



Production, Problems and Decision Making Aspects of Maize Seed Producers in Banke District, Nepal

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Article Info

Accepted:
31 Dec. 2017

Keywords:

Decision making,
Maize, Production
activity, Seed

ABSTRACT

This study was carried in Banke district with the objective of understanding production and post-harvest activities, marketing and production problem of maize seed producer along with the decision making nature in seed producing households in comparison to non-seed producing households. A total of 65 households were randomly selected as sample which included 36 seed producer and 29 non-seed producing households. The average family size of the study population was 4.64 with 45.4% male and 54.6% female. Adoption of seed production found to be positively related with literacy and extension service. Local market was the largest source (67%) of seed implying poor facility from government agencies. Weeding activity and inspection of field by technician appeared to be very poor and seed testing also appeared inadequate. Lack of technical assistance found to be the most important problem of maize seed production with the index score of 0.77. Better technical support, supply of quality inputs and better irrigation facility appeared to be key for encouraging farmers in seed production. The study households showed male dominance in decision making but male dominance level found to be low in seed producer compared to non-seed producer households. Study showed that for encouraging maize seed producers and enhancing their production and profitability, extension program about business activity, input purchase, improved variety and involvement in training and workshops should be targeted more toward male while credit supply and information about efficient labor use should be prepared targeting both male and female.

INTRODUCTION

Nepal, where majority of population (65.6%) depends on agriculture as their main profession and from which derives about 32% of national GDP (Gross Domestic Product), there is no denial about preponderancy of agriculture. Among all aspects of agriculture, cereal is most valued crops and within the cereal crops Maize is the second most valued crop, as it alone contributes 6% of total Agriculture Gross Domestic Product (AGDP) (KC et al. 2015). Maize is considered to be the favorite ally of farmers as it can be grown in almost any season and locality. Maize is being consumed as staple food in large scale and latest hiked demand from poultry is only cementing its value. With the rapid increase of poultry and feed industries demand of maize has

been increased by multiple folds. But, increase in maize production is not being able to meet that higher pace of demand growth. There is a huge gap between the demand and production level of Maize in Nepal affected by various technological and socio-economic factors. Among the many factors of production, seed is the principle factor that greatly affects the production and productivity of crop. Although there are some local seed suppliers, still majority of market share is dominated by foreign seed companies leading to a rapid increase in import of maize seeds (MOAD 2013). Even with the involvement of foreign companies, local suppliers and national agencies timely availability of quality seed is not satisfactory. Large numbers of farmers are still far from the reach of quality seeds. So, with the participation of farmers in production of quality seed, we can actually increase the economical standard of seed producing farmers and increase the availability of quality seed to other farmers. But still large numbers of farmer are not seed producers due to the various problems associated with economics of production and

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marketing process. We need to understand the different action and problem associated with maize seed production, so better support program could be used to encourage for farmers to involve in seed production. For the development of better strategy and program to convince the farmers in adoption of seed production, we need to understand the type of decision that is being taken by different gender. So with the objective of understanding production and post-harvest activities, marketing and production problem of maize seed producer along with the decision making nature in seed producing households in comparison to non-seed producing households, this study was carried.

MATERIALS AND METHODS

Study Area

The study was conducted in the Banke district, which lies in the western terai part of Nepal. The district covers an area of 2,337 km² (225836 ha), and among the total area 79.1% of area falls under lower tropics. Geographically, this district has been expanded from 81⁰29' to 82⁰08' south latitude and 27⁰51' to 28⁰20' east longitude. The altitude of the district varies from 127 m to 1236 m from the mean sea level. Among the total area 57,252 ha (23.4%) of land is suitable for agriculture, among which 37838 ha is occupied by lowland and 15000 ha by upland (DADO 2008). Bardiya district is in the west, Dang district in east, Surkhet and Salyan on north and Uttar Pradesh region of India in the south of the district.

