**History of Mushroom Farming**  Mushroom consumption most likely happened during prehistory, during the hunting and gathering period. Mushrooms, unlike plants, could not be cultivated at first and it had to be collected for a long time. Even today, compared to the number of edible species, hardly a few mushroom species can be cultivated. Mushrooms were thought to have a special and supernatural origin – 4600 years ago, the Egyptians thought mushrooms were plants of immortality; the Pharaohs decreed that only they could eat mushrooms. The Romans considered mushrooms to be spiritual food. Many people collect mushrooms for consumption, but many myths and false concepts still exist today. For thousands of years, the Chinese and Japanese have used mushrooms as medicines. Shiitake, Lentinus edodes, was first cultivated in China about 800 years ago. Shiitake mushroom was combined with AIDs drugs to boost immune response, combat chronic fatigue, and induce antibody formation to Hepatitis B; it also stimulated antitumor activity, according to Japanese research. Around 300 to 200 B.C., the "ear fungus" Auricularia polytricha was first cultivated in ancient China. Many South Pacific countries now cultivate this mushroom. Enokitake, Flammulina velutipes, has been cultivated for centuries; this small delicate mushroom was grown on sawdust. The French began growing mushrooms underground in quarries around Paris in 1800, using horse manure that was stacked in heaps and allowed to heat up naturally. The compost that resulted was laid down in long ridges and inoculated with spawn collected from meadows or mill tracts where horses had tramped. It was all down to chance whether or not that compost produced a mushroom crop. **Cultivation and Harvesting**  Compost was scooped into mushroom trays and inoculated with spores in the early days of mushroom culture in the Netherlands. After a nine-week wait, flushing began and the mature mushrooms could be harvested by hand. The cultivation process hasn't changed much, but how the various steps are carried out varies substantially. In modern mushroom farming, hardly anything is done by hand. There are five stages to mushroom cultivation: **Phase 1: Composting** Mushroom growth begins with compost. Composting begins with horse manure. The compost factories obtain horse manure from large horse breeding companies that pay the compost factories to collect the manure. The horse manure is mixed with straw, gypsum, chicken manure, and water. The straw improves the structure, the gypsum maintains the proper acidity, and the two manures provide nutrients. The compost is made in tunnels to keep the smell to a minimum. Because manure emits ammonia, composting plants use ammonia wash to clean the air and prevent gas emissions. The indoor fresh compost resembles forest earth. Dark brown and strewn with straw. The compost is steaming as a result of the composting process: heat is generated, which digests the components. What remains is a very fertile and nutritious source for mushrooms. Two to three flushes of mushrooms can be grown on one batch of compost. A square metre of compost (90 kilos) yields a maximum of 35 kilos of mushrooms.

After that, it is no longer profitable to reuse the compost. The leftover compost can still be used as a soil conditioner in other agricultural businesses. **Phase 2: Spawning** Indoor fresh compost is pasteurized at 57-60 degrees Celsius in a tunnel. This kills all bacteria. The compost is left in the tunnel for six days to mature before being mixed with the spawn that will produce the mushrooms: the mycelium. The compost is then moved to another tunnel so that the mycelium can spread throughout it. Mycelium grows quickly; after two weeks, it has completely permeated the compost, indicating that it is ready for the growers. At this point, the compost appears to be light brown peat. Most mushroom growers do not produce their own spawn because it is a very complex process. Specialized companies create the spawn by inoculating grain with spores.

The grain is sterilized first to prevent infection, and it is kept moist, just like mushrooms like it. Ten kilograms (22 pounds) of spores yields approximately 500 kilograms of inoculated grain (1100 pounds). The grain is incubated in a bag for two weeks at 25 degrees Celsius (75 degrees Fahrenheit), then transferred to a refrigerator at 2 degrees Celsius (35 degrees Fahrenheit) to harden. As a result, the spawn has a shelf life of 6 months without the mycelium losing its vitality. **Phase 3: Casing**  The fully mature compost is spread onto the mushroom beds, which are long stainless steel boxes.

