



A project report on

2022

Mushroom Farming Start-up & Its Future Prospects in Bangladesh



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On
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Future Prospects in Bangladesh

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Letter of Transmittal

September 24, 2022

To

Mr. Mohammad Tohidul Islam Mia

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Subject: Letter of Transmittal

Dear Sir,

Assalamu alaikum wa Rahmatullahi wa barakatuh, at first take my sincere love and respect from the bottom of my heart. Me, Shariful Islam a student of BBA (ID: 111-151-234) have prepared the report on **“Mushroom Farming Start-up and Its Future Prospects in Bangladesh”** under your kind supervision.

Even though I have been going through some unbearable stress, I tried to put my best effort to make this report valid to you. This report has enabled me to gain some insights of Mushroom Farming in Bangladesh and I wish that whoever will be analyzed this report can gain the same insights In sha Allah. Thank you so much for your supportive consideration for formulating the idea and without your inspiring this report would have been an incomplete one.

Although I have tried my best to make this report flawless even so it might have some mistakes and I obligingly admitting that those are truly unintentional.

Lastly I would be extremely obliged if you kindly give your judicious advice on effort and I desperately prospecting your kind concern. And I hope this report will not make you disappointed In sha Allah. Thanks once again.

Best regards,

Shariful Islam

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Acknowledgement

Verily, I must be grateful to my Almighty Allah for giving me the ability to finish and present this report (Alhamdulillah). Then, I would like to thank my honorable project instructor Mr. Mohammad Tohidul Islam Mia for his thoughtful care for the successful completion of the report. And also I would like to pass on my appreciation to those that helped me immensely by giving me all the important details and other things that were extremely necessary for the completion of this report. Despite my best efforts to ensure the accuracy, this report may still include some flaws, and I humbly apologizing for any mistakes I may have made accidentally.

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Certification

This report is prepared by Shariful Islam, an undersigned student of BBA at United International University, using some relevant review data and theories related to the assigned topic.

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September 24, 2022

Executive Summary

This report interprets the mushroom farming in terms of production, performance, issues, and possibilities in Bangladesh. This report's goal is to assemble the crucial data on mushroom farming in Bangladesh in order that one can easily utilize those data in his prospective start-up. Due to the significant internal market need and potential for exports, mushrooms output is rising. Farmers mostly cultivate oyster, shiitake, reishi, milky, button, straw, and oyster mushrooms, although oyster mushrooms (*Pleurotus* spp.) are the only species that get year-round cultivation. Most of Bangladesh's educated youth and countryside women are turning to mushroom cultivation as a source of income. According to the study, growing mushrooms is simple task that only takes a little amount of technical proficiency and could be a very successful agricultural enterprise as seen by its thriving benefit-cost ratio.

Despite the rise in mushroom production, there still remain some issues that mushroom farmers must deal with in order to develop this industry. These issues include lack of cultivation space, insufficient supply of quality spawn, insufficient funds, shortage of necessary staff, lack of direct markets and promotional opportunities, infrastructure constraints, and others. The potential to increase mushroom cultivation across the nation is huge. Strengthening the mushroom industry might be the great sustainable development for the rural economy by considering country's limited land resources, overpopulation, and the unemployment rate. Increasing development of this sector also might extend the diversity of business and job options available in semi-urban and remote areas.

Business Development of Mushroom in Bangladesh requires multifarious initiatives. Firstly, people's awareness level about mushroom need to be increased. Secondly, mushroom exports to foreign destinations needs facilitation by export-friendly government policy. Finally, training and development for business essentials, such as management, which involves governed management, marketing, which involves making money by satisfying customers, funding, which involves setting up economic support, and socioeconomics.

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Chapter-1

1.1. Evolution of Mushroom Cultivation:

Mushrooms are actually consumed since the pre-historical age, such like in the era of hunting and gathering. Like the other plants, mushroom could not be cultivated at the stage of beginning rather they were collected for a long period of time. Even now, relatively few species of mushrooms can be cultivated compared to the number of edible species. Mushrooms were cogitated to be extraordinary and supernatural at the primitive time. As like 4600 years ago, the Egyptians believed that mushrooms to be the plants of immortality, hence the Pharaohs legislated that only they could eat the mushrooms. The Romans thought that mushrooms were the food of the gods. Most of the people used to collect mushrooms for the purpose of consumption, although lots of myths and vague concepts still survive today.

The Chinese and Japanese people have already utilized the mushrooms in order to serve the medicinal purposes for thousands of years. *Lentinus edodes*, Shiitake, was basically cultured in China about 800 years ago. In a research conducted in Japanese, it was claimed that this mushroom can be used in medicinal purposes such as Shiitake was combined with AIDs drugs to boost immune response, combat chronic fatigue and for inducing antibody formation to Hepatitis B and it also stimulated antitumor activity. *Auricularia polytricha*, Ear Fungus, was primarily cultivated in ancient China around 300 to 200 B.C. This mushroom is now cultivated in many South Pacific countries. *Flammulina velutipes*, Enokitake, has been cultivated for several centuries and this small delicate mushroom was cultivated on sawdust. Different species of mushrooms were cultivated in different cultures. In Western cultures mushrooms cultivation was first recorded in Paris, France around 1650. *Agaricus bisporus*, the quintessential “shop mushroom” was first observed growing in melon crop compost. This mushroom was cultivated in open fields for 160 years and then moved underground into caves, excavated tunnels or quarries. This form of cultivation is still used in France today. From France, the farmers of England found *Agaricus bisporus* a very easy crop to grow which required little labor, investment and space. The United States came to mushroom cultivation by 1865. They cultivated the two widely known genetic variants of *Agaricus bisporus* – these are Portobello and Crimini.

Truffles have been collected as far back as 1600 B.C. As recently as 1903, truffles were believed to be a product of oak trees. Until after World War II, the only means of obtaining the truffles was collecting them from the wild. These subterranean mushrooms cannot be cultivated in usual sense because they form a mycorrhizal (symbiotic) relationship with the

roots of trees. Two most popular genetic variants of truffles that can be cultivated are *Tuber melanosporum*, the Perigord Truffle, and *Tuber magnatum*, the White Truffle (both are not British). The concept of growing truffles emanated in 1972, in an oak plantation. This required up to 10 years or more before the first truffles were harvested. Numerous efforts have been made to grow oaks outside of their native area and that mostly failed, until 1987, when some New Zealanders attempted to grow truffles. This was a successful effort and it only took 5 years to harvest the mushrooms.

Numerous attempts have been taken to cultivate the morels but this mushroom has never been successfully cultivated commercially. Although, there are several species of edible morels, *Morchella esculenta*, is the most sought after and during 1980 in the United States. Ron Ower grew the first *Morchella esculenta*, but his yield was very low. Several years later, Gary Mills of Neogene Corporation, collaborated with Ron and seemed to successfully produce a high yield method, but it only worked in Michigan, attempts to use this method elsewhere failed.

1.2. Brief History and the Present Status of Mushroom Cultivation in Bangladesh:

1.2.1. Brief History:

In Bangladesh the history of mushroom cultivation is not an old perspective as the mushroom cultivation has started its journey in Bangladesh around 80's. Most locals in Bangladesh were not used to eating mushrooms until recently, with the exception of the inhabitants of Chittagong Hill Track, where several edible kinds of mushrooms may be discovered and where they used to pick mushrooms from the forest for nourishment. In recent years, an amount of people have attempted to produce several edible mushroom species in order to increase mushroom diet among the general public and to raise knowledge about the advantages of mushrooms among Bangladeshi citizens.

