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Problems and Prospectus of Mushroom Farming in Nepal

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ABSTRACT

Mushroom farming is popular among farmers worldwide since consumers demand it as a vegetable and rich source of protein. Farming itself has been surrounded by various problems in Nepal, like countries worldwide. Based on primary data, it was revealed that open border was the main problem faced by Nepalese farmers to get reasonable price of mushrooms. 56.7 % of respondents opined that there is a market problem as well as poor technologies in the time of cultivation and harvesting of product. Forty-three percent of the respondents had a market problem but no poor technology. It can be explained as better technology used in the field of production. Total production starts to increase and may not have a market problem. Seventy-five percent of the farmers believed there was no adequate fund or irrigation facility. High cost and middle man problems were felt by 90 percent of farmers. There was a labour problem and a lack of training. Only 20 % have training in this farming. These two variables were statistically significant. P-Value is less than .05 > .002 show their association. 90 % of the farmer has an open border, which is the cause of a decrease in mushroom farming. These variables are statistically significant. P-Value is less than .05 > .03, representing a close relationship between these problems. Eliminating such problems may open the door to more investment, employment and income in the national economy.

1. INTRODUCTION

Mushroom farming is an important vegetable farming these days. People are more interested and conscious regarding mushroom consumption since it is a rich source of protein. It is more popular among vegetarians. Even though it has massive use in the Nepalese kitchen, it is not free from certain constraints. Some of their problems are their own, which are related to government policy (Beshir and Nishikawa, 2012). If these problems can be mitigated, then the future of Nepalese agriculture farmers' living standards may rise. Even a single government policy can correct most of the problems related to agriculture and its related activities.

Lesourne (1975), Gundogmus (2006),Marshalland Nair(2009), Zangeneh et al (2010), Boardman et al, (2011).Maniriho and Izola (2013), Sepat (2013), and Flack (1917) analyzed the benefit-cost ratio as well as the problems and prospects of mushroom farming in different regions. These studies identified similar problems like lack of appropriate seeds, inputs, research about appropriate areas of mushroom cultivation, and other market-related problems. Similarly, mushroom products were beneficial agricultural products compared with other farming like potatoes, onion, etc.

Barmon et al. (2012) estimated mushroom production's profit, benefit-cost ratio, and household income in SavarUpazila in Dhaka district, Bangladesh. This study was based on primary data and the data were collected from 30 samples of mushroom farms through a comprehensive questionnaire. Mushroom farming was a profitable agriculture enterprise (22,888 takas per farm) with a 1.55 benefit-cost ratio. The average family household income was 43,731 taka in Bangladesh. This study also examined the problems and prospects of mushroom farming and the major problems are the availability of labour, inputs, market structure, storage and seeds of mushrooms.

Amoabeng et al. (2014) analyzed the benefit-cost ratio of cabbage production in Ghana during the major and minor rainy seasons of 2012. The data were collected from the crops research institute of Kumasi, Ghana, from the record of the plant protection period of major and minor rainy seasons. Normally, plants were collected, without purchase, from uncultivated areas related to the vicinity; therefore, the costs were only labour for the collection, preparation and application plus the value of the soap for extraction. On the other hand, the revenue was associated with the selling price of the cabbage products. This study found that the benefit-cost ratio in the major rainy season was 1.14 and in the minor rainy season was 1.11. This study also analyzed the prospects and problems of agriculture products in Ghana. The major problems of agricultural products were labour, fertilizer, and inputs for farming and the market for products.

Febrianda and Tokuda (2017) stated that mushroom farming is profitable agricultural farming in Indonesia due to its simplicity and flexibility in cultivation. Indonesian people believe its positive impact on their health. The main objective of this study was to explore the unique strategy and innovation in mushroom production activities in Cianjur district, West

Java, Indonesia, by reducing the cost and raising benefits to raise the mushroom production business.

Chitra et al. (2018) investigated oyster mushroom farming production and economic status in Florida from January to April 2018. The objective of this study was to investigate the effect of temperature on mushroom production and estimate the benefit and cost of oyster mushroom farming in the USA. This study found that 18 to 30'C was the appropriate temperature for the production of oyster mushroom farming. Furthermore, the net per kg benefit and cost was Rs. 149.89 and Rs. 60.63 respectively.

