

# Socio-economic Condition of Banana Growers and Banana Production Technology in Kailali District

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## ABSTRACT

*This survey was undertaken to record socio-economic condition of the banana growers and the technologies adopted in banana production and marketing in Narayanpur and Phulbari VDCs and Tikapur Municipality of Kailali district. One hundred respondent farmers were selected randomly from these study sites for interviews, group discussion, and personal contacts and used a semi-structured questionnaire for information and data collection. Results indicated that there was a dominance of male over female farmers in most of banana farming activities in Kailali. Farmers having various education levels and age groups involved in growing banana earned an annual income from Rs. 30-100 thousand/ha. Majority of the respondents have their own livestock for manure but some farmers purchased manure. ELUM PLUS, DADO (Kailali) and others have played a significant role in motivating farmers towards banana farming, yet trainings on scientific technologies are desired by over 80% of the respondents. The farmers (68 respondents) had never taken any kind of agriculture loan from any Bank or other agencies. Many respondents (48%) said they required hiring of labor for field activities. Along with socio-economic status of farmers, the production and management techniques and several problems faced by these farmers are presented in this paper.*

**Key words:** *Musa spp.*, farmers' education, varieties, pests, diseases, income

## INTRODUCTION

Horticulture is an important component of today's farming-homestead and corporate agriculture. In the changing scenario, the potential for horticulture is enormous in the context of globalized and open competitive market (Radha and Mathew, 2007). Role of fruits, widely called as 'protective foods' in human diet, is well known from the pre-historic era. Economic development, nutritional security and employment generation especially in the rural areas of Nepal depend largely on fruit culture.

Nepal is bestowed with wide variation in altitude, topography, bio-diversity and climates; so these became a boon for growing different fruits depending upon their own climatic requirement. Means and ways to exploit this boon for the benefit of nation and its people should be explored fully. Among these fruits, banana has been the one with growing market demand in Nepal. As a result, APP (1995) has prioritized banana for its promotion in different districts, including the Kailali district where at present this fruit covers 709.2 ha (Giri, 2011).

The study was undertaken to analyze socio-economic conditions of the banana growers and to record the technologies adopted by these farmers in banana production and marketing followed in the study area.

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## **METHODOLOGY**

Kailalai, one of the 9 districts of the far-western development region, has 2 Municipalities (Dhangadi and Tikapur) and 42 VDCs. Narayanpur, Phulbari, Chaumala, Malakheti and Khailad VDC's are also considered as the pocket area for banana cultivation (DADO, 2067). For the purpose of this study, Narayanpur VDC, Phulbari VDC and Tikapur Municipality were selected purposively where local farmers have been actively involved in fruit cultivation especially banana from last several years. There are over 120 banana growers; out of these, 100 farmers were selected for this study as respondent farmers (Giri, 2011) using simple random sampling technique.

The primary data were collected from the field survey using semi-structured questionnaire after pre-testing along with group discussion, field visits, direct observation, personal interviews, etc. The secondary data were collected by reviewing of various published as well as un-published documents, reports, testimonials and related research papers available in libraries of HICAST, NARC, TU, DADO (Kailali) and NGOs Offices (Kailali). Although the duration of this study was 6 months, the field survey was concentrated during November-December 2010. Collected data were manually tabulated properly, processed using computer programs (SPSS & Excel software), data analysed and then presented in tables and graphs.

## **RESULTS AND DISCUSSION**

### **Socio-economic profile of banana growers**

Of the 100 respondents, 83 were males and 17 were females with age ranging from less than 20 to 60 years, however, 63% was in economically active (age between 28 - 40 years) age group. But, female respondents lacked far behind the males in decision making, activeness, resource utilization and management practices, training opportunities, self-confidence and forwardness. Both literate (70%) and illiterate respondents (30%) were growing bananas. Within the literates, 34% of the respondent farmers achieved secondary level of education (Fig.1).

The family size of the respondents was categorized as small (< 5 members), medium (5-10 members) and large size (>10 members). Fifty-five respondent farmers had family members between 5 and 10; and 33 respondents had over 10 family members. Agriculture was the main occupation of 83% respondents while some involved in business (11%) and government services (6%). The respondent farmers were grouped in to small (<5 kattha), medium (5–10 kattha) and large (>10 kattha) scale farmers who had banana farming. Fifty-seven percent were medium and 34% large, while 9% were small-scale farmers. Irrespective of the area under banana, all farmers were interested in growing this fruit as it fetches high income.

