

# Milk Saver

---

Red A

# Our Product

---



red

# Consumer Problem

---

- Unprocessed milk can only be stored for 24 hours
- Rural farmers have to undersell to conglomerates, because unsold milk at market is lost product to the farmer
  - This doesn't allow for product differentiation between low end and high end milk (buffalo milk vs. cow milk)



red

# Our Market

---

## India

### Targeted Customers:

Wholesalers/Middlemen

- Collect milk from local sources
- Cream separator

### Competition:

- Amul
- National Dairy Development Board

## Guyana

### Targeted Customers:

Rural Farmers

- 30,000 tonnes of fresh milk produced

### Competition:

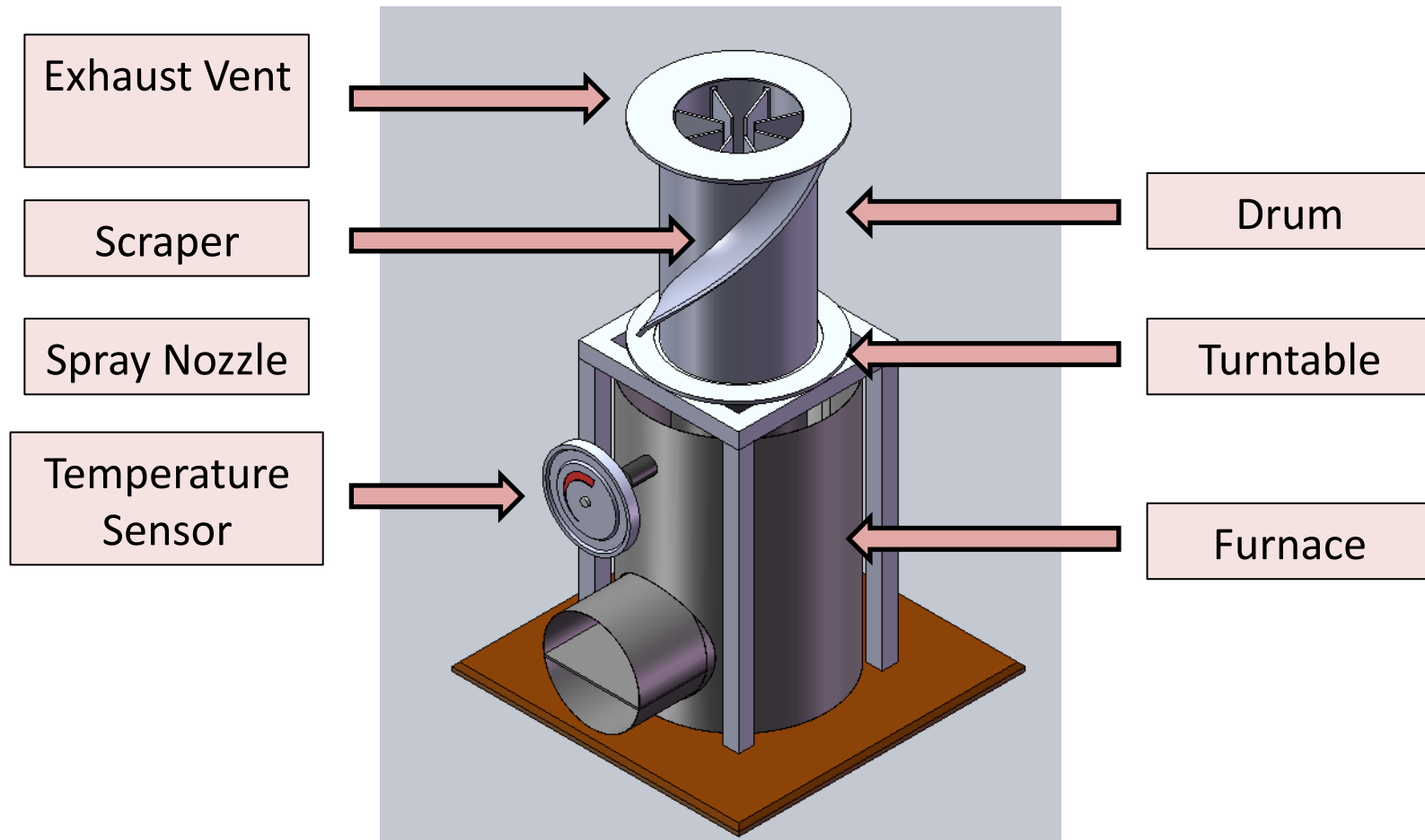
- 75% of milk consumption originates from imported powder



