

Factsheet



Bio-based packaging to reduce food waste along the food chain

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How to increase the value of the biomass residues and prevent food loss?

Sidestreams providing additional income for farmers.

A focus area of the InnoFoodAfrica project is to reduce agricultural waste by utilizing it for bio-based packaging materials. Certain InnoFoodAfrica crop sidestreams and food wastes were investigated for their suitability for bio-based products. Currently, the evaluation and development of the bio-based packaging materials and products is done at laboratory and pilot scale. The eventual production of this materials is expected to create a stream of new income for farmers and processors from sidestreams. This will enable the local farmers to become more resilient, as the local crops are climate smart choices and durable ones. The model packaging material is also expected to be suitable for export markets. This approach is believed to create more jobs from existing resources. Furthermore, plastic processing equipment use can be increased and helps to avoid bans introduced on them in some countries. The innovation ensures that composite materials developed can be run with existing machinery without extra investments.



Figure 1. Sidestreams compounded with biopolymer into pellets



Figure 2. Sidestream and biopolymer composite films

Availability of sidestream found

Sidestream amounts in Uganda shows that largest availability is in Finger millet (1 952 621 DMT)

Sidestream amounts in South Africa (excluding Maize being largest but not indigenous) shows that largest availability is in Cowpea (147 240 MT, wet)

Sidestream amounts in Kenya shows that largest sidestream availability is in Orange Fleshed Sweet Potatoes at 19.72% of total production.

Results of sidestream amounts in Ethiopia shows that largest sidestream availability is in Teff (8%) and Faba bean (20%) of total production.

Main results and outcomes of the activity

Novel biodegradable raw material combinations enable cost-competitive local production with existing machinery (no need for extra investments), avoiding many harms of non-biodegradable plastics.

- New material combinations help scientific community later to develop material combinations to even larger sidestream amounts.
- Reduced need of plastic product import and creation of export products
- Improved shelf-life provided by better packaging will help to avoid food loss, reducing e.g. need for food import

Main practical recommendations

Main practical recommendations to enable sidestream utilization are

- Removal of sidestreams from the fields quickly after harvesting
- Performing drying for the side streams to prevent microbiological activity in them
- As milling of the sidestreams influences the quality of end products, discussions with plastic processors about desired quality are required. This needs more continuous work by stakeholders.

Conclusions

- There are large quantities of sidestreams available from farmers in Innofoodafrica-project countries (Ethiopia, Kenya, South Africa and Uganda)
- Sidestreams can be utilized up to 30% of the material currently
- Farmers can pretreat the sidestream material to plastic processors
- This way they can increase their resilience and revenue for their farms.

Economic impact through local solutions

Sub-Saharan Africa imported over 11 Billion USD of plastic and rubber products. This can be replaced in part by our sidestream-containing solutions and even create export products from them

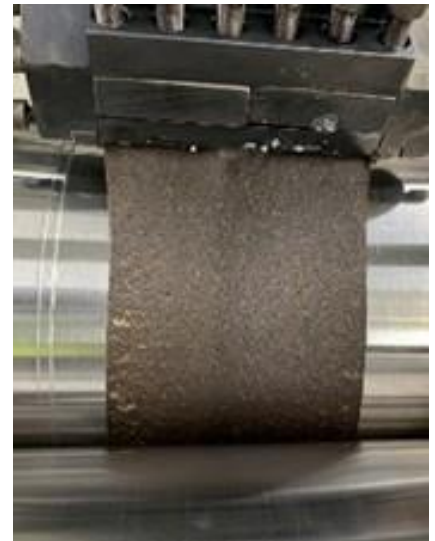


Figure 3. Film manufacturing in a pilot.



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