

Thesis Summary – Wheat – LPU – India 2024

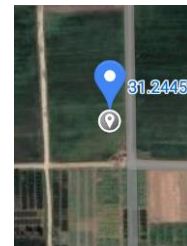


Time

- Date of Sowing: 08/11/2023
- Samples and photos taken at: 45 DAS (Days After Seeding), 60 DAS, 90 DAS, and at final harvest ~120 DAS.

Location

- Lovely Professional University, Panjab, Northern India
- Their experimental field is at Jalandhar, Punjab, India

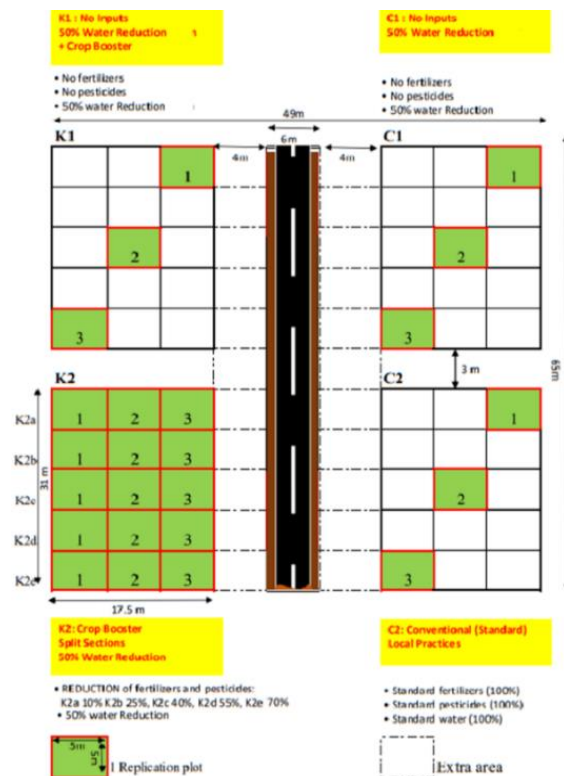


Purpose

To verify the effect of Kyminasi Plants/Crop Booster (KPCB) on wheat growth and yield, using Harvest Harmonics' POPS (Profitability Optimization Protocol for Sustainability) program.

Details

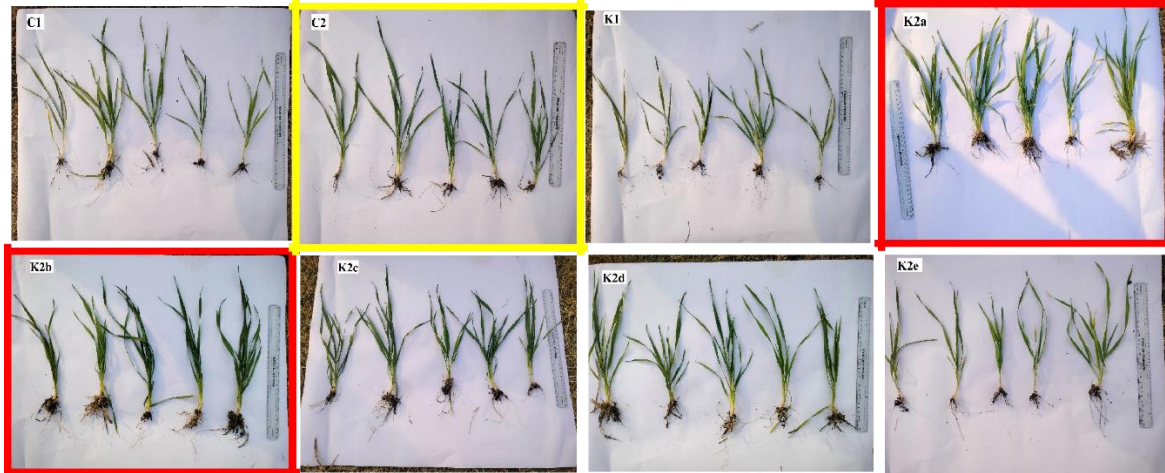
- Conducted by: Prof. Chandra Mohan Mehta
- Crop: Wheat
- Variety: PBW 826
- Fertilizer application: split dosages, dry
- Irrigation type: flood
- No. of irrigation done: five (5)
- Field layout: per POPS, with a matrix of 3x5 plots in each field, with a road separation and three (3) replications
- In this layout, four (4) fields were set up, namely K1, C1, K2, and C2
 - C1: no fertilizers, 50% reduction in water
 - C2: Conventional (Standard)
 - K1: KPCB + No fertilizers
 - K2a: KPCB + 10% reduction of fertilizers
 - K2b: KPCB + 25% reduction of fertilizers
 - K2c: KPCB + 40% reduction of fertilizers
 - K2d: KPCB + 55% reduction of fertilizers
 - K2e: KPCB + 75% reduction of fertilizers.