Rawat, Negi, and Singh (2020) examined the cost-benefit of mushroom farming in Srinagar Garhwal (Uttarakhand), India, in the year 2017-19. The costs were the expenditure on various inputs (straw, spawn, insecticides, etc.) and interest on working capital (@ 10 % per annum made the total variable cost. The benefits were calculated from the actual prices gained by the farmers. The return over variable cost and net returns were calculated by deducting the respective cost from the gross returns; the benefit-cost ratio was calculated from the formula of gross income divided by total cost. This study found the benefit-cost ratio of oyster mushroom production (1.47) and button mushroom production (1.18). Thus, the benefit-cost analysis shows that oyster mushroom production is more profitable than button mushroom.

2. METHODOLOGY

This study is based on primary data focused on the problems and prospects of mushroom farming in Matatirtha, Balamdu and Thankotarea in Chandragiri Municipality, located in the western parts of Kathmandu district. Matatirtha, Balambu and Thankotarea of Chandragiri municipality are favourable climates for mushroom farming and there exist approximately 90 farmers.

2.1 Nature of Data
The data of our proposed study has been mostly based on primary sources. It was collected and gathered based on a structured questionnaire and observation. National and international data were collected and compared with this study. For the trend and problems and prospectus of mushroom farming, data were compared with the given stock of knowledge

2.2 Sample Size of the Study
The sample size was fixed before making this study more appropriate and conclusion-based. In our general observation and counting, there are 30 farmers in Balambu, 15 farmers in each Matatirtha and Thankot of Chandragiri municipality. As the number of samples increased, the error of the study seemed to be decreased, so the attempt was diverted toward incorporating a higher number of samples in the study. A formula was used to fix the sample size with 0.05 errors in the proposed study. The formula is;

n= N / 1+ N (e) …………………………………………………… (i)

where
n=Sample size
N = Universe of the study
e=Error of the study, which is 0.05 in this study

After the use of this formula, we should have used 22 farmers to analyze and explore mushroom farming in Chandragiri municipality of Nepal.

3. RESULT AND DISCUSSION

Available data were gathered and tabulated based on the nature of available data. It was directed based on the objectives listed in writing. Based on the nature of the data, it was presented on the various table related to mushroom farming problems and prospects. A Chi-Square test was conducted to identify the significant differences between various problems of mushroom farming in the study area.

3.1 Problems of Mushroom Farming

Farmer has no or small size of land, which is a prominent issue for mushroom farming in Nepal. Most demand for mushrooms lies in Kathmandu valley (according to a wholesaler, 70 percent of total demand). The land in Kathmandu is either limited or expensive rent imposed by owners. Out of 30 mushroom cultivators, just five farmers (approximately 16 percent) are growing mushrooms on their land. They have no market problem and enjoy higher prices in the market. They have access to politics so they can easily get the subsidy provided by the state.

There is a policy problem with the Nepalese government. Lack of improved seeds and fertilizer are scarce in the market. Provision of quarantine check posts near of border is only limited to building on the eyes of mushroom cultivators. Open border leads to an influx of mushrooms in Nepal. Indian mushroom is cheaper than Nepalese product since there is a provision of subsidies from the government. They (Indian farmers) have a better processing technique since it is fresh after arriving in Kathmandu. Nepalese mushroom starts to decay after 24 hours of harvesting.

Lack of commercialization is a problem leading to a high production cost. Nepalese people have less capacity to bear risk, so low profit is its outcome. Indian farmers grow it in a larger area, so that it may be the cause of low cost. The role of the middle man is a serious threat in the field of mushroom farming in Nepal. Middlemen fix the price and they impose a low price. The total revenue received by the farmer is low.

In this farming, there is low production. Straw is carried out from the Terai region of Nepal in Kathmandu. However, based on the pilot survey, problems of mushroom farming were listed and answers were matched with observation. The main matter is that its productivity is decreasing since the inputs used and the quality of straw are poor, ultimately lowering mushroom production. In these couple of years (2077 and 2078 BS), lockdown due to

Covid-19, the production of mushrooms cannot supply to the market. The market price is very low and the farmer compels to bear the loss. They were decomposed in the field and used as an organic fertilizer to boost the fertility of the land.

