

Present Status of Large Cardamom Production: A Case Study of Pakhribas VDC in Dhankuta District

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ABSTRACT

Large cardamom is an important cash crop of eastern hilly region of Nepal. To find out the present status of large cardamom production in Pakhribas VDC of the Dhankuta district, a survey of 100 households was performed from February to July 2012 using semi-structured pre-tested questionnaire. Among the total respondents 58% were male and 42% were female. 29% were of the Respondents (29%) had small sized family but 64% were living in medium sized family. Fifty six percent of the respondents were engaged in sole agriculture and remaining seven percent engaged in other services. Majority respondents have medium land holding at the study sites. The production technology in the study area was still traditional type and planting materials was also not of high quality. Chirkey, Furkey, leaf eating caterpillar, Kalopa, and Mouse were the serious problem in the large cardamom fields damaging plants and matured fruits of the cardamom. The production capacity of the respondent farmers ranged from 100 to 800 kg per annum in the study area. The major problems faced by the farmers of the study area were the inappropriate and fluctuation price of the cardamom which is done by the merchants themselves.

Key Words: *Amomum subulatum*, socio-demography, insect pests, diseases

INTRODUCTION

The diverse geographical regions of Nepal can accommodate a wide species of agricultural crops (MOAC, 2009) including the large cardamom (CBS, 2009; APP (1995) placing this crop to go for commercialization in many districts, including Dhankuta. APP has prioritized cardamom as high value crop of comparative advantages in hilly regions.

Large cardamom (*Amomum subulatum* Roxb.) is used for both medicinal and culinary purposes, grows properly in cool, humid and shaded area of altitudinal range from 700 to 2100m from the mean sea level (NSCDP, 2009) favoring best production conditions of temperature between 4-20°C, annual rainfall of 2000 to 2500mm and more than 90% humidity. Large cardamom is cultivated in marginal, sloppy and degraded land under the shade of Aster trees (*Alnus nepalensis*). The nitrogen fixing nodules on roots and easily degrading leaves of Aster enrich the soil fertility (Sharma et al., 2002).

As the price of and demand for cardamom has grown globally, Nepal has expanded its production areas in various districts. Today, Nepal is the world's top producer of large cardamom followed by India and Bhutan (Product Chain Study-Cardamom, MOAC, 2008) with the production level of 7,037mt from 14,370ha (MOAC, 2009/10). At present, its commercial cultivation spread over 37 districts of Nepal (NSCDP, 2010). The Eastern development region accounts for around 97% of the total national production. Compared to the traditional crops, the income from large cardamom is three to four times higher (SNV, 2008). This increased the family income and

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enhanced the livelihood of the people in rural community. Besides Taplejung, Ilam and Panchthar districts, Dhankuta also shares a sizable production of cardamom. In this district, various VDCs grow cardamom, but Pakhribas VDC is often noted for this purpose; however, no proper study has been conducted to document about its cultivation and problems associated with it along with socio-demography of growers, for which, this study was felt necessary.

MATERIALS AND METHOD

Pakhribas; about 20 km north of Dhankuta Bazar and 5 km west from Hile, is located in the eastern hills of Nepal around 1600 msl. Major land of this VDC is in agriculture, forest, pasture land and settlement development. This study was conducted from February 2012 to July 2012. A purposive sampling technique was used in selecting farmers who were growing large cardamom for commercial point. All together 100 farmers were selected as respondents, 25 each from Ward no. 3, 6, 7, and 8 of Pakhribas VDC.

The primary data were collected during the field survey using pre-tested semi-structured questionnaire by visiting the cardamom growers door to door and interviewing them. Field observations and formal/informal discussions were also used for various purposes. The secondary data are obtained from various sources such as published literature, text books, reference books, study reports, government's planning and policy documents. The data analysed statistically and interpretation was followed immediately after the completion of field works using MS-Excel, both quantitative and qualitative. The analyzed data have been presented in appropriate tables, graphs and figures under different heading and subheading.

RESULTS AND DISCUSSION

Socio-demographic condition of respondents

Both male and female gender were found to be involved in cardamom growing activities in the study area, but the participation of female (42%) was less than that of male (58%). None of the respondents below 20 years were involved in this farming and majority of respondents were relatively of higher age group between 40 and 60 years. The population of study area was ethnically diverse being predominated by Gurung (28%) followed by Chhetri/Bahun (22%), Rai (18%) and Magar (12%). Others such as Dalit, Tamang, Newars were 20%. Of these respondents, 58% were Hindu, 30% Buddhist and 12% Christian.

