Potato Crop: A Main Source of Income for Farmers in Nepal

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Abstract

This study attempts to describe the contribution of potato crop to generate the income of the farmers. The study has used quantitative and descriptive research design. For this, primary and secondary data were used. While collecting the data, 25 households were consulted as a sample out of 250 households. To collect the data, this study adopted interview guideline and observation checklist as tools. While analyzing the data, simple statistical tools were used. The study revealed that majority of the households used pesticides, chemical fertilizers and applied modern technology to produce the potato. The study also found that farmers were able to produce 31,300 kg potatoes and earn NRs 1,252,000 money at a time. They produced 93,900 kg potatoes and earned NRs 3,756,000in a year. The study concludes that majority of the households were able to increase the potato productivity and their income.

Keywords: farmer, fertilizers, potato crop, source of income vegetation

Background of the Study

Agriculture is a main source of livelihood of human and livestock. It is one of the means to mitigate poverty and enhance financial status of the farmers. The report of the World Bank, Hazell et al. state that smallholder farming is more important for poverty alleviation and economic enhancement in development countries, but it has facing the innovation challenges to manage the market failures (Tolno et al., 2015). Institutional agriculture is a weapon to improve agricultural performance and to manage market failure (Fisher and Qaim, 2013).

Nepal is an agricultural country where 54 percent of people are involved in agricultural activities (Adhikari, 2017). It contributes 25 percent of gross

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domestic product of the nation (ministry of finance, 2020/21). Agriculture has huge importance on Nepalese economy. Nepal has various climate and vegetation in different geographical regions. So, there are different crops growing in these different climates and vegetation. Crop growing in Nepal is mainly classified into two types. They are food crops and cash crops. Paddy, maize, millet, wheat are some examples of food crops and sugarcane, potato, tobacco, jute are cash crops grown in Nepal. About 3440138.9 hector land of Nepal is used for cultivation of food crops and 453837.3 hector of land is used for growing cash crops (Ministry of Finance, 2020/21). The total area of food crops has increased by 0.5 percent in fiscal year 2020/21 as compared to that of the previous fiscal year. By the impact of COVID-19, crops areas have been increased because urban people have returned to the village and join the agricultural activities (Ministry of finance, 2020/21).

In Nepal, About 10926033.8 metric ton food and 3574255.2 metric ton of cash crops are produced annually (Ministry of Finance, 2020/21). Current fiscal year estimates the productivity of major vegetable production as 7.9 metric tons to 4.196 metric tons per hectare compared to that of fiscal year 2019/20. Since there is rapid growth in agricultural production especially potato, this has led to increase in its market price. Although Potato is used as main source of cash crop in high hills and the Himalayan regions of Nepal, it has equally been demanded in low hills and terai. It shows the huge demand for potato and its production has been increased but is not sufficient in Nepal. The major cause for increase in potato production is the use of modern method in agriculture, suitable climate, vegetation and proper market price. This study aims to describe the potato crop as a main source of income for farmers in Nepal.

Statement of the Problem

Farmers in the context of Nepal have been involved in the production of different agricultural items and one of them is potato production. The potato can be used to prepare different items of meal either alone or in a mixed bag. It has more demands and covers a wider section of agro market. However, a large number of farmers are still using the traditional methods of agriculture and have less knowledge on how the production of potato can contribute to their financial enhancement. Likewise, the farmers have shown little attention and are not aware that the production of potatoes can be an important source of their income generation. They produce and sell the potatoes for the subsistence of their life but they do not account how the ample production of potato supports their economic growth. This study intends to show the production of potato crop as a main source of income for the farmers in the context of Nepal.

Objectives of the Study

Majority of the people have been involved in agricultural sector in Nepal. They have produced only for subsistence life. This study aimed to explore the space and role of potato crop in farmers' income generation.

Review of the Literature

Galinato and Tozer (2016) have discussed the potato production and potato processing sectors and link them with other economic activities. The study has revealed that farm based potato production supports economic activities of the stakeholders. It has shown that the potato farming sector contributes about 27 percent value to the state economy, and 7.42 billion in total economic output in the farming of state. Potato has played supportive role in producing the industrial items. The study has further explained that there is linkage between the potato farming sector and processing sector and they both have integrated contribution to the economy of the state.

Bajracharya and Sapkota (2017) have described the productivity and profitability of potato crop in Baglung district. For this, the study has employed semi-structured questionnaire and interview tools to collect primary data. It has selected two village development committees such as Bobang and Tara using purposive sampling. For this, 120 samples were selected using simple random sampling. Benefit Cost Ratio was used to analyzed the data. The study has found that per hector productivity was 9.89 ton, cost was NRs. 197,186 and income was NRs. 286,047 from potato farming. Likewise, profit was NRs. 70,861 with 1.44 BCR from potato. The study concluded that productivity was yielded in decreasing return to scale due to infestation of disease on crop.

Ministry of finance report (2018) has reported that potato crop has occurred first position of cash crop in Nepal. In all areas of Nepal potato crop has been possible. It has produced high production compared to the other cash crops and cereal crops in Nepal. The report highlights that the potato production has occupied important space in Nepal because it can be cultivated for more than two times in a year.