With the support of Japan Overseas Cooperative Volunteers (JOCV) under JICA, mushroom farming began in Bangladesh at Horticulture Centre, Sobhanbagh, Savar, Dhaka. In 1976, Mr. Azizul Hoque, the Ministry of Agriculture's Agricultural Advisor, made a trip to Thailand. He saw that their people were growing straw mushrooms at their home. From there, he realized that Bangladesh's environment might be favorable for mushroom farming, and

that seed development might be done here as well. Following that, he took some straw mushroom seeds from Thailand to Bangladesh and gave them to Mr. Shahidul Islam, Executive Director of the Horticulture Development Board, which was founded in 1973-74 under the Division of Agriculture. Mr. Shahidul Islam then addressed an official letter to the Japan International Cooperation Agency (JICA) in 1979, asking assistance regarding mushroom cultivation in Bangladesh. Following that, in 1981-83, Mr. Nakano, a member of the Japan Overseas Cooperation Volunteers (JOCV) under the JICA, was assigned to Bangladesh to begin mushroom growing for the very first time in Bangladesh at the Horticulture Centre, Sobhanbagh, Savar, under the Horticulture Development Board (HDB). At this time, he introduced several Japanese mushroom growing techniques for straw mushrooms, and under Mr. Nakano's direction, a small-scale mushroom cultivation laboratory was formed.

Mr. Abdur Raquib, who joined the center as an Assistant Horticulturist in June 1982, became Mr. Nakano's equivalent. He travelled to Japan in June 1984 for ten months to investigate mushroom cultivation techniques at a research center in Kagawa Prefecture. Another JOCV (Mr. Kakizaki) arrived to Bangladesh as Mr. Nakano's replacement and lasted until October 1986. During his tour, he was the first to bring the oyster mushroom to Bangladesh, and the laboratory was extended in 1984 at a budget of around 2-3 lakh BDT to JICA. After efficiently building the laboratory, the Japanese Ambassador turned that over to the Secretary of the Ministry of Agriculture in 1985.

Following Mr. Abdur Raquib, Mr. Saleh Ahmed was hired as an Assistant Horticulturist in November 1986. Then, on November 15, 1986, Mr. Kakizaki's replacement (Mr. Kojima) was assigned to the center to resume mushroom growing. When the FAO financed the growth of mushroom growing in 1987, two mushroom experts, Dr. Fadiriko and Dr. Majioriana, were brought in to instruct the officials of the Sobhanbagh horticultural center. Throughout this time, the Government of Bangladesh and JICA collaborated on the Bangladesh Mushroom Cultivation Pilot Project (1988-1990). The JICA funding was 75 lakh BDT, while the government of Bangladesh contributed 0.25 lakh BDT. The use of contemporary tools for mushroom cultivation was introduced in this project, and Mr. Kakizaki taught the center's personnel to be experts for the project. The project was finished effectively and received positive feedback from the Ministry of Planning's Implementation Monitoring and Evaluation Division (IMED). Mr. Saleh Ahmed spent eight months in Japan in 1991, learning about

mushroom farming at a research center in Fukushima Prefecture. The government of Bangladesh began a project in Rangamati in 1997-1998, with a budget of 7.5 lakh BDT.

Following the loss of JICA's financing in 1990, mushroom farming decreased. After 2002, the government took action and prioritized mushroom development, approving the "Mushroom Centre Development Project" as a development project (2003-2006). This initiative was a success because of its amusing consequence, which raised mushroom awareness and encouraged people to produce and consume mushroom and mushroom-based products. As a result of this achievement, the government launched a new investment initiative called "Mushroom Development Project (2006-2009)" to increase public awareness of mushrooms. Various training programs, promotions in electronic and print media, publications, and motivating programs were used at the time to promote technology to producers, customers, and entrepreneurs. This project's operations have been carried out in six (06) sub-centers located around the country. Another Japan Debt Cancellation Fund (JDCF)-funded initiative, "Strengthening Mushroom Development Project (2009-2013)," has been carrying out its operations through the National Mushroom Development and Extension Centre (NAMDEC) and the sixteen (16) sub-centers located around the country. The goals of this project are to quickly spread the obtained technology to all types of people across the country in order to generate interest and raise knowledge about the various applications of mushrooms. Various research projects are being carried out as part of the initiative, as well as mushroom farming instruction. The Government of Bangladesh launched the Mushroom Development and Extension Program from July 2013 to June 2015, with a budget of 6.44 lakh BDT. Mushroom Development Institute was founded under DAE's Horticulture branch after the program was completed in July 2015. In Bangladesh, the institute focuses on mushroom research and extension.

Officers involved in mushroom research and extension operations in our country as an office head (in-charge) are – Mr. Abdur Raquib (1982-1986), Mr. Saleh Ahmed (1986-1990), Mr. Abul Bashar Bhuiyan (1992-1995), Mr. Maidur Rahman (1995-2000), Mr. Jahidur Rahman (2000-2001), Mr. Saiful Islam Patowary (2001), Mr. Shekh Md. Ruhul Amin (2002-2009), Dr. Nirod Chandra Sarker (2012-2021), Dr. Akhter Jahan Kakon (2021-) and Mr. Ferdous Ahmed.

Major activities after 90's:

- Mushroom Centre Development Project (2003-2006).
- Mushroom Development Project (2006-2009).
- Strengthening Mushroom Development Project (2009-2013).
- Mushroom Development and Extension Program (2013-2015).
- Mushroom Development Institute was established under Horticulture wing of DAE (July 2015).

1.2.2. Present Status:

A project proposal for "Enhanced Nutrition and Poverty Reduction via Mushroom Cultivation" has been presented to the Govt. of Bangladesh for approval. Now after than 40 years of mushroom growing, people have progressively embraced it for manufacturing and consumption, despite the fact that it was not widely acceptable for native Bengal people as "Banger Chata (Frog's umbrella)" at the time. According to the Mushroom Development Institute, more than one lakh farmers are already involved in mushroom growing, and they will generate around 40,000 MT of cultured mushroom by 2020.

Mushroom is a nutritionally adaptable food that may provide some of the advantages of fruits and vegetables while also complementing practically any meal. Mushroom growing is likewise low-tech, low-investment, and may be done in a little amount of area. Women can work in mushroom cultivation because it is not a labor-intensive job. Mushrooms may be turned into an industry in the same way that the dairy and poultry industries have flourished. Mushrooms must be made palatable to the public in order to eliminate negative potential. The mushroom business is predicted to develop as "a food, a tonic, and a medicine" due to gastronomic, nutritional, and health advantages. Aside from that, efficient marketing measures must be performed.

1.3. Future Prospects of Mushroom Farming in Bangladesh:

One of the world's most populous and agricultural nations, Bangladesh has a high rate of protein malnutrition and poverty. 21.8 percent of the population is estimated to be poor, based on the most current data available. Relatively low wealth and unemployment in Bangladesh's economy is compounded by the country's population growth. There are 165.13 million people in the nation, yet only 59.5 mn are employed. In contrast, there are 2.68 million jobless people in the United States, including 1.33 million women. The country's arable land is almost depleted therefore there is little room for growth in farmland or cropping intensity. Bangladesh's climatic conditions are excellent for the growing of mushrooms, which might be a new source of income for the country.

In Bangladesh, there is a lot of space for growth in the mushroom industry. To combat malnutrition, one of the most pressing concerns of the population, and to prevent illness, it may play an essential role. Poverty alleviation and job creation for educated jobless, youths, adolescents, and women are both attainable via mushroom growing. Mushrooms may be cultivated in a small space by racking them vertically. This does not need access to land. Mushrooms may be grown on a variety of substrates such as sawdust and rice straw, as well as sugarcane bags and corncobs, as well as hyacinth, bananas leaves, paper waste, utilized cotton, etc., which are all readily accessible and inexpensive. More than 50 million metric tons of paddy rice straws are generated in Bangladesh; 7.5 million metric tons of mushrooms might be grown on non-arable land using just 15% (7.5 million metric tons) of this straw, with a monetary worth of 15 thousand taka (approximately 15,000 Bangladeshi taka). Using this much straw in mushroom growing will not result in a feed shortage for animals. Mushroom farming does not need the use of additional agricultural inputs (chemical fertilizers, pesticides, or growth hormones). As a result, this kind of farming takes minimal cash and a simple method, and it provides a rapid financial return. Growing mushrooms at a small scale does not need large outlays of cash because of the high capital return and profit per unit area that mushroom farming provides. Mushroom growing is a labor-intensive profession, yet it can be done by anybody, regardless of age, gender, or physical ability.