The participants were categorized into four groups based on their schooling of the formal/informal education. Respondents (35%) received primary level education, 19% secondary level, 15% higher secondary, and only 2% of the participants reached college level. Respondent participants who were illiterate i.e. had no schooling were 29%.

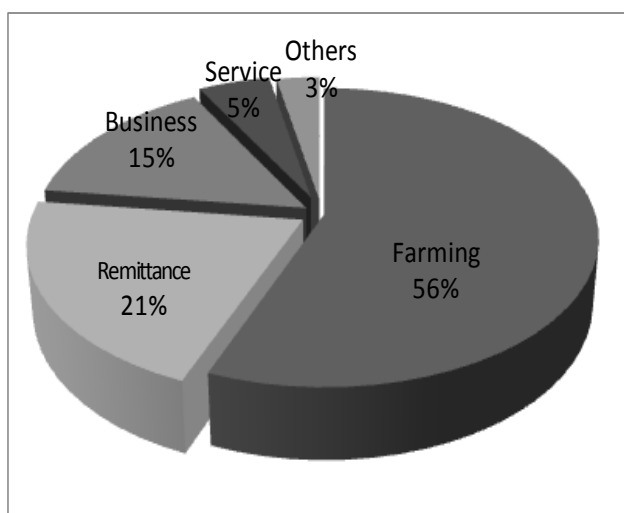


Fig. 1. Main occupation of the respondents.

Fig.1 shows that respondents were engaged in variety of occupation in the study area, maximum being in farming (56%) followed by remittance, business and civil service. Over 80% of the respondents owned their own land for cardamom cultivation while 11% had tenant lands.

Area under large cardamom cultivation

Respondent farmers have their lands under cardamom production that varied from less than 10 (20%) *ropanies* to over 40 *ropanies* (7%). Maximum respondents (57%) had lands under cardamom from 10 to 30 *ropanies*. Cardamom was the main cash crop grown by 64% of respondents but there were some other cash crops grown alone or in combination with cardamom such as Amriso, tea, ginger and chiraito. Most (65%) of the respondents said that they have been involved in cardamom farming from last 12 years indicating that cardamom cultivation has gaining popularity among the farmers in Dhankuta district. Other (35%) respondents have been doing its production from last 13 or more years.

Technology adopted by the respondents

Training

It is very important aspect of agricultural production system including the large cardamom growing, but this aspect was not given due respect at study sites. Only 12 respondents had taken training on nursery bed preparation and seedling raising of large cardamom given by NARC while 88 respondents had not taken any training. However, most respondents indicated that they were willing to take training especially on diseases management, insect pest management, soil and fertilizer management.

Planting materials

Good and healthy diseases free planting materials are needed for successful production of large cardamom. In the study area, respondents received planting materials from various sources as shown in Fig.2. Technical information for better production and marketing were getting from various sources, but 62% of the respondents received from neighbor (Fig. 3)