The beds are located within special dark rooms known as cells. The temperature in the cells is maintained at a comfortable 23 degrees Celsius. To keep the compost moist, a layer of peat casing material is added on top of it. Because more moisture is required, 20 to 25 litres of water are sprinkled on each m2 in each cell over the course of six days. The fungus then has two days to grow through the casing soil's covering layer. **Phase 4: Pinning** Mushrooms only grow in the wild in the autumn. They can, however, be grown year round by simulating autumn conditions. As a result, the temperature in the cell is gradually reduced from 23 to 17 degrees Celsius over four days. When the mushroom grower notices that the mycelium has grown to its full extent, he begins to lower the temperature. The temperature shock signals mycelium to begin sprouting mushrooms. The same thing happens in nature. Mycelium grows well in mild autumn weather, and mushrooms will begin to appear after an October storm. Mycelium begins to form small buds, which eventually develop into mushrooms. Pins are the name given to those tiny white buds. During this stage, air temperature and humidity can have an impact on growth. Low air temperature and humidity result in more buds, which produce smaller mushrooms. Higher humidity and air temperature result in fewer but larger mushrooms. **Phase 5: Harvesting** Following that, the temperature is held constant at 18 degrees Celsius. Mushrooms grow best at this temperature; they will grow 3 cm (1 inch) in a week, which is the normal size for harvesting. The first flush is harvested in week 3. Fresh mushrooms are still harvested by hand, while mushrooms for preserving are picked and sorted mechanically. Although hand-picking is time-consuming, it provides the best assurance that the mushrooms will be removed from the beds undamaged. A picker can harvest between 18 and 30 kilos of mushrooms per hour on average.The pickers sort the mushrooms based on quality, size, and weight after picking them from the beds in a rotating motion. The second flush will be harvested nine days after the first flush. The second flush usually has larger but fewer mushrooms than the first flush.

The cells must be cleaned after the second flush of mushrooms has been harvested.

To ensure that no fungus is transferred from cycle to cycle, the cell is first pasteurized with steam. The temperature in the cells reaches 70 degrees Celsius for eight hours during steam cleaning. The compost is removed from the beds after it has been steam-pasteurized. The empty cell is thoroughly cleaned one more time before being refilled. **Mushroom Cultivation in Nepal** Despite being introduced in 1974 by the Nepal Agriculture Research Council, commercial mushroom farming is still a new concept in Nepal (NARC). The first mushroom species introduced was the 'White Button Mushroom' in 1977. The oyster mushroom was then introduced in Kathmandu and Bhaktapur in 1984. In Kathmandu alone, there are now 5000-6000 mushroom farmers. Each farmer produces 10,000 kg of mushrooms per day on average. Farmers in Pokhara and Chitwan are also increasing their mushroom production significantly. In Nepal, there are numerous mushroom cultivation farms that produce a wide range of mushrooms. Mushroom cultivation has become a watershed moment in Nepal's traditional agricultural system's modernization**.**  Other species research has recently begun as well. Shiitake and Ganoderma research has been conducted since 2001 by NARC as well as a private organization, Centre for Agriculture Technology (CAT), led by one of the pioneer scientists in mushroom research, Dr. Keshari L Manandhar.

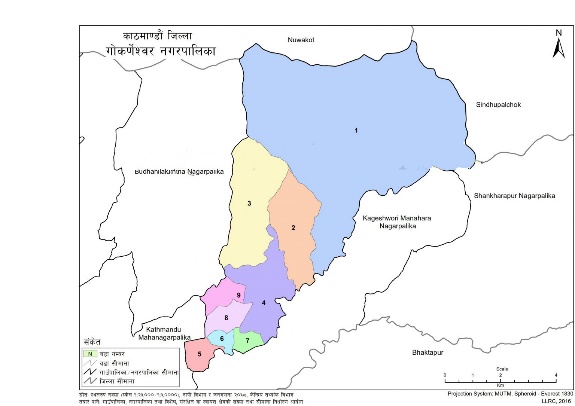
Shiitake is successfully produced in a few areas in and around Kathmandu. Aside from these, straw mushroom farming has begun in the Terai region. Mushroom production has increased dramatically over the last decade. In the same way, mushroom consumers have matured reciprocally. Every year, the production of mushrooms exceeds 10,000 metric tons. Mushrooms can be grown year round in Nepal's natural environment.

Farmers must be properly trained and given technical knowledge on how to grow mushrooms and manage the mushroom farm using the best management system. Few organizations provide training to farmers, but despite their enormous potential, the training is limited in number and inaccessible to farmers in suburban and rural areas. In many cases, an inadequate road network and infrastructure cause markets to be located far from the point of production sites. As a result, producers are not receiving enough benefits. Furthermore, as the number of mushroom farming farmers grows, competition among them grows, and farmers with lower services will undoubtedly lose their share. **Review conclusion** The above-mentioned literatures were similar to the context and methodology of the current study, and are thought to provide basic guidelines. The majority of the preceding studies are concerned with the history of mushrooms and their use as food items in daily life. A study of literature reveals that mushrooms have also been used for medicinal purposes. A review of the literature aided in determining the mushroom cultivation process, uses, history, and benefits of its uses. The study aids in learning about mushroom cultivation not only in Nepal but also around the world.