Table 1

Association Between Market Problems and Use of Poor Technologies

| Market Problem | Poor Technology | | Total |
	Yes	No	
Yes	17	13	30
	(56.7%)	(43.3%)	(100.0%)
No	3	0	3
	(100.0%)	(0.0%)	(100.0%)
Total	20	13	33
	(60.6%)	(39.4%)	(100.0%)

Source: Field Survey, 2021

Table 1 indicates that 56.7 % of respondents opined a market problem and poor technologies in the time of cultivation and harvesting of products. Forty-three percent of the respondents had yes market problem but no poor technology. It can be explained that as better technology is used in production, total production increases and may not have a market problem. There is no single respondent who has no market problem and the use of poor technologies. The general table has an association between these two research variables. The relationship between these variables (use of poor technologies & market problem) can be analyzed based on the Chi-square test since both the variables in the study are categorically measured (in Yes or No). The association can be defined and statistically analyzed.

Table 2

Association Between Use of Poor Technology and Market Problem

Items	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.145[a]	1	.143		
Continuity Correction[b]	.714	1	.398		
Likelihood Ratio	3.198	1	.074		
Fisher's Exact Test				.261	.209
Linear-by-Linear Association	2.080	1	.149		
N of Valid Cases	33				

a. two cells (50.0%) have an expected count of less than 5. The minimum expected count is 1.18.

b. Computed only for a 2x2 table

Table 2 shows that the relationship between these two variables is statistically insignificant since the P-value of .143 is greater than .05. The null hypothesis cannot reject, so there is no relationship between these two variables used in the time of measurement of the problem of

mushroom farming. These two problems are independent. Some farmers have one problem and others face other problems in mushroom farming. The observation found that large production firms have no market problem since they are integrated with the market system. They are using modern technologies in the time of cultivation. Likewise, small farmers have problems with markets and technologies.

Insufficient investment, inadequate research, unavailability of quality spawn, lack of improved technology, lack of properly trained technicians, poorly developed market chain, lack of proper formulation and implementation of government policies regarding mushroom production and productivity, lack of appropriate institutional support regarding mushroom cultivation, lack of quality control mechanism, lack of collection and domestication of locally available varieties suitable for various agro-climatic condition, lack of standardization and diversification products are the basic problem of mushroom farming in Nepal (Agricultural Guide, 2020).

Now the problems analyzed in this research are similar to the conclusion derived from the agriculture guide. Lack of improved technologies and poorly developed market chain is the problem observed in the research that coincides with the research result of the agricultural guide. Improved technology is useful for producing mushrooms at a lower cost of production. So that the product can be demanded domestically as well as internationally. Likewise, a poor market chain leads to low income for farmers and has a low incentive to cultivate mushroom farming. Similarly, the relationship between the problems adequate funds and irrigation problems can be presented as follows:

Table 3

Association Between Adequate Fund and Irrigation Status

	Irrigation problem		
Lack of Adequate Fund	Yes	No	Total
Yes	9 (75.0%)	3 (25.0%)	12 (100.0%)
No	10 (47.6%)	11 (52.4%)	21 (100.0%)
Total	19 (57.6%)	14 (42.4%)	33 (100.0%)

Source: Field survey, 2021

Cross-tabulation of two problems in mushroom farming is tabulated. Seventy-five percent of farmers opined that there is no adequate fund due to this, unable to manage irrigation facilities. It implies that two-thirds of the mushroom farmer has both problems. It is also realized in the agricultural guide of Nepal. The irrigation problem is one of the causes of low production.

Water availability in mushroom farming is crucial because it is used to make clear after its harvesting and should be irrigated for its better product. Fund for investment is poorly offered to the real farmer. Nepal, like countries, is trapped in a vicious circle of poverty and ' we are poor because we are poor' Ragner Nurkse statement is real in the case of mushroom farming and also true in the context of mushroom farming. The statistical relationship can be examined with the help of a chi-square test between these two variables:

Table 4

Association Between Use of Poor Technology and Market Problem

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.344[a]	1	.126		
Continuity Correction	1.357	1	.244		
Likelihood Ratio	2.427	1	.119		
Fisher's Exact Test				.160	.122
Linear-by-Linear Association	2.273	1	.132		
N of Valid Cases	33				

Note: 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.09.

b. Computed only for a 2x2 table

Table 4 exhibits no statistical analysis between poor technology and market problem. *P*-Value is .126 greater than .05, so the null hypothesis can't be rejected. Both problems are independent and not sequential, one after another. Their determinants are different; however, the problem can be mitigated by better government policy in Nepal. The mushroom farmer's income will rise if these two problems can be solved. It leads to higher and better mushroom production in Nepal. However, the single problem in this field may not apply to all mushroom farmers. One problem may be crucial for one and may not affect other farmers. The small farmer has one issue while big agriculture houses another issue for this cultivation.

