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**Original article****High-Density Planting System (HDPS) in Cotton (*Gossypium spp*)****Elumle Priyanka<sup>1</sup>, D. Vasundhara<sup>2</sup>, G.Sekhar<sup>3</sup> and S.Mounika<sup>4</sup>**<sup>1</sup>Young Professional-II, KVK, Bellampalli (Mancherial) (PJTAU)<sup>2</sup>Lovely Professional University, Punjab<sup>3</sup>Assistant Professor Centurian University of Technology and Management, Srikakulam<sup>4</sup>Ph.D Scholar, Dept of Agronomy, PJTAU\*Corresponding author: [priyankaelumle@gmail.com](mailto:priyankaelumle@gmail.com)

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**ABSTRACT**

High Density Planting System (HDPS) in cotton is an emerging technology to increase productivity and profitability especially under resource constrained conditions such as light soils. In this approach short-duration and semi-compact cotton hybrids are planted at a spacing of 90 X 15 cm to accommodate more plants per unit area. Our experience with HDPS demonstrated that adopting optimal spacing, proper nutrient and water management significantly enhanced overall yield (42% more than conventional method of sowing). This system also allowed better sunlight interception and canopy management resulting in improved efficiency. HDPS is particularly suitable for regions with light soils. Farmers can benefit from this system by achieving higher income per acre with appropriate compact hybrid selection and good management practices.

**Keywords:** HDPS, Plant growth regulator, Compact hybrids

**HDPS cotton technology:** HDPS involves cultivating a higher number of plants per unit area (29,000 Approx) than conventional systems by maintaining spacing of 90 x 15 cm ensuring better utilization of light, water, nutrients and land resources than conventional method of sowing which is sown at 90 X 60/90 cm. Compact and early-maturing hybrids with shorter internodes and reduced vegetative growth to achieve higher plant populations without compromising individual plant performance are required. Plants can be sprayed with PGR (Mepiquat chloride) at 45 and 65 days @200ml /acre for plant height regulation and uniform maturity of bolls.

**Success story of HDPS farmer**

Sri. Kalali Santosh Kumar is a lead cotton growing farmer from Malagurijala village of Bellampalli mandal of Mancherial District, Telangana. He owns 3 acres of rainfed light soil in which he cultivates cotton, redgram and Paddy. He has chosen commercial crop (cotton) as main crop but due to the challenging situations of erratic rainfall, light soils and traditional method of cotton cultivation, the production from the cotton crop was very low which made him to search for an

innovative method to grow cotton more profitability. Sri. Santosh got inspired by the new technology of HDPS Cotton. In the year 2024, he has sown cotton by HDPS method. 5 No's of seed packets per acre was used for sowing in June month by maintaining spacing of 90×15cm under HDPS cotton technology. The farmer has followed all the management practices like INM and IPM. He has sprayed the plant growth regulator (Mepiquat chloride) at 55 DAS which controls the plant height and uniform maturation of bolls. All these implementations helped him to gain more yield than the conventional method

**The details of the demonstration as listed below (per acre)**

<b>Seed rate</b>	2 packets	5 packets
<b>Spacing</b>	90 × 60 cm	90 × 15 cm
<b>Plant population</b>	7,250	28,954
<b>Mepiquat chloride spray</b>	Not recommended	Sprayed 1 time
<b>Avg. Yield (q/acre)</b>	9.5 q	13.5 q

**Yield and Economics of HDPS Cotton vs Conventional Method:**

<b>Particulars</b>	<b>Conventional Method</b>	<b>HDPS Technology</b>
<b>Cost of cultivation (Rs./acre)</b>	37,840	41,500
<b>Market price (Rs. per q)</b>	7,300	7,300
<b>Yield (q/acre)</b>	9.5 quintals	13.5 quintals
<b>Gross income (Rs./acre)</b>	69,350	98,550
<b>Net income (Rs./acre)</b>	31,510	57,050
<b>B:C ratio</b>	1.83:1	2.37:1

**CONCLUSION:**

One of the greatest achievements by adopting HDPS cotton was uniform maturation of bolls producing good quality cotton. The yield obtained from HDPS technology was 13.5 quintals per acre which was 42 % higher than the traditional method of cultivation. Moreover, HDPS have been shown to address key issues in cotton cultivation such as pest management. Increased plant density has been linked to altered microclimates within the canopy which can influence the incidence of pests and diseases, As the crop matures before december It can escape from pink boll worm attack whose infestation is severe after November. This opens new avenues for integrated pest and disease management strategies tailored to high-density systems.

**REFERENCE:**

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