red

# Our Product

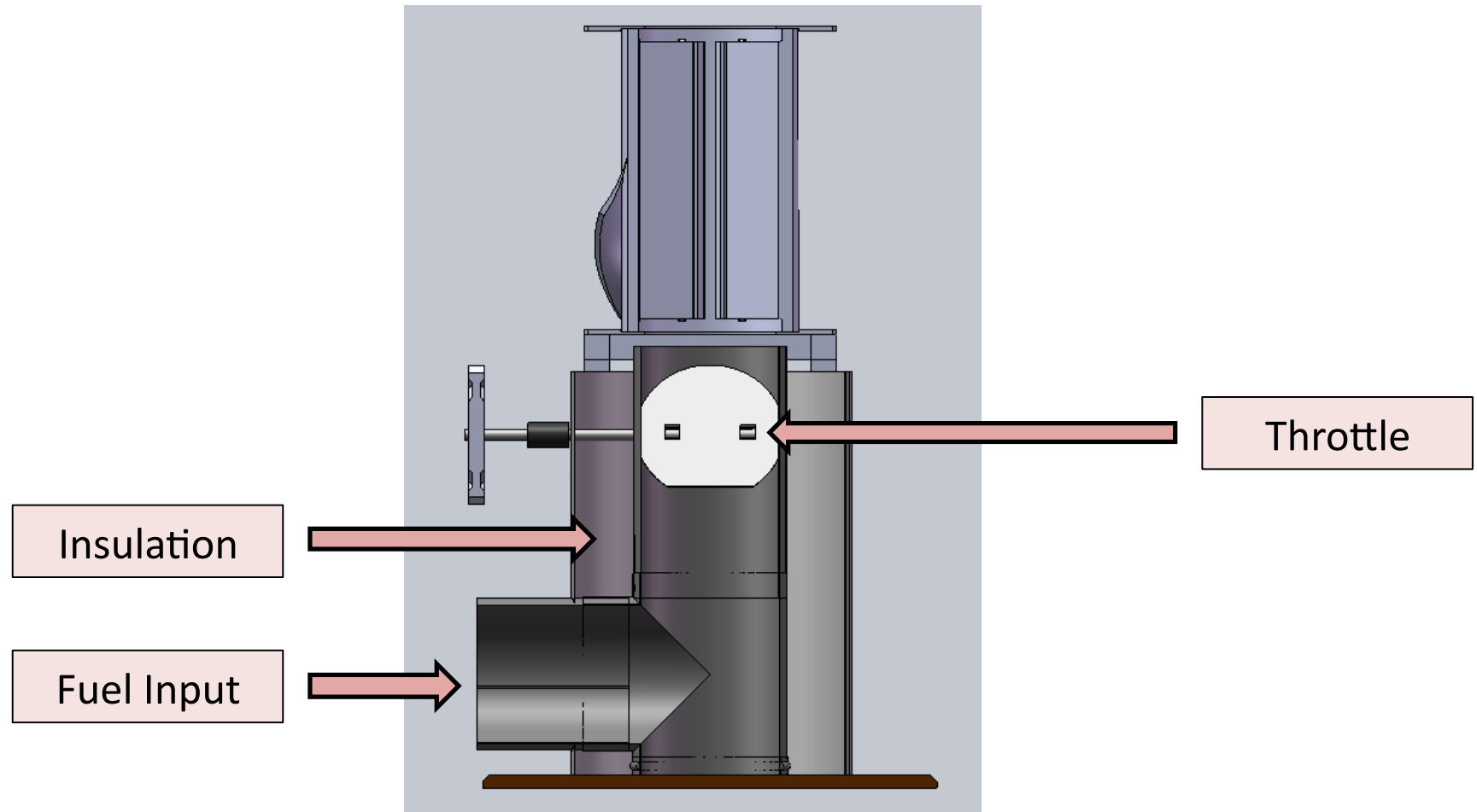
---



red

# Our Product

---



red

# Development from Sketch Model

---

## Sketch Model

- Brainstorm configuration of the final product
- Individually test spraying and scraping techniques
- Test milk drying process

