CAVA2

CASSAVA: ADDING VALUE FOR AFRICA PHASE II

# What to know before buying a

# CASSAVA PRESS

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## What you need to know before buying:

# PRESS FOR DEWATERING

### 1. Dewatering

Dewatering is a solid-liquid separation process aiming to reduce product moisture content. It is used in various industrial processes, particularly for fibrous materials. The most common dewatering equipment is a press.

Dewatering is significantly less expensive than drying, this is because the energy required to remove water by mechanical means is less than the energy needed for drying. Therefore, by mechanically reducing the material moisture content the energy needed for the subsequent drying is minimized. During cassava processing, the grated mash should be dewatered before being placed into the dryer. The mash moisture content should be reduced to 40% on wet-basis (w.b.) or less. The simplest way to achieve this is by using a press.

### 2. Quality and safety

Dewatering with presses is based on the application of pressure to disrupt the root cells and release the contained water. It is basically a squeezing process. Under pressure, the cells rupture and the water from them flows out. Dewatering with presses depends largely on the amount of mechanical pressure applied. Hence, presses should use hydraulic force; the ones that use a screw mechanism do not deliver the necessary force and thus do not reduce the moisture content to the desired level. Hydraulic force can be delivered using a manually operated hydraulic jack or a hydraulic drive system. Force can be applied from the top, bottom, sides or a combination of them all. Every part of the press should be resistant to corrosion and the metal parts that come into direct contact with the cassava mash should be made of stainless steel.

While the object is to remove as much water as possible, consistency is equally important. Every batch removed from the press should have a similar moisture content (≤40% w.b.).

### 3. Performance indices

Limited research has been done on mechanical dewatering of cassava mash, consequently, press designs and capacities vary widely. Benchmarks and ranges for performance indices have not yet been determined.

The most important performance indicator to consider when acquiring equipment for dewatering is *throughput*, as it is important to assure its compatibility with the size of the operation. *Throughput* is usually defined as the quantity of material processed per unit of time. The *throughput* of a press could be related to the amount of cassava mash that is pressed per hour. However, this might be misleading, if the press is not able to reduce the moisture content of the mash to at least 40% w.b. For this reason, *throughput* for presses should be always related to the amount of final product (at 40% w.b. moisture content) that can be obtained per hour.

### 4. Summary: check before buying

- ☑ Is the equipment *throughput* suitable to the process centre operation?
- ☑ Does the press use hydraulic force instead of a screw mechanism?
- ☑ Is the final moisture content of the pressed product equal to or less than 40% w.b.?
- ☑ Is the final moisture content of the pressed product consistent?
- ☑ Are all of the press parts resistant to corrosion?
- ☑ Are all of the metal parts that come in direct contact with the food made of stainless steel?