

Low-cost Power-Tiller-cum-Zero Tillage Machine

Profile of Innovator

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Brief description of Innovation

Paddy, a major crop of Banka district and delayed monsoon is common phenomenon and farmers have less sowing time. Low-cost Power Tiller cum Zero tillage machine using locally available and repurposed materials was developed to address the labour-intensive and costly tillage operation in small fragmented land. Adaptations made to a conventional Zero Tillage Machine, allowing it to efficiently sow seeds even in fields that have already been ploughed (not just unploughed fields as is usually intended). This modification addresses a practical gap in the use of zero tillage technology under varied field conditions commonly encountered by farmers in the region.

Innovation's Highlights

Manufacture and assembling using 5 HP, single-cylinder, air-cooled diesel engine and unused zero tillage machine components and other local materials. Dimension of Zero Tillage Machine 5 ft (L)x 2.5 ft (W)x 4.0 ft (H) for ploughing fields, significantly broadening its scope of use. Working efficiency of machine is 8-9 hour required for ploughing one-hectare land. Diesel fuel consumption of 600ml per



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Glimpses of low -cost power tiller-cum-zero tillage machine

hour. This simple, low-cost, and farmer-friendly innovation ensures easy adoption at the local level and represents a practical, need-driven solution to real-world agricultural challenges.

Benefits/Advantages

Highly economical, operation cost Rs. 4,500/ha for sowing, compared to Rs. 11,000/ha with traditional methods. Saves approximately Rs. 6,500/ ha in sowing cost. It is also fuel and time saving in comparison to traditional method. The cost of machine is Rs. 40,000 which is much lower than the commercial models which have price above Rs. 75,000. Increases the versatility and utility of existing Zero Tillage Machines, allowing farmers to use one implement for more field conditions; Saves the cost of purchasing additional sowing machinery. Reduces time and labour requirements for sowing. Enhances efficiency in crop establishment, potentially leading to more timely sowing and improved yields.

Scope & Potential of Innovation for Wider Reach/Out Scaling

The machine has a huge potential and substantial promise for scaling out across regions where zero tillage is practiced but fields frequently require tillage before sowing due to local soil or cropping patterns. Its low-cost, farmer-driven nature supports easy replication. Agricultural extension agencies, manufacturers, and development organizations can disseminate these modifications to benefit a wider farming community.

Scientific Validation required

Needs validation for safety standard, efficiency and for different soil condition.

Domain

Most suited for small and fragmented land in plateau region