

TEKNO GIYA NO. 10-2017
High Value Crops Development Program



POSTHARVEST TECHNOLOGIES FOR COFFEE AND CACAO





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MULTI-COMMODITY SOLAR TUNNEL DRYER (MCSTD)



The MCSTD is designed to utilize solar heat in drying while keeping the commodities clean. Adapted from the design of Hohenheim University in Germany, it was modified to suit the needs of local farmers engaged in processing.

Components:

Air Fans

Heat Collector

Drying Chamber

Length:	12 m
Heat Collector	8 m
Drying Chamber	4 m
Width	2 m
Capacity	240-320 kg
Temperature	40-50°C
Airflow Rate	720 m ³ /h



Drying Tray	Stainless
Plastic Cover	UV PE
Electricity	90W
Fabrication Cost	P120,000

**Advantages:**

- Higher drying temperature - 10 –15°C higher
- Faster drying - 33% shorter drying time
- Higher bean recovery - 1 to 1.5% higher
- Less moldy beans

Benefits:

- Cheaper in investment and operation cost than other available commercial mechanical dryers
- Dries commodities simultaneously, efficiently and hygienically
- Preserves the quality of dried products longer because of lesser microbial contamination

MCSTD WITH BIOMASS FURNACE



Components:

Air Fans

Heat Collector

Drying Chamber

Biomass furnace and ducts

Length	12 m
Heat Collector	10 m
Drying Chamber	2 m
Capacity	300-400 kg
Fabrication Cost	
Total	P180,000
Furnace and ducts	P 80,000

Advantages:

- Drying during evenings and continuous rainy weather
- Faster drying
- Higher bean recovery



GREENHOUSE TYPE SOLAR DRYER WITH FURNACE



Components:

Air Fans
Drying Trays
Drying Chamber
Biomass furnaces and ducts

Length	13.2 m
Width	7.6 m
Height	3.5 m
Capacity	600-800 kg
Airflow Rate	2,400 m ³ /h
Fabrication Cost	P280,000

Advantages:

- Higher drying capacity
- More convenient to operate during rainy periods
- Higher temperature and higher bean recovery

MECHANICAL FLATBED DRYER



Components:

Air Fans

Drying bin

Biomass furnace and ducts

Length	2 m
Width	2 m
Capacity	640 kg
Temperature	40-50°C
Airflow rate	1,200 m ³ /h
Drying duration	3-4 days
Electrical	750W
Fabrication Cost	P240,000

Advantages:

- Drying during evenings and continuous rainy weather
- Shorter drying duration

Potential:

- Can also be used as 2nd stage dryer after initial sundrying (1st stage)



PHILMECH COFFEE PULPER



Features:

Made from locally available materials

Portable

Simple in design and
construction

Rubber-bib-type

Performs best with water (designed for wet process)

Applicable only for ripe fresh cherries

Specification:

Capacity: 40-50 kg/hour

Separation Efficiency: 62.5%

Manpower Requirement: 1 person

Estimated Cost: P8,000.00

GRAIN MOISTURE METER



The grain moisture meter can determine the moisture content of grains and coffee instantly. It gives speedy, accurate, and reliable moisture readings anytime.

Features:

- Built-in data averaging up to 99 readings
- Data logging function up to 7 levels (extendible)
- Numeric and time indexed memory recording
- Self diagnostic and auto calibrating
- Auto power off and back lighted ridout
- Security protected microprocessor
- Commodity menu key control
- Low battery and fault indicator, with real time clock
- Instant reading and super fast output
- Made from durable engineering plastic casing

Specification:

Dimension 80 mm X 117 mm X 160 mm

Weight 480 grams

Power supply 4 pc AA batteries

Repeatability 99%

Resolution 0.1% MC wb

Accuracy 0.5% MC wb



Source:

**Philippine Center for Postharvest Development & Mechanization
Science, City of Muñoz, Nueva Ecija**

Produce and Distributed by:



DEPARTMENT OF AGRICULTURE - CARAGA REGION

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