The high cost of production and the presence of the middle man is both responsible for an increase in the price of mushrooms, and consumers cannot purchase that product. We highly depend on the Indian market for raw materials and are costly compared to India. Straw is a raw material from the terai of Nepal and is costly to bring to Kathmandu. Approximately half of the price is a margin of middle man leads to higher market costs. So the government tries to minimize the role of the middle man in agriculture, as reflected in the budget speech of FY 2078/079. The relationship between high-cost problems and middleman problems can be crosstab as follows:

Table 5

Association Between High Cost of Production and Middle Man Problem

		Middle man Problem		Total
		Yes	No	
High Cost of Production	Yes	30	2	32
		93.8%	6.3%	100.0%
		96.8%	100.0%	97.0%
	No	1	0	1
		100.0%	0.0%	100.0%
		3.2%	0.0%	3.0%
Total		31	2	33
		93.9%	6.1%	100.0%
		100.0%	100.0%	100.0%

Source: Field survey, 2021

Table 5 shows the crosstab between two problems of mushroom farming. The high cost of production and middle man problem is jointly felt by approximately 90 percent of Kathmandu farmers. There is no single farmer who has no these two problems. These two are common problems faced by a farmer. The association between these two can be tested with a chi-square test of categorical variables:

Table 6

Statistical Association Between High Cost of Production and Middle Man Problem

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.067[a]	1	.796		
Continuity Correction[b]	0.000	1	1.000		
Likelihood Ratio	.127	1	.722		
Fisher's Exact Test				1.000	.939
Linear-by-Linear Association	.065	1	.799		
N of Valid Cases	33				

a. three cells (75.0%) have an expected count of less than 5. The minimum expected count is .06.
b. Computed only for a 2x2 table

Table 6 reflects the relationship between the high cost of production and the middle man problem in mushroom farming. Statistically, there is no rejection of the null hypothesis, so the relationship between these two variables is rejected. Both problems are independent and are not one's cause and effect. The high cost of production may be caused by another factor rather than the middle man and the middle man's role is also there. This problem can be mitigated from the side of better government policy. Based on discussion with farmers, secrecy reveals

that there is no provision of minimum price policy in mushrooms, so farmers must follow the price fixed by a middle man. There is no provision of training, so there is a shortage of skilled human resources in mushroom farming. It leads to low production of mushrooms and can't compete in the market. Their relationship can be analyzed based on a crosstab between no training and labour problem;

Table 7

Association Between Labor Problems and Lack of Training

		No Training		Total
		Yes	No	
Labour problem	Yes	17 100.0%	0 0.0%	17 100.0%
	No	9 56.3%	7 43.8%	16 100.0%
Total		26 78.8%	7 21.2%	33 100.0%

Source: Field survey, 2021

Table 7 indicates that only one-fifth of farmers have training in mushroom farming and the remaining portion does this cultivation based on experiences and demonstration effects. Approximately half of the farmer has both problems and other farmers. These problems show their independent behaviour. In normal sequences, there is a relationship between these variables. No or a low number of trained farmers may be the cause of the low involvement of such farmers in mushroom farming. A low rate of participation with no appropriate knowledge and skill invites low production and high cost of production. It may be the next reason for being costly Nepalese mushrooms compared with Indian mushrooms except for the high subsidy to mushroom farmers. It can be checked with a chi-square test. Both are categorical variables.

Table 8

Statistical Association Between Labor Problems and Lack of Training

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.440[a]	1	.002		
Continuity Correction[b]	7.004	1	.008		
Likelihood Ratio	12.176	1	.000		
Fisher's Exact Test				.003	.003
Linear-by-Linear Association	9.154	1	.002		
N of Valid Cases	33				

a. two cells (50.0%) have an expected count of less than 5. The minimum expected count is 3.39.

b. Computed only for a 2x2 table

Table 8 highlights the association between labour problems and no training is tested. The null hypothesis, no relationship between labour problems and no training, is rejected. P-value is .002 < .01 indicates a close relationship between no training and labour problems in mushroom farming. In this sample, the availability of training affects the labour supply and can influence mushroom production. Higher training indicates interest in growing that product so they like to enter the industry. Labour demand in one variable factor is its value of marginal productivity of labour (VMPL) and is true in the context of this farming. An open border is the problem of mushroom farming in Nepal.

