



Large cardamom seedlings distribution at Aruarbang #7, Aapric. Each selected farmer received 1500 seedlings to plant in 2 Ropani (0.1 ha) with suitable variety. [Photo by CRS Staff]

Promoting Large Cardamom Cultivation in Post-Earthquake Nepal¹

RESULTS AND KNOWLEDGE GAINED

BACKGROUND:

A 2015 earthquake in Nepal led to large-scale losses of lives and livelihoods for communities in Gorkha district. CRS responded to the immediate and long-term needs of the communities through integrated shelter, WASH and livelihood relief and recovery activities. Taking cue from global evidence², which shows that households with stronger sources of cash income and savings are able to recover from the impact of disasters quicker than those who don't, CRS intentionally sought appropriate on-farm livelihood options to sustainably increase income of rural families reliant on agriculture and make them more resilient to future shocks. After conducting detailed assessments in November 2016, CRS identified black or large cardamom (*Amomum subulatum*) as a suitable high-value crop to increase income of local communities, especially smallholder and women farmers, based on the following key factors:

- Conducive climatic conditions (altitude, rainfall, temperature, land type) for growing large cardamom

- Ability of large cardamom to grow well in marginal, sloped lands and under shade where generally no other crops are grown, bringing unused land to productive use
- Optimal fruiting for 12-18 years under good maintenance
- Non-perishability of large cardamom in storage, allowing flexible time to market when cash is needed, or prices are favorable
- Ease in transportation especially for communities living in remote locations
- Appropriate for smallholders due to low cost of production and high profitability even with price fluctuations
- Suitability for women farmers due to ease in cultivation and low labor requirements in the long run
- Feasibility of adoption by landless households using community forests and wastelands

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2. https://globalindex.worldbank.org/sites/globalindex/files/chapters/2017%20Findex%20full%20report_chapter5.pdf

- Environmentally sustainable as large cardamom contributes to reduction in soil erosion and improves soil nutrient content
- Large cardamom has been identified as a priority export commodity under the Nepal Trade Integration Strategy, 2016³.



CRS staff providing on-field mentoring to help farmers improve planting techniques including spacing, fertilizer application. [Photo by CRS Staff]

CRS INTERVENTIONS AND KEY RESULTS:

While producers have successfully grown large cardamom in neighboring districts for the past 10-15 years, it is still a new crop for most of the communities in the CRS project locations of Gorkha district due to lack of access to quality seedlings and skills in growing the crop. Therefore, CRS implemented a pilot project with 220 farmers (100 in year one and 120 in year two) in six administrative wards under two earthquake-affected rural municipalities in Gorkha district. The key objective of the three-year (2017-20) pilot project was to test the feasibility of promoting large cardamom as a cash crop to increase income of rural families and in the long run, contribute increase in savings and resilience. The project was financed through CRS funds and grants from Latter-Day Saints Charities (LDSC). CRS partnered with experts from Agro Enterprise Center-Federation of Nepalese Chambers of Commerce and Industry (AEC-FNCCI) for technical and marketing support, along with local NGO Shree Swanra Integrated Community Development Center (SSICDC) for field implementation.

The participating farmers in the pilot were smallholders with an average landholding of 0.5 ha. In 75% of the cases, women farmers led the large cardamom activities in the field, participating in

trainings, planting, regular maintenance of plots and sale of the product. Active participation of women from castes like Brahmin and Chettri was low compared to those from Gurung or Tamang ethnic groups due to cultural factors which restrict the mobility of the former. Men were more involved in digging pits during plantation while all of the other activities were led by women. No variation in adoption was found based on factors like landholding and gender.