Chapter-2

2. Why Start a Mushroom Farming Business in Bangladesh and the Know How:

Leaving behind the lures of lucrative jobs if someone finds himself more enthusiastic about to do something independently, then “Mushroom Cultivating” might be the best option for him. Especially for the university graduates who are passionately looking for a potential start-up business. Before getting determined to start-up with the mushroom, he or she must need to learn about some essential matters related with it. So that it would be very easy to go through all the process.

Here the essential things are-

- The definition of mushroom.
- The species of mushroom that can be cultivated in Bangladesh and the environmental suitability of those particular species.
- Importance of mushroom cultivation in Bangladesh.
- The nutritional and the medicinal values of mushroom.
- The economical, the societal and the environmental benefits for cultivating mushroom in Bangladesh.

2.1. The Definition of Mushroom:

Actually Mushroom is the kind of edible productive fungus. They are actually belonging to the Basidiomycetes or to the Ascomycetes kind of fungus. Mycologists think that there are almost 3 lakhs of species of fungus in the world. From among these countless species of fungus after a long process of verification and selection, mycologists mark some of them reputed as edible, nutritious and palatable. So the ‘Banger Chata’ (Frog’s Umbrella) and the mushroom is not the same thing. That means the ‘Banger Chata’ is the naturally grown poisonous fungus and whither the mushrooms are cultivated scientifically in a clean environment by the seeds which are made with world’s latest method (the Tissue Culture Method). Now the mushroom is commonly known as the palatable, nutritious and the medicinal herbs, which is absolutely halal.

Mushroom has been mentioned in Qur'an and also in hadith as a very prestigious food. It has been recorded by Imam Bukhari (rahimahullah) in his Sahih (Hadith 4487, 4639 and 5708) that Prophet Muhammad (ﷺ) said; "The Kam'ah (Mushroom) is among the (Munn) Manna and its water (extract or juice) cures the eye". There is also an ayah about Manna mentioned in glorious Qur'an and that is the ayah no. 57 of the surah Al-Baqarah. And there Allah Azzawajal told us that "And We shaded you with clouds and sent down to you manna and quails, (saying), 'Eat from the good things with which We have provided you.' And they wronged us not – but they were (only) wronging themselves."

2.2. The Species of Mushroom That can be Cultivated in Bangladesh and the Environmental Suitability of Those Particular Species:

The types of mushrooms are being cultivated in our country are mostly belonging to the Basidiomycetes fungus. The list of the mushrooms that are cultivated in Bangladesh now is given with the scientific name below:

English Name	Scientific Name
1. Oyster Mushroom	i. <i>Pleurotus ostreatus</i> ii. <i>Pleurotus sajor-caju</i> iii. <i>Pleurotus florida</i> iv. <i>Pleurotus highking 51</i> v. <i>Pleurotus flabellatus</i> vi. <i>Pleurotus sapidus</i> vii. <i>Pleurotus gray</i>
2. Milky white Mushroom	<i>Calocybe indica</i>
3. Straw Mushroom	<i>Volvariella volvacea</i>
4. Shitake Mushroom	<i>Lentinus edodes</i>
5. Button Mushroom	i. <i>Agaricus bisporus</i> ii. <i>Agaricus bitorquis</i>
6. Reishi Mushroom	<i>Ganoderma lucidium</i>
7. Enoki Mushroom	<i>Flammulina velutipes</i>
8. Shimaji Mushroom	<i>Hypsizygus tessulatus</i>



The species of cultivable mushrooms in Bangladesh

In seasonal basis these mushrooms can be divided into three categories and these are –

- 1) Summer Mushrooms – Milky, Reishi, and Straw.
- 2) Winter Mushrooms – Shitake, Button, Enoki, and Shimaji.
- 3) All by the year – Oyster.

2.2.1. Environmental Suitableness for Cultivating Mushrooms in Bangladesh:

Serial No.	Mushroom's Name	Temperature need to grow Maicelium	Temperature need to bloom Mushrooms
1)	Oyster Mushroom	20-25 Degree Celsius	15-30 Degree Celsius
2)	Milky Mushroom	25-35 Degree Celsius	27-35 Degree Celsius
3)	Straw Mushroom	25-30 Degree Celsius	28-36 Degree Celsius
4)	Shitake Mushroom	22-28 Degree Celsius	15-22 Degree Celsius
5)	Button Mushroom	24-30 Degree Celsius	15-24 Degree Celsius
6)	Reishi Mushroom	22-28 Degree Celsius	25-35 Degree Celsius

2.3. Importance of Mushroom Cultivation in Bangladesh:

A healthy person should take at least 200-250 grams of vegetable in daily basis (source: FAO). The people of well-developed countries take on average 400-500 grams of vegetable in daily basis. From the information database of taking vegetables by worldwide, it can be easily comprehended that the countries that are more developed take more vegetables. Because vegetables are enriched with all nutritional values that are needed to keep a human body healthy and disease free. For having more vegetables, they have more working capability and also they enjoy long lives, whereas we are taking on average 40-50 grams (except the Potatoes) of vegetables in daily basis. Because of the huge gap between the need and the attainment, there are 87% of people in our country are suffering from malnutrition. To make a permanent relief our country from this disastrous suffering we must increase the habit of having more nutritious vegetables. When it comes to the point of nutritious vegetable, then there will be no comparison with the mushrooms. To have more vegetables, we must need to produce more vegetables. After looking at the present scenario of Bangladesh it can be easily said that mushroom cultivation has become extremely important in our perspective.

In Bangladesh, mushroom cultivation has a bright future. It has the potential to play a significant role in reducing malnutrition, one of the world's most serious challenges, as well as avoiding infections. It is feasible to reduce poverty and provide work for educated unemployed, youngsters, adolescents, and especially women, through mushroom growing. The quantity of agricultural land available is dwindling by the day. However, the population is increasing. Food demand is also on the rise. Because mushrooms do not require soil, fertilizer, or pesticides to grow, there is a lot of opportunity for vertical development. As a result, mushroom farming may be begun with a small amount of cash and labor. Mushrooms are easily cultivable by the impoverished and landless, allowing them to become self-sufficient. Furthermore, the industrialist can establish a mushroom industry for mass manufacturing. They are able to export mushrooms and earn a significant amount of foreign cash each year.

2.4. The Nutritional and the Medicinal Values of Mushroom:

2.4.1. Nutritional Values:

By the judgment of nutritional values, mushroom is the best indeed. Because the factors that are extremely needed in our daily diet chart like – Protein, Vitamin, and Minerals are perfectly contained in mushrooms. On the other hand, abundance of those food factors take us to the destructive disease like – Fat, Carbo-Hydrate have almost no presence in mushrooms. The nutritional facts that can be found in amount of 100 grams of dry mushroom are listed below;

Nutritional Values from 100 Grams of Dry Mushroom		
Nutritional Values	Content (Gram)	Comment
Fleshes	25-35	Developed and full of flesh.
Vitamins and Minerals	57-60	All kinds of Vitamin and Minerals included.
Carbohydrates	5-6	Liquefiable in water.
Fat	4-6	Unsaturated fat.

