Cotton – India – Dr. Samunder – 2024

Overview

- This report provides the comparative results of three cotton trials, contacted by Dr. Samunder to verify the effects of Kyminasi® Crop Booster™ (KCB) in India
- Researcher: Professor Samunder Singh
- Institute: President, International Weed Science Society (IWSS)
- Report Date: June 2024

Time

- Farm “L1” trial started: May 6, 2024
- Farm “L2” trial started: May 11, 2024
- Farm “L3” trial started: May 31, 2024
- Harvest Date: ca. December 2024

Location

- Place: Haryana state
- Country: India

Species

- Crop: Cotton
- Variety: n/a

Irrigation

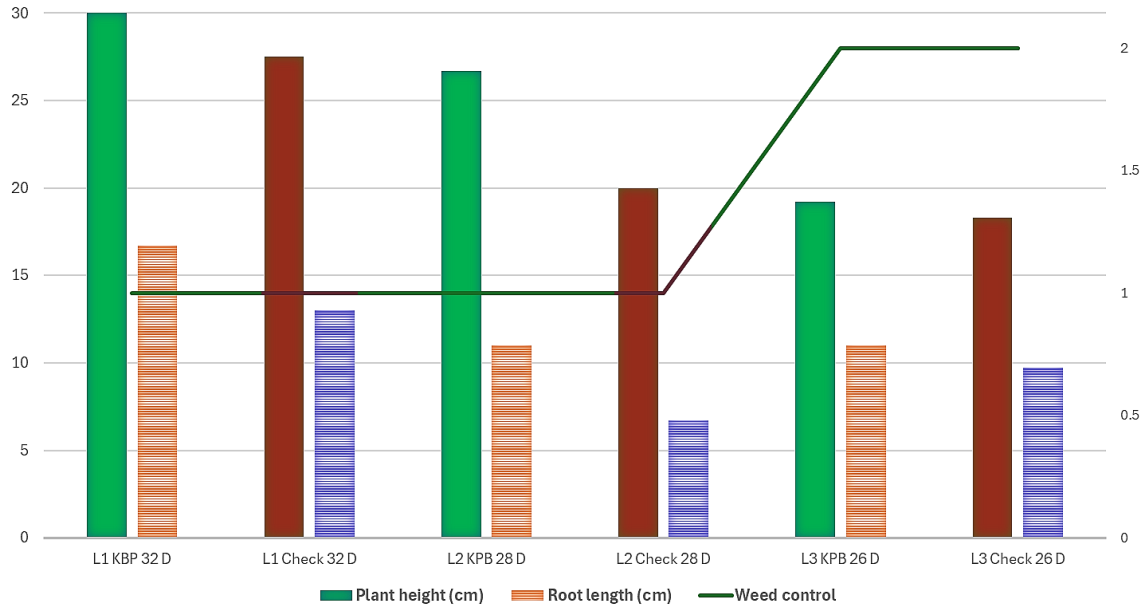
- Type: drip irrigation
- Schedule: n/a

Trial Details

- For cotton trials in farm L1 and farm L2 were without any fertilizer or pesticides so far.
- Farm L3 was treated with herbicide pendimethalin. Amount of 0.375 kg/ha was applied through drip on the same day of cotton planting.

Results

- As can be seen in the graph and photos below, at 26 days after plantation, the herbicide application was reflected in lower differences in root and shoot length of cotton, compared to the two other farms, L1 and L2.



- **With KCB, Farm #1 and Farm#2 that did not use any chemicals achieved +9.6% faster growth and +33.8% faster growth, respectively.**
- **Farm #1 and Farm#2 also achieved +28.7% deeper roots and +67.3% deeper roots, respectively.**
- **The photos show even more visible gains in leaves (roughly double area), much thicker stems and much thicker roots.**
- **Farm #3 used chemical herbicide and achieved +4.8% in height and +11.7% deeper roots, which is ok but much lower gains. In a comparison of with/without herbicide, this third farm lost about 40% in overall development above ground, and 15% below ground.**

Apart from that, the chemical "Pendimethalin" that Farm #3 is using is highly toxic to their workers and cotton processors. These results are not a perfect comparison but show that there may be zero gain from using this chemical, regardless of cost.

- Later in the development phase, KCB-treated cotton plants produced significantly bigger bulbs, and eventually at harvest time the average bulb provided cotton that was 1 gram heavier than the average bulb in Control at the same farm.

Photo

KCB (Treated) Plot

Control Plot

PHOTO: GROWTH DIFFERENCES AT 30 DAYS AFTER PLANTING

Conclusions

- The researcher concluded that Crop Booster technology can boost cotton growth in the Haryana/New Delhi area of India.
- Additionally, it has become obvious that the strong use of herbicides kills not just the herbs but also stunts the growth of the desired crop.
- Toward the end of the trial, Dr. Samunder decided wisely to eliminate farm L3 from the trial, because it was grossly underperforming thus skewing the results.

Appendix A – Dangers of Pendimethalin

According to Washing State Department of Transportation (https://wsdot.wa.gov/sites/default/files/2021-10/Herbicides-factsheet-Pendimethalin.pdf) and New Jersey Department of Health (https://www.nj.gov/health/eoh/rtkweb/documents/fs/3415.pdf), the herbicide Pendimethalin poses risks to human health and the environment, with potential human health concerns including skin and eye irritation, headaches, dizziness, nausea, and skin allergies. It is classified as a possible human carcinogen due to its ability to cause thyroid tumors in animals, although studies have not found a clear association between lifetime use and overall cancer incidence. Environmentally, pendimethalin is highly toxic to aquatic organisms and is persistent, with a high potential for bioaccumulation.

Other herbicides pose multiple risks including direct health issues for humans like skin and eye irritation, respiratory problems, and serious **long-term health conditions such as cancer, hormonal disruption, and neurodegenerative disorders.** Environmentally, herbicides can harm non-target plants, beneficial insects like pollinators, and aquatic life through runoff, leading to biodiversity loss and ecosystem damage. Exposure can occur through direct contact, residue on food, or environmental contamination of soil and water.