

Varietal Identification in Forage Sorghum through Morphological Characters

V.P. SANGWAN, P. CHAUHAN, AND C. RAM

Forage Section, Department of Plant Breeding, CCS Haryana Agricultural University, Hisar-125004

A number of improved varieties of forage sorghum suited to different agro-climatic zones have been developed and released in India. Therefore, there is a need of documentation of distinguishing characters of notified and released varieties of forage sorghum. This is essential to carry out scientific seed production/certification, to enforce proper quality control and to promote the seed trade. Present investigation was planned to develop a list of key characters based on the stable morphological traits to identify some varieties of forage sorghum.

Pure seed of the 12 forage sorghum genotypes, including newly developed high forage yielding varieties viz., HC 308, PC 121, and CSV 15 were obtained from the Department of Plant Breeding, Haryana Agricultural University, Hisar and NSC, Beej Bhawan, Pusa Complex, New Delhi. The varieties were grown during Kharif 1998 in the research area of the Seed Technology Centre, CCS Haryana Agricultural University, Hisar (29.10 N and 75.46 E at an altitude of 215 m above sea level). The observations were recorded on plant color, mid-rib color, plant height (dwarf 76-150 cm, medium 151-225 cm and tall 226-300 cm), days to 50% flowering (early 56-65 days, medium 66-75 days and late 76-85 days), seed index (low 16-25 g, medium 26-35 g and high 26-45 g), inflorescence compactness and shape. The observations were taken at the time of physiological maturity on randomly selected five plants of each genotype, while ear-head shape was observed on 15 ear heads of each genotype.

Differences were found in the genotypes studied for all the above said characters (Table 1). Usefulness of these parameters in varietal identification have been earlier reported [1]. On the basis of variation observed for these characters (Chart 1), all the genotypes were categorized. Non-tan type genotypes were CSV 15, HC 171, HC 260 and HC 308 while rest of the genotypes were tan type. Midrib color of

HC 260, PC 9, PC 23, PC 121 and MP Chari was white, while in rest of the genotypes, it was green. On the basis of leaf margin, two categories were made i.e., genotypes having rough margin (HC 136, PC 6, PC 9, PC 23, PC 121, CSV 15, SSG-59-3 and MP Chari) and smooth margin (HC 171, HC 260, HC 308 and PC 1). Stem thickness was found prominent in PC 6, thin in PC 1 SSG 59-3 and MP Chari and medium in rest of the genotypes. Genotypes SSG 59-3 and MP Chari had narrow leaf breadth while it was wide in all other genotypes. These genotypes were classified into three groups on the basis of inflorescence compactness and shape of panicle, viz., very lax (SSG 59-3), semi loose, erect primary branches (MP Chari and HC 171), semi loose drooping primary branches (PC 9 and PC 121) compact elliptic (CSV 15, PC 23, PC 6, PC 1), semi compact elliptic (HC 308 and HC 260) and broom com (HC 136). Rao *et al* [2] also described the inflorescence shape of some of the genotypes. Awnless glumes were found in HC 260, HC 308 and CSV 15 and awned glumes in rest of the genotypes.

By following schematic diagram based on the above parameters we can identify each genotype individually. Field key character chart based on diagnostic characteristics has been prepared describing the specific character of each genotype which will help in identifying that particular genotype to facilitate the seed growers/seed certification agencies.

REFERENCES

1. SELVARAJU, P. & SIVASUBRAMANIAM, K. (2001). Varietal identification in Forage Sorghum. *Madras Agril. J.* 87: 10-12.
2. RAO, S, APPA & J.N. MUSHONGA (1987). A Catalogue of Passport and Characterisation Data of Sorghum, Pearl millet and Fingermillet Germplasm from Zimbabwe, IBPGR, Rome, pp. 48-49.

Chart 1. Field Parameters Flow Chart