Here the comparison between the mushroom and the other sources of protein is shown below;

Amount of Protein Exists in Each 100 Grams of Edible Food	
Name of the Food	Protein (Gram)
Meat	22-25 grams
Fish	16-22 grams
Egg	13 grams
Peas	22-40 grams
Mushroom	25-35 grams

The amount of mandatory Vitamins and Minerals needed for our body in daily basis and the amount we can get from 100 grams of dry mushroom are demonstrated below;

Daily Demand of Vitamins and Minerals for Human Body and the Amount of Their Presence in 100 Grams of Dry Mushroom		
Name of the Mandatory Vitamins and Minerals	Daily Demand	Found in Mushroom
Thymine (B1)	1.4 milligrams	4.8-8.9 milligrams
Riboflavin (B2)	1.5 milligrams	3.7-4.7 milligrams
Niacin	18.2 milligrams	42-108 milligrams
Phosphorus	450 milligrams	708-1348 milligrams
Iron	9 milligrams	15-17 milligrams
Calcium	450 milligrams	33-199 milligrams
Copper	2 milligrams	12-22 milligrams

2.4.2. Medicinal Values:

Hygienists are thinking that mushrooms can be used as preventive and curative for most of the annoying disease for its nutritional values. The causes by which mushroom works as the preventive and the curative of various deadly diseases are enlisted below:

The diseases that can be cured	Facts that are the causes of cure
For developing the immune system	Mushroom has awesome combination of flesh, carbohydrates, fat, vitamins, and minerals.
Diabetes	Low carbohydrates and fat, high nourishment.
Cholesterol, Heart Disease, High Blood Pressure	Iritadenin, Lovastatin, Antadenin, and Niacin.
Composition of teeth and bones	Calcium, Phosphorous, and Vitamin-D.
Anemia	Folic Acid and Iron.
Hepatitis B, Jondish	Link jai-8, Folic Acid.
Cancer, Tumor	Beta-D-Glucon, Lamptrol, Tarpinoyed Group and Benjopyrin Organic Germanium.

Aids	Triterpin.
Dysentery	Iludin-M and Iludin-S.
Sexual Inability	Gycogen, Calcium, Phosphorous, and Vitamin-E.
Dengue Fever	Adinocin
Hyper Tension and Backbone	Sphinglipid and Vitamin B-12, Anti-Oxidant.
Stomach Pain	Enzyme.
Kidney and Allergy	Nucleic Acid and Anti Allergen.
Hair Falling and Hair-Grizzles	Sulfur Amino Acid, Selenium, and Copper.

A slogan goes about mushroom in Bangla that, “রোগমুক্ত স্বাস্থ্য চান, নিয়মিত মাশরুম খান”.

2.5. The Economical, the Societal and the Environmental Benefits for Cultivating Mushroom in Bangladesh:

2.5.1. The Economical-Benefits: Cultivating mushroom is the most profitable business. A business can be assumed as the most profitable business at the economical point of view when the following matters will remain mostly favorable in terms of investment. Such as –

- There will need low budget.
- Invested money can be returned in a small period of time.
- And there will need low cost of labor.

On the other hand, in terms of return on investment:

- If the yielding is high.
- If the market price is high.
- If the profit is high, then it can be called as profitable business.

Only in terms of mushroom the above mentioned matters are favorably applicable. That's why mushroom business means the profitable business. By producing more mushrooms the amount of import can be reduced and the currency of our own can be saved as well. When it is possible to produce further more mushrooms, then by exporting the mushrooms we can easily earn a huge amount of foreign currency to develop our national economic condition.

2.5.2. The Societal Benefits: The following societal benefits can be found by cultivating mushrooms –

- It is possible to get rid of malnutrition by cultivating mushrooms more and more.
- If the malnutrition can be alleviated from the society, then the disease related expense can be reduced and the health of society can be ensured as well.
- A healthy body is more capable to work, so the production can be increased.
- The more employment opportunity can be created by hiring unemployed people in terms of mushroom cultivating, collecting, processing, and marketing.
- Mushroom cultivation can be the bright future for educated unemployed young people.
- It can be the bright potential threshold for the employment opportunity for the women.

2.5.3. The Environmental Benefits:

- As usually, the vegetables we are consuming are mostly produced by using the chemical compost and the insecticides. Chemical compost and insecticides in vegetable not only harms the consumer but also polluted the air, soil, and the water. In spite of mushroom cultivation, there no need to use chemical compost and insecticides. It can be produced in a neat and clean room with the highest purity. That's why mushroom is the most sustainable vegetable in the world.
- The materials need to cultivate mushrooms are the byproducts of agriculture, wild, and art industry. So the unorganized use of them can be the cause of environmental pollution. By processing those as manufacturing ingredients can convert into assets. Then the environment remains more unpolluted.

From the above discussion it can be strongly said that, by cultivating mushrooms our country's nutrition can be developed, poverty can be reduced, unemployment can be reduced, cost of import can be reduced, profit of export can be improved, and the healthy sustainable environment can be developed. So the cultivation of mushroom is mostly important in terms of Bangladeshi perspective.

Chapter-3

3.1. Total Initial Investment and Return for the Beginners:

Before going for the initial investment one must consider the form of his farm for cultivating Mushroom. If someone wants to start with a small form of farming Mushroom, then he or she may consider a very few amount of cost but when someone wants to develop a farm in more commercial basis, then he or she must consider a minimum range of fixed and variable costs. In terms of small farming one can start cultivating Mushrooms in his own home space, so that there will be no issue of land or space deficiency. In that case one can just cultivate Mushrooms all by himself, so that there will be no need of labors or the labor costs. Also there will be no extra burden for preparing spawn packets because here one just needs to buy some spawn packets from NAMDEC and cultivate them according to the training instructions. And also the targeting area will be very small for this form of farming.

On the other hand, when an entrepreneur wants to develop Mushroom farming as a more commercial basis, then he or she must consider the costs of land, labors and the preparing cost of the spawn packets. When someone wants to go more commercial basis, then he must take an industrial training with the duration of 45 days. So the overall scenario of costing is demonstrated below:

3.1.1. Fixed Costs:

- **Land Acquisition:** For cultivating mushrooms there must need a cultivation room and to construct a standard cultivation room, the first and foremost need is to manage a standard size of land or space. So, in that case if someone has his own land or space, then he might not need to bear extra expense for acquiring the land or space. And if he has no own space, then he must go for acquiring a standard size of land. The standard size of a land for cultivating mushroom should be at least the area of 5 decimal. When it comes to acquire a land, then there will be two options. One is to buy a land and another is to take a lease of a land. And the second one is the better option for a new entrepreneur here. To take a lease of a 5 decimal land in the countryside area one must pay at least 10,000 taka per year and if he wants to take the lease for 10 years all together, then he may pay approximately 80,000 taka.

- **Construction of Cultivation Room:** The standard size of a cultivation room should be at least the area of 720 square ft. as it will take 1.65 decimal of the land. The fencing and roofing of the cultivation room must be constructed with the bamboo that means the whole room has to be created with the bamboo. And the shelves into the room where the mushroom spawn packets will need to put must be made with well qualified wood. So according to the market price of the bamboo and the wood it would take approximately 100,000 taka to construct or develop a standard mushroom cultivation room. And where we can put 5 to 7 thousands of spawn packets at a time or continual basis. When it comes to prepare the spawn packets, then there will be a Lab room must needed. And the Lab room must be concreted and it would take an area of 150 square ft. It would be cost at least 300,000 taka to construct. There must be shelves into the Lab room for keeping spawn packets to grow maicelium into them. If the shelves are made with well-furnished wood, then it would be cost at least 80,000 taka and if those are made with the bamboo, then it would be cost at only 40,000 taka.
- **The Equipment Needed:** The Lab room must need to be air-conditioned. So the AC with 1.5 tons will cost at 100,000 minimum. And there into the Lab room must be an inculcation box and that would be cost at 20,000 taka only. Also need an autoclave machine for sterilizing the spawn packets and that machine will cost at 60,000 taka only.

So the total fixed cost will be $(80,000+100,000+300,000+80,000+100,000+20,000+60,000) = 740,000$ taka only.