Majority of farmers also raised livestock (buffalo and/or goat) to get milk, meat, and manure; however, 18 respondents did not have any livestock and they had to purchase manure for banana cultivation. The manure produced by livestock owners ranged from less than 1500kg/year (30 households) to over 2000 kg/year (11 households). Fifty-three percent respondents said manure produced by their livestock was sufficient for banana whereas 47% reported it was not sufficient to apply. Respondent farmers were growing bananas for varied periods; 46 farmers were involved for over 5 years while some (20 respondents) had started it just recently (one year or less). Fig.2 depicts reasons behind choosing banana as reported by these growers.

They said the care, maintenance and cultivation practices were much easier over other

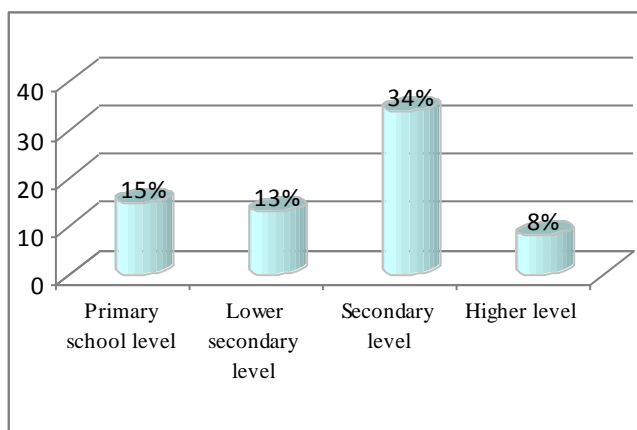


Fig.1:Level of education attainment of the literate respondents

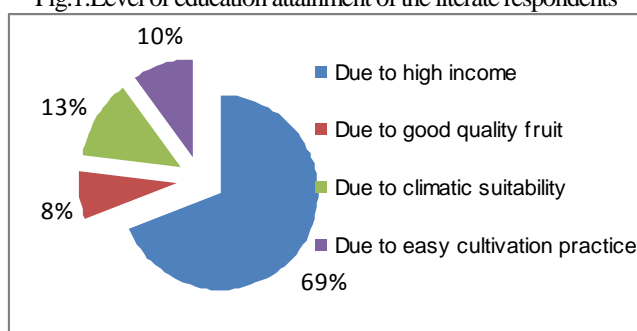


Fig. 2: Reasons for choosing banana

crops. Some leader farmers, ELUM PLUS (local NGO), DADO inspired to cultivate banana. This NGO had distributed banana saplings, fertilizers and gave training as well. It was interesting to note that 68 of 100 respondents had never taken any kind of agricultural loan from any Bank or agencies since their economic condition was not so poor. But those who needed loan for growing bananas, 5 respondents had taken it from ADB and 27 respondents from local co-operatives..

Banana growers lacked in scientific knowledge of production techniques; 83% reported they had never taken training from any institutions, some (11% respondents) had taken training on banana

cultivation and marketing given by ELUM PLUS,. Only 6 farmers received training given by DADO, Kailali.

Both genders (male and female) were involved in various activities of banana cultivation. The activities like land preparation and manure application, planting, intercultural operations and marketing were performed both by male and female members. The activities like insect and disease management along with harvesting of the produce was mostly performed by male members. Majority of farmers either exchanged (48%) or hired (23%) labor for manual works like land preparation, planting, manure and fertilizer application etc. (Fig. 3).

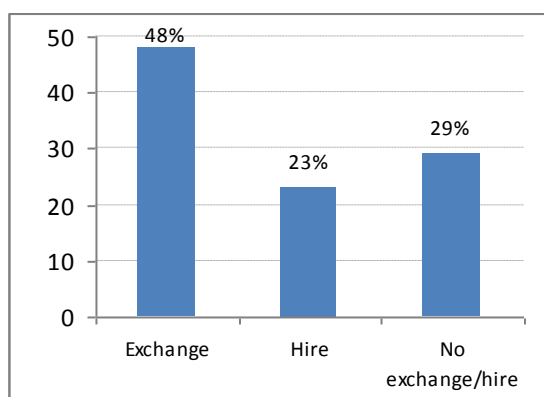


Fig. 3: Labor hiring for banana cultivation

### Banana production technology

Proper layout and spacing of the plants in the orchard are the most essential part of commercial farming and also makes the orchard look good. Out of 100 respondents, 76% had followed square system of layout at spacing of 1.5–2.0m either way while 24% planted in rectangular system at spacing of 1.5m x 2.0m.

