



RESEARCH ARTICLE :

Physiological studies in *Rabi* sorghum [*Sorghum bicolor* (L.) Moench]

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SUMMARY : A field experiment in some selected *Rabi* germplasm of sorghum [*Sorghum bicolor* (L.) Moench] was conducted at the Sorghum Research Station, Marathwada Agricultural University, Parbhani during *Rabi* season 2006-07. The experimental material comprised twelve genotypes. Among the genotypes GP 1 significantly recorded highest plant height than all other genotypes whereas IS 6368 recorded lowest plant height at all the growth stages than all other genotypes. The mean leaf area increased up to 75 days thereafter leaves started senescence and reduced leaf area. The maximum leaf area was recorded by GP 1 at all growth stages than all other genotypes. The mean leaf dry weight was more in the genotype GP 1 increased rapidly upto 90 days and declined thereafter slowly. At all stages of observations GP 1 showed maximum stem dry weight relative to other genotypes. The genotype GP 1 recorded maximum panicle dry matter continuously increased upto harvest. The genotype GP 1 showed maximum total dry matter per plant throughout the period of crop growth than all other genotypes. The genotype GP 1 was late maturing and genotype IS 6368 was early maturing genotype. The relative water content was highest in GP 1 whereas it was minimum in genotypes IS 6368 at panicle emergence and 50 per cent flowering. The genotype GP recorded the highest total chlorophyll content than all other genotypes. The mean chlorophyll stability index indicated significant differences among genotypes. The significantly lowest CSI was recorded by SPV 1411. Soil moisture content decreased gradually from sowing to harvesting. The genotype IS 5589 recorded significantly highest mean soil moisture at 0-30 cm depth and 30-60 cm depth at physiological maturity. The genotype IS 6368 recorded significantly lowest mean soil moisture content than all other genotypes at physiological maturity. The genotype GP 1 produced highest grain yield/plant among all other genotype. Several desirable yield determining factors an yield limiting factors in twelve sorghum genotypes have been identified. Such parameters may be helpful in further crop improvement programme. However, further intensive study is needed for increasing sorghum yields. The results are based on one year data hence the experiment may be repeated for one or two years to confirm the results.

KEY WORDS :

Rabi sorghum,
Drought tolerance,
Yield, RWC, CSI

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