How HDPS helps in mitigating climate change?

The dry matter production at harvest is almost doubled ranging between 1.1 to 1.5 tones/ha while yield gain is almost 60 – 65 % above normal crop depending upon the density of planting. Even by assuming that 10 tonnes of biomass is produced by HDPS then about 3.9 tonnes of carbon has been sequestered and stored as biomass. As row to row distance is wider, inter cropping with short duration crop like coriander, beetroot, greens etc will not only give additional income but also sequester carbon from atmosphere during the cropping period. Besides, the stalks being tender it can be easily ploughed back to enrich the soil carbon. In this way HDPS helps in mitigating climate change.

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High Density Planting System: A Mitigation strategy for Climate Change

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High Density Planting System (HDPS)

What is HDPS technique?
HDPS is high density planting system where planting is done very closely per unit area so as to exploit the resource of soil moisture, nutrient and shorten their life cycle and subject themselves to mechanical harvest.

How it differs from normal spacing?
In HDPS, cotton crop is raised with population density ranging between 1.0 to 3.0 lakh plants (45-60 cm between rows and 10 cm between plants**)** per hectare as against the normal plant population of 0.18 to 0.20 lakh plants (90-120 cm between rows and 60-90 cm between plants**)** per hectare.

Which are the countries adopting this technique?
Countries like Australia, Brazil and China have adopted HDPS not only to increase yield but also to resort to mechanical harvest.

Why HDPS was not practiced earlier?
HDPS was practiced earlier in many cotton growing areas in our country too by broadcasting method. However it was not done in a systematic way to exploit the yield. Today, the HDPS has been fine tuned to harvest more yield.

Is there any specific genotypes / varieties suitable for HDPS?
Although most of the genotypes respond to HDPS, The cotton varieties Suraj and Anjali have been identified most suitable and breeding programme for HDPS is under way.

Will HDPS attract pest problem?
Due to high density of plants per unit area, chances of pest attack will be more. However, today we have new molecules to control these pest problem.

What are the requirement of fertilizer, irrigation and pesticide ?
Fertilizer, Irrigation and pesticides requirement is almost similar to normal planting density which also depends on soil character and location of the field.

What are the advantages of HDPS?
HDPS has the advantage of better moisture and nutrients use efficiency and yield almost 65% more than normal sowing with higher dry matter production. HDPS crop is characterized with synchronized flowering and uniform boll bursting with early cut off. It is highly suitable for mechanical harvest and the tender stalks and leaves can be ploughed back in to the soil to enrich the soil carbon.

Can it be practiced under rainfed condition?
Experiment conducted in Central India under rainfed condition has been a successful story. This system of planting has been validated on farmers' fields and has proved to be a sustainable technology both during a year of deficit rainfall and a year of rainfall and today HDPS is a component under National Food Security Mission (NFSM).