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About the finger millet crop

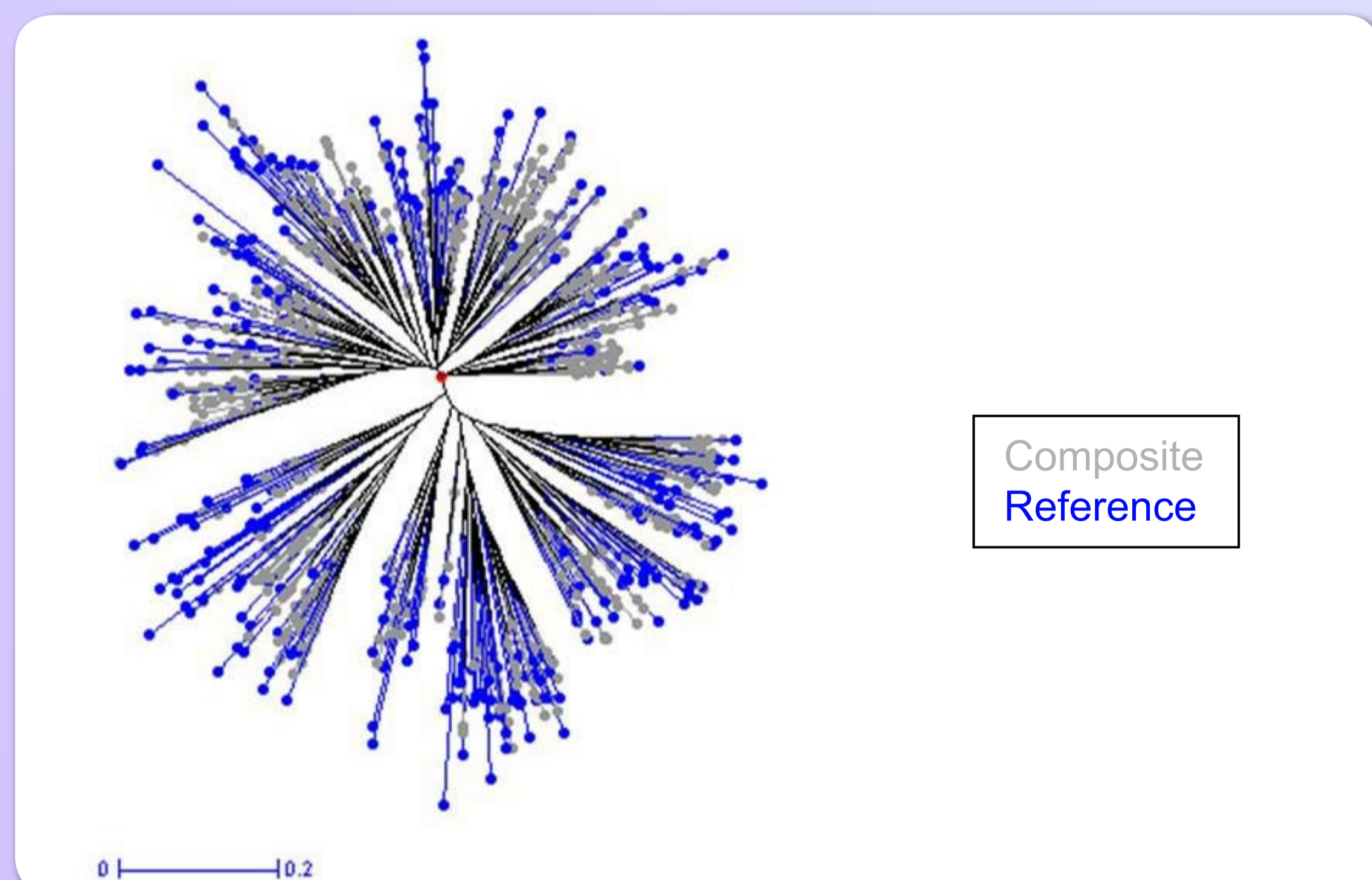
- Belongs to family *Poaceae* and subfamily *Panicoideae*
- Domesticated in eastern Africa, possibly in Ethiopia, about 5000 years ago
- A self-pollinating tetraploid species *E. coracana* with $2n=36$, and genome size 1662 Mb
- Two subspecies are *coracana* (cultivated form) with four races (Elongata, Plana, Compacta and Vulgaris) and ten subraces (Confundere, Digitata, Grandigluma, Incurvata, Laxa, Liliacea, Reculsa, Seriata, Sparsa and Stellata) and *africana* (wild form) with two races (Africana and Spontanea)
- Cultivated in 23 countries in Africa and Asia with annual production of 3.76 million metric tons from an area of 3.38 m ha
- Nutritionally rich in protein, minerals (calcium and iron) and methionine
- ICRISAT genebank contains the largest collection of 5949 accessions
 - Land races – 5658
 - Advanced cultivars – 136
 - Breeding lines – 50
 - Wild relatives – 105



Variability for finger size, shape and seed color.

Developing reference set

ICRISAT developed and molecularly profiled a composite collection of finger millet consisting of 1000 accessions using 20 SSR markers. A reference set of 300 diverse accessions representing 89% (206 of the 231 alleles) allelic diversity of the composite collection was established (<http://www.generationcp.org>). This reference set represented adequate diversity of different races and geographical regions.