3.1.2. Variable Costs:

- **Cost of the Labors:** At the initial stage of the farming, there must need at least two labors to go through. Labors are needed to prepare the spawn packets and for taking care of them and also for cultivating and collecting mushrooms. So according to the market demand, it may cost at least 9,000 taka per labor per month. In total 18,000 taka for working with two labors.
- **Manufacturing the Commercial Spawns:** For manufacturing the commercial spawn packets there need some raw materials in daily basis. These are the Powdered

Wood, Wheat-roughage, Paddy Chaff, Calcium Carbonate and the Water. Raw materials needed to prepare 400 spawn packets weighted of 500 grams:

Raw Materials	Quantity	Percentage
Powdered Wood	77 kg.	38.5%
Wheat-roughage	35 kg.	17.5%
Paddy Chaff	4 kg.	2%
Calcium Carbonate	400 g.	0.2%
Water	84 liters	42%

One can collect 1 sack of Powdered Wood weighted of 77 kg by 200 taka only from any saw-mill that is situated in nearby area. 1 sack of Wheat-roughage weighted of 35 kg can be bought by 1,500 taka only. 1 sack of Paddy Chaff weighted of 20 kg can be bought by only 200 taka. Per kg Calcium Carbonate can bought by 40 taka only. So for preparing the 400 packets, it will cost:

Raw Materials	Quantity	Cost
Powdered Wood	77 kg.	200 taka
Wheat-roughage	35 kg.	1,500 taka
Paddy Chaff	4 kg.	40 taka
Calcium Carbonate	400 g.	16 taka
Water	84 liters	From own home supply.

Besides to prepare 500 gram weighted packet also need 7 inch by 10 inch P.p. bag, Plastic neck, Brown paper, Rubber bands, Absorbent cotton and a Wooden skewer. For preparing 400 packets these materials can be obtained by only 250 taka. So the overall cost of raw

materials to prepare 400 spawn packets will be approximately 2,000 taka. So the cost of one packet will be $(2,000/400) = 5$ taka only. One can collect the spawn packets from another trusted mushroom projects or from the National Mushroom Development and Extension Centre but it will cost 10-12 taka per packet as it is almost double in comparison with manufacturing spawn packets by own. So when an entrepreneur wants to do farming of mushroom in proper way, then it will mandatory to prepare spawn packets by his own strategy because it can save half of its total production expense. For the 5 times preparing spawns will cost at 10,000 taka per month.

3.2. Return on Investment:

For cultivating minimum 5 kg mushroom in daily basis an entrepreneur should put 1000 spawn packets into the cultivation room with continual process. That means if an entrepreneur can put sequentially 1000 spawn packets for 5 times in a month, then he can easily get approximately 5 kg mushrooms from those packets in daily basis. Now one can sell the raw mushroom from 250 taka to 300 taka. According to the restaurant and fast-food demand it can be easily sold at the rate of 300 taka. As for one month one can collect approximately 150 kg (5 multiplied with 30) and if he wants to sell it as raw mushrooms, then he can get by selling the mushrooms approximately 45,000 taka (150 multiplied with 300). The total variable cost for one month will be $(10,000+18,000) = 28,000$ taka. So only by selling raw mushrooms one can get as profit $(45,000-28,000) = 17,000$ taka for one month. Rotten powdered wood can also be sold as compost for trees after one cycle of collecting mushrooms has been completed from the spawn packets. So an entrepreneur can initially get more or less 20,000 taka by selling the raw mushrooms for one month. There are many other options for selling mushrooms. It can be sold as dry mushroom or the powdered mushroom. But these options seem not more profitable because for 1 kg dry mushroom we need to dry 11 kg raw mushroom and for 1 kg powdered mushroom we need to powder 1 kg 100 gram dry mushroom. Accordingly the dry mushrooms are priced at 2,500 to 3,000 taka per kg and the powdered mushrooms are priced at 3,000 taka per kg. Comparing to the price of raw mushrooms it seems very indifferent. Moreover the raw mushrooms can be sold at a price that is a little bit higher. After selling the raw mushrooms in daily basis if we found some of them remain rest in our hand, only then the drying and powdering could be a better option for an entrepreneur. The powder and dry mushrooms can be preserved for a long time that's why

it is very easy to sell. If an entrepreneur can spend extra 5,000 taka for preparing extra 1000 spawn packets in a month, then he can get extra 15,000 taka (1000 multiplied by the market price of spawn packet and that is 15 taka per piece) by selling them to the new farmers. By boosting up the sells with the extra 15,000 taka an entrepreneur can get $(45,000 + 15,000 - 28,000 - 5,000) = 27,000$ taka as profit for a month. That means the profit for one month will be more or less 30,000 taka. As per annual profit will be approximately $(30,000 \text{ multiplied by } 12) = 360,000$ taka. So when the fixed cost is 740,000 taka, then it will take minimum 3 years for returning on investment. Besides cultivating Oyster mushrooms all by the year an entrepreneur can also cultivate a seasonal mushroom like the winter based Button Mushroom. As in the restaurant sector the Button mushroom has huge demand, it can be sold at high price. The price of Button mushroom would be in the range of 400 to 500 taka in the current market. So into the winter season it can also boost up the sells by bringing more money to the business.

There is a vast opportunity in product expansion sector of the mushroom. As it is the age of digital marketing, it would be very easy to reach the potential customers. So after 6-7 months from the beginning, an entrepreneur should go for the product expansion. If an entrepreneur can do product expansion in proper way and able to market it appropriately, then it will take maximum 2 years to bring back the costs of investment.

3.2.1. Break-even Point: When a business reached to the point where the profit and the cost will be same, that means when a business comes to a situation where no loss or no gain occurs is called the break-even point. When the annual profit of the following business model is 360,000 taka, then the monthly profit is $(360,000/12) = 30,000$ taka and the profit of 20 days will be $(30,000/30 * 20) = 20,000$ taka. When the fixed cost of this business is 740,000 taka and the profit of two years is $(360,000 * 2) = 720,000$ taka, then it can be easily assumed that the following business model can be reached at the break-even point by two years and twenty days.

3.3. Total Supply Management Process:

In terms of Mushroom cultivation for preparing the spawn packets there need some raw materials and equipment to collect as mandatorily. Also need labors in order to produce and cultivate mushrooms. So, how the supplies of them can be managed is briefly described below:

3.3.1. Sources of Raw Materials: For preparing spawn packet there need powdered wood and that can be collected from any saw-mill situated nearby at wholesale price. The wheat-roughage, the paddy chaff, and the calcium carbonate can also be collected from the nearby wholesalers. These are actually found from the wholesalers who sale the sustenance for the cattle. There also need some other materials to produce the spawn packets and these are – P.p. Bags, Plastic neck, Brown paper, Rubber bands and the Absorbent cotton. And all these items can be easily found in Chowk Bazaar, Dhaka. These materials can also be collected from the wholesalers in the Chowk Bazaar. The materials can be collected at a reasonable rate in that Bazaar.

3.3.2. Sources of Equipment: In the process of preparing the spawn packets there must need an autoclave machine and an inoculation box into the lab room. So, an autoclave machine can be made by ordering to the welding store and the inoculation box can be made by ordering to the woodworker who might be worked in a furniture making shop. Also a water spray machine needed for cultivating the mushrooms and that can easily collected from any retail plastic shop like RFL.

3.3.3. Sources of Labors: At the initial stage of starting-up a business of mushroom cultivation, there must need at-least two full-time labors for executing the operations properly. So that one of them can help you in preparing the spawn packets and the other can take care of the cultivation room in order to grow-up the mushrooms. One can also done varieties of tasks by using both of them. The easiest way to collect the labors is to collect them from rural areas by relatives. Labors can also be collected by the help of National Mushroom Development and Extension Centre, Sobhanbagh, Savar, Dhaka.

Chapter-4

4.1. The Marketing Tools and Tactics:

Whenever a marketer comes to point where he or she need to think about marketing tools, then the first thing comes in mind is “The Marketing Mix”. So how the Marketing Mix can be used in this business perspective is briefly demonstrated below –

4.1.1. The Marketing Mix:

Simply can be said that the Marketing Mix is just a tool that used by the businesses and the marketers for the assistance in determining a product or service offering. The 4Ps have been associated with the Marketing Mix since their creation by E. Jerome McCarthy in 1960 (You can see why there may have been some need to update the theory).

