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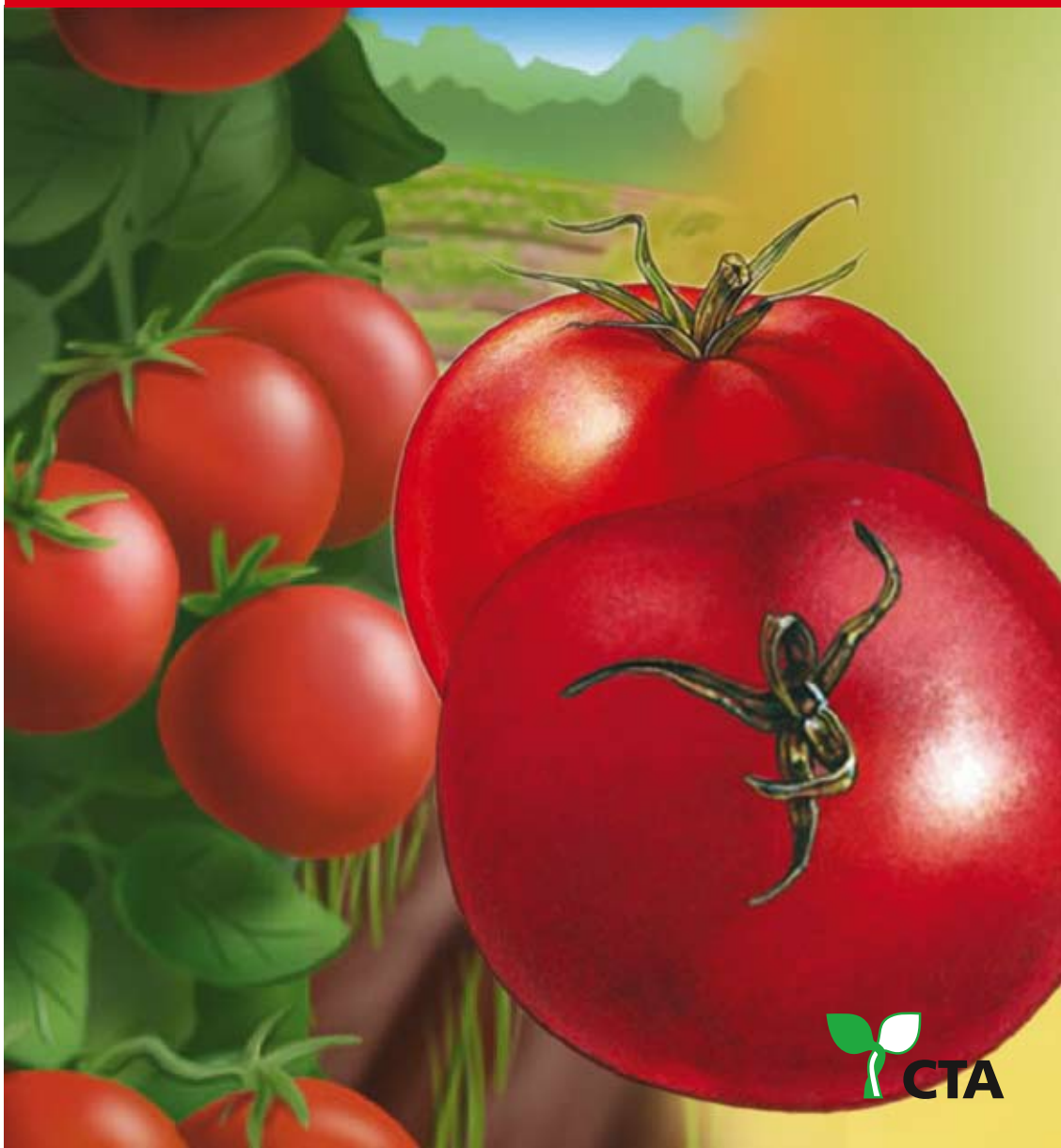
CTA Practical Guide Series, No. 12

Processing Tomatoes



CTA

Processing tomatoes



Tomatoes are widely grown and used in Eastern Africa. During the peak season most farmers sell their tomatoes at throw-away prices and substantial quantities go to waste because they are highly perishable. To avoid this, farmers can process tomatoes into various products for storage and use at home or as value-added products for income generation.