William Hybrid was dominant variety covering more than 93 percent of the plantation followed by Harichaal (7% of land coverage). Jhapali Malbog, Chiniya Champa and local bananas were observed in negligible area. Most farmers had

planted sword suckers and some used tissue cultured plants provided by ELUM PLUS. Several farmers had even maintained their own banana nurseries.

Irrigation was a huge problem in the study area where 47% of the respondents used or rented deep boring to irrigate banana orchards (Fig.4), 29% of them used river/stream as the source of irrigation. Some used canal and pond for irrigation. Irrigation was done by majority of respondents in every 15-20 days during summer (March-May) while once in a month during winter (Dec-Jan) after fertilizer application. Irrigating banana fields through deep boring increased production cost since it cost Rs.300/hour for water.

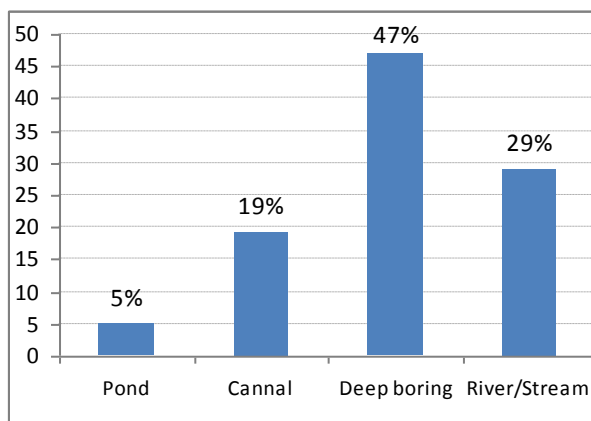


Fig. 4: Different irrigation systems adopted by respondents.

All respondents had applied 5-6kg well-decomposed FYM per plant during planting. Fertilizers were top dressed 2 times a year around the plant base in ring/ digging hole but most of the farmers did not know the correct dose of fertilizers to be applied although NPK amounts were recommended @ 300:100:300g/plant (RARS, Lumle, 2009). Besides, 59% growers said chemical fertilizers were also not timely available.

De-suckering was practiced by 71%, but not by 29% of the farmers. No removal of suckers resulted in vigorous growth of clumps with reduction of finger size and overall production. Propping (supporting) was done by 65 respondents using simple wooden or bamboo poles, forked poles or two stakes fastened together to form an 'X' at the top, but others have not performed at times when it was needed. The terminal male bud was removed by all respondent farmers for proper bunch and finger development.

Earthing up was followed by 25 percent of the respondent farmers of Narayanpur VDC but not by the farmers of other study area. Farmers were unaware of the benefits of bunch wrapping and had rarely practiced it. Actually, bunch wrapping with perforated black polythene improved both quantity and quality of banana bunch (Poudel, 2008).

Respondent farmers did not manage ratoon crops properly and banana orchards looked unattractive and unmanaged with poor plant growth and low yields.

Incidence of weevil, aphids and fruit scarring beetle was much higher in those farms where sanitation was not given priority and the old stems after harvest were also not properly composted as reported (Tiwari *et. al.*, 2007). Respondents had more fruit scarring beetle infestation (32%) than the stem weevil (19%). Malathion (0.1%) was commonly sprayed for fruit scarring beetle and Chloropyrifos for weevils for control. Many farmers (29%) had banana orchards free from such infestation.

Bunchy top virus was reported by 36% respondents, followed by leaf spot (23%) and bacterial wilt (14%). They used to uproot bunchy top and bacterial infected plants, which were buried or burnt. Two to 3 sprays of Dithane M-45 was practiced by 23% of respondents.

Farmer respondents harvested bananas when the fingers become plump, mature light green and round rather than angular. Basnyat and Shrestha (1993) also reported that farmers of Chitwan harvested banana fruits when fingers become smooth, plumpy and ridgeless. The yield varied from 25-30kg/plant/year.

Although banana is a remunerative fruit crop, yet respondent farmers faced various problems such as technical, irrigation, financial, plant protection, and marketing that ranged from 6% to 41% (Fig.5). Technical problems such production techniques, plant protection measures, fertilizer application, etc. were faced by 41% of the respondents followed by irrigation (37%).

