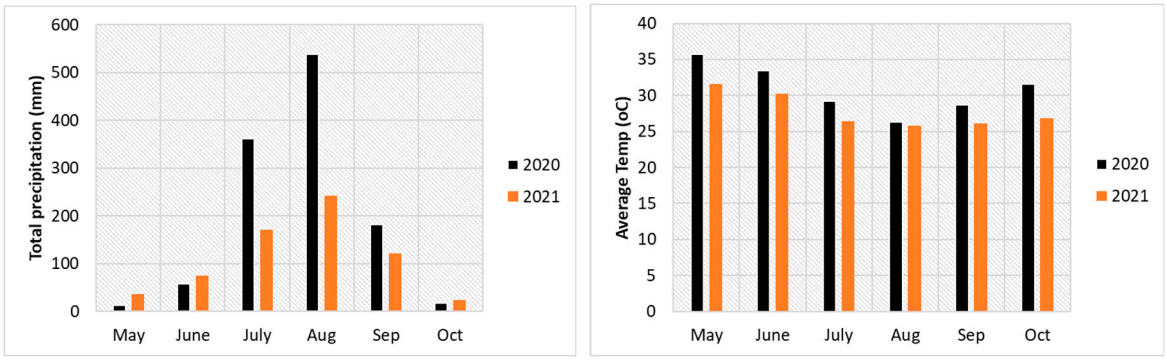


a **b**

Figure S1 Weather data for Minjibir, Kano Nigeria during the experimental period (May to October), in 2020 and 2021. **a**. Total monthly precipitation. **b**. Average monthly temperature. Source: https://tcktcktck.org/nigeria/kano/minjibir

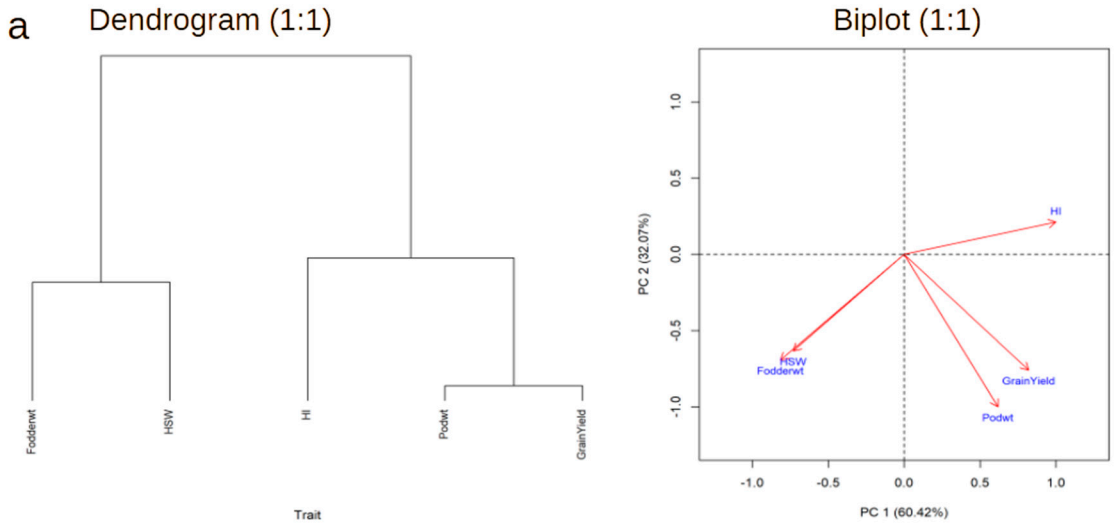


Figure S2 a. A cluster analysis depicting phenotypic correlation among traits under the 1:1 cropping pattern. A dendrogram is provided on the left-hand side and a biplot is on the right-hand side. In the dendrogram, traits on the same cluster are strongly correlated. For the biplot, the size of the angle between any two vectors indicates the extent of correlation between the traits involved, and traits whose vectors are pointing in opposite directions of the PC axes tend to be negatively correlated or will have weak positive correlations. HSW = weight of 100 seed weight, Fodderwt = fodder weight, Poddwt = pod weight, HI = harvest index, and GrainYield = grain yield.

