

2.009 Product Contract

Team: Yellow

Product Description: Manioc Grater for Haiti and West Africa

Intended Customers: Village Communities and Commercial Graters

Market: Food Processing Tools for Developing Countries

Customer Need	Product Attribute	Specification
Grates manioc at a faster rate than grating by hand with a higher level of comfort	Uses mechanical advantage to increase rate	Grates at least 42 kg/hour: much faster than the average target machine for cost and faster than the max output of 6kg/hr by hand
Low cost/ affordable compared to production rate	Repayable within three months of purchase	Production = 500kg/week, Profit = price-cost = 20 - 15 - 5cents/.75kg sold, Cost = \$50, Total Profit = \$5/day, Payback Period = 10 days
Is easy to manufacture on-site in Haiti or West Africa	Local building materials and techniques with loose tolerances	Mild steel Blacksmith capability: Several designs all with easy to access material like concrete/rebar
Is easy to clean	All surfaces, in and around the product, can be easily accessed for cleaning. Manioc not expelled over area of operation	All dirty surfaces are exposed. Safety guards easy to remove using hinges
Quality and variability of grating material	Interchangeable surfaces available to achieve various sizes/consistency of manioc for food production	Grating surfaces available with small holes or large holes ranging from 3/16" to 1/16"
Grating surface can be replaced easily	Grating surface fits/snaps in rather than more permanent attachment techniques	Simple attachment enables easy removal capability
Is a safe product for community use	No pinch points, safe guards on grating surface, no sharp parts, intuitive usage	Only one place that can possibly get hurt and it is protected with a hinge guard
Variable Power source	Off grid energy source with optional motor attachment	Uses less then 50 watts of human output and provides pulley for simple motor attachment

Hopper size and collection	Feeder must be large enough for manioc of different diameters and shapes	Feeder diameter is 4 inches (ID)
Hopper needs to be easily accessible from the sitting position	Larger Feeder	12 inch funnel shaped region
Long Product Lifetime	Material Selection with good durability and minimal repairs	At least 3 months for grating surface replacement