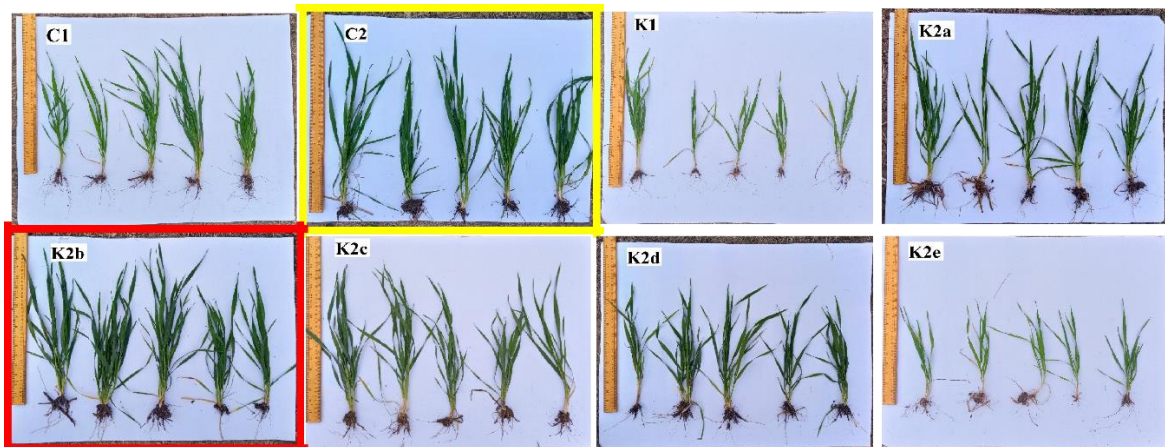
Results

The photos below show the different level of tiller development under the various input conditions.