Sample Size and Selection of the Respondent

All the maize cultivating farmers of Banke district were the target population for this study. During the selection of the respondent only age of above thirty years and who have completed at least five year cycle of maize production were included in the sample, so that they can provide valuable and useful information from their own experiences. Careful attention was paid to make the sample more inclusive as possible. Farmers cultivating maize in very small amount or cultivating once in a few years were excluded from the study. Total of Sixty five households were selected as sampling respondents for this study. Simple random sampling technique was used to collect the data, which constitute 36 certified seed producers and 29 non-seed producers.

Source of Information

Both primary and secondary data were used for the study. Primary data was obtained by focus group discussion, key informant interview and face to face interview of respondents using pre-tested systematic semi structured questionnaire. Secondary information was mainly collected through reviewing books, reports and different

publications published by Ministry of Agriculture Development (MoAD), Central Bureau of Statistics (CBS), Nepalese Agriculture Research Council (NARC), District Agriculture Development Office, national/international journals etc. Other than those, concerned published materials from different NGOs and INGOs, individual research and scholar research articles were also used.

Survey Design and Data Collection

For the collection of primary data two sets of interview schedule were prepared, one set to collect the information from farmers another set to collect the information from key informants. Different variables were identified from focus group discussion and interview schedules were prepared accordingly. The field survey was conducted in August, 2016. The respondents were interviewed using face to face method by visiting their homes during day time. Regular checking and validation of the information were done after filling the interview schedule to avoid haphazard data. Key informants were interviewed in the same manner. Information obtained from the interview was cross checked using data obtained from focus group discussion.

Type of Data

Each and every action or decision of human being is based on his environment and his experience. Keeping that in mind general information like family size, male to female ratio, educational status, land holding size, production level, dependency and interaction with extension agents were collected. To understand seed production, information about source of seed, average area of cultivation, source of input, intercultural operation and post harvesting activities were collected. Along with that major problem of seed producing farmers were identified from focus group discussion and farmers were asked to rank those problems based on their experience. Male and female are somewhat similar and somewhat different. So, decision and decision making process are also different for male and female. By analyzing the type of decision that female takes and the male takes, we can target persuasion strategy and technology for the better adoption. For that purpose number of male dominated and female dominated households and types of decision that male or female takes in seed producing and non-seed producing households were collected.

Data Analysis

Both the primary and secondary information collected from the field survey and other means were coded, tabulated and analyzed by using Microsoft Excel and Statistical Package for Social Sciences (SPSS).

Simple statistical tools like mean and frequency were utilized to summarize the data about comparative economics of production, marketing, socio-economic situation etc. The intensity of problems on maize seed production faced by the farmers were identified from focus group discussion and key informant interview. Then, those problems were asked to respondents to rank from their point of view. Based on their ranking, index score was obtained to rank all those problems using following formula,

$$I = \sum Si fi / N$$

Where, I = Index Score

Si = Scale value at ith severity

fi = Frequency of ith severity

N = Total number of observation

RESULTS AND DISCUSSIONS

Socio-Economic Description of the Study Area

The average household size of the sample population was 4.64 which were less compared to national data (CBS 2011). The family size was found to be more in seed producing household (5.36) than in non-seed producing HHs (3.92). Production quantity of maize found to be positively related with family size, which might be due to availability of larger labor size, which is supported by Bajracharya et al. (2016). Among the sampled population, males comprised 45.4% and females comprised 54.6% of total population, which is similar but slightly different compared to national average of 42.2% males and 57.8% females of total population for that district (CBS 2011). Most of the household were headed by males, which stands as 75% for seed producing households and 72.41% for

