# Automated drip irrigation in banana

## TECHNOLOGY BRIEF

Automation of drip-irrigation could save substantial water and improve yield and water productivity in banana. Drip irrigation (2 emitters per plant with 4 liters per hour discharge capacity, on-line system) was installed and operated with soil water sensor placed at 15–20 cm depth in root-zone of banana crop (cv. Grand nain) planted with row to row and plant to plant spacing of 2.0 m.

Sensor-based automatic drip irrigation improves the fruit yield by 15% with better quality of fruits (higher total soluble solids and lower acidity) using 20% less water compared with manually operated drip irrigation (fruit yield, 60.5 t $ha^{-1}$) in banana. Moreover, water productivity (10.52 kg $m^{-3}$) and net return (Rs. 5,77,000 $ha^{-1}$) were improved by 45% and 15%, respectively, with higher benefit-cost ratio (3.98) under sensor based drip irrigation compared with manual drip irrigation system in the crop.

## HIGHLIGHTS

- Yield greater by 15%
- Water saving-20%
- Fruits with better quality
- Water use efficiency 45% more than manual drip irrigation
- Net return of Rs. 5,77,000 ha-1 with benefit-cost ratio of 3.98 was observed under automatic drip

## IMPACT / UTILITY

The cultivation of banana using automatic drip irrigation saves water and improves yield along with generating higher economic return and benefit-cost ratio compared with manually operated drip irrigation. This technology could be adopted in banana cultivation in eastern India and anywhere else with similar agro-climates of the study site.

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