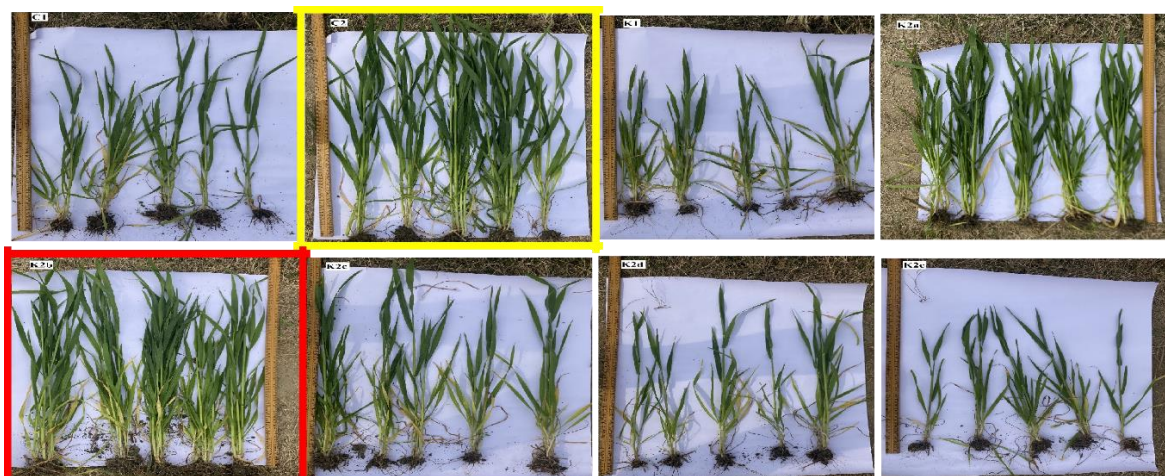
Tillering, 45 DAS



Tillering, 60 DAS



Tillering, 90 DAS



Wheat Spikes, Grain Filling Stage



Wheat Spikes, Maturity Stage



Plant and Root Samples, Maturity Stage



Harvest Samples



Final Yield



Yield Results Analysis

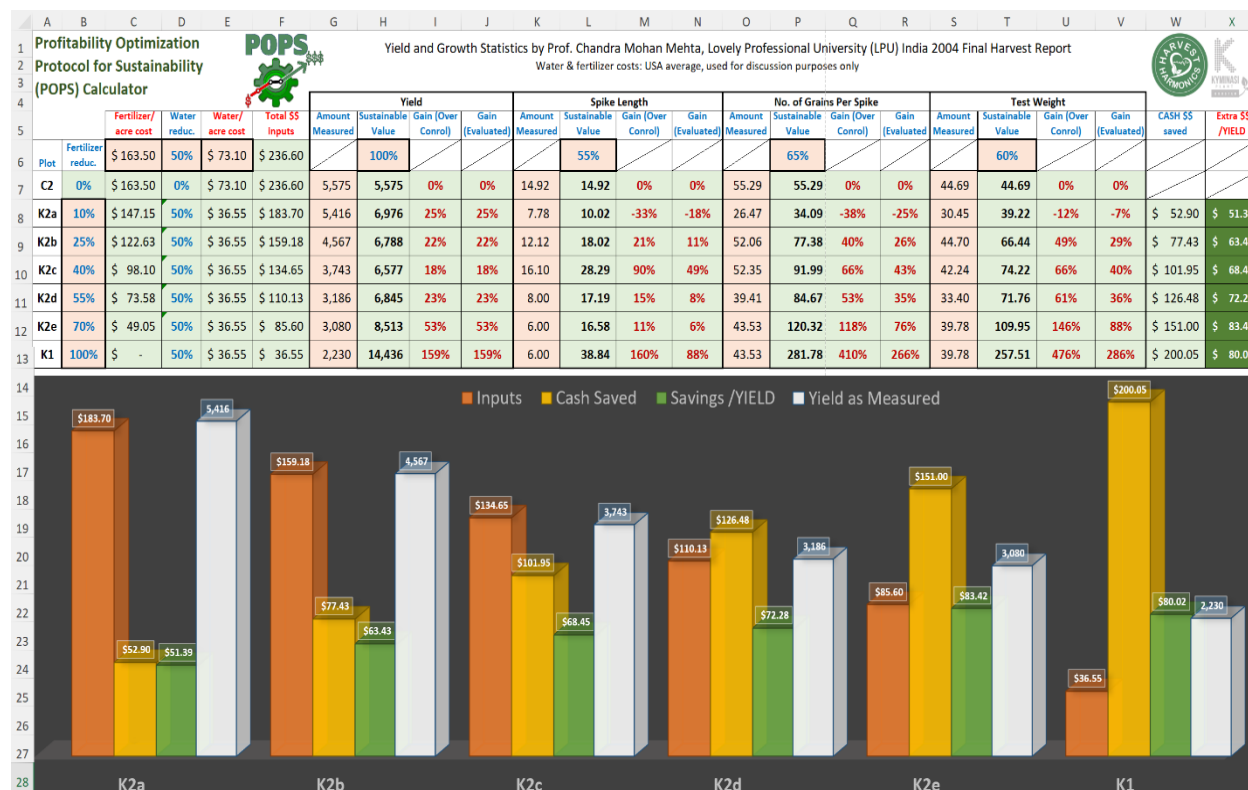
Prof. Mehta chose a standard water reduction of 50% and found out that further reductions of chemicals in the 25%-55% range resulted in better yields, greener leaves and thicker root systems.

The following section provides our POPS Cost-Benefit Analysis, that can vary from grower to grower according to their sustainability goals. The grower may focus on saving water, saving chemical inputs, a combination of these savings, or simply go for the highest yield.



POPS Science Trial Reducing Fertilizers and Pesticides Use in Wheat – While Saving 30% on Water

The calculations below are exemplary cost-benefit analysis, presented for discussion purposes only. In this calculation, the results were taken from the trial done by Lovely Professional University in India, and the costs of inputs are typical to the USA.



Interpreting the results depends on the sustainability goal:

- **Maximum yield**, represented by the white columns in the graph, was obtained in plot K2a: KPCB with 50% reduction in water and 10% reduction of fertilizers.
- **Maximum cash savings** (yellow columns) was achieved in plot K1: KPCB with 50% reduction in water and without fertilizers.
- **Optimal savings/yield combination per acre** (green columns) were obtained in plot K2e: KPCB with 50% reduction in water and 10% reduction of fertilizers.

Conclusions

This study has shown two aspects of using KPCB technology from Harvest Harmonics:

1. KPCB enhances wheat growth while saving on inputs and water. Large scale implementation is postulated to save India billions of Rupees.
2. Local farmers should perform the POPS program developed by Harvest Harmonics in order to find THEIR optimum inputs to reach their sustainability goals.