non-seed producing households. That clearly shows that, study area was male dominated, and most of the decision were taken by males only, only few decision were taken by discussing between males and females. Similar result was reported by Bhattarai (2002). Dependency found higher (0.63) in non-seed producing households in comparison to seed producing family (0.38). It clearly shows that economically active population was higher in non-seed producing family, which is supported by result of Bajracharya et al. (2016). Very few of the sampled entrepreneurs were found to be illiterate. Among them, 73.73% of them found to be literate, which is very high compared to national data (ICIMOD 2001). Okwoche (1998) stated that with increased educational level, farmers becomes more open to new and improved practices and that leads to adoption new technology and improved varieties. Due to which educational status is important to understand. The average land holding size in the study area was 0.6 ha whereas average land holding of seed producers was found greater (0.8 ha) than non-seed producers (0.4 ha). Only 29.8% household heads had received agricultural extension service at HH level. This implies that the extension service was poor in the study area. Similar extension service rate was also reported by Shrestha et al. (2016). Such lower adoption of improved seed can be the result of such small amount of interaction with the extension agent.

Seed production activities and post-harvest operation

The main source of foundation seed was Agro-vets from which 67% seed were brought, only small portion of seed was supplied from NARC, which opposite of what reported by Bajracharya et al. (2016). The average area for seed production

Table 1. Seed production activities and post-harvest operation in the study area.

Description		Total
Source of seed (%)	Agro-vet/Local Market	67
	NARC	30
	DADO	3
Area (ha)		0.2
Source of Input (%)	Agro-vet	52
	Local Market	38
	Neighbor	10
Weeding times		1.27
Inspection of field (%)	Self	62
	DADO Technician	38
No of rouging		2.1
Method of grading (%)	Removal of tip and bottom	89
	Gravity separator	11
Seed drying		Yes
Labeling and Packaging		Yes
Seed Testing (%)		68

Table 2. Major problems of maize seed production in study area

Problem of Seed production	Index Score	Rank
Lack of technical assistance	0.77	I
Inadequate irrigation facility	0.66	II
High cost of seed	0.58	III
Low quality seed	0.49	IV
Disease/pest	0.31	V
Low price of agriculture product	0.18	VI

was 0.2 ha. Inputs were supplied mostly from agrovets and local markets. Farm Yard manure and chemical fertilizer both were applied in adequate amount. Around 62% said that they inspect field themselves and rest inspect their field by DADO technicians. Rouging was practiced by only 49.8% households and about 59% households practiced grading. Removal of tip and bottom was found to be the most used and use of gravity separator was very negligible. After drying seed on sun and testing it, it was mainly sold on local markets and small amount of seed were sold to farmers of locality. Further information about seed production and post-harvest activities are given in Table 1.

Problems in Maize Seed Production

The major problems in maize seed production was identified as lack of technical assistance (0.77), followed by inadequate irrigation facilities (0.66), high cost of seed (0.58), low seed quality (0.49), disease/pest (0.31) and low price of agricultural products (0.18) as shown in Table 2. Biggest issue of seed production appeared to be lack of technical assistance, similar to what reported by Sapkota et al. (2017). Rogers (2003) favors study result saying, for the adoption of maize seed production to increase maize production and income, availability of technical assistance and adequate irrigation is necessary. Gauchan (2015) favors our result saying even though adequate amount of other inputs used, if seed used is of low quality,

productivity will be low.

Decision Taking

In both seed producing and non-producing households most of the decision is being taken by males as most of our society is male dominated specially in case of farming households, which is supported by WFO (2013). But in comparison to non-seed producing households, seed producing households appeared to be more inclusive of females in decision making. In Male headed household, decision is mostly taken by men, while in case of female headed households, decision is mostly the outcome of consultation of both men and women. Study showed that for encouraging maize seed producers and enhancing their production and profitability, extension program about business activity, input purchase, improved variety and involvement in training and workshops should be targeted more toward male while credit supply and information about efficient labor use should be prepared targeting both male and female. Further detail has been shown on Table 3.

