

Fodder quality parameters study in introgressed stay green lines on sorghum

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Accepted : March, 2010

SUMMARY

A field experiment entitled “Study of fodder quality parameters in introgressed stay green lines of sorghum (*Sorghum bicolor* (L.) Moench)” was conducted at the Experimental Farm of Sorghum Research Station, Marathwada Agricultural University, Parbhani. Introgressed stay green genotype S35SG 06026 recorded more plant height, number of leaves per plant and leaf area per plant. The introgressed genotypes were found earlier in maturity, more in leaf dry weight, maximum total dry matter, higher brix and higher total sugar content. Genotype S35SG06026 recorded significantly higher green and dry fodder yield over all the checks. Several desirable yield determining factors and yield limiting factors in 24 genotypes have been identified. Such parameters may be helpful in further crop improvement programme. The genotype may be considered for future breeding programme for developing varieties suitable for rainfed condition.

Key words : Introgressed, Stay green, Plant height, Leaf area, Fodder quality, Maturity, Brix, Sugar content

Sorghum [*Sorghum bicolor* (L.) Moench] is self pollinating crop and belongs to gramineae family. Sorghum is the fifth most important cereal crop in the world. It is dietary staple food of more than 500 million people in more than 30 countries of Africa, Asia, Oceania and the America. Sorghum carries out C4 photosynthesis which makes it adoptable to fluctuating environmental conditions. Drought stress is the second most important abiotic constraint after soil nutrient deficiency for sorghum production globally. It is well adopted to semi-arid environment as it makes efficient use of available water in the soil under limited water conditions. Hence, it is regarded model crop for studying drought tolerance among grass species. Drought condition may occur at any stages of its growth which may cause premature leaf senescence which in turn may leads to stalk lodging and significant yield losses. The plant character associated with tolerance to terminal drought is called “stay green”. In stay green senescence start on schedule but proceeds thereafter comparatively slow and chlorophyll is retained. The character is consider as valuable trait as it improves, genotype adaptation to drought stress condition. The lines are photosynthetically active as compared to genotypes not possessing this trait.

Therefore, the study was undertaken among the

character of S35 based stay green QTLs introgressed backcross progenies to assess fodder quality parameters studies in sorghum.

MATERIALS AND METHODS

Experiment was conducted at the Experimental Farm of Sorghum Research Station, Marathwada Agricultural University, Parbhani during *Kharif* season (2008-09). Soil was medium black with moderate moisture retention capacity. Experiment was conducted on 24 genotypes in Randomised Block Design with three replications. The seeds were sown by dibbling method with 45 cm x 15 cm spacing with net plot size 2.70 m x 1.35 m. All the recommended packages of practices were followed to grow the crop. The five sample plants from each line were harvested separately and bagged properly after labeling it. These five plants were selected from each plot for recording biometric observations. The observations were recorded on characters *viz.*, plant height, number of leaves, length x breadth, leaf area per plant, leaf area index, leaf dry weight per plant, stem dry weight per plant, total dry weight per plant, green fodder yield, dry fodder yield, harvest index, total sugar content, brix reading at harvest. The statistical analysis of data was carried out by analysis of variance method suggested by Panse and Sukhatme (1967).

RESULTS AND DISCUSSION

The data on mean values are presented in the Table 1. The plant height was significantly influenced at all the stages of crop growth, the genotype S35SG06026 recorded significantly higher plant height over checks and rest of the genotypes. The data on mean number of

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