Subedi et al. (2019) have explained about the economic impact of potato crop on seeds production in terai region. Their study has used pre-tested interview and focus group discussion to collect the primary data. The study has selected 165 samples from three districts and the number of sample from each district was 55. The study has found that the majority of the farmers were involved in potato production to use it for household purpose and to make improved seed for home, neighbors and friends where as 35.2 percent of them sold their production and 20 percent of them

produced seeds for cooperatives. It has also found that about NRs. 6604.4 amount of money was earned from one kattha land and their benefit cost ratio is found to be 2.13. So, the study has proved that the profitability and productivity has been increased by the improved quality seed of potato.

Khan et al. (2019) has compared the heterogeneity effects of maize and potato contract farming and spillover effect of both farming. Their study has found that potato farmers have got higher income and price with high labor employment and maize farmers have got less productivity but attractive payment.

Zhang et al. (2021), in their study, have analyzed the crop water productivity of wheat, maize and potato farming in China. Their study has selected the 964 observation and 90 peer-reviewed papers to find out the productivity. Their study has found that potato farmers have earned higher productivity comparing with maize and wheat. Their study has also found that Productivity was higher in rainfall season. Their study has concluded that North West China has produced higher. Their study has also concluded that higher productivity has yielded with the managing of water and soil investigation.

Vargas et al. (2021) have discussed the effects of COVID-19 on livelihoods of coffee and potato farmers during Corona virus period. The study has selected potato and coffee crop to identify the effects of COVID-19 on their contrasting conditions of farming and their uses. Their study has randomly chosen 291 households as a sample and used interview technique and survey method. The study has found that potato farmers were more affected by the COVID-19 and their economic status were decreased such as business. They were unable to earn more money by selling their production such as coffee and potato. They were selling their product with low price and low amount due to the quarantine life of the farmers. They had to face loss and had a long run effect. As a result, farmers household were affected for the next season of crop of potato and coffee.

Waaswa et al. (2021) explain that the Climate Smart Agriculture has the potential to alleviate low potato returns among the farmers. For this, secondary data were collected from institutional websites and FAOSTAT. Their study has discussed about the determining factors of theory and practice of the Climate Smart Agriculture mainly in the production of potato. The study focused on the effect of climate change on potato production. The study concluded that farmers producing potatoes adopting the concept of Climate Smart Agriculture were aware of the determinants such as financial, natural, physical and social capital. And the knowledge of such determinants and socio economic and institutional factors can shape the development and strategies of Climate Smart Agriculture.

The above studies have discussed the productivity and profitability of the potato crops. They have also reported how the change in climate affects the productivity of potatoes. These studies have given less attention on how potato crop can be the reliable source of income for farmers in the context of Nepal. The present study aims to fulfill this gap.

Research Methodology

The study applied descriptive and quantitative research design. The study used primary as well as secondary sources of data. As a study area, Nuwakot district, Bidur Municipality, ward number 8 was selected to identify the income for the farmers of potato crop on growing productivity. For this, 250 houses of farmers were population in which 25 houses of farmer were randomly drawn as a sample. To collect the data, the study has used interview guidelines and observation checklist as tools. For this, the researcher visited the farmers' farm and interviewed them using the questions given in the guideline and observation checklist. It has employed simple statistical tools such as table and percentage to analyze the data.

Results and Discussion

This section discusses the brands of potato seeds and their uses, methods of potato farming, the brands of potatoes, method of using fertilizers, use of pesticides, Annual production of potato farming and income, production of potato and income and annual income on the basis of household numbers.

Brands of Potato Seeds and Their Uses

This section has discussed the brands of potato seeds and their use where farmers have been using.

Table 1: Description of Brands of Potatoes Seeds

S.N.	Brand of potatoes seeds	Household's number	Percentage
1	Janakdev	5	20
2	Britishe	7	28
3	Khumal White	4	16
4	Kufri Jyoti	6	24
5	Others	3	12
Total		25	100

Sources: Field Survey 2078

The table1 shows that among the 25 households, only 20 percent farmers used Janakdev brand of potato, 28 percent farmers used Britishe brand of potato, 16 percent farmers used Khumal white brand of potato, 24 percent farmers used Kufri Jyoti brand of potato and 12 percent farmers used others. The above discussion shows that majority of the farmers used Britishe brand of potato. The above varieties of potato belong to hybrid class and the farmers grow them in large amount. Such large amount of production can be sold and the farmers earn more money. It can be interpreted that potato crop is one of the source of income for the farmers.

Method of Potato Farming

This table presents the methods that the farmers employ in potato farming in the study area.

Table 2: Methods of Potato Farming

S.N.	Method	Household's number	Percentage
1	Modern 20	20	80
2	Traditional	05	20
Total		25	100

Source: Field survey 2078

The table2 has presented that 80 percent farmers cultivated potatoes using modern technology but not trained only copied of the neighbours and 20 percent farmers cultivated using traditional technology. It can prove that majority of the farmers used modern technology to grow more production in this study area. Most of them had got training from district agriculture offices. It means potato crop is one of the major sources of income for the farmers.