CONCLUSIONS

Adoption of seed production in the area is positively related to literacy and extension service, which indicates that seed production can be increased with improvement of extension services. Seed producing farmers are mostly dependent on local markets for the seeds, which shows that

Table 3. Gender role on household level decision making in study area

Household decision	Household head	Decision (seed)			Decision (Non-Seed)		
		Male	Female	Both	Male	Female	Both
Business operation	Male	18	1	8	14	4	3
	Female	1	3	5	2	3	3
Selection of Crop/variety	Male	12	4	11	10	5	6
	Female	2	3	4	1	3	5
Quantity of Labor use	Male	22	1	4	8	6	7
	Female	4	1	4	1	7	0
Purchase of Input	Male	13	5	9	12	2	7
	Female	4	2	3	2	5	1
Product sale	Male	16	7	4	7	6	8
	Female	1	2	6	1	1	6
Loan taking	Male	5	1	21	6	2	13
	Female	1	1	7	1	1	6
Training attending	Male	20	1	6	3	3	15
	Female	2	5	2	1	2	5

facility from government agency is not satisfactory and needs betterment. In the study area, weeding activity, irrigation facility and seed testing is not at an adequate level resulting poor quality seed. In the study area, lack of technical assistance is the most important problem of seed producers. So it is appears that, better technical support, supply of quality inputs and better irrigation facility are the key for encouraging farmers in seed production and enhancing their production and profitability. Study households showed male dominance in decision making but male dominance level found to be low in seed producer compared to non-seed producer households. The study showed that for encouraging maize seed producers and enhancing their production and profitability, extension program about business activity, input purchase, improved variety and involvement in training and workshops should be targeted more toward male while credit supply and information about efficient labor use should be prepared targeting both male and female.

REFERENCES

- Bajracharya M. Sapkota M. Dhungana S. M. (2016) Socio-economic analysis of maize seed production in Arghakhanchi district of Nepal. *Journal of Maize Research and Development*, 2(1): 144-150.
- Bhattarai K. (2002) Gender dynamics in crop production in the hills of Nepal: Feminization of agriculture. M.Sc. Dissertation. Agricultural university of Norway. Norway.
- CBS. (2011) National Population and Housing Census 2011. National Planning Commission Secretariat. Central Bureau of Statistic. Kathmandu, Nepal.
- DADO. (2008) District Agriculture Data Book. District Agriculture Development Office Banke. Khajura, Banke.
- ICIMOD. (2001) Mapping Nepal Census Indicators 2001 and Trends. ICIMOD. Kathmandu, Nepal.
- KC G. Karki T.B. Shrestha J. Achhami B.B. (2015) Status and Prospects of Maize Research in Nepal. *Journal of Maize Research and Development*, 1(1): 1-9.
- MOAD. (2013) National Seed Vision 2013-2025. Government of Nepal, Ministry of Agricultural Development, National Seed Board. Seed Quality Control Center. Hariharbhawan, Lalitpur.
- Okwoche V. (1998) Adoption of Agricultural Innovations among members and non-members of women cooperative Societies in Oju Local Government Area of Benue State. M.Sc. Dissertation.
- Rogers E.M. (2003) Diffusion of Innovations (Fourth Edition). New York: Free Press.
- Sapkota M. Joshi N.P. Kattel R.R. and Bajracharya M. (2017) Determinants of maize seed income and adoption of foundation seed production: evidence from Palpa District of Nepal. *Agriculture and Food Security*, 6:41.
- Shrestha A. Sapkota B. Regmi R. (2016) Economics of Production and Marketing of Banana in Chitwan District, Nepal. Department of Agricultural Economics and Agribusiness, IAAS, Rampur Campus.
- USAID. (2015) Achieving Gender Equality in Agriculture. USAID From The American People. URL. <https://www.usaid.gov/what-we-do/addressing-gender-programming/agriculture> [Accessed 15 June, 2017].
- WFO. (2013) Role of Rural Women in Agriculture. World Farmers Organization. URL: www.wfo-oma.org/women-in-agriculture/articles/the-role-of-rural-women-in-agriculture.html [Accessed 11 August, 2017]