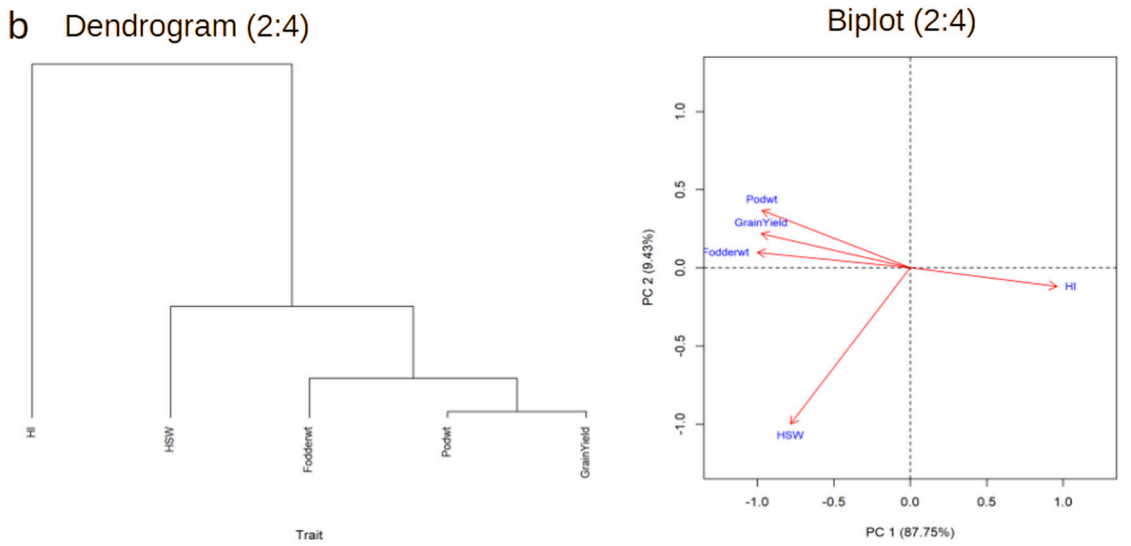


Figure S2 b. A cluster analysis depicting phenotypic correlation among traits under the 2:4 cropping pattern. A dendrogram is provided on the left-hand side and a biplot is on the right-hand side. In the dendrogram, traits on the same cluster are strongly correlated. For the biplot, the size of the angle between any two vectors indicates the extent of correlation between the traits involved, and traits whose vectors are pointing in opposite directions of the PC axes tend to be negatively correlated or will have weak positive correlations. HSW = weight of 100 seed weight, Fodderwt = fodder weight, Poddwt = pod weight, HI = harvest index, and GrainYield = grain yield.

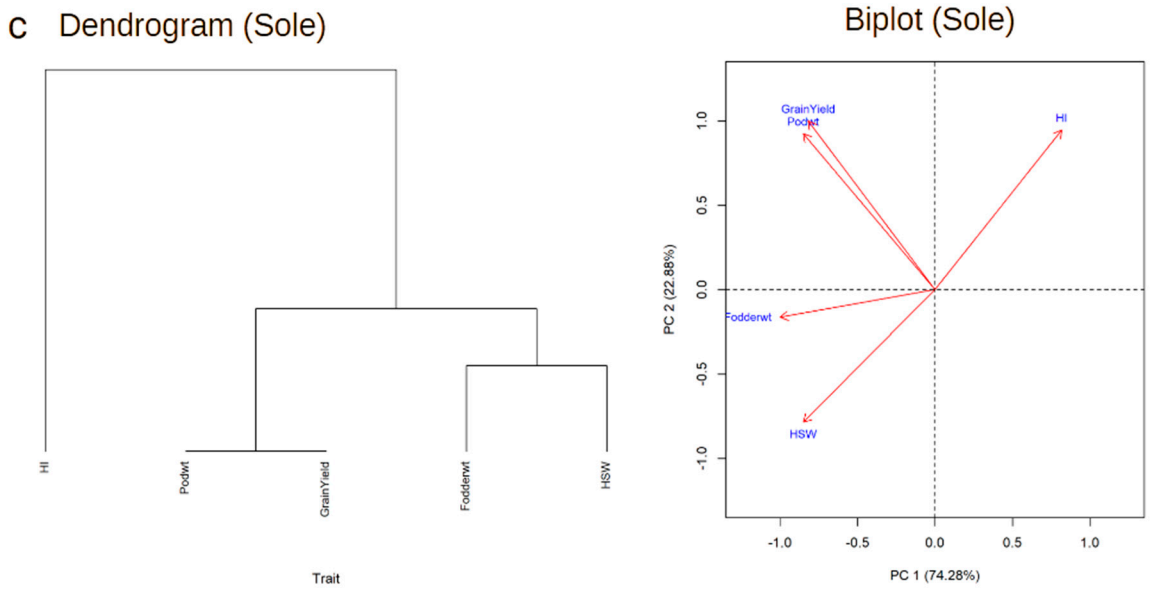


Figure S2 c. A cluster analysis depicting phenotypic correlation among traits under the sole cropping pattern. A dendrogram is provided on the left-hand side and a biplot is on the right-hand side. In the dendrogram, traits on the same cluster are strongly correlated. For the biplot, the size of the angle between any two vectors indicates the extent of correlation between the traits involved and traits whose vectors are pointing in opposite directions of the PC axes tend to be negatively correlated or will have weak positive correlations. HSW = weight of 100 seed weight, Fodderwt = fodder weight, Poddwt = pod weight, HI = harvest index, and GrainYield = grain yield.