4.1.1.1. Uses of the 4Ps in This Business Aspect:

- **Product:** The product should be appropriate in according to the task consumers want it for. It should operate well, and also should deliver exactly what the consumers anticipate. It may include some activities like product variety, quality, design, features, brand name, packaging, services, and many more. In terms of mushroom there are vast opportunities to serve the consumers based on their various demand criterions. Mushrooms can be served in different ways as a product such as restaurant items and medicinal nutritious food items. Restaurant or the Fast-food items could be included with Mushroom Fry, Mushroom Vegetable, Mushroom Chicken Soup, Mushroom Noodles, Mushroom Curry, Mushroom Sauces, Mushroom Roll, Mushroom Salad, Mushroom Chicken Biryani, Mushroom Chop, Mushroom Beef Curry, Mushroom Mutton Curry, and Mushroom Chicken Curry etc. With the supply of raw mushrooms an entrepreneur can also include these items in his business products. And there is a huge opportunities in this sector in Bangladesh.
- **Place:** The offering should be easily accessible from the location where the target customers prefer to buy. This might be on the high street, by mail order, or through the more modern alternative of e-commerce or an online store. The product of mushrooms can be made in home or in a restaurant. So an entrepreneur can offer the home-made mushroom items to the consumer via any e-commerce platform and also

can supply the products to the restaurants. Moreover an entrepreneur can also supply the products to the hospital or any kind of institutional canteen. And also place the products in any food-fair that could be arranged privately or publicly.

- **Price:** The Product should always be regarded as good value for money. This doesn't necessarily indicate that it has to be the cheapest option available. One of the main tenets of the marketing theory is that customers are generally willing to spend a little extra for something that works exceptionally well for them. Indeed any product of mushrooms can give the appropriate value of the customer's money. Because customers can get huge number of nutritious food items from mushroom and also can get varieties of medicinal values. So any product of mushroom can be regarded as the perfect value for money.
- **Promotion:** Advertising, public relations, sales promotion, personal selling, and more increasingly, the social media become more important form of communication for the enterprises. These methods should be utilized to communicate the organization's right messages to the right people in the way they want to hear it, whether that message is informational or emotional. In terms of promotion the nutritional and the medicinal values of mushroom could be more than enough to grab the right consumers.

4.1.1.2. The four Ps as the four Cs:

The marketing mix's four Ps may be rewritten as the four Cs. They prioritize the interests of the consumer (the buyer) over those of the marketer (the seller).

- Customer solutions, **not products:** Customers are looking for something of value or a solution to their difficulties.
- Customer cost, **not price:** Customers want to know the complete cost of purchasing, using, and discarding of a thing, not just the price.
- Convenience, **not place:** Customers want items and services that are as easy to buy as feasible.
- Communication, **not promotion:** Customers expect two-way connection with the firms who create the goods, not advertising.

Marketers broadly agreed in the late 1970s that the Marketing Mix needed to be modified. Booms & Bitner developed the Extended Marketing Mix in 1981, which adds three more

aspects to the 4 Ps Principles. This allowed the enlarged Marketing Mix to encompass items that are not just physical but also services.

4.1.1.3. The 7 Ps in Extended Form:

- **People** - Everyone in a company, from the front line salesperson to the CEO, is dependent on the people that operate it. Having the appropriate people on board is critical since they are just as important as the products and services you provide.
- **Processes** - Because your service is generally given with the client present, the manner in which it is offered is part of what the customer is paying for.
- **Physical Evidence** - Even though the majority of what the user is paying for is intangible, almost all services involve some physical aspects. A hair salon, for example, would provide their customers a finished hairstyle, whereas an insurance firm would give them printed paperwork. By this definition, even if the content is not physically printed (as in the case of PDFs); customers are still receiving a "physical product."

The 7 Ps have been widely taught since the 1980s because their fundamental logic is sound in the market structure and marketers' qualities to modify the Marketing Mix to also include adjustment in communication systems such as social networks, updates in the places where you can distribute a product/service, or consumer requirements in a continuously shifting commercial environment.

4.2. Implementation of STP Process in This Business

Aspect:

STP marketing indicates a transition from product-centered marketing to marketing that is focused on the customer. This change offers companies the ability to learn more about their potential consumers and how to approach them. In short, your marketing efforts will be more effective if they are more tailored and focused.

The abbreviation STEP is quite effective if you're trying to recall and simplify the STP marketing concept.

Segmentation + Targeting Equals Positioning.

This equation indisputably demonstrates that for each segment to be succeeded there must be a specific positioning and marketing mix strategy. Let's examine each of the three STP marketing model phases in more detail:

4.2.1. Segmentation:

The segmentation stage is the first phase in the STP marketing process. The main objective here is to develop distinct consumer groups depending on the features and criteria you choose. The following are the four primary segmentation types:

- **Geographic segmentation:** Segmenting the customers according to their location, such as by state, province, nation, etc. In this business perspective it can be segmented by mostly urban based and partly rural area based. Most of the time it seems the people of urban area are more conscious than the people of rural area. That's why urbanized segmenting is more fruitful to grab the market easily.
- **Demographic segmentation:** The division of the customers depending on factors like as age, gender, employment, education level, and so forth. Mushroom is such kind of product that can be suitable for each group including age, gender, occupation, education level.
- **Behavioral segmentation:** It is the process of dividing the consumers depending on how they engage with the particular business, such as what they purchase, how often they make purchases, what they explore, etc. Mostly people like to buy restaurant items of mushrooms. And also it seems that people are likely buy mushroom products when they are in extreme needs such as medicinal values they needed.
- **Psychographic segmentation:** By dividing the customers depending on "who" the prospective customers are; Lifestyle, interests, activities, viewpoints, etc. In terms of mushroom all the categories of customers can be the prospective customers.

4.2.2. Targeting:

The STP marketing model's second step is targeting. Here, your main objective is to review the segments you previously produced and identify which one of those segments has the

highest likelihood of producing the target outcomes. A market sector with strong growth, great profitability, and minimal acquisition costs is the ideal one:

- **Size:** Take into account the size of the market and its potential for future expansion. There are a huge number of hospitals, restaurants, cafeterias in the urbanized cities in Bangladesh. So the size of these markets is huge and there is a vast potentiality for future expansion of mushroom business.
- **Profitability:** Need to consider which of the target markets are most ready to pay for the goods or services. Find out the average lifetime value of each segment's customers and compare them. The restaurant industry and the hotel cafeterias in Bangladesh are ready to pay for the raw mushrooms and also for the products of mushrooms.
- **Reachability:** Take into account how simple or challenging it becomes for business to advertise to each category. Think about each segment's customer acquisition costs (CACs). Lower profitability results from a higher CAC. Now the social media advertising has become the most effective way to communicate the potential customers of a product. And also the customer acquisition costs (CACs) is very low here.

4.2.3. Positioning:

In this framework, positioning is the last phase, and it helps businesses to differentiate the good or service from the competitors. Identifying what makes the business unique in a crowded market is essential if one wants to succeed in the particular industry. The specialty should have been obvious after considering all of the variables that addressed in stages one and two. One may acquire a competitive advantage by focusing on the following three positioning factors:

- **Symbolic positioning:** Enhance the clients' personality, affiliation, or even vanity via symbolic placement. A fantastic illustration of this is the luxury automobile sector, which serves the same function as any other vehicle, but also boosts the self-esteem and status of its customers. By making proper advertising mushrooms can be the elegant product for the potential customers.
- **Functional positioning:** Fix the client's issue and providing them with real advantages is the best way to achieve functional positioning. It must be ensured that

the appropriate benefits of mushroom have provided to the clients. That means the quality of the products should be maintained properly.

- **Experiential positioning:** Concentrate on the emotional attachment that clients have with the offering, service, or brand while developing an experiential positioning strategy. When Bangladesh is a Muslim country, then people's emotion is attached with the religion Islam and also with the holy book Qur'an. So if it is said that mushroom is mentioned in the Qur'an, then people have become more emotional with the products of mushroom. Also there are numerous ways by which the customers might have the emotional attachment with the mushrooms.

