

## COCOA PRODUCTION PROCESS

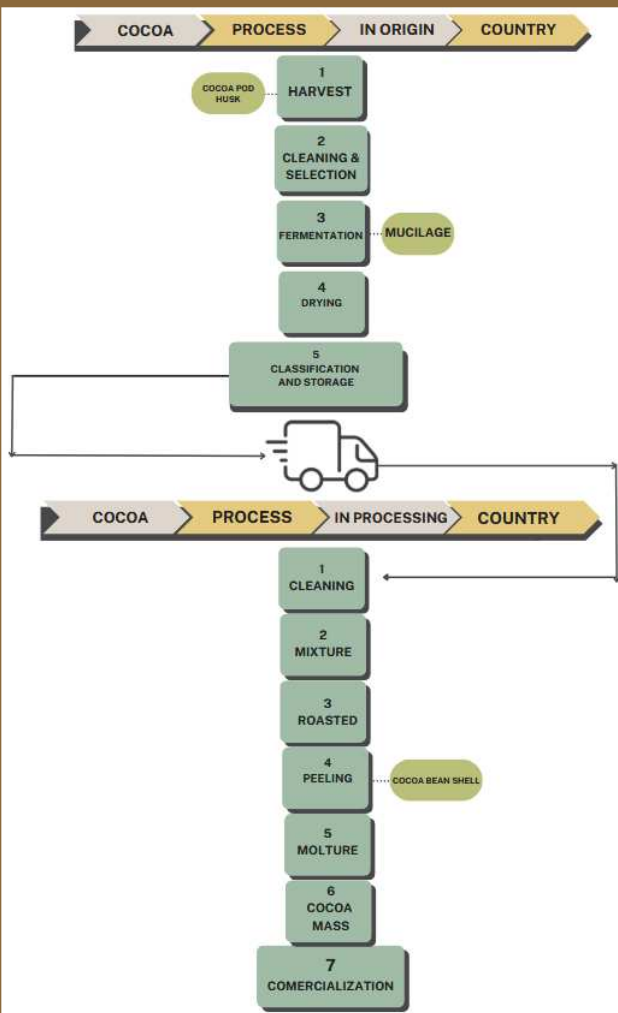


Figure 1. Cocoa production process in both countries

## OBJECTIVES

To seek proposals for the use of by-products in cocoa processing to reduce environmental impact and contribute to a more sustainable economy.

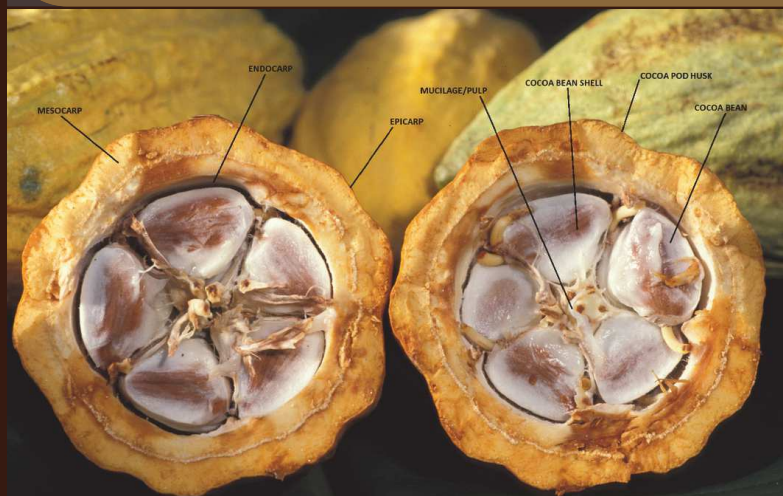


Figure 2. Parts of cocoa fruit (Keith Weller, 2007)

BY-PRODUCT	WHAT THEY SELL	FOOD USES	BRAND	COMERCIAL PHOTO
MUCILAGE	Bottled cocoa mucilage	Sugary drink	PACHA DE CACAO	
	Freeze-dried cocoa mucilage	Decoration of gastronomic dishes, snacks & toppings.	TOUFOOD	
	Bottled cocoa mucilage	Sugary drink	BLUE STRIPES	
COCOA BEAN SHELL	Fermented, dried and roasted cocoa bean shell	With milk and as a substitute for more caloric cereal	ISABEL CHOCOLATES	
	Dried cocoa bean shell	food seasoning, "snack" between hours	BLUE STRIPES	
COCOA POD HUSK	Cocoa bars made with cocoa pod husks and cocoa bean shells	Food substitute, "snack" between hours	BLUE STRIPES	

Table 1. Companies producing products based on cocoa by-products

## CONCLUSIONS

- This study has allowed to understand cocoa and the potential of the by-products.
- Chocolate production generates a considerable amount of waste.
- Extensive information has been found regarding cocoa husk, pod and mucilage as by-products, as well as extraction techniques for them.
- It is true that many of these techniques are still in experimental phase, being difficult to implementate.
- The reuse of cocoa by-products not only help reducing waste, also it is beneficial for producers and promotes a circular economy.
- The most relevant on this study is the existence of companies that have successfully commercialized cocoa by-products.

## REFERENCES

Keith Weller, (2007). *Cocoa beans in a cocoa pod*, USDA ARS.