

Radiation interception and light use efficiency by different sowing environments in chickpea

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SUMMARY : Experiment was laid out in a Split Plot Design with three replications and twelve treatment combinations formed due to (A) three sowing dates viz., (i) $49^{\text{th}}\text{MSW}(D_1)$,(ii) $50^{\text{th}}\text{MSW}(D_2)$,(iii) $51^{\text{th}}\text{MSW}(D_3)$, (B) four potash levels (i) 0 kg K₂O ha⁻¹ (K₁), (ii) 25 kg K₂O ha⁻¹ (K₂), (iii) 50 kg K₂O ha⁻¹ (K₃) and (iv) 75 kg K₂O ha⁻¹ (K₄). Chickpea sown on 10^{th} December produced significantly higher grain and straw yield over rest of the treatments. The minimum dry matter accumulation per plant was recorded in late sown crop (51st MSW). The cause of reduction in accumulation of dry matter might be happened due to rise in temperature as well as depletion of soil moisture. The mean APAR was higher in early sown crop (49^{th} MSW) throughout the growing period of chickpea which was significantly superior over rest of the treatments. The lowest APAR was recorded in late sown crop (51^{th} MSW). This might be explained as favourable climatic conditions available during the early sown crop which might have resulted into profuse growth, that consequently reflected into more accumulation of dry matter and APAR. The light use efficiency was significantly superior in 49^{th} MSW throughout the growing period of crop while, it was recorded the lowest under late sown crop (51^{th} MSW). This might be eattributed due to early sown crop to get benefit of better light and moisture conditions, which might have resulted into higher vegetative growth and development consequently resulting into higher light use efficiency. On other hand, late sown crop faced increasing day length and temperature.

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ulses play significant role in sustainable agriculture and provide natural security to predominant vegetarian population of the country. However, due to increase in national population, pulses consumption has gone down from 60 g/day/capita in the year 1951 to 31 g/day/ capita during the year 2012 (Anonymous, 2012 a and b). Pulses are important not only for their value as human food but also the important source of high protein content for livestock. It has been important component of Indian agriculture enabling the land to restore fertility by fixing the atmospheric nitrogen. It helps in producing reasonable yield of succeeding crops by restoring the fertility of soil. It also meets the demand of human dietary requirement viz., proteins, carbohydrates, fat and other nutrient sources. The non adoption of improved agro-techniques in a

climate change scenario as irrigation scheduling, variable planting dates and use of mulch are the limiting factors for low productivity and poor in creation of favourable microclimatic conditions. Globally this climate change should also be addressed in eco-friendly manner. With this back ground in view, the present investigation was undertaken to know the radiation interception and light use efficiency as influenced by sowing windows in chickpea.

EXPERIMENTAL METHODOLOGY

An experiment on studies on sowing dates and potash levels on growth, yield and quality of chickpea cv. 'Digvijay' was conducted at Post Graduate Institute Research farm of Mahatma Phule Krishi Vidyapeeth, Rahuri, Dist. Ahmednagar