



GOOD PRE-HARVEST AND POST-HARVEST PRACTICES IN RICE FARMING

CAPITALISING FROM KEY ACHIEVEMENTS AND EXPERIENCES MADE

© Helvetas / Simon B. Opladen

Promoting good agricultural practices in rice farming plays a vital role in improving livelihoods of smallholder women and youth farmers.

BACKGROUND

From July 2017 to July 2020 HELVETAS Swiss Intercooperation implemented the EU-funded initiative *Empowering Smallholder Youth and Women Farmers on Rice Postharvest Management and Marketing (RIPOMA)* in the two districts of Kilosa and Mvomero in Morogoro region, Tanzania. The project aimed at increasing competitiveness and improving postharvest management (PHM) of smallholder farmers, in particular of women and youth, in the rice value chains in Morogoro region. RIPOMA was implemented by HELVETAS in partnership with CODERT, a local NGO specialized in micro-finance, i.e. savings & credit, and other key value chain actors. During its implementation, the project reached out to 3,338 smallholder rice farming households organized in 113 groups across 40 villages and involved 132 specific rice value chain actors such as farmer associations, cooperatives, rice millers, traders, agro-dealers and various service providers.

CORE CHALLENGES IN THE RICE PRODUCTION

The core challenges in rice production faced by smallholder farmers in the Morogoro region were:

- Low productivity due to limited knowledge and skills of farmers on land preparation, selection of quality seeds, use of water as well as timely and appropriate application of fertilizer. E.g.
- There was a lack of knowledge on the impact of good cleaning and preparation of the land to reduce pest and disease attacks
- The use of the broadcasting method during sowing contributed to seed waste
- Farmers were not aware of the importance of spacing during transplanting of rice
- Farmers had limited knowledge about the right time to harvest the crop and about simple and affordable harvesting technologies, including equipment and machinery
- There was no proper knowhow on post-harvest management to reduce crop losses, such as
- Proper threshing, winnowing and drying by using tarpaulins to reduce soil contamination
- Good on-farm storage
- Poor agricultural extension services, including insufficient number of extension officers, meant limited access to quality and timely knowledge and skills concerning rice farming

HOW DID THE PROJECT ADDRESS THE CHALLENGES?

To ensure that farmers gain knowledge and skills in good agricultural practices (GAP) and postharvest management (PHM), the RIPOMA project applied a multi-stakeholder approach involving key private and governmental stakeholders, including a governmental farmers training centre and a private agro-service company. Table 1 provides an overview of actors and their involvement in introducing GAP and PHM.

Table 1: Summary of actors and their involvement in the introduction of GAP:

Stakeholder	Role in the project
Mkindo Farmers Training Centre	Training and refresher training to 101 lead farmers and 47 extension officers on GAP, provided both, at centre and field level
Ministry of Agriculture (MoA)	Training of District Extension Officers, project team and project stakeholders on rice farming based on the National Rice Development Strategy (NRDS); In addition, MoA developed NRDS II and a national PHM strategy to which RIPOMA and other sector stakeholders contributed
Lead farmers (82 women, 19 men)	Recipient of GAP training; cascaded their knowledge to their own groups; made use of the groups' demonstration plots for practical training; provide the project with group reports related to GAP and PHM
Ward and Village Agriculture Extension Officers	47 extension officers received training on GAP and PHM together with lead farmers at Mkindo FTC; extension officers were responsible for provision of backstopping support to the lead farmers and their respective groups
District Local Government Authorities	Selection of intervention villages, awareness creation on GAP and PHM, mobilization of extension officers
JRT-Agri Services Ltd	Training of farmer groups on land preparation, timely harvesting and best harvest and postharvest practices using motorized reapers and threshers, simple combine harvesters, as well as tarpaulins and quality bags; coordination of the formation of district mechanization platforms for affordable and easy PHM
Agriculture Seed Agency (ASA)	This government agency was/is responsible for selling quality certified seeds at low price; RIPOMA linked ASA to farmer groups
Input providers / agro-dealers	Received training and were linked to target farmers to provide them with quality inputs and services for GAP and PHM
Input Market Associations (IMA)	These community-based apex bodies were formed by Village Savings & Lending Associations (VSLA); IMA facilitate inputs, services and access to market; they provide financial intermediation for farmers being VSLA members
Farmer groups (113)	Recipients of training; the project reached out to 113 groups with 3,338 members (2,349 women, 990 men including 1,382 youth); farmer group members were trained by lead farmers with support of government extension officers.



The project formed farmer groups of about 30 members, with each group selecting one lead farmer, who received training from GAP experts and were supported through monitoring and coaching by agriculture extension officers. Lead farmers (81% were women!) then shared their knowledge and skills with their fellow group members. Until 2018, lead farmers got their GAP training at the Mkindo Farmers Training Centre (MFTC). Thereafter, quarterly coaching sessions were held at field level, i.e. at the demonstration plots of selected farmer groups, where lead farmers got further practical training, but which also allowed many group members to learn from the trainers directly.

