

Bamboo-Structured Low-Cost Betel Vine Shade House

Profile of Innovator

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Age : 25 Years
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Brief description of Innovation

The structure is designed to maintain ideal microclimatic conditions such as adequate humidity, filtered light, and proper soil moisture—crucial for the delicate Magahi betel vine. The shade house is 2-2.5 m high and provide slope for run-off and provide 30-35% shade. It also plays a crucial role in protecting the crop from leaf burn, black spot disease, and environmental stress, thereby enhancing the quality and yield of betel leaves. Moreover, high density planting at 30cm apart which also suppress weed growth. In modified shade farmers harvest 100 leaves whereas in normal 20-25 leaves each wine.

Innovation's Highlights

Use of locally available, eco-friendly materials bamboo and dry grass (Jhalasi) able to provides protection from heatwaves, excessive rain, and frost; Maintains humidity and shade, critical for betel vine growth of shoot and new leaves; Sustainable and low-cost solution for small and medium betel vine growers/farmers; and improves resilience and supports continuous harvesting. Higher leaf productivity inside the modified structure with reduced disease incidence by 5-10%.



Bamboo structured betel vine shade house



Betel vine cultivation in low cost bamboo structure

Benefits/Advantages

Minimizes crop loss from climatic extremes; improves leaf quality and productivity; reduces disease incidence, especially leaf burn and black spot; enhances farmer's income through sustained yield; and eco-friendly and replicable with local resources. Farmer income enhanced Rs. 1.4 lakh to 2.0 lakh per annum.

Scope & Potential of Innovation for Wider Reach/Out Scaling

This innovation has significant potential in betel vine-growing regions where small and marginal farmers face climate-related cultivation challenges. It can be adopted across Magahi Paan belts and similar agro-ecological zones of Bihar. Its low-cost and locally adapted design makes it ideal for mass adoption and promotion through KVKs, NGOs, and agricultural extension programs.

Scientific Validation required

Needs validation of microclimate parameters inside vs. outside the structure; leaf quality, disease incidence, and yield impact.

Domain

Suitable for betel vine growing areas for better management of resources.