

Arrowroot Grinding Machine

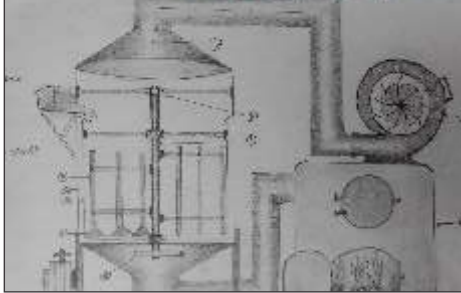


Our Intervention

- Technical drawing and documentation.
- Financial support through TePP. programme of DSIR.(Modification and development)
- Popularization for enterprise development.
- Cost – Rs. 40000/-

New Designs Developed

Tribrid Machine For Post Harvesting Operation On Cardamom



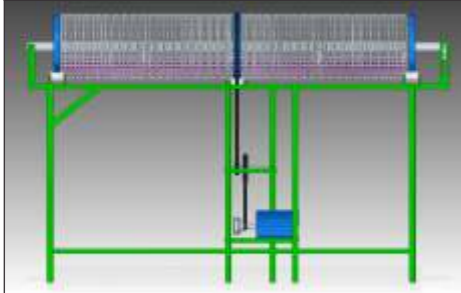
Problem

- 3 separate machines are used in post harvesting operations such as washing, drying and polishing.
- Cost – 5.5 lakhs

Solution

- Designed a low cost machine for post harvesting operations of cardamom.
- Estimated cost – Rs. 3.5 lakhs

Hybrid Machine For Threshing Pepper And Polishing Cardamom



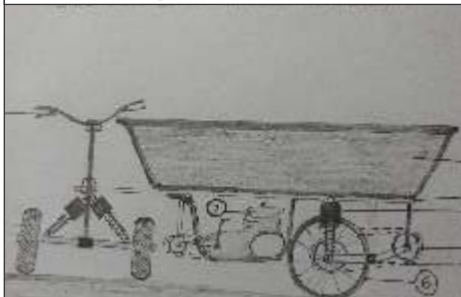
Problem

- 2 separate machines are needed.
- Idle time is high for pepper thresher (8 months).
- Cost – Rs. 35000/- + Rs. 33500/-

Solution

- Designed a low cost machine for pepper threshing and cardamom polishing.
- Estimated Cost – Rs. 48500/-

Mechanized Trolley For Steep Narrow Routes



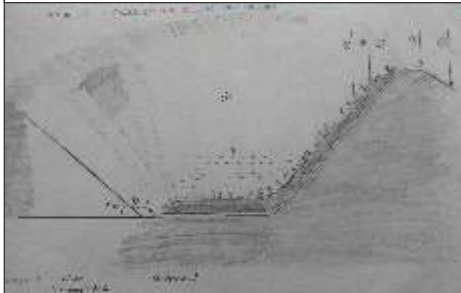
Problem

- Drudgery in transporting agri-inputs and harvest.

Solution

- Designed a mechanized trolley which can effectively transport through steep, narrow and uneven routes.
- Estimated cost – Rs. 54,000/-

Durable And Low Cost Water Harvesting System



Problem

- Short lifespan of silpaulin tanks.(3-5 years)
- Pollution.

Solution

- Designed a low cost model with 4 separate layers consisting of silpaulin, soil, agronet and grass.
- Estimated cost per litre – Rs.0.79/-



Highlights from Core area 4: Engineering Technologies for reducing drudgery

The objective focuses on design and development of lowcost tools and equipments (machinery) which help farmers to reduce drudgery.

CORE Support Programme (2008-2018)



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Technologies

Poly House Roof Cleaner



Problem

Algal growth in UV sheet reduces light penetration and affects production.

Solution

- Developed a poly house roof cleaner which rotate at 2500rpm using water pressure.
- The rotating brush is made of thin fibre which does not harm the UV sheet.
- Total weight of the developed product is 0.650g. (without water) • Efficiency – 75 sq.m/hour • Water consumption – 300L/hour • Pressure – 20bar

Pepper Harvester



Problem

- Harvesting loss up to 150g/plant • Lack of skilled labourers. • Pain in hip and fingers.

Solution

- Developed a light weight pepper collecting bag which can be fixed on any hand of the labourers. • Harvesting tool is developed and it can be fixed in between thumb and index finger of labourer.
- The collecting bag posses a minimum length of the pepper plant so that the harvested pepper can be collected at the bottom of the plant and hence the labourer need not bear the weight directly. • Cost – Rs. 725/unit.

Mosquito Coil Making Machine



Problem

- No coil stamping machine is available for small scale units.

Solution

- We designed and developed a semi-automatic stamping machine which has a production capacity of 6 coils/ minute.
- The cost of the machine is Rs. 86,600/-

Coffee Harvesting Basket



Problem

- Harvesting loss (450-675g/plant) • Lack of skilled labourers.
- Drudgery and time.

Solution

- Developed a basket which can be fixed at the front with bag strip • It was deigned with suitable length adjustment. • It is light weighted, easy to collect, effortless transfer of collected coffee.
- Cost – Rs. 575/unit.

Spreading Tool For Plantation Crops



Problem

- People have to spread and recollect the harvested crops over the mat with their hand which is very difficult and time consuming.

Solution

- Developed a spreading tool which can spread the harvest up on the mat.
- Thickness can be regulated by adjustable metal plate. • The metal plate can be adjusted to the lower level, so the collection of harvest from the mat is performed with the same tool in reverse order. • It is useful for pepper, coffee, ginger, turmeric etc. • Cost – Rs. 735/unit

Highlights

Combing Tool For Broom Making



Problem

- Combing of the collected *Phoenix leaves* usually done by using a knife involves high amount of drudgery and causes pain to their palm.

Solution

- An ergonomically convenient tool is designed and developed.
- User friendly
- A rise in production by 56% is observed.
- Cost – 206/unit

Modifications Done in Farmer Innovations

Cardamom Washing Machine (IARI Awarded)



Problem

- Low loading capacity (40kg) • Corrosion.

Solution

- Increase in the size of drum for 100 kg capsules to roll easily inside for effective cleaning. • Use of S.S – Type 304 perforated sheet drum. • Cost – Rs. 45500/unit
- Drum size – 90 X 60cm.
- Motor – 1.5 HP

Nutmeg Decorticator



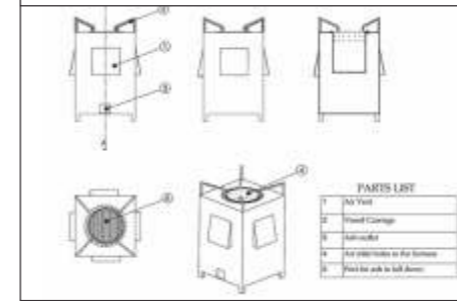
Problem

- Problem of separation between decorticated shell and seeds.
- Additional labour and time is required.

Solution

- An inclined sieve is incorporated in the machine for effective collection of the decorticated seeds.
- Cost – Rs. 32000/-

Energy Efficient Chula



Problem

45% exence for mid-day meals in the school are for fuel, labour and transportation.

Our role

- Technical drawings.
- Efficiency testing (IRTC and IIT Guwahati)
- Popularization.(UNDP)

Cardamom Polishing Machine



Problem

- Hand rotating machine. • Dust. • Time consuming.
- Low efficiency.

Solution

- Rotation using 1HP motor. • Fixed winnower to remove the dust particle.
- Redesigned blades to enhance efficiency
- Cost – Rs.35000/unit