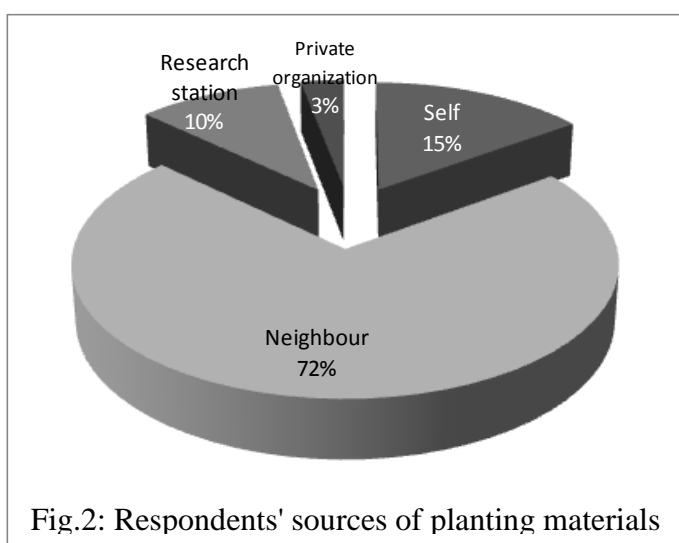


Fig.2: Respondents' sources of planting materials

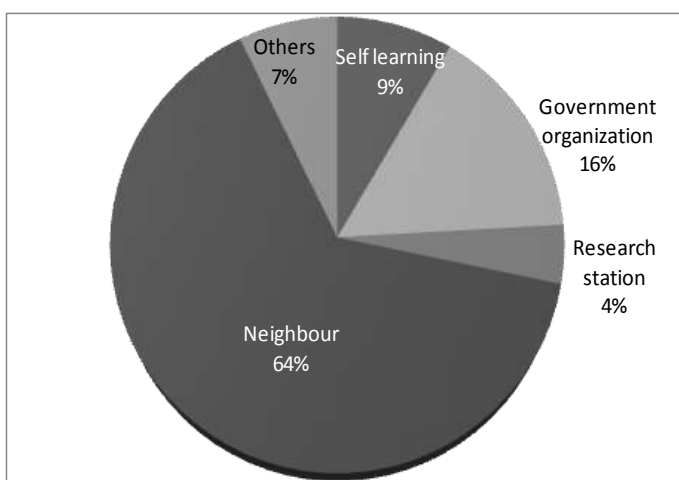


Fig.3: Source of information of the respondents

Varieties

Many varieties that bear different qualities in term of production, productivity, diseases and pest resistances etc. are available. In the study areas, 27% respondents had Ramsai variety, 21% had Golsai, and 19% farmers had Damersai. Some farmers (18%) were using one or more of these varieties while others (15%) said they did not know variety name. *Ramsai* is the variety that grows best in higher altitudes, at more than 1,600m asl; *Golsey*, the variety in highest demand, grows at elevations of 1,200-1,500m.

Fertilizers and irrigation

All respondent farmers did not use chemical fertilizer in their cardamom field. Instead, they said the dropped leaflets of shade trees, cardamom stems, dry leaves etc. decomposed naturally to make the soil fertile. They said the use of chemical fertilizers degrade the soil properties. Thus, organic residues of plants have been major source of plant nutrients avoiding the use of chemical fertilizers. Majority of the respondents (63%) had irrigation facilities; the furrow system was used by 73% of the respondents followed by sprinklers (22%), while the remaining (37%) had no irrigation facilities.

Drying technique

Most of the respondents (80%) dried their cardamom on the traditional bhatty and few of them dried with improved bhatty (12%) and solar drying (5%). Therefore, traditional oven (bhatty) is still popular over other methods. The rocket stove drying was developed by RECAST/TU which needs to be used for this purpose.

Production, marketing and annual income

The average annual production of 51% respondents was below 200 kg and 35% had 200-500kg. Those who produced over 500kg were reported by 14% of the respondents. Most of the respondents (95%) sold their large cardamom product in dry form and few of them (5%) sold in fresh form. Most (72%) of the respondents sold their products in local market, 21% respondents sold in distant market (Hile bazaar) and 7% respondents sold to neighbors. Marketing of large cardamom is disorganized to a great extent. As most of the producing areas are remote there are no buyers available within the vicinity and farmers have to carry the produce long distances. Farmers that have only small production prefer to sell to the village merchants by taking the produce to nearby road head or depots. But there are some small farmers who even sell fresh produce to large growers for want of curing facility. While some small farmers carry their produce by themselves, porters are engaged by large farmers to take the produce to the buyers. Small, medium, big traders, exporters and also commission agents are involved in large cardamom trade. In remote places small traders or village merchants often have a monopoly in trade unless the producer has a large farm with sizable production. The small producer is generally the loser as he has no marketing strategy and sells his produce when in need of finance irrespective of the fact that the price is low or high.

Price fluctuation occurred from year to year, month to month and also day to day. Both in the harvesting season and slack season large cardamom grower were not able to get a suitable price due to the unknown, yet fluctuating market price. The price of the cardamom is decided according to the demand in international markets and also due to the more or less coincides in the harvesting season of other producing area of

the country. The respondents said price was also varying according to the commercial grades (large, medium and small) and whether or not tail cutting was practiced.

