

VARIABILITY, HERITABILITY AND CORRELATIONS
AMONG MORPHOLOGICAL TRAITS IN
FINGER MILLET (*ELEUSINE CORACANA* (L.) GAERTN.)

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SUMMARY

Three hundred and twenty two finger millet (*Eleusine coracana* (L.) Gaertn.) germplasm accessions collected from Zimbabwe were evaluated at Aisleby and Henderson during the 1988/89 and 1989/90 rainy seasons. The data were recorded on grain yield and nine morphological traits to study the genetic variability and the heritability for each trait as well as the genetic and phenotypic correlations between traits. Differences between finger millet accessions for grain yield, finger length, finger width, number of fingers per head, 1000 grain weight and threshing percentage were significant at both locations, while differences in finger yield and number of productive tillers per plant were significant only at Aisleby. Number of days to flowering and plant height were recorded only at Aisleby and the differences among accessions were significant. Heritability in the broad sense for days to flowering was high (0.60), those for finger length, threshing percentage and 1000 grain weight were moderate (0.21 to 0.46), whereas the estimates were low (0.01 to 0.29) for the rest of the traits. The correlation coefficients indicated that grain yield can be increased by selecting for high threshing percentage, high grain weight, early flowering and high finger yield.

INTRODUCTION

Finger millet (*Eleusine coracana* (L.) Gaertn.) is an important traditional food crop of Africa and Asia. In Africa, it is extensively grown in Uganda, Tanzania, Ethiopia, Kenya, Rwanda, Burundi, Zimbabwe, Zambia and Malawi (Food and Agriculture Organization of United Nations, 1990). It is used for food and for brewing. The grain stores well for a long period of time and, for this reason, some farmers consider it as an insurance crop. In Zimbabwe, most of the finger millet is grown in areas over 600 m above mean sea level (MSL) and with an annual rainfall of 500 to 900 mm. Most of the areas are in Masvingo, Midlands and Manicaland Provinces (Shumba, 1984). Improvement in any crop depends upon the extent of genetic variability present for the different traits and the association between traits. Finger millet accessions collected in Zimbabwe from 1985 to 1988 were utilized to study the variability, heritability and correlations among morphological traits.

MATERIALS AND METHODS

The trial comprised 324 finger millet accessions collected from all provinces of Zimbabwe. The accessions were planted in a lattice design with two replications each at Aisleby farm on 29 November 1988 and at Henderson Research Station on 16 December 1989. Aisleby is located 15 km south west of Bulawayo at 1305 m above MSL and Henderson is located near Mazowe at