## Mockup Review

- Divide and build key components of milk dryer
- Test spraying and scraping components together in mockup assembly
- Test continuous milk drying



red

# Risk 1: Drum Design

Product Attribute	Engineering Solution
Provide surface to dry milk	Dimensions allow for 8 gallons/hour
Maintain continuous drying	Cylindrical drum design allows for continuous rotary drying

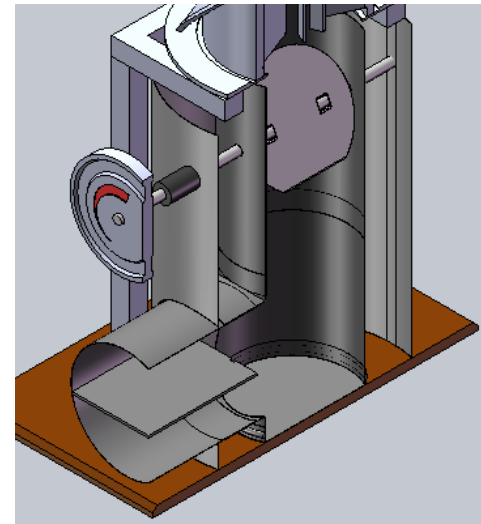


red



# Risk 2: Heat Distribution

Product Attribute	Engineering Solution
Provide accurate temperature control	Manual throttle maintains temperature at 140°C
Safe to use outdoors	Rocket stove-inspired design allows for use in windy conditions and insulation protects user



red

# Risk 3: Application

Product Attribute	Engineering Solution
Instantly dry the milk without burning or denaturing the proteins	Nozzle allows for even, thin distribution of milk that dries on contact



red

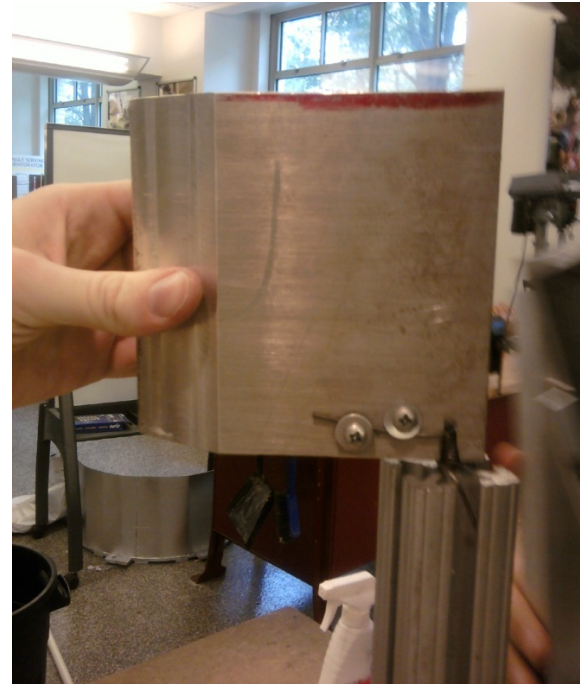
# Risk 4: Scraping

## Product Attribute

Maintain continuous milk collection

## Engineering Solution

Scraper held in contact allows for constant rotary scraping



red

# Benchmarking



## Food Dehydrator

- Dries liquids in very small amounts
- \$20-40

## Cream Separator

- Used by farmers already but cannot dry milk
- \$15



## Milk Saver

- Dries 8 gal milk/hr
- Retail price: \$40
- Production cost: \$20



red

# Moving Forward

---

Outstanding Risk	Engineering Solution
Improve scraping the milk	Requires more force and sharper edge
Improve the temperature control	Use a flue and a thermometer to control drum temperature



red



# Special Thanks

---

For providing us with invaluable market insight we would like to give a special thanks to...

- Dr. Pradip Sarmah
- Candace Wilson
- Conrad Wilson
- Arka Dhar
- Azamat Abdymomunov
- Jose Gomez-Marquez



red