Respondents (39%) had annual income of less than Rs.100 thousand; 45% of the respondent had moderate income between Rs.100 to 500 thousand, while 16% of the respondents got more than Rs. 500 thousand per year. Large cardamom is one of the most important commodities contributing to Nepal’s socio-economic sector. In the year 2009/10, 5783mt of large cardamom was exported to India (97%) and other countries (3%) that worths Rs. 1,171,597,000/- (MOAC, 2010). It clearly shows that large cardamom is one of the most important agricultural products of Nepal. All of the respondents said that the income taken from large cardamom production was used in home expenditure, health and education of their children in boarding schools; thus some of them have changed their life style as well after the adoption of this farming.

Problems on cardamom farming

Majority of the respondents (65%) told that plant protection was the main problem in the Pakhribas VDC. Of different insect pests, 42% respondents mentioned that the leaf eating caterpillar was severe problem, 12% respondents had shoot borer, 6% mentioned aphid, 17% mentioned mouse and 23% respondents mentioned *Kalopa* as a problem. These pests affected different parts of the plant such as leaf eating caterpillar damaged leaves, shoot borer damaged the inner part of the shoot, mouse damaged the flowers and *Kalopa* damaged the fruit.

Among the diseases, Chirkey, Furkey, leaf rot, and rhizome rot were common. 56% of the respondent mentioned Chirkey as main problem, 25% mentioned Furkey, 12% mentioned leaf rot and 7% mentioned rhizome rot in their cardamom field. The majority of respondent used suckers for planting which transmit virus to cause *Chirkey* and *Furkey* through aphids.

These diseases must be controlled in time by regular care and maintenance of the large cardamom including plant protection measures. Most farmers did no weeding, which might have helped creating favourable situation for plant protection problems.

Included problems by respondent farmers were also irrigation, labour, finance, land, and others (Fig.4). Other problems included drying, fertilizer availability, varieties, seed quality and technical support.

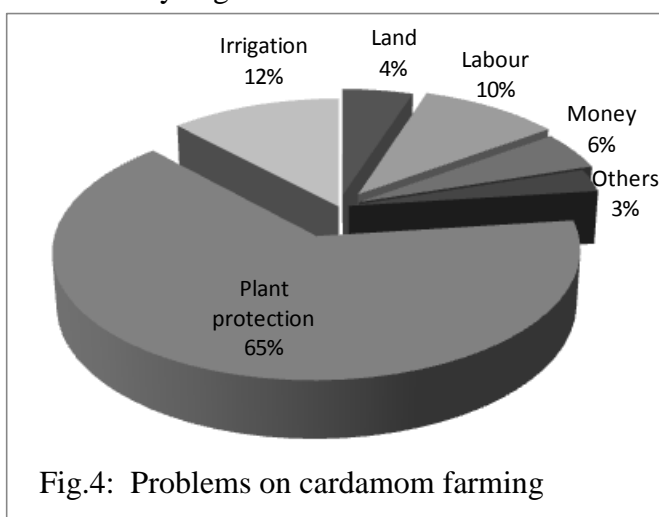


Fig.4: Problems on cardamom farming

Lack of irrigation during dry months caused plant death and/or decreased yield. In such conditions, plants could be irrigated in dry months through sprinklers, pipes or open canals depending upon availability of irrigation.

Labour shortage was felt during harvest time, which was associated with remittance. Most of the respondent harvest their yield at wrong times so the farmer losses their yield. The right time for harvesting is when the top most capsules are fully mature and seeds turn black. At this stage spikes are harvested by cutting with the help of a special knife. Harvested spikes are kept heaped overnight to allow other capsules to ripe and they are separated on the next day.

CONCLUSION

The study attempted to document and analyze the existing situation of large cardamom production at Pakhribas VDC using formal pre-tested semi-structured questionnaire along with interviews; personal observations, discussion, etc. The following conclusion were drawn from the study :

- Farmer`s education and awareness towards modern cardamom farming was very low or negligible. Furthermore, the knowledge of cultivation practices, available technologies, market opportunity, motivation and scale of cultivation were different among the respondents.
- The technology adopted by the farmers was traditional type affecting net return and production.
- Most of the cardamom plants were transplanted using rhizome, which helped spread of viral diseases easily from one farm to another farm.
- The financial and technical supports from the government, NGOs, INGOs etc were inadequate or minimum for the production of large cardamom.
- Lack of the marketing and uncertainty on price make conflicts in the economic gains of farmers.
- Pakhribas VDC is a potential area for cardamom cultivation. Given essential production technologies and financial supports to the farmers, the production and productivity of cardamom could be raised further.

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