



Handing over of the MCT to Gituamba Ushirikiano Women Group, Nakuru County. Photo Credit: PABRA

# Bean threshers cut post-harvest drudgery

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**J**ANE Chepkwony, a farmer in Gorgor area in Kenya's Bomet County, wonders why she has to go through the tedious ritual of hitting the bean harvest with sticks to put food on the table for her family!

"My palms are rough and blistered because I have to use this stick to thresh the beans after harvesting. It takes too long to finish the work and I do not have sufficient energy to do it at my age," says Jane looking at the pile of beans harvested from the three-acre piece of land waiting to be threshed.

This is the dilemma thousands of bean farmers, especially women and youth, face every harvest season. Without mechanisation, the farmer has to rely on family labour or expensive hired labour to thresh beans.

Beans is an important crop contributing to food and nutrition security and incomes for thousands of smallholder farmers especially women, observes David Karanja, the National Bean Program Coordinator.

The Kenya Agricultural and Livestock Research Organisation (KALRO) has developed bean varieties that are rich in iron and zinc, which if consumed will contribute to reducing malnutrition, mainly anaemia, stunting and

reduced immunity. Our research and development work aims to encourage wider production and consumption of these beans.

But high labour cost especially at harvesting could stand in the way of achieving the goal of putting nutritious foods on the table. "It takes days to thresh piles of beans and winnow them to separate the chaff from the grain. Losses are high due to the scattering of the beans especially during transportation from the farm before threshing.

"Coincidentally, this is when the farmer is at the lowest financial position, having spent most of the money in production," said Dr. Boaz Waswa, a researcher at the Alliance of Bioversity International and CIAT (Alliance).

Luckily, the above predicament is about to change for the better with the introduction of the multi-crop thresher (MCT) in Kenya by the Pan Africa Bean Research Alliance (PABRA). The intervention is part of the innovations introduced by PABRA to reduce drudgery, minimise post-harvest grain loss and contamination of the beans and create job opportunities, especially for women and youth who provide threshing services along the bean value chain.

PABRA, through the support from Global Affairs Canada (GAC) and Swiss Agency for Development Corporation (SDC), has facilitated access to 10 multi-crop threshers for bean producer groups in Nakuru, Narok, Bomet, Nyamira, Machakos, Makueni, Embu and Nyeri counties.

The Alliance and KALRO will test the threshers jointly with farmers to assess their effectiveness and efficiency under the smallholder context in Kenya, with the possibility of a wider scaling out. These threshers were developed

by ImaraTech Ltd, a private social enterprise based in Arusha, Tanzania, after training of artisans organised in 2019 by PABRA in collaboration with the Soybean Innovation Lab, University of Missouri. Following this training, ImaraTech fabricated the MCT that is now being promoted widely in Tanzania and across Eastern and Southern Africa region. According to Alfred Chengula, one of the innovators at ImaraTech, the thresher is powered by a petrol engine, making it 75 times faster than manual threshing. The machine can thresh up to eight different crops – beans, maize, millet, sorghum, pigeon pea, green grams, sunflower and wheat.

The machine has been enhanced with a winnower to improve the grain cleaning process and the grain quality. In an hour the machine threshes eight bags of beans, consuming one litre of petrol, with a maximum of three people operating it. Normally, it would take the three people at least 10 days to beat the beans with sticks and sort eight bags of beans.

Justin Mabeya, the Technology Transfer Officer under Technologies for African Agricultural Transformation (TAAT), says that introducing the MCT to Kenya is part of the technology transfer effort to boost bean production and improve post-harvest handling. Working jointly with farmers, we will be learning how the MCT performs and share lessons to the manufacturer or develop other prototypes locally in the country.

“We have never seen a thresher for beans. This one will help us shorten the time of threshing and separation of beans and manage the scarce but expensive labour. The time saved translates to more money and relief to attend to other important aspects in the home,” says Lucy Wairimu, the Chairperson of Ushirikiano Self-Help Group in Nakuru.

According to Eileen Nchanji, a gender expert at Alliance of Bioversity International and CIAT, women and youth bear the burden of manual labour on the farms. Women-friendly technologies, targeting relieving



*Demonstration of how the MCT works to farmers in Narok County. Photo Credit: PABRA*



***A multicrop thresher in action. Photo Credit: PABRA***

this load through the use of mechanisation are highly welcome.

“The high rate of youth unemployment remains a critical concern for county governments. Our focus is on how to create job opportunities through agro-enterprises and service provision. Mechanisation presents an attractive entry point for achieving this,” said Dr. David Letuati, Chief Officer Agriculture, Narok.

The MCT is portable and can be attached on a motorcycle, making it easy to move from farm to farm to offer threshing services to farmers during the harvest season. The threshers also create job opportunities for the youth.

“We see this thresher creating job opportunities and attracting our youth into agriculture as threshing

service providers,” said John Koileken, the chairman of the Kismayian farmer group in Kisiriri, Narok.

Because the MCT is portable and capable of threshing different crops, the service provider can reach more farmers, earning them revenues throughout the cropping seasons.

The producer groups have been encouraged to form a committee to manage the use of the equipment. Designated members of the group will be trained on how to operate the threshers efficiently. Farmers requesting threshing services will pay an agreed fee by the farmer organisation or cooperative. These funds will cater to the operators’ labour and the machines’ maintenance costs as part of the sustainability plan.

As part of learning, a team of researchers from the Alliance of Bioversity International and CIAT and KALRO’s Centre for Agricultural Mechanisation, Katumani, will evaluate various models for service provision and income generation around the bean threshers.

“The support of PABRA to our cooperatives is highly welcome,” noted Dr. Sigei, Chief Officer, Cooperatives, Bomet County. The county encourages collective action through farmer organisations to ease group training, technology transfer and collective marketing.

“The mechanised thresher is innovative and will ease bean production, improve efficiency, create more job opportunities at the farm level,” said Josey Kamanda, the TAAT High Iron Bean Compact Coordinator.