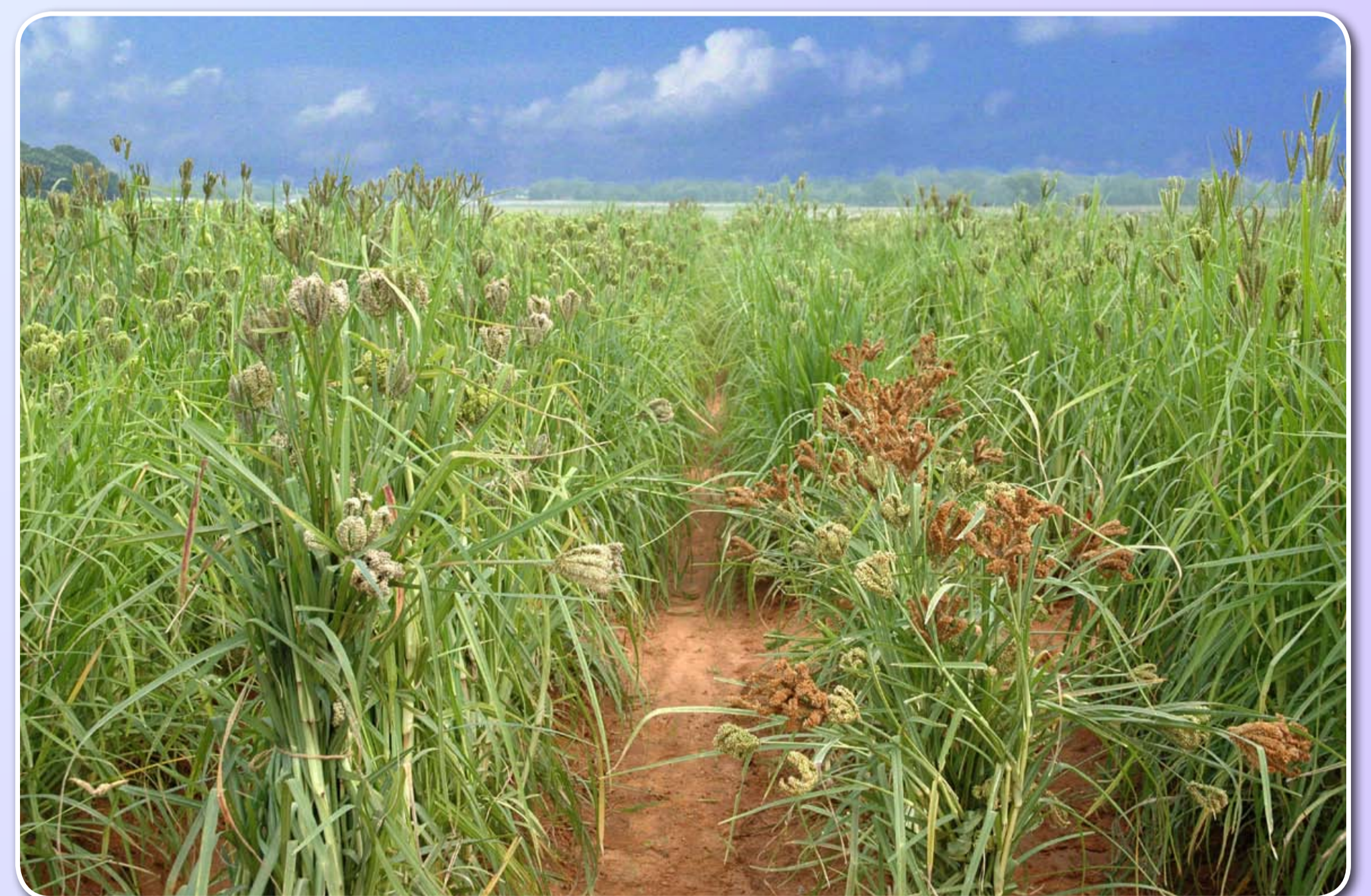
Representation of reference set accessions in composite collection.

Evaluating reference set for trait specific germplasm

Three hundred accessions of reference set along with 4 controls (VR708, VL149, PR202 and RAU8) were evaluated for 20 morpho-agronomic traits during the two rainy seasons at Patancheru, India. Accessions with desirable traits have been identified.



Evaluating the reference set.



Early maturing, high yielding accessions from Reference set.

Trait specific accessions identified from reference set	
High yielding accessions ($2.2 - 2.7 \pm 0.10 \text{ t ha}^{-1}$)	IE 2340, 2498, 2587, 2773, 2903, 2983, 2992, 3194, 3790, 3802 and 4600
Early flowering accessions (41- 43 \pm 2.44 days)	IE 501, 600, 2093, 2158, 3537, 3543, and 4442
Accessions with high tillers ($6.75 - 8.25 \pm 0.32$)	IE 897, 2333, 2691, 2765, and 5066
Accessions with high Fe and Zinc content (Fe 26.6 mg g^{-1} and Zinc 30 mg g^{-1})	IE 2217, 2575, and 3045
Accessions with high forage yield ($5.3 \pm 0.76 \text{ t ha}^{-1}$)	IE 24, 2942, 2979, and 2880

¹ SP1 Project 2006-06: Genotyping of composite collection of finger millet