Tomatoes are rich in:

- vitamins and minerals, which are important for health
- lycopene (the substance that makes tomatoes red) which has cancer-preventing properties.

Basic equipment required for tomato processing

Cooking pans; plastic buckets with lids; a sharp knife; clean water; a stove (charcoal, kerosene, gas or electric); wooden spoons and ladles.

Package in either glass or plastic jars and bottles. Plastic is lighter, cheaper and does not break easily.

You will also need crown caps for bottles and lids for jars.

For commercial-scale tomato processing you may also need: pulping machine or blender; crown cork sealer or bottle capping machine; sealing machine; glass bulb thermometer; weighing scale; chemical preservative; thickening agent (pectin); solar dryer.

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Procedure for making tomato powder

Step 1: Choosing the tomatoes

Select tomatoes that are ripe, red, have a firm texture and are free of disease and mould.

Step 2: Washing

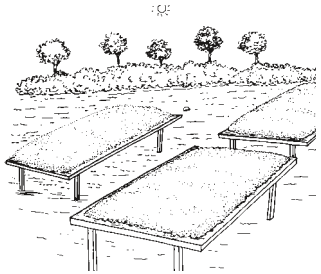
Wash the freshly harvested tomatoes in clean water in a large bucket.

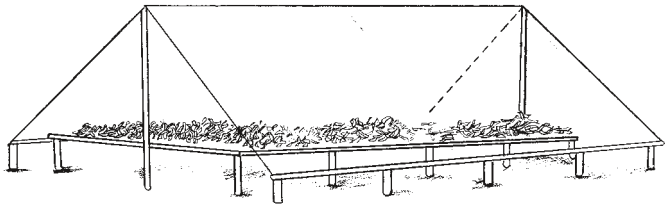
Step 3: Slicing

Cut tomatoes into slices 0.5 cm thick.

Step 4: Drying

Spread the tomato slices on a clean, raised platform to sun dry. Use a solar dryer for a better quality product. To prevent contamination during open sun drying, cover with mosquito netting. For commercial-scale production, drying tomatoes using a hot-air dryer is advisable.



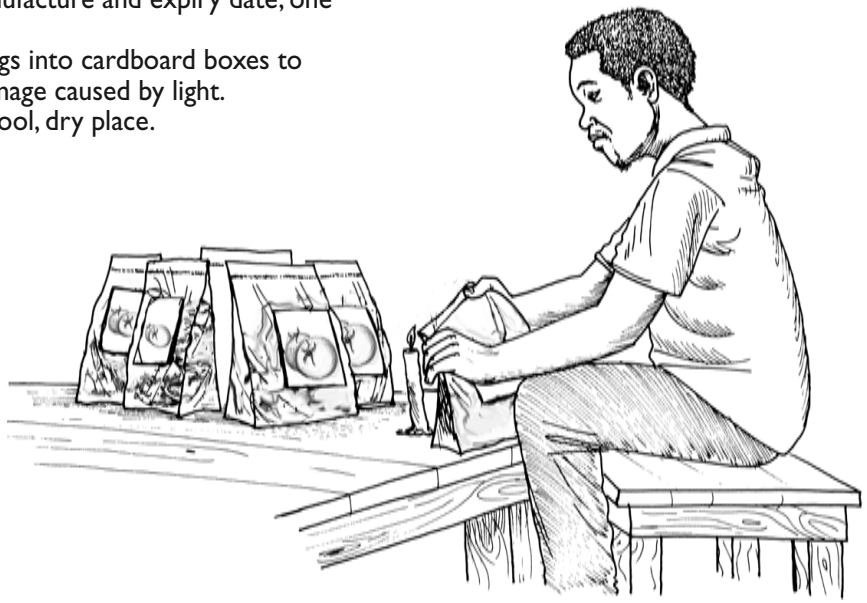


Step 5: Milling

Mill the dried tomatoes using a hammer mill fitted with a sieve of appropriate mesh size.