RIPOMA project staff worked in close cooperation with the District Agriculture, Irrigation and Cooperative Offices (DAICO) to develop strong and positive relationships between extension officers and lead farmers. This enhanced lead farmers' technical knowledge and confidence in supporting their fellow group members. 101 farmer groups participated in this intervention; in addition, further 12 groups were formed which received coaching services from lead farmers of other groups on a commission basis.

The main contents of the training on good agricultural practices (GAP) in rice farming

<u>Pre-harvest</u>	<u>Harvest and post-harvest</u>
<ul style="list-style-type: none"> • Selection of quality seeds • Land and nursery preparation • Transplanting and spacing • Fertilizer application • Pests and disease control • Weeding management • Agro-Eco System Analysis • Water management • Management of Irrigation Infrastructures 	<ul style="list-style-type: none"> • Introduction to paddy harvesting • Timing of harvesting • Paddy harvesting methods <ul style="list-style-type: none"> - Benefits and challenges of harvesting using machinery - Paddy harvesting costs - Paddy losses during harvesting • Postharvest Management Operations <ul style="list-style-type: none"> - Threshing, winnowing, drying, cleaning - Transportation, handling, and haulage - Packaging and storage • Milling

KEY ACHIEVEMENTS / RESULTS 2017-2020

Through RIPOMA's interventions, farmers gained knowledge and skills on GAP and PHM and were supported while applying the learned knowhow on their farms. Average rice production of individual farmers increased from 10 to 15 bags and 25 to 35 bags per acre in rainfed and irrigated areas respectively which is an increase of 50% and 40% respectively.

The increase in rice production and productivity improved the food security and the annual household income of the targeted farm households; in fact, income from sale of rice more than doubled from TZS 1,248,047 (baseline 2017) to TZS 2,856,168 (final project evaluation 2020). This extra income is used by farmers for home consumption, family health care and children education support, agriculture investment and asset acquisition. Overall living conditions of families involved in the groups improved likewise. The social status of the group members increased due to their improved living conditions.

Farmers revealed - and the final project evaluation confirmed - that harvest and postharvest losses of paddy got reduced to about 20% from the baseline data of 30%.

The DAICO and agricultural extension officers expressed their satisfaction with the training received. It refreshed and widened their understanding on GAP and PHM and thus enhanced their capacities to provide quality and timely advisory services to farmers.

KEY LESSONS LEARNED

- The **district level farm mechanization platforms** facilitated by RIPOMA to meet machinery demand and supply has simplified access to farm machinery as well as postharvest technology and services. The platforms altogether contributed to increase rice productivity and reduce postharvest losses. The promoted mechanization platform model was incorporated by MoA into the National Rice Development Strategy II.
- Training of **lead farmers** and using them to cascade training on GAP and PHM to their fellow farmers has been an efficient and effective, including cost-effective, way of reaching many farmers and bridge the gap of available extension services in the project area.
- The involvement and capacity building of **input and agro-dealers** to promote improved farm inputs and postharvest technologies was an effective way to boost adoption of GAP and PHM practices.
- The **system of rice intensification (SRI)** methods reduced the rice production cost, since nowadays less seeds, water and time are used. The formation of SRI planting teams helped additional farmers to benefit from the project as well. In this way, project farmers acted as change agents by cascading their knowledge to other non-group farmers.
- Involving **agricultural extension officers** to provide support and monitor lead farmers is an effective way of building confidence of lead farmers to provide advisory services to their fellow farmers.

RECOMMENDATIONS

Based on these achievements and lessons learnt, the most important recommendations to effectively introduce and integrate GAP and PHM in smallholder farmers' rice production are as follows:

- Government bodies such as the Ministry of Agriculture and Local Government Authorities must underline their long-term commitment to support their extension officers in working together with farmer groups and the groups' lead farmers who act as local change agents.
- MoA and LGA should officially recognize and promote the lead farmer system as a complementary approach to their agricultural extension system; such a recognition should be supported with regular refresher training provided to these lead farmers.
- At the same time, ward extension and village officers should be provided with refresher training on GAP and PHM and should be encouraged to work together with lead farmers to provide monitoring and advisory services to farmers on related topics.
- The public extension system should recognize the tasks and roles the private sector input and service providers can play to support farmers and strengthen the rice sector and promote them accordingly.
- On the other hand, these private sector actors should take up extension efforts (providing information, technical advice, etc.) while providing their inputs and services to farmers.
- Public and private sector stakeholders should provide farmers with exposure to trainings, technologies and exhibitions to expand their knowledge and skills, and facilitate market linkages to improve their access to markets.



HELVETAS Swiss Intercooperation
2nd Floor, NBC Building, Nyerere Rd
P.O. Box 2978, Dodoma, Tanzania
tanzania@helvetas.org
www.helvetas.org