Mushroom is coming into the Nepalese market without any administrative barriers. It is cheap since there is approximately a 50 percent subsidy to the farmer. Indian mushroom is more durable in bringing from one place to another. Nepalese mushroom starts to decay after 12 hours of harvesting, but Indian mushroom is edible for five days. They are using specific chemicals, according to one of the respondents. It is harmful to human health. So the area under mushroom cultivation is decreasing. The government is not using our quarantine check post for the edible test.

Table 9

Relationship Between Open Border and Area of Mushroom Production

| | | Area of Production | | |
		Increase	Decrease	Total
Open Border	Yes	10	20	30
		33.3%	66.7%	100.0%
		100.0%	87.0%	90.9%
	No	0	3	3
		0.0%	100.0%	100.0%
		0.0%	13.0%	9.1%
	Total	10	23	33
		30.3%	69.7%	100.0%
		100.0%	100.0%	100.0%

Source: Field survey, 2021

Table 9 shows the association between two problems of mushroom farming in Nepal. Ninety percent of respondents opined that the open border is the cause of a decrease in the production area of mushrooms. Farmers like to shift their mushroom tunnels into tomato production by replacing black plastic with white ones since potato is grown in some specific sunlight.

Table 10

Statistical Relationship Between Open Border and Area of Mushroom Production

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.435[a]	1	.031		
Continuity Correction[b]	.291	1	.590		
Likelihood Ratio	2.294	1	.130		
Fisher's Exact Test				.536	.325
Linear-by-Linear Association	1.391	1	.238		
N of Valid Cases	33				

a. two cells (50.0%) have an expected count of less than 5. The minimum expected count is .91.

Table 10 exhibits the relationship between the open border and the mushroom cultivation area that has been analyzed. The open border is the cause of less land used to cultivate mushroom farming. Low-cost mushroom from India is more feasible since they can be sold at a lower price. P-Value is .03, less than .05, so these two problems are statistically significant. An open border is an obstacle to the mushroom growth of Kathmandu farmers.

Table 11

Causes of Low Mushroom Production in Kathmandu

Causes of low mushroom production	Frequency	Percent	Valid Percent	Cumulative Percent
Lack of Seeds	9	27.3	27.3	27.3
Bad Weather	17	51.5	51.5	78.8
Lack of Pesticide	4	12.1	12.1	90.9
Lockdowns	3	9.1	9.1	100.0
Total	33	100.0	100.0	

Source: Field survey, 2021

Indicates that bad weather is the main cause of low mushroom production in Kathmandu. It is grown in foggy weather and more fungi are there. Now a day, the climate is changing, according to one of the respondents. Other respondents opined that increased temperature is the main cause of the low production of mushrooms in Kathmandu. Half of the farmers agree that the change in weather (bad weather) is a cause of low production. Low percent occupied cause is lockdown due to Covid-19.

3.2 Prospectus of Mushroom Farming in Nepal

The future of mushroom farming is good even though there is a climate change in Kathmandu valley. Though it has some strengths, many problems are related to mushroom farming. If the issues and challenges of mushroom farming can be corrected, the future of mushrooms will be good and can living standard of farmers involved in this cultivation. Nepal is one

of the developing countries and agriculture development is the basis of the Nepalese linear development model. The development model should follow the liner model and starts from agriculture development. Industry and service development are invited by agriculture development so that mushroom farming may be a milestone.

The lack of appropriate technology is a threat in the eye of farmers. It is easy and can increase productivity by developing or importing appropriate technology based on local needs and changing climatic conditions. The agriculture research centre's role should be increased to decrease the cost of production. Local resources should be used to solve the problem of costly raw materials. Quality seed with higher productivity may be the outlet of the problem of mushroom farmers so that the future of this farming is bright.

If a cooperative is established to develop mushroom farming, the new farmer may attract to this farming. It is useful to provide the appropriate price to the farmer. Agriculture loans can be extended to needy farmers. One of the farmers opined that if the government can extend financial and technological support to the farmer, this sector will grow according to the expectation of policymakers. Similarly, there is a lack of land for the real farmer and no community-level farming. If such practices start, then there is an attraction in this sector.