In this business, it may use the STP model to determine the particularly desirable groups of customers and build goods and marketing messages that specifically target those consumers, therefore maximizing the return on investment. This enables the business to design tailored and appealing advertising campaigns that are more likely to bring in new consumers.

4.3. The Comprehensive Approach of Marketing:

In order to grab the audience's attention, there are a variety of methods. Marketing is one of the most important aspects of a company's success since it enables it to get the attention of potential customers. Marketing may be done in two ways. Traditional marketing is a style of marketing that dates back to the earliest days of advertising, whereas digital marketing is a more recent form of advertising. As compared to traditional marketing, digital marketing has only been around a few years. Both have their advantages and disadvantages. Because of this, the decision to utilize one or the other is totally up to the individuals and enterprises that desire to do so.

The differences between the traditional marketing and the digital marketing are demonstrated in a table below:

Comparison basis	Traditional marketing	Digital marketing
Definition	It's a kind of advertising that makes use of print and broadcast media, also including radio and television, to promote a company's goods and services.	It is a kind of online and social media campaigning that aims to promote companies.
Engagement	Low	Relatively high
Nature	Static	Dynamic
Conversion	Slow	Extremely fast
Effectiveness	More expensive Less effective	Less expensive More effective
Tracking	Not possible	Possible
Targeting	Standardized	Customized
Investment returns	Not easy to measure	Simple to measure
Results	Slow results	Quick and live results
Reach	Local	Global
Communication	It is mostly one-way communication	It is a two-way communication
Interruptions	Adverts can't be skipped since they're tied to the user's account.	If an advertisement does not grab ones attention, users may quickly go to the next one.
Tweaking	Once the ad is up, it's impossible to remove it.	Change or modify at any moment is possible.

4.3.1. Traditional Marketing:

The marketing approaches that do not need the use of the internet are included under the umbrella term "traditional marketing." These are the practices that have been present for many decades but are generally used much less often these days. On the other hand, they do not lack any of their own strengths.

4.3.1.1. Forms of Traditional Marketing That can be used in This Business Aspect:

- **Television commercials:** Traditional marketing methods include airing adverts on local television networks. This method of advertising has benefited millions of advertisements.
- **Radio commercials:** In the late 20th century, radios played an important role. Radios and CD tapes were the go-to options for individuals who couldn't afford a television at the time. Radios may be used to transmit a wide range of commercials, both traditional and innovative.
- **Flyers:** There are still a lot of enterprises and businesses who print flyers in order to advertise their products and services. Handouts, or flyers, are another term for them.
- **Billboards:** Ads are shown on billboards in the form of images. They are often seen along major thoroughfares. There are a lot of big firms and enterprises that put up billboards to advertise their services.
- **Magazine and newspaper ads:** Magazines were one of the best places to get information on anything. Every day, many advertisements are placed on the site.
- **Telephone and SMS marketing:** Most of this marketing is done through calls and text messages, in which companies' products and services are promoted.
- **Referral:** Customers and employees of a company are referred to as "referrals" when they promote the company's goods and services to its neighbors and friends.
- **Direct mail:** Many companies use postcards or notices to send their adverts to the individuals in the city or region they want to target.

4.3.1.2. Pros and Cons of Traditional Marketing:

Pros:

- Traditional marketing may be quite successful if you're trying to attract an older clientele. Those in their 50s and older spend nearly double as much hours reading newspapers and watching television than those in their 20s and 30s, according to a recent study.
- Businesses who want to expand their local customer base should use this sort of marketing approach. Billboards, fliers, and events are better ways for smaller companies to get their message in front of potential customers than attempting to rival for digital real estate with bigger players.
- Digital marketing materials may be passed through or prevented (e.g., clicking "I don't want to see this" on social network advertising or passing through adverts before YouTube videos), while Television or radio commercials play repeatedly and inform the audience of the brand.

Cons:

- The cost of printing and mailing postcards even to a small local audience may be prohibitive, and there is no assurance that the receiver would be interested in your firm or even the product/service you provide.
- There is a long lead time with traditional marketing strategies, which may be weeks or even months long. No matter how many people see your newspaper advertisement, you will never know whether anybody has really seen it until they contact you. A survey is still needed to determine whether the ad was responsible for the customer's follow-up.

4.3.2. Digital Marketing:

As new technologies and trends emerge, digital marketing techniques change at a rapid pace. Strategies that need internet or smartphone usage are included in this category. In spite of their relative newness, these strategies are capable of delivering powerful results.

4.3.2.1. Forms of Digital Marketing That can be used in This Business Aspect:

- **Social media marketing:** The rise of online marketing is increasing among the younger generation. Social media is a great way for entrepreneurs and start-ups to spread the word about what they do.
- **E-mail marketing:** In the digital world, email marketing is a sort of marketing in which companies send e - mails to their customers.
- **Content marketing:** Users are more likely to engage with content if it's presented in a narrative fashion.
- **PPC – Pay-Per-Click:** Ads that are paid for are known as PPC - Pay-per-Click. They have a shorter lifespan on the internet. The money will be gone if you cease making payments.
- **Mobile marketing:** Using mobile devices to promote to a certain demographic is known as mobile marketing.
- **SEO – Search Engine Optimization:** Many companies utilize SEO, or search engine optimization, as their primary digital marketing strategy. Its primary goal is to put the company at the top of the search results when people are looking for it online. But it also relies on customer service to get to the top.
- **Affiliate marketing:** Through use of a well-known personality or celebrity to promote a product or service is referred to as affiliate marketing. Companies do this mostly in order to enhance their company's reputation.

4.3.2.2. Pros and Cons of Digital Marketing:

Pros:

- Immediate tracking of data and audience participation is possible. This information is instantly available to you when someone follows a website link or reads an email from one of your contacts. From this data, you may get a wealth of information about your target audience, the best channels to use to communicate with them, and even the optimum time of day to post.
- In comparison to traditional advertising methods, digital marketing has a cheaper cost per lead or customer. Comparing the cost of printing and mailing individual postcards, an email campaign may save a significant amount of money.

- Digital marketing's vast reach makes it ideal for reaching a larger, more dispersed audience.

Cons:

- As a result of ad blockers, some internet users will never encounter pop-ups or banner advertisements. In certain cases, advertisements may be omitted or skipped entirely if a customer purchases best offers.
- It is necessary to continually assess the performance of digital marketing strategies due to the rapid evolution of new technologies and trends. Continually, what is effective someday may be outdated the next. However, a strong base in digital marketing fundamentals may help overcome this.

After considering all the pros and cons of both the traditional marketing and the digital marketing here in terms of mushroom farming, the digital marketing would be the best suited comprehensive approach for marketing.

4.4. The Scope of Digital Marketing; Social Media and Beyond:

Social media news streams are a major source of firm discovery for more than 50% of customers. And over 9 million entrepreneurs use Facebook to engage with their clients, and Instagram alone has a user base of roughly one million.

For both B2B and B2C digital marketing initiatives, here you can use the social media platforms.

- **B2B:** Social media sites such as LinkedIn and Twitter can be used for B2B marketing to generate leads. And also you can use PPC advertising to get reached the intended audience while spending as little money as possible.
- **B2C:** For B2C marketing you can use social media such as Facebook, Youtube, Instagram, and Pinterest to improve brand recognition and attract consumers to your business and goods.

When it comes to digital marketing, there's more to it than simply Facebook and other famous social media sites. To attract new customers and establish (and retain) brand recognition, clever firms also use the following methods:

- **Paid search:** The "PPC" concept (pay-per-click) involves advertisers paying search engines like Google and Bing a charge each time a user puts in a term.
- **Organic search:** There's a fine art to organic (or "natural") search because marketers use keyword research and other SEO strategies to organically drive the contents to the top of Google's list of organic search results and other search engines' lists of natural results.
- **Email marketing:** However, if you're a small entrepreneur and you want to reach your target audience, email marketing campaign is still the great option here.
- **Content marketing:** Publishing informative articles and guides (along with tutorials) that are relevant to your target audience is the core of content marketing (in combination to webinars and podcasts). And also in recent times marketers are rapidly using the Youtube channels to make their contents viral among the target audiences.
- **Webinars:** Webinars are a terrific method to give back to your target audience while simultaneously promoting your firm's name and goods.
- **Podcasts:** Using podcasts as part of a wider marketing strategy is a great method to get your message out to your audience.