DECISIVE PILOT ACTIVITIES

- Raised community awareness about large cardamom production and marketing through community meeting
- Mobilized farmers to form farmer groups
- Conducted exposure visits for farmers to communities in neighboring districts who have been successfully growing cardamom
- Distributed three varieties (Ramsai, Golsai, Jirmale and Saune) of large cardamom, providing each farmer with 1500 seedlings to plant in 2 Ropani (0.1 ha)
 - 100 farmers in year 1
 - 120 farmers in year 2
- Facilitated on-field trainings on production practices and profitability analysis
- Identified learning needs and provided additional training inputs to lead farmers
- Established five double-drum dryers managed by farmer groups to improve dried cardamom quality
- Linked farmers to business service providers like wholesalers, retailers, and local government agriculture office
- Provided regular on-field mentoring support for trouble shooting

KEY RESULTS

- 51% of the targeted farmers developed their skills on all six of the project-promoted production, harvest and post-harvest practices while 88% farmers have skills on four out of the six practices
- 94% of the targeted farmers acquired new skills on developing linkages with key business and technical service providers
- 100% of the targeted farmers acquired skills on large cardamom marketing practices
- 75-80% survival rate for the large cardamom seedlings distributed through the project

3. https://moics.gov.np/public/uploads/shares/publication/NTIS_2016_1546150729.pdf

- 75% of the targeted farmers were women farmers
- 8 farmers increased their area under cardamom production using their own resources
- The average per farmer production in the first harvest was about 7kg against the project target of 15kg yet key learning was documented about expected yields and practices to increase future yields
- Only 18 farmers out of 220 (8%) dropped out of the pilot after the first year due to their inability to maintain crop for three years
- Encouraged by CRS project results and future potential, one of the rural municipalities (Arughat Rural Municipality) is planning to scale up the large cardamom promotion to other wards and has sought technical support from CRS to conduct a feasibility assessment including activity and budget planning

The pilot project generated significant awareness (88% target achievement on skill development indicators) on various aspects of the large cardamom crop among participants who received support from the project as well as in the community in general. There has been healthy growth of the crop with the exception of a few plots due to lack of adequate soil moisture and maintenance. 80 farmers harvested for the first time in September-October 2019 who planted in year one, but the production was about 7kg per farmer which was less than the anticipated 15kg per farmer. The key factors impacting production were damage to fruits by wild animals like porcupine and field mice (estimated 25-35% loss), suboptimal crop maintenance (mainly weeding and thinning) and handling of harvesting due to lack of experience. Lack of experience in drying also led to gaps in quality of the final product. Being the first harvest, farmers distributed about 40-50% of the production among friends and relatives per local traditions and sold the rest to traders. Due to the small quantity of sale and quality considerations, farmers received about NPR 400 (approx. \$4) per kg against the prevailing market price of NPR 500 (approx. \$5). Small volume also meant that farmers could not do collective marketing.

KNOWLEDGE GAINED:

CRS consulted participants using quantitative tools (output monitoring surveys, yield data) which were complemented by qualitative tools like focus group discussions, reflection exercises and key informant interviews to identify the knowledge gained from the pilot project.

KEY ENABLERS IN ADOPTION

While large cardamom was a new crop for farmers and needed three years of incubation period for the first harvest, the key factors that motivated

them to adopt the crop were 1) potential to increase their cash income significantly 2) perennial nature of crop 3) bringing unproductive marginal lands into productive use and 4) low labor requirement compared to other existing crops. These features of large cardamom, along with availability of suitable land and strong motivation, proved to be key enabling factors for smallholder and women farmers. Key potential barriers to early adoption of large cardamom included lack of access to suitable land for 8% of farmers (sloped land with shade and good soil moisture content), limited availability of household labor for regular crop monitoring and maintenance and lack of motivation or inability to maintain the crop for three years while waiting for returns. Despite these potential barriers, smallholder farmers are more open to adopting large cardamom as it is perceived as more profitable compared to other existing crops like cereals and vegetables which are more labor intensive and perishable.

PIVOTAL ROLE OF EXPOSURE VISITS

Of all the capacity building interventions provided by the project, exposure visits were found to be most effective, especially for women farmers who were 50-60% of visiting participants, helping them visualize the future of their plantations and economic benefits. A total of three exposure visits were conducted during the project period. Each visit was designed, from basic to more complex, to help participants incrementally acquire and upgrade their skills on different aspects of the cash crop. The visits to successful communities in nearby districts helped farmers learn about critical production aspects like site selection, weeding, harvesting, and drying. It also provided an opportunity to interact with other farmers from similar socio-economic backgrounds and learn how large cardamom increased income and improved their lives while also learning pragmatic risk mitigation measures. The effectiveness of the visits could be further enhanced by aligning each visit with various critical stages of cardamom production like flowering, harvesting, and drying.