As a result, the research will be useful in determining the current state of mushroom cultivation in the study area, as well as the challenges and solutions for mushroom cultivators in the study area. **CHAPTER – THREE METHODOLOGY**  The framework for achieving all necessary inputs for the study is constructed by the research methodology, which is an important part of the thesis paper. The methodology in this study covers research design, data nature and sources, sampling, data collection techniques and tools, data processing, analyzing methods, and presentation.  **Research plan** Since this study focused on the potentiality and challenges of mushroom farming in the study area, it was mostly carried out using an exploratory research design. The study attempted to investigate and cover all aspects of mushroom farming and its role in the study area's rural development. Moreover, the study attempted to define things related to mushroom farming, such as the history of mushroom farming, the potentiality and constraints of this farming, and farmer and consumer awareness of this farming. As a result, this research is both descriptive and exploratory. **Justification of the Selection of the Study Area**  In Kathmandu's Gokarneshwor Municipality, mushroom farming has a higher potential. This district is in the central development region and has an agriculturally suitable climate. Its accessibility to transportation aids the farmer in cultivating and marketing his or her product. As a result, this district has a large farming area as well as a capital city that serves as a market for the farmed products. This village is home to a diverse ethnic caste. Because members of the so-called higher caste (Brahaman, Chettri, Newar, Magar, and so on) are literate, they are drawn to cash farming. Researchers chose this topic to learn about the potential and challenges that mushroom cultivators face. **2.3 Study area:**

Kathmandu district is a district located in Kathmandu valley, Bagmati Province of Nepal. It is one of the 77 districts of Nepal, covers an area of 413.69 km² and is the most densely populated district of Nepal with 1,081,845 inhabitants in 2001 and 1,744,240 in 2011. The districts headquater is Kathmandu Metropolitan city, also capital of Nepal. The district is located from 27°27’E to 27°49’E longitude and 85°10’N to 85°32’N latitude.

The district is surrounded by Bhaktapur and Kavrepalanchok Ditrict in east, Dhading and Nuwakot district in west, Nuwakot and Sindhupalchok district in North and Lalitpur and Makawanpur District in south. The study will be conducted in small village named Kadol ward no. 3 of Gokarneshwor Municipality.Miratol is a village roughly 13km Northeast of headquarter .



Gokarneshwor Municipality Study Area Ward No. 3

***Fig 1.: Map showing Gokarneshwor Municipity Ward No. 3 of KTM***

**Data collection**

For the study, socioeconomic data is gathered. The information gathered is qualitative as well as quantitative. The study area is described and analyzed using both primary and secondary data sources. The primary information was obtained using a structured questionnaire. Primary data was collected through interviews and direct apparition, while secondary data was gathered from various published and unpublished written documents from individuals, experts, and organizations involved in the mushroom farming industry. **Data Collection Tools and Applications** Since no research can be completed without valid data, the researcher collected both primary and secondary data for this study. Secondary data was gathered from various articles, prints, brochures, and books, among other sources. The structured questionnaire, semi-structured or unstructured interview, and observation methods were used to collect primary data. A structured questionnaire was created to generate precise and effective data. As a matter of fact, the heads of the sample households filled out the questionnaire. As an outcome, necessary data was gathered. On the basis of a prepared checklist, primary data was collected from key informants via semi-structured or unstructured questionnaire interviews. The interview was used to double-check the information obtained from the survey. Farmers, consumers, and farm laborers all contributed to the data. Interpretation of the collected data During the data collection process, the researcher personally visited each of the respondents. Because she needed help collecting data, the researcher asked a local facilitator. With the help of an interview, more information was gathered from the family's head. To determine the different methods used by respondents, different techniques for mushroom production were used according to the different kinds of mushroom. **Data Interpretation and Analysis** The data is divided into two main categories: descriptive and analytical. With the help of available data, descriptive analysis creates a concrete description of the cultivated mushroom, its cost and benefit. It also shows the input to output feedback of the cultivation to help growers identify problems. Data was carefully collected and checked to reduce data processing errors. Editing and tabulation were used to copy raw data into the master chart. As convenience and necessity dictated, the data was presented in a simple descriptive method, table, figures, pie chart, and bar diagram. **CHAPTER – FOUR RESULT AND DISSCUSSION DATA ANALYSIS AND PRESENTATION**  This chapter addresses the mushroom cultivation technique, cost and benefit, as well as the problems and prospects of mushroom cultivation, as well as the respondents' characteristics and the issue of mushroom cultivation in the study area. **Socio-Economic profiles of the respondents**  The socioeconomic characteristics of mushroom cultivators are important to investigate in order to determine their technique, current cost and benefit status, as well as problems and prospects. The respondents' socioeconomic characteristics, such as caste, sex, age, marital status, educational status, and so on, were analyzed and interpreted. The following section goes over the specifics.  **4.1 Caste of respondents** Endogamy, the hereditary transmission of a way of life that often includes an occupation, ritual status in a hierarchy, and customary social interaction, as well as exclusion based on cultural notions of purity and pollution, describe caste.