Step 6: Packaging and storage

- Place powder into polypropylene or polyethylene bags and seal using a candle or sealing machine (impulse sealer) and label with date of manufacture and expiry date, one year later.
- Pack the bags into cardboard boxes to prevent damage caused by light.
- Store in a cool, dry place.



Procedure for making tomato pulp

Step 1: Choosing the tomatoes

Select tomatoes that are ripe, red, with a firm texture and are free of diseases and mould.

Step 2: Washing

Wash the freshly harvested tomatoes in clean water in a large bucket.

Step 3: Boiling

Place the tomatoes in a cooking pot. Add water and boil until they are soft and the skin peels off easily – but do not peel them.

Step 4: Pulping

- Remove the tomatoes from the pot using a large perforated spoon and place them in another container.
- Mash using a large wooden spoon.
- Use a large household sieve to separate the tomato pulp from seeds and skin.
- Discard the seeds and skins or feed them to your chickens and keep the pulp.



For commercial-scale production, a fruit pulper (manual or motorized) will reduce the workload and increase the yield.

Pulp can be used to make tomato jam and ketchup.

Tomato jam

- Use one kilogramme of sugar for each kilogramme of tomato pulp.
- Mix and place in a large cooking pan.
- Place the pan on a stove, bring to the boil and stir continuously to avoid burning or sticking to base. Boil until mixture thickens.
- Add lemon juice (two teaspoons for every kg of jam). The lemon juice helps the jam to set.
- Test to see if jam is set. Take some jam in a spoon and tip into a cup of cold water. If the drop remains whole, the jam is ready. If it spreads out in the water, the jam needs further boiling.
- If jam does not set even after additional boiling, add pectin (a thickening agent: one gramme of pectin per kilogramme of tomato pulp).
- If jam is to be stored for more than one year, you need to add a chemical preservative (sodium benzoate, added at a concentration of 100 mg for each kg of jam). Add to mixture near the end of the boiling process.
- Use a sterilizing agent (sodium hypochlorite) or hot water to sterilize the jars.
- Allow jam to cool and pour into the jars while it is still flowing.
- Fill sterile jars to within 3 cm from brim of the jar.
- Loosely cover the jars with lids and set aside for about five minutes to allow trapped air to escape. Tighten the lids and turn jars upside-down for two to three minutes to heat the lids to kill any germs.
- Allow the jars to cool to room temperature before labelling. Jam can be stored at room temperature for up to one year if not opened.

Tomato ketchup

- To make one kilogramme of tomato ketchup place 420 grammes of tomato pulp and 150 grammes of sugar in a large pan. Thoroughly mix and then add 300 grammes of vinegar, 300 grammes of salt, 70 grammes ground onion and 30 grammes of ground garlic and any other desired spices, such as chilli powder. Mix well.
- Bring the mixture to the boil, continuously stirring with a wooden spoon.
- Allow mixture to cool for about five minutes.
- Pour into bottles, then cap or seal the bottles with the lids using a sealing machine.
- Place bottles in a pan of cold water.
- Continue cooling the bottled products by changing water in the pan.
- Ketchup can be stored at room temperature for six months if not opened.
- Use as a tasty sauce.

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What could go wrong?

Problem	Causes	How is the problem corrected?
Jam does not set (thicken)	Over-mature tomatoes were used	Use healthy, ripe tomatoes Add lemon juice and pectin
Mould growth on product, especially on surface of jam	Not enough sugar added to mixture Poor hygiene Jam not boiled for long enough Jars not sterilized Use of contaminated caps or lids	Add correct amount of sugar Use clean utensils Boil as recommended Sterilize jars Use clean caps and lids
Jars or bottles cracking	Hot products in jars cooled too quickly	Cool gradually