According to the respondent involved in mushroom farming, the consumer has less habit of consuming mushrooms. In this connection, the importance of such vegetables should be familiarised among consumers of Nepal. She can impose a heavy tax on foreign vegetables to make Nepal self-reliant on mushrooms and other vegetables to discourage imports. Quarantine check posts should equip a skilled workforce and the necessary equipment to check their quality before entering Nepal. Now lockdown has become more rampant for the development of mushroom farming. At this time, Kalimati and Balkhu vegetable collection centres used to close. So that farmer compels to destroy their product without any income. If the insurance of such a product is forwarded, the farmer is attracted to this sector. There is less risk if the provision of subsidies and insurance pave the way for the betterment of farmers involved in mushroom farming in Kathmandu.

If Nepal's labour problem is managed by creating ample employment opportunities inside the country, it can be produced as a high-quality product at a cheaper cost. If managed, the wage rate of Nepal and the opportunity cost of going abroad, the workforce used for the production start to stay in the country, which is the source of deficit labour in the labour market. The marginal labour productivity should increase by providing various types of training and related education to the farmers. In this way, attraction in this area increases and productivity increases. It is demanded domestically and externally. It became the source of regular income for the farmer.

Government policy is key in determining the prospectus of mushroom farming in Nepal. If the government makes an investment-friendly and farmer-friendly policy for mushroom cultivation, then no doubt this sector will move ahead according to the plan of planners. An

export of mushrooms is determined based on the elasticity of export and continues in those nations where mushroom elasticity is inelastic. The price of mushrooms in these countries is high, so the total revenue received by selling its entire output became high. If all these weaknesses and threats are mitigated, this farming will have abnormal profit. The policy and the market trend determine the future of such farming. It is not sure, and it is time-specific. Some exogenous variables may disturb its smooth forecasting and are not according to planning.

There is a lack of chemical fertilizer and pesticides needed to grow mushrooms. Still, the government is scheduled to establish its chemical fertilizer in the FY 2078/079 budget. In this day, the problem is rampant. One type of small insect can damage the entire production; technicians and pesticides are not provided in the time of need. There is no provision of insurance when their huge investment goes on return less. So on-demand visit to tunnels is the solution to a problem, and this management leads to a bright future for mushroom farming.

One of the farmers opined that if the government worked as a guardian of farmers, the existing land to grow mushrooms doubled in a year. It is the cause of the low cost of production due to economies of scale. Government intervention is desirable, and free forces of demand and supply automatically can't correct the economic issue. If all issues and problems of mushrooms can be corrected, this sector will grow and contribute to its GDP. It helps to grow our economy linearly so that there is a sequential development of industry and service sectors.

4. CONCLUSIONS AND POLICY RECOMMENDATIONS

Since 56.7 % of respondents opined that there is a market problem and poor technologies in the time of cultivation and harvesting of product. Forty-three percent of the respondents had market problems but no poor technology. As better technology is used in production, total production increases and may not have a market problem. 75 % of farmers believed there were no adequate funds and irrigation facilities. Ninety percent of farmers felt high cost and middle man problems. There was a labour problem and a lack of training. Only 20 % have training in this farming. These two variables were statistically significant. P-value is less than .05 > .002 show their association. 90 % of the farmer has an open border, which is the cause of the decrease in mushroom farming. These variables are statistically significant. P-value is less than .05 > .03 symbolises a close relationship between these problems.

Lack of weather-friendly seeds, bad weather, lack of pesticides and lockdown are other problems the respondent in the study. Out of them, bad weather (51.5 %) is on the list of the top problems. Government policy was another important problematic variable opined by more than 90 % of farmers. Tax and subsidy management are the government tools a government can exercise to boost mushroom production in Kathmandu. If all these problems can be solved, farmers' future will be bright and can contribute to the national GDP. A country can attain higher, broad-based and sustainable economic growth.

This study, 'cost-benefit analysis of mushroom farming in Kathmandu,' is a milestone in investment decisions. The consumer is less attracted to physical work but likes to appear in consumption. Even a single policy can correct all the issues and problems regarding the production of mushrooms. If the government can implement its 'one village, one product,' then the mushroom production area will increase. Similarly, the cost-benefit ratio can be increased by increasing the production since the cost is an exogenous variable not in our hands. Government and its line agencies should coordinate with other non-government and cooperatives since Nepal is a three pillars economy. Subsidy (technical and financial) is a solution to boost production so that other farmers are attracted to this sector.

Federal, provincial, and local governments should appropriately develop infrastructure related to mushroom farming. There is a triplication of the program but not in mushroom farming. Labour is costly, so employment opportunities should create inside a country so that it becomes more reliable and less costly. It may be good employment in the time of pandemic forwarded with physical distances.

Acknowledgement

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