Methods of Using Fertilizer

The cultivation and production of potatoes depends upon the quality of soil, irrigation facility and the use of fertilizers and compost. Among them, the use of fertilizers and compost is a crucial factor in the production of potatoes. The farmers of the study area used the fertilizers and compost in a proper amount; they used nitrogen before and after the cultivation. They used modern method instead they just copied about the neighbor have done.

Use of Pesticides

This section has discussed about the use of pesticides in potato farming in the study area.

Table 3: Description of Use of Pesticides in Farming

S.N.	Pesticides	Household	Percentage
1	Mac gene	3	12
2	Carbodagen	2	8
3	Metorix+Myankogen	3	12
4	Sine Moksagen+Myankogen	4	16
5	Cyber methane	2	8
6	Alfa methane	7	28
7	Delta methane	3	12
8	Chlorobairifin 1	4	
Total		5	00

Source: Field Survey 2078

The table 3 has shown that 12 percent farmers used the Mac gene type of pesticides, 8 percent farmers used the Carbodagen type of pesticides, 12 percent farmers used the Metorix + Myankogen type of pesticides, 16 percent farmers used the Sine Moksagen + Myankogen type of pesticides, 28 percent farmers used the Cyber methane type of pesticides, 12 percent farmer used Delta Methane type of pesticides and 4 percent of farmers used the Chlorabairifin type of pesticides. It leads to the interpretation that majority of the farmers used Alfa Methane type of pesticides and Chlorabairifin type of pesticide was less used. Such use of pesticides can protect the crops from the infestation of diseases. The farmers can grow more after the use of such pesticides and they can earn more.

Annual Production of the Potato Farming and Income

This section has analyzed the potato production and income and annual income of the households.

Production of Potato and Income of the Households

This section discusses about the production of potato and its income of the farmers.

Table 4: Particulars of Potato Production and Income

S.N.	Households	Cultivated areas (Ropani)	Production(kg)	Price(per kg)	Total income (NRs)
1.	3	7	4000	40	160,000
2.	4	6	3600	40	144,000
3.	3	4	2000	40	80,000
4.	5	14	10000	40	400,000
5.	10	12	11700	40	468,000
Total	25	43	31,300		1,252,000

Source: Field survey 2078

The table 4 has analyzed that 3 households produced 4000 kg potato and earned NRS 160,000 at a time /production in 7 Ropani land. Similarly, 4 households produced 3600 kg potato and earned NRs 144,000 at a time in 6 Ropani land, 3 households produced 2000 kg potato at a time and earned NRs 80,000 money from 4 Ropani land, 5 households produced 10000 kg potato at a time and earned NRs 400,000 money from 14 Ropani land and 10 households produced 11700 kg potato at a time and earned NRs 468,000 money from 12 Ropani land. The farmers sold the potato only in NRs 40 per kg and total production of household at a time was 31,300 kg and earned NRs 1,252,000 at a time. They produced potato for three times in a year and produced 93,900 kgs and earned income NRs 3,756,000 in a year. Their average income was NRs 150,240 and average production was 3756 kgs in a year from potato farming. It shows that the farmers were able to earn sufficient money to sustain their life. It concludes that there were differences of production amount.

Annual Income of the Households

Here, the study has discussed the annual income of the households.

Table 5: Annual Income of Households

S.N.	Income (Lakhs)	Household	Percentage
1.	1-2	19	76
2.	2-3	5	20
3.	3-4	1	4
Total		25	100

Source: Field Survey, 2078

The table 5 has shown that 76 percent of households were able to earn NRs 1-2 lakhs in a year. Similarly, the 20 percent of households were able to earn NRs 2-3 lakhs in a year and 4 percent of households were able to earn NRs 3-4 lakhs money in a year. It shows that majority of the households earned NRs 1-2 lakhs money in a year. It can be interpreted that the growth of potato crops was increased and farmers' income was also increased by the potato farming.

Conclusion

The agricultural production of Nepal is suffering from the irrigation problem, price fluctuation and dominance of food crops. Farmers' households use different brands of potato seeds adopting modern technology. The farmers use different type of pesticides while producing the crops. On the basis of the above findings, it is concluded that majority of the households have used the Alfa methane named pesticides. Likewise, majority of the households use chemical fertilizers and have applied modern technology to produce the potato in large amount. The farmers are able to produce 31,300 kgs potato and earn NRs 1,252,000 money at a time. Their total production is 93,900 kgs and total income is NRs 3, 756,000 in a year. Their average productivity is 3,756 kgs and average income is NRs 150,240 in a year. The study concludes that majority of the households such as 76 percent is successful to earn 1-2 lakhs money, 20 percent is successful to earn 2-3 lakhs money and 4 percent households is successful to earn money in a year. So it also concludes that the potato crop is one of the major sources of income for the farmers' in Nepal.

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