4.5. A Brief Statement of the Deputy Director of (MDI):

Ferdous Ahmed, MDI's deputy director, said that the country's mushroom production reached 40,000 tons, worth tk. 8.0 billion, in 2020. A half-decades ago, he said, output was little more than 10,000 metric tons per year. He told that mushroom cultivation currently employed 0.15 million people in the nation as a result of increased demand from fast food and restaurant chains, as well as from individuals in their own homes.

In addition to the domestic market, Bangladesh can supply a sizable amount of mushrooms to the wide global market, as per him. He also admitted that it has created technologies that are suited for growing 162 distinct edible mushroom kinds in the nation and has already brought them from other regions of the world. In order to choose viable variations, it has also

gathered 140 different kinds of native mushrooms from the country's hills and forests. The MDI has also installed contemporary labs for quality assurance and control. The medicinal and the nutritional qualities of vitamins and minerals in mushrooms are also being studied in laboratories.

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4.6. The Leading Firms of Mushroom Industry in Bangladesh:

These are as follows-

- **25%** of the market is taken by the (**Mushroom Bangla**).
- **40%** is adopted by the **other small firms**.
- Approximately **10.5%** of the market is captured by the (**Marufs Mushroom**).
- Approximately **8.5%** is taken by the (**Asia Mushroom**).
- (**Nata Mushroom**) adopted approximately **6.5%** of the area.
- The least **9.5%** is captured by the (**Green House Mushroom**).

So, the mushroom industry in Bangladesh consists with the above big to little firms.

Chapter-5

5. Learnings from the Experiences:

5.1. Detailed Story of Ups and Downs & Honest Opinions from an Entrepreneur:

It was reported as one to one conversation with the entrepreneur. So the conversation goes as-

Reporter: Assalamualaikum wa Rahmatullahi wa Barakatuh. We know that you have been doing the mushroom business for a long time, so I will ask you some questions about your business. So are you ready to answer?

The Entrepreneur: Walaikum Salam wa Rahmatullahi wa Barakatuh. Yeah, I'm ready, you can ask.

Reporter: Thank you. So, my first question is how did you get inspired towards mushroom and how was your starting?

The Entrepreneur: When I used to take my children to school, parents used to sit and discuss various things. So one day a friend from CRP Road discussed about mushrooms and from that I became interested to know more about mushrooms. She said in his talk that there a 3 days of mushroom cultivation training is being conducted at the Savar Mushroom Training Centre. And the mushroom is a vegetable with many nutritional and medicinal values. Then we three women have decided to attend the training program together. Then went to Savar mushroom training center to learn more about mushrooms and registered for three days of training. Then we were called from there for the three days of training and we did three days of mushroom cultivation training. There we are told to grow mushrooms, eat mushrooms yourself, and teach others to eat them. Teach your neighbors and relatives to eat and tell them about the various nutritional and medicinal properties of mushrooms. Finally, we decided to eat mushrooms ourselves and teach others to eat them. After training we get 20 spawn packets for free. In the training we are told to cut a D shape on both sides of the spawn packet and spray water like a kwash in the morning and afternoon on the pricked area. Then after 6-7 days mushroom flower will come out from the thorn area. So after seven days, when the mushroom flowers come out of my packets, I pick them up and cook them in different ways and feed you and feed them to the people around and relatives, that is, teach them to eat. Explain them in detail about the benefits of mushrooms. Then after a few days when

enough mushroom production was completed from those 20 spawn packets, I again bought 100 spawn packets from the mushroom center and cultivated them to produce mushrooms. Those produced mushrooms survive even if eaten by themselves. And those surviving mushrooms could be sold through mushroom centers. So my enthusiasm for mushrooms goes one step further. Then I bought 500 spawn packets again.

Reporter: Well, how was the price per packet?

The Entrepreneur: The price of a packet of spawn was 10 taka. So the price of 500 packets was 5000 taka only.

Reporter: Ok, please continue.

The Entrepreneur: After cultivating those 500 spawns, when I got a good yield and when I sold them to the mushroom center, Mr. Mohammad Ruhul Amin, who was the project manager of the mushroom center, gave me a lot of encouragement to take it forward on a larger scale. Then I was delaying a little now and then and the officers from Mushroom Center came to my house occasionally and encouraged me in various ways. So from that I got inspired at some point and built a large house for mushroom cultivation in the space I have here. After building the house, I bought seeds from the mushroom center and planted them there and it yielded very well. From which we would sell the extra flowers that were left after meeting the needs of our own and the people around us through the mushroom center. At first I used to sell fresh mushrooms and then it turns out that some of the fresh mushrooms were dried and sold as dried mushrooms.

Reporter: Then after when did you think of starting as a business? And how did you invest in it?

The Entrepreneur: After that when I was able to show my skills and success in mushroom cultivation, I was called for a 45-day industrial-entrepreneurial training from the mushroom center. Right then I thought of starting in commercial form and started planning and taking steps accordingly. That is why I first took a 45-day industrial-entrepreneurial training in 2005. There we are taught to make or produce seeds. After training I started a project called (MRT Mushroom Project). And it took an investment of about three thousand rupees. It included temperature controlled lab, autoclave machine used for seed preparation, various materials required for seed preparation like PP bags, wood powder, wheat husk, lime, bran etc. At this stage I needed employees so firstly I hired 3 employees from different regions

through different people and trained them. Then I started working with them with new enthusiasm.

Reporter: Well, you were just going to grow mushrooms at the beginning, and later when you start commercially, you also went into spawn production right?

The Entrepreneur: Yes, I used to grow mushrooms first that means producing mushroom flowers and later started making spawn packets when I took 45 days of industrial-entrepreneurial training.

Reporter: So, how was the monthly production cost in the beginning and how was the monthly profit accordingly?

The Entrepreneur: In the beginning, the monthly expenses were around 15 thousand taka. And according to that, the monthly profit would be around 10 thousand taka.

Reporter: And when the business progress reached its peak, how was your monthly expenses and accordingly how was your business profit?

The Entrepreneur: When my project got bigger as I had 6 employees assigned to my project. So, all the expenses were about 40 thousand takas per month. And by excluding all the expenses, there would have been a profit of approximately 30-40 thousand taka only.

Reporter: How did you reach the expected consumers or customers with detailed information about your cultivated mushroom flowers and prepared mushroom spawns that means how did you promote your business?

The Entrepreneur: My project has been promoted mainly through the Mushroom Center. Through Mushroom Center many times the media personnel of various TV channels would come and make reports on my project and it would later be published on any newspaper or TV screen. I also promoted my business in several other ways, such as bringing new cultivation trainees and new industrialists from the Mushroom Center to visit established projects and projecting my identity as a successful entrepreneur to them. Agricultural fairs were organized at various places through the Mushroom Foundation. As I am a member of the Mushroom Foundation, I used to attend shops where various mushroom dishes were sold. In this way, the identity was known. Mushroom center handbook and magazine also used to write about my project or some pictures of the project were printed. It is a matter of great pride that the then Agriculture Minister (Dr. M. K. Anwar) came to my home to inspect and

encourage my project. Due to all this, my project gained wide recognition across the country. For example, I get calls on my personal contact number at least once every day. Those who want to know details about mushrooms to me.

Reporter: Okay, basically what species of mushrooms did you grow?

The Entrepreneur: I mainly cultivated two species of mushrooms. These are the Oyester mushrooms and the Button mushrooms. The button mushroom was cultivated only in winter and the Oyester mushroom was cultivated throughout the year.

Reporter: Then when did your business start to slow down and why?

The Entrepreneur: Firstly, Ruhul Amin Sir, who was the project director of the Mushroom Center, got transferred and went to another place and then the government assistance that was available was reduced to a large extent.

Reporter: What kind of help