

ABSTRACT:

The mango orchard near Natham in Dindigul District is experiencing significant yield loss due to recurring pest infestations and fungal diseases that develop rapidly under changing climatic conditions. Manual monitoring practices fail to detect early symptoms, allowing infestations to spread before treatment. Recent seasons have shown yield reductions of nearly 40–45%, resulting in financial losses of approximately ₹5–8 lakhs annually. Existing smart agriculture technologies are expensive and impractical for small-scale farms, limiting adoption. There is therefore a critical need for an affordable real-time monitoring solution capable of detecting early pest and disease activity, generating alerts, and enabling timely intervention. Successful implementation is expected to reduce yield losses, optimize pesticide use, and improve productivity and profitability for mango farmers in the Dindigul region.