

## Success Story of High-Density Planting System in Cotton

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### Introduction:

Cotton is the major cash crop and fibre crop, not only in India but in the world, cotton crop has global significance in agriculture and industrial sector. In India Cotton is cultivating about 120 lakh hectare with productivity of 428 kg per hectare. But the major cotton growing countries like Brazil, USA and Australia having a huge cotton productivity of about 1500 kg per hectare, Telangana state has 432 kg of cotton productivity. The recent statistics released from USDA - Foreign Agricultural Service (September 2020) indicates that India (13.40 million ha) has more than one third of the World's area (32.94 million ha) under cotton with a productivity of 487kg/ha, which is far below than the World's productivity of 775kg/ha. Many of the Countries like Brazil, China, Turkey, Australia have the productivity of more than 1500kg/ha. This clearly defies the prevailing gap in the productivity from India to other countries.

### Problem:

Despite India standing first in the ranking in cotton coverage area and production among the major cotton cultivating countries but is low in productivity, The primary factors that attribute for this low realized yield besides the non-availability of choices of genotypes is the low plant population density, there is ample scope for increase in productivity by adopting new technology i.e High Density Planting System in Cotton . The HDPS method of cultivation essentially depends on cultivation of cotton genotypes having short stature, earliness, compactness, sympodial growth habit and synchronous boll opening. Under these circumstances, compact cotton geno-types are ideally suited. They offer great scope for reducing not only row width, but also spacing between the plants in a row Therefore, High density planting system of cotton Cultivation was addressed to the farmers by Krishi Vigyan Kendra (KVK) Wyrā Khammam district in collaboration with Central institute of Cotton



Research (CICR) Nagpur. Adoption of HDPS amicable compact and early maturing cotton varieties offer an alternate to sustainable production at decreased production cost under Indian condition.

As part of project, farmer Mallepalli Apparao resident to Kesavapuram village, Khammam district cultivated cotton in high density planting method by the guidance of KVK, Wyra scientists and achieved high yield and set an example for fellow farmers.

**Intervention:**

Mr. Mallepalli Apparao Garu resident of Kesavapuram Village Kusumanchi Mandal Khammam district has been cultivating cotton for the past ten years in Traditional method i.e. 90 X 90 cm spacing that accommodate 4900 plants per acre and used to get low yield. After the suggestion given by KVK Wyra scientists he cultivated cotton in high density planting system i.e. 90 X 15 cm where plants and row spacing was reduced ensuring maximum number of plants i.e. 29,629 plants per acre with the seed rate of 2.5 kgs/acre.

**Fertilizer application:** Fertilizer doses of 48:24: 24 is applied to soil in split doses.

Weed control is very important for efficient use of applied fertilizers, pest control and improving yield. So, he maintained weed free for the first 60 days. For weed control, farmer used 1.2 Liters in 200 litres of water of Pendimethalin per acre within 48 hours of sowing, for prevention of grass and broadleaf weeds during month-long crop-pyrithiobac sodium+ Quizolofop ethyl 450ml per 1 acre was sprayed in addition to that two inter cultivation operations were carried off.

**Growth Control:**

The plant growth retardants affect many physiological functions in plants. The crop growth regulator Mepiquat Chloride (MC) is commonly used in cotton production The application of Mepiquat chloride increases leaf thickness, reduces leaf area, shortens internodes and decreases plant height, and thus results in a more compact plant architecture. The 5% mepiquat chloride was sprayed at the rate of 1 ml/lit after attaining the height of 45 cm of crop height and 1.2 ml/lit after 90 cm of crop height. Here, Apparao garu sprayed the as per the recommendation provided to him.

**Plant protection:**

Sap sucking insects and pink bollworm are major pests of cotton which reduce the yield of cotton considerably. To prevent the infestation, he used neem oil to protect the crop from

cotton-sucking sap-sucking insects, and then took appropriate precautions by spraying pesticides. Also to monitor the crop from the pink boll worm the farmer installed 4 pheromone traps per acre.

**Result:**

He harvested the crop by the end of November and incurred a yield of 15 quintals per acre. After Cotton he cultivated maize that also resulted in good yields (30 quintals /acre) reaped within the first week of April. Farmer appreciated KVK, Wyra efforts for effectively addressing on HDPS and potentially contributing for Crop Diversification along with HDPS.

Practices	Traditional Method	Hdps Cotton
Soil preparation	5000	4500
Seed	2550	4200
Sowing	900	1500
Weeding	3400	3900
Fertilizer	3000	3260
Inter cultivation	4500	3000
Pest control	5000	6000
Harvesting	8800	16500
Yield/ acre	8 quintals	15 quintals
Total cost of cultivation	33150	42860
Total Income	51200	96000
NET Income	18050	53140
B:C ratio from Cotton	1:54	2:23
Maize yield		32.56 Quintals/ acre
Gross returns		Rs 68376/-
Cost of cultivation		Rs 25,068/-
Net returns		Rs 43,308/-
From Cotton and maize		1: 2.41



**YP visit to the Farmer Field**



**Crop at harvesting stage**