### Post-harvest losses and marketing of bananas

Although 97% of the respondent farmers said they lacked in training on post-harvest handling of bananas but 32 farmers reported of using calcium carbide to ripen banana

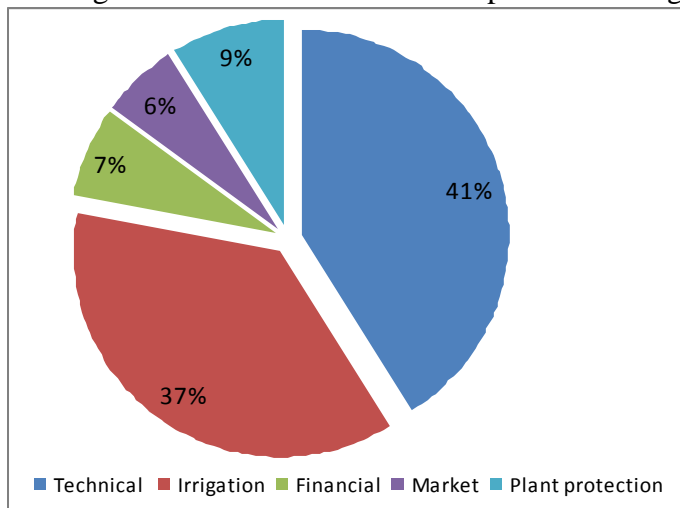


Fig. 5: General problems faced by banana growers

in ordinary room condition. Farmers of Chitwan adopted traditional post-harvest technology using locally available containers and wrapping materials (Basnyat and Shrestha, 1993) but such practice was not followed by the farmers of this study area. Post harvest losses occurred in banana and the highest loss expressed by 79% of respondents was physical losses that occurred during transportation of banana from field to consumer level

(Fig.6). Fruits are loaded carelessly without proper assured bedding materials. Though farmers used paddy straw and banana leaves as cover on cart loads but losses were due to the disturbance during transportation since most of the roads are unpaved. Some other losses related to insects and diseases also expressed by 21% of the respondent farmers.

Among the respondent farmers, 41% sold their produce themselves in and around the

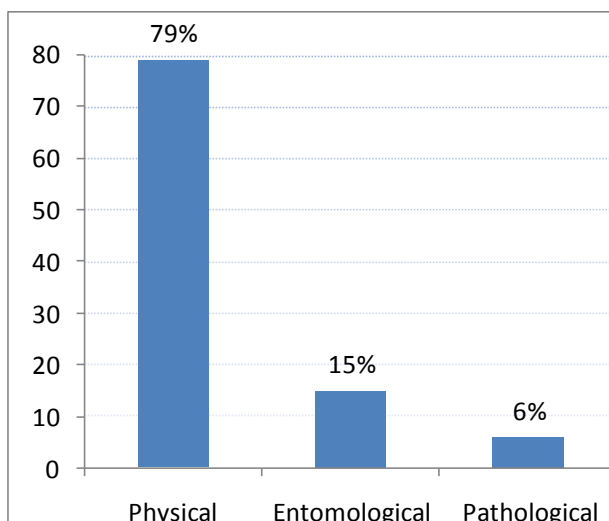


Fig.6: Post harvest losses faced by the respondents

district and 39% sold through brokers @ Rs 10 (main season) and Rs 15-20 (off-season) per 12 fingers. Twenty respondents had plants not yet at bearing stage. No one of the respondents sold bananas through co-operatives. It could be due to the existing co-operatives are not active or have no interests on banana marketing or the banana growers are not well aware of the activities/role of co-operatives. It seemed that banana growers did not receive appropriate price

considering the price paid by consumers. The brokers also transported banana fruits to Dadeldhura, Kohalpur, Butwal and Dang districts.

From the marketing of banana, farmers had an annual income that ranged from less than Rs 30 thousand (6% respondents) to over Rs 100 thousand (31% respondents). Majority (43%) of the respondents earned between Rs 30 and 50 thousand per hectare. These farmers said they had no regular earning before they entered into banana growing and were scarcity of money all the time; but now the scenario has changed and they could earn more from banana when compared to other crops from same unit of land.

## CONCLUSION

The study indicated that there was a dominance of male farmers in banana farming in Kailali, where farmers were growing banana in a small to large scale with annual income from Rs. 30 to 100 thousand/ha. Majority of the respondents have their own livestock that provide manure but some farmers needed to purchase manure. Some local NGO, DADO and others have played a significant role in motivating farmers towards banana farming. The farmers (68 respondents) had never taken any kind of agriculture loan from any Bank or other agencies, but 48 respondents said they required hiring of labor for field activities. Several technical, managerial, financial, etc. problems were expressed by the respondent farmers; if these problems could be addressed timely by responsible yet most related organizations/institutions, banana production would be accelerated much faster to increase economic condition of farmers associated with banana growing in this district. However, proper monitoring, evaluation and regular visit to the farmers' field by DADO personnel could boost up farmer's motivation toward scientific banana farming.

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