuals colored according to their clusters.