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RESEARCH PAPER

Effect of planting ratios on crop growth, flowering parameters and seed yield of sorghum hybrid cv-SHD-9704

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Abstract : The present investigation was undertaken during 2007 and 2008 at the Main Agricultural Research Station, University of Agricultural Sciences, Dharwad during *Rabi* season in 2007-08 and *Kharif* season in 2008 and their pooled data on effect of planting ratios on crop growth. flowering parameters and seed yield on sorghum hybrid cv-SHD-9704 . The 6:2 planting ratio (P_2) recorded numerically more (106.58 cm) plant height at harvest, number of leaves (9.53) at 75 DAS, days to crop maturity (93.84 days), days to primordial initiation (37.64 days) and 50 per cent flowering (69.04 days) compared to 4:2 planting ratios (P_1) (101.01 cm, 9.22, 90.71 days, 35.83 days and 66.88 days, respectively). Whereas, leaf area and leaf area index at 75 DAS numerically were more (3068 cm^2 and 4.54, respectively) in 4:2 planting ratio (P_1) than 6:2 planting ratio (P_2) (2968 cm^2 and 4.39, respectively). The 4:2 planting ratio (P_1) recorded significantly more ear weight (27.64 g), number of seeds per ear (300.00), seed setting percentage (26.77%), seed weight per ear (10.32 g) and hybrid seed yield per hectare (4.54 q/ha) compared to 6:2 planting ratio (P_2) (23.99 g, 258.00, 23.41%, 8.85 g and 3.96, q/ha, respectively).

Key Words : Sorghum, Planting ratio, Growth, Flowering parameter, Seed yield

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INTRODUCTION

Sorghum [*Sorghum bicolor* (L.) Moench] commonly known as 'jowar', is the fifth most important cereal crop in the world next to wheat, rice, maize and barley. It is a staple food crop for more than 300 million people of Asia and Africa continents. India has the largest share (32.50%) of world sorghum area and ranks second in production after USA. In India, it is cultivated on about 7.93 million hectare area with annual production of 7.78 million tonnes and productivity of 981 kg per ha (Anonymous, 2008). The major sorghum growing states in India are Maharashtra, Karnataka, Andhra Pradesh, Madhya Pradesh, Rajasthan and Tamil Nadu. In India, Karnataka state is one of the important sorghum growing states and stands second in area and production after Maharashtra. In Karnataka, it accounts for 1.38 million hectare area and production of 1.62 million tonnes with average productivity of 1192 kg per ha (Anonymous, 2009). About 50 per cent of people in Karnataka depend on sorghum as a staple food crop particularly in Northern Karnataka *viz*., Bijapur, Dharwad, Belgaum, Raichur, Gulbarga, Bellary and Mysore. Hybrid seed production of sorghum crop is influenced largely by several agronomic and management factors, among which planting ratio, staggered sowing and level of nitrogen application are important. The poor seed yield noticed in many sorghum hybrids is mainly attributed to the nicking problem existed between male and female parents. Even in well synchronized plots, the seed yield was found to be far from expectation which may be due to various reasons like wind direction, velocity and availability of insufficient viable pollens to female parent. Therefore, one of the basic requirements in hybrid seed production is to find out optimum planting ratio to provide sufficient quantity of viable pollens to the seed parent during flowering period for ensuring increase pollination and fertilization to obtain higher hybrid seed set and yield. Hence, systematic research works are to be initiated

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