Local resource person (LRP) Mr. Ajay Tamang oriented Cardamom farmers from Gorkha on various aspects of cardamom farming in Chinkhola Lamjung during exposure visit. [Photo by CRS Staff]

LEAD FARMERS AS MENTORS

40 lead farmers were selected out of 202 and tasked with the responsibility of providing mentoring support to their peer farmers. The lead farmers were provided with additional capacity building inputs like exposure visits and trainings at the Cardamom Development Centre (CDC)⁴ at Ilam. This strategy had mixed results as lead farmers could not reach out to all the farmers due to time constraints, dispersed nature of farmers and were more effective only when farmers came to them with specific support needs. The lead farmers struggled the most with replicating best practices in harvesting and drying. In the future, a clear and intentional plan should be developed to build capacities of lead farmers to act as Private Agriculture Service Providers (PASPs) for fee-based services to nearby farmers. This presents an opportunity to earn income while filling a critical gap, as the local municipalities don't have extension workers with specialized technical skills on large cardamom.

LINKAGE WITH KEY SERVICE PROVIDERS

Quality seedlings and access to technical mentoring are the critical inputs for replication and scale up. Though farmers have acquired information on the service providers for quality seedlings and extension services – public or private, there is a need to further strengthen the linkages to enable interactions. Nearby service providers should be identified for these inputs and services and linkage meetings should be organized between the farmers and service providers to build relationships.

COORDINATION WITH GOVERNMENT

CRS had good coordination with local municipalities and the government's Agriculture Knowledge Center (AKC). However, much of the coordination was done towards the end of the project leaving less scope and time for concrete collaboration on transition and sustainability planning. A more intentional approach of co-developing project activities could have resulted in co-financing, as suggested by municipalities, and stronger ownership from local municipalities for sustainability. Field monitoring visits by local municipality representatives were found to be effective in showcasing success of project activities and achievements. The number of such visits can be increased to facilitate more consistent engagement with local municipalities.

ACQUIRING NEW SKILLS

Participating farmers have acquired considerable new skills on large cardamom production, though

some additional skill building, and on-field regular mentoring is needed on topics like shoot thinning, pest management, harvesting techniques and drying. As farmers harvested for the first time in the third year and production was low, it was not feasible to use the dryers and take up collective marketing to put their new skills into practice. Project strategy of linking lead farmers with technical resources like AKC, horticulture department and municipality will help them access mentoring and troubleshooting support from these agencies even after project closure. However, a project time frame of five years would have provided enough time for all-around mentoring support to farmers from production to marketing and could have demonstrated the final outcome of increasing income.

KEY TAKEAWAYS:

CRS's large cardamom pilot aimed to measure successful crop diversification and lay foundation for income increase of families. Farmers, smallholders, and women have positively received and adopted large cardamom as a suitable cash crop. In a short span of three years, CRS was able to help farmers harvest cardamom, a large majority of whom had never seen the crop before. Though the production was less than hoped for in the first harvest, as is the norm, there is a definite enthusiasm and optimism among farmers that production will increase in coming years leading to increase in income. More efforts around collaboration with local municipalities and service providers would have strengthened the sustainability of outcomes. While promoting new crops like large cardamom, a timeline for minimum five years should be considered to ensure that farmers get sufficient mentoring support and reach a level where their dependence on external technical inputs is minimal.



A large cardamom double dryer drum established by farmer groups at Aaruarbang # 7 Aapric with project support. This improved drying technology helps reduce post-harvest losses and increases the quality of large cardamom. [Photo by CRS Staff]

⁴ CDC is a specialized Government of Nepal agency to provide research and extension services in large cardamom farming.