|  |  |  |
| --- | --- | --- |
| **Castes** | **Number of respondents** | **Percentage** |
| **Chhetri** | **15** | **50%** |
| **Brahman** | **10** | **33.34%** |
| **Newar** | **3** | **10%** |
| **Magar** | **2** | **6.66%** |
| **Total** | **30** | **100%** |

Fromabove table the data shows that 50% were chhetri,33.34% were Brahman, 10% were Newar and 6.66% were. Chhetri had the highest participation in mushroom farming, followed by other castes, and Magar had the lowest. **4.2 Age of respondents** People's participation in any work, including mushroom cultivation, is determined by their age. The respondents were found to be of various ages. The following table represents their age distribution.

|  |  |  |
| --- | --- | --- |
| Age group | Number of Respondent | Percentage |
| 20-30 | 10 | 33.34% |
| 30-35 | 13 | 43.33% |
| 35-40 | 4 | 13.33% |
| 40-45 | 3 | 10% |
| Total | 30 | 100% |

The age distribution of the respondents is shown in the table above. According to the data, 33.34% of those surveyed were between the ages of 20 and 30, and 43.33% were between the ages of 30-35. Similarly, 13.33% of the population was between the ages of 35 and 40 years old. Similarly, 10% were between the ages of 40 and 45. The majority of the respondents were between the ages of30 and 35, with a minority between the ages of 35 and 40. **4.3 Gender of Respondent** Gender refers to a set of physical, biological, mental, and behavioral qualities that distinguish masculine from femininity. The phrase can refer to biological sex (being male, female, or intersex), sex-based social structures (including gender roles and other social roles), or gender identity, depending on the context. Respondents to the research were both male and female, and the questionnaire was given to them at random without regard to whether they were male or female. As a result, the gender findings of the respondents are described in the table below.

|  |  |  |
| --- | --- | --- |
| Gender | Number of Respondents | Percentage |
| Male | 13 | 43.34% |
| Female | 17 | 56.66% |
| Total | 30 | 100% |

According to the above table, among the total respondents, 43.34 percent were male and 56.66 percent were female. These respondents were chosen as a sample for gathering information to complete the primary data needed for the study. Female responses outnumber male respondents, as shown in the table above. **4.4Marital status of Respondents** Marriage, often known as matrimony or wedlock, is a legally and culturally recognized union between two persons known as spouses. It provides their rights and duties, as well as their rights and obligations to their children and in-laws. Marriage is defined differently in different countries, but it is primarily an institution that recognizes interpersonal ties, generally intimate and sexual. Marriage is advised or regarded mandatory in several cultures before engaging in any sexual activity. Marriage is seen as a cultural universal when defined broadly.

|  |  |  |
| --- | --- | --- |
| Marital Status | Number of respondents | Percentage |
| Married | 23 | 76.66% |
| Unmarried | 7 | 23.34% |
| Total | 30 | 100% |

Above table shows that 76.66% respondents are married and 23.34% respondents are unmarried. The majority of respondents are married only few of them are unmarried. **4.5 Respondents religion**  Religion is a social-cultural system of specified behaviors and practices, morals, beliefs, worldviews, texts, holy locations, visions, ethics, or organizations that generally connects humans to supernatural, transcendental, and spiritual components. Rituals, sermons, commemoration or veneration of a deity, gods or goddesses, sacrifices, festivals, feasts, trance, initiations, funerary services, matrimonial services, meditation, prayer, music, art, dance, public service, or other aspects of human culture may all be included in the practice of religion. Mythology may be found in religions. The terms religion, faith, belief system, and set of obligations are frequently used interchangeably.

|  |  |  |
| --- | --- | --- |
| Religious Background | Number of Respondents | Percentage |
| Hindu | 27 | 90% |
| Christian | 3 | 10% |
| Total | 30 | 100% |

Above table represents that 90% of respondents are Hindu and 10% of remaining respondents are Christians .Majority of respondents are Hindu. **4.6 Education Status of the Respondents**  Learning, or the acquisition of knowledge, skills, values, morals, beliefs, habits, and development opportunities, is facilitated through education. Education was introduced as a means of passing along cultural knowledge from one generation to the next. Education, in its broadest meaning, is a type of learning in which a group of people's knowledge, abilities, and habits are passed down from generation to generation through teaching, training, or study. Education is often done with the help of others, but it may also be done independently. Any experience that shapes the way one thinks, feels, or behaves can be classified as educational. Below primary, primary school, below secondary, secondary, higher, and ultimately college, university, or apprenticeship are frequent divisions of education. Any achievement requires education. It is also the foundation of the development. The higher the degree of education, the greater the opportunities. The following figure shows the educational levels of the local respondents:

Fig: 4.6.1 Education status of Respondents

**4.7 Business Scale Structure of the Respondents**

In study area respondents were cultivating mushroom mostly for income activities. It was found that respondents are cultivating mushroom as mid scale enterprise and small scale enterprise. Respondents have initially started mushroom cultivation so there is no establishment of large scale industry. **Table 4.7: Organizational Structure of the Business of Respondents**

|  |  |  |
| --- | --- | --- |
| **Scale of business** | **Number of Respondents** | **Percentage** |
| Mid scale | **17** | 56.66% |
| Small scale | **13** | **43.34%** |
| Total | **30** | **100%** |

**Above** table states that 56.66% respondents are involved in mid scale enterprises and 43.34% respondents are involved in small scale business. **4.8 Occupation of Respondents**

Respondents in study area are mostly engaged in agriculture but some are also involved in other occupation. Table below represents the data regarding the major occupations of respondents from the study location.

|  |  |  |
| --- | --- | --- |
| Occupation | Number of Respondents | Percentage |
| Farming | 15 | 50% |
| Army | 1 | 3.33% |
| Private job holder | 14 | 46.66% |
| Total | 30 | 100% |

According to the above diagram, 15 people out of 30 were involved in agriculture or farming accounting 50% of the total respondents, 1 people out of 30 was from a Army background accounting 3.33% of the total respondents, 14 people out of 30 were private job holders accounting for 46.66% of the total respondents. As a result of the survey, we can conclude that the majority of individuals work in farming as their primary employment.

**4.9 Patterns of respondents' land use** For every form of farming activity, land is one of the most critical aspects. For mushroom cultivation as well. After the investigation, land utilization was determined based on the kind and scale of mushroom cultivation. The following table shows the land used by farmers in the research region for mushroom growing.

|  |  |  |
| --- | --- | --- |
| Land used in Ropani | Number of Respondents | Percentage |
| 5 ropani | 15 | 50% |
| 7 ropani | 15 | 50% |
| Total | 30 | 100% |

From above chart it can be concluded that 50% of repondents are using 5 ropani of land for mushroom cultivation and 50% of respondents are utilizing 7 ropani land for cultivation of mushroom. 4.10 Family size of the Respondents A spouse, parents, brother and sister, and son and daughter are all examples of direct family members. Grandparents, aunts, uncles, cousins, nephews and nieces, and siblings-in-law are all examples of extended family members.

The selected population's family size was established by respondents who represented households with and without home stay services, as well as representatives from other organizations. As a result, the following table depicts the respondents' family sizes: Table 4.10: Family Size of the Respondents

|  |  |  |
| --- | --- | --- |
| Family Member | Number of Respondents | Percentage |
| 3-5 | 20 | 66.67% |
| Above 5 | 10 | 33.33% |
| Total | 30 | 100% |

So, according to the above table, families with 3-5 people had 20 responses accounting to 66.67%, families with above 5 had 10 respondents accounting 33.33% out of total respondents. **4.2 Mushroom Cultivation Techniques in the Research Area**

**4.2.1 Mushroom Cultivation Medium**  While researching mushroom production in the study region, researchers discovered that there are primarily two methods for cultivating mushrooms. Hay and mud were discovered to be the two mediums in which mushrooms may be grown. As a result of the research, data on mushroom cultivation medium has been given below. Table 4.2.1: Medium of Mushroom Cultivation in the Study Area

|  |  |  |
| --- | --- | --- |
| Description | No of respondent | Percentage |
| Hay | 30 | 100% |
| Total | 30 | 100% |

According to the poll, everyone utilized hay-type mushroom farming. 4.2.2Season for Mushroom Cultivation Season and weather have an important influence in agricultural operations, thus respondents were questioned if mushroom output was better in the winter or summer during a research of mushroom cultivation, and the results are provided below: Table 4.2.2Season for Mushroom Cultivation

|  |  |  |
| --- | --- | --- |
| Description | Production | Effect |
| Summer | 85% | Good |
| Winter | 90% | Best |

winter has larger production than summer, as shown in the table above. So, based on the above-mentioned statistics, maximum output can be obtained during the winter at 90%, but maximum production can be accomplished during the summer at only 85%, so winter appears to be better for mushroom growing in the research region than summer. 4.2.3 Techniques use on Mushroom Production Different approaches were employed for mushroom production depending on the type/variety of mushroom, therefore a mushroom cultivation questionnaire was constructed to identify the different ways/techniques utilized by respondents, and the gathered data by the researcher was provided as follows: Table 4.2.3: Technique Use on Mushroom Production

|  |  |  |
| --- | --- | --- |
| Description | Number of Respondents | Percentage |
| Hanger | 30 | 100% |
| Total | 30 | 100% |

From above table it can be concluded that all the respondent in this study area uses hanger technique to cultivate mushroom. 4.2.4 Process of Cultivating Mushroom There are several methods for cultivating mushrooms for farming; in order to determine the method utilized by respondents in the research region, a questionnaire was created and the results were tabulated.

|  |  |  |
| --- | --- | --- |
| Process | Number of Respondents | Percentage |
| Planting | 30 | 100% |
| Total | 30 | 100% |

In above chart we can see that 30 out of 30 respondents has informed about the fact that all of them use planting method in cultivation of mushroom. So, based on the statistics shown above, we can conclude that the all of farmers have been cultivating mushrooms using the planting method. 4.2.5 Kind of mushroom used in farming During the research, it was discovered that just one variety of mushroom, the Kanya mushroom, is produced. Table 4.2.5 : Kind of mushroom used in farming

|  |  |  |
| --- | --- | --- |
| Types | No. of respondents | Percentage |
| Kanya | 30 | 100% |
| Total | 30 | 100% |

From above finding it can be stated that respondents from this study cultivate only one kind of mushroom which is called Kanya. As an outcome, the kanya mushroom is the most popular in the research area. 4.3 Cost and Production Analysis of Mushroom Cultivation 4.3.1 Time Duration for Production Every agricultural product, including mushroom production, requires a specific amount of time to produce. According to the responses of the respondents, the minimal time length for mushroom production is 3 weeks after the researcher completed the study. According to the majority response from the responders, the overall period for mushroom production is 3 weeks. Because the timeframe of mushroom cultivation varies depending on the type of mushroom grown in the research region, most farmers have been cultivating the same species of mushroom for the past three weeks and have begun harvesting their product. 4.3.2 Production per Bag Because the majority of mushroom production in the study region is done in plastic bags, mushroom output might vary depending on hay quality, shed environment, and water supply, yet after the research, it was discovered that the average per bag production is 2 kg.

|  |  |  |
| --- | --- | --- |
| Production per bag | No. of Respondents | Percentage |
| 2kg | 30 | 100% |
| Total | 30 | 100% |

Following the research, it was discovered that an average output from a plastic bag hung with packed hay produces 2 kg of mushroom, as indicated in the table above based on the information provided by the respondents. 4.3.3Production Costs Per Kilogram According to the responses, the average cost of mushroom per kg is Rs. 120, but this jumps to Rs. 140 after transportation costs are factored in. Farmers make money if their products sell for more than Rs.140, but if they sell for less than Rs.140, they lose money since the product's breakeven value is Rs.140. Table 4.3.3: Cost Perkg during Production

|  |  |  |
| --- | --- | --- |
| Cost per kg during production | No. of respondents | Percentage |
| Rs. 120 | 30 | 100% |
| Total | 30 | 100% |

So, according to the united response from the total of 30 respondents, the total amount cost per kg is 120, while the entire cost after adding transportation costs from the study region to the market is Rs.140. 4.3.4supply of staff No agricultural process can be carried out without adequate manpower, and mushroom growing requires an excessive amount of manpower to get the required result. Based on the responses of the respondents, it was determined that the farm requires at least 7 employees each day to maintain. 4.3.5 Transportation One of the most convenient and accessible methods to go to the main market is by car. It is simple to obtain supplies from a four-wheeler vehicle in our city at any moment. The majority of the produce is sold in city markets such as Kalimati and Balkhu's fruits and vegetable markets, with less sold at local markets. 4.4 Challenges and Problems of Mushroom Farming 4.4.1Insufficient Mushroom Farming Training from study we can state that more than half of the respondents working in field are untrained. Farmers claim that they have received instruction in areas such as shed management, hay selection, and equipment management. Table 4.4.1 Insufficient Mushroom Farming Training

|  |  |  |
| --- | --- | --- |
| Description | Households | Percentage |
| Trained | 8 | 26.67% |
| Untrained | 22 | 73.33% |
| Total | 30 | 100% |

Above chart clearly represents that only 26.67% respondents out of total respondents are trained but remaining 73.33% of most of the population of respondents are working without adequate training required for cultivation.so according to the above finding it is very clear that farmers are needed to be provided with appropriate necessary trainings. 4.4.2 Satisfaction status from Selling Price During the time of study we researcher questioned farmers how happy they are with the selling price of mushroom . So from their response researcher got to know that some farmers are satisfied and some are not .So the table below shows the result of their response regarding the price of selling.

|  |  |  |
| --- | --- | --- |
| Description | Households | Percentage |
| Satisfied | 16 | 53.34% |
| Unsatisfied | 14 | 46.66% |
| Total | 30 | 100% |

So, based on the facts presented above, we can conclude that more than half of the farmers are content with the selling price market.  As 16 out of 30 individuals, or 53.34 percent, are pleased with the selling price of their goods in the market, 14 out of 30 people, or 46.66 percent, are unsatisfied with the selling price in the market. 4.4.3 Current Status of Modern Mushroom Farming Techniques Farming, like mushroom growing, relies heavily on modern technology. However, because so few farmers employ contemporary methods, they are concerned about the future of their farming system. Table 4.4.3: Application of Modern Technique in Mushroom Production

|  |  |  |
| --- | --- | --- |
| Description | No. of Respondents | Percentage |
| Applied | 15 | 50% |
| Not-applied | 15 | 50% |
| Total | 30 | 100% |

Above chart shows that 15 respondent making 50% out of total respondents are applying modern technology for mushroom cultivation.And remaining 15 respondents making 50% out of total population donot apply modern technology for mushroom production. So from above charts result we can say half population of respondents are applying modern technologies and other half of the population donot apply modern technology. 4.4.4 Resons behind not applying modern technologies Modern techniques and technologies play an important part in mushroom growing. Modern technologies and procedures aid in the production of high-quality mushrooms while also reducing labor costs. However, as previously said, relatively few people utilize it. This is mostly due to a lack of expertise and the fact that machines are not readily available. The lack of understanding about such advanced technology is the fundamental cause for their absence. The following are some other reasons: Table 4.4.4: Causes of Not-application of Modern Techniques

|  |  |  |
| --- | --- | --- |
| Description | No of respondents | Percentage |
| Lack of Knowledge | 22 | 73.33% |
| Unavailability of Instruments | 8 | 26.67% |
| Total | 30 | 100% |

Table above shows that 22 respondents making 73.33% are not applying modern technology because of lack of knowledge and remaining 8 respondents making 26.67% are not applying because of unavailability of Instruments. Outlook

In general, all projects have some issues. Similarly, as previously indicated, mushroom growing has several issues. However, it offers promising possibilities in the research field. Commercially, it is more profitable than traditional cereal crop production. The research region is favorable for mushroom cultivation both topographically and climatically. At the same time, there are no major issues with the transportation system. As a result, it has higher economic potential for mushroom growing. Thus, if all of the farmers in the research region produce the mushroom instead of other commonly grown conventional crops, they will undoubtedly earn more money. Better income allows individuals to better their economic situation by increasing their educational, health, and social standing, among other things.

Nowadays, only around five mushroom varieties are grown economically. White button mushroom and oyster mushroom are the most often produced and eaten mushrooms. Apparently, only the kanya mushroom is cultivated in the research region.

Mushroom production has not only increased producer revenue, but it has also increased work possibilities at numerous levels, including orchard operations, transportation media, storage and processing facilities, technical employees, and so on. Growing mushroom cultivation can help to alleviate the current condition of disguised unemployment to some extent, as the majority of respondents in the research region have benefited financially from mushroom farming.

**DISCUSSION**

So, as per the outcomes of the researcher's study, the study site has a heterogeneous ethnic population, with the Chhetri ethnic group dominating the study (50 percent of respondents), alongside the newar, Brahmin, and magar.

Outcome shows that most of the respondents are from age group (30-35) making 43.33% of the total population of respondents and few population comes under the age group (40-50).

Among the total respondents 13 respondents were male accounting 43.34% while remaining 17 respondents were female accounting 56.66%. from this we can conclude that gender wise female population are mostly involved in cultivation of mushroom.

Study represented that 23 respondents making 76.66% are married and other 7 respondents making 23.34% are unmarried.

Respondents were found to be from 2 different religious background Hindu and Christian . 27 respondents were Hindu making 90% and 3 were Christian making 10% from total population of respondents.

Above data shows that 24 respondents were literate ,4 were illiterate and 2 were above SEE.Population in percentage making 13.34%,80%,6.66% respectively from total population of respondents.

Major occupation of the respondent was farming as 15 respondents were farmers making 50% ,only one respondent was army making 3.33% and remaining 14 were invoved in private job making 46.67%.

From the study,Organisational structure of business of respondents were mid scale and small scale enterprises .56.66% of respondents were involved in mid scale enterprises while remaing 43.34% of respondents were involved in small scale enterprises.

From the data above , land used patterns of the respondents are in ropani .50% of respondents were utilizing 5 ropani land for cultivation and remaining 50% of respondents are utilizing 7 ropani land for mushroom farming.

Above data has clarified that 66.67% of respondents came under category of family size of (3-5) and remaining 33.33% of respondents came under category family size above 5.

It can be determined from the data that the most widely employed agricultural practice in the studied region is When it comes to mushroom cultivation techniques, it was shown that 100% of respondents employ the hanger method. Farmers were discovered to be using the mushroom planting method. It was discovered that 100% of respondents grow mushrooms in hay medium. Traditional  methods are primarily used.

From the research it was clear that favorable season for cultivation of kanya mushroom is winter than summer. From study researcher found the mushroom being cultivated in study area was only one kind i.e Kanya.

The purpose of this study was to determine the cost and value of mushroom farming in the study region, and we can infer that mushroom production takes at least 3 weeks, with an average production of 2 kg each bag. For mushroom cultivation, at least 7 people are required every day. It was discovered that mushrooms on the farm were sold for Rs. 120 per kg, however in the market, after factoring in travel costs, they might be sold for Rs. 140 per kg. So, the profitability is Rs. 140, yet more than half of the farmers appear to be OK with the market price.

From above results only 26.67% of respondents found to be trained while more than half population of respondents i.e.73.33% are untrained.

Study shows that only 26.67% respondents were applying modern techniques for cultivation while 73.33% respondents were not able to apply modern technology for cultivation.

From study respondents had informed researcher the reason behind not applying moder technologies were because of lack of knowledge ,unavailabity of machines and risk of failing. 73.33% respondents were not applying because of lack of knowledge while 26.67% were not applying because of unavailabity of machines. In spite of these important limitations, this location offers more potential for mushroom cultivation development. If the problems and limits are properly managed, this area has a bright future as a mushroom farming location in the near future.

CHAPTER-FIVE

CONCLUSION AND RECOMMENDATION

Nepal is a tiny, landlocked nation with a varied climate, therefore it has a lot of potential for many sorts of agriculture. The sample region is appropriate for farming both geographically and climatically, and there are no transportation issues; yet, most individuals in this area have little land. This farming is simple in the study area because mushrooms can be grown in a shed on a small piece of land; additionally, because the study area is close to the city, it is easy to access various types of facilities such as information technology, large numbers of labor, fertile land, and indigenous knowledge.

After the study is completed, it can be determined that hanger technique is the most often practiced farming technique in the study region.

The purpose of this study was to determine the cost and value of mushroom farming in the study region, and we can infer that mushroom production takes at least 3 weeks, with an average production of 2 kg each bag. For mushroom cultivation, at least 7 people are required every day. It was discovered that mushrooms on the farm were sold for Rs. 120 per kg, however in the market, after factoring in travel costs, they might be sold for Rs. 140 per kg. So, the profitability is Rs. 140, yet more than half of the farmers appear to be OK with the market price.

Another purpose of the study was to examine the issues and opportunities of mushroom cultivation in the study region, and it was decided that the majority of the 52 farmers were untrained and had been farming without advanced tools and procedures due to a shortage of equipment.

Industrially, mushroom farming is more profitable than regular grain crop agriculture. The research region is favorable for mushroom cultivation both topographically and climatically. Mushroom cultivation has resulted in increased revenue for producers as well as new job options for people at all levels.

In spite of these important limitations, this location offers more potential for mushroom cultivation development. If the problems and limits are properly managed, this area has a bright future as a mushroom farming location in the near futuRECOMMENDATION

RECOMMENDATION

The Central region, which includes the country's capital city, has the ideal atmosphere for mushroom growing, and its market research area has the potential to be the finest supplier of mushrooms to the capital city's massive population. The mushroom business is progressively establishing itself in Kathmandu, although progress is sluggish due to a lack of scientific study and conversation.

Population growth, agricultural land depletion, environmental changes, water scarcity, and the need for high-quality food items will all be major concerns in the future. Diversifying agricultural activity in areas like horticulture is critical to meeting these difficulties and ensuring food and nutritional security for our people. Mushrooms are an example of a component that not only makes good use of vertical space but also contributes to concerns of food quality, health, and environmental sustainability. To fulfill the changing demands of food products, it is necessary to boost both mushroom production and consumption. Following are some recommendations based on the results and conclusions:

1. Based on local demands and agro-climatic circumstances, develop or acquire relevant technologies.
2. Since most farmers still use the old approach, modern mushroom cultivation techniques should be advocated among farmers to improve productivity.
3. Guarantee year-round supply at an acceptable constant price by time-scheduling crops to achieve a daily relatively uniform output.
4. In the study area researcher found only one type of mushroom being cultivated. Hence Depending on customer preference, various mushrooms should be diversified and produced throughout the year.
5. For more economical production, enhanced technology can be used to minimize the growing season and crop rotation durations.
6. Popularizing mushrooms through ICT, mainstream media such as television and radio, as well as advertisements and posters.
7. Government should be providing financial assistance to small and medium-sized businesses in particular.
8. The government should create an institution dedicated to mushroom cultivation research and development.
9. Managing and developing sufficient numbers of well-trained, experienced people resources via well-equipped regional mushroom resource centers.
10. Enhancing knowledge and skills in the areas of correct picking, grading, and conservation, cold storage, refrigerated transportation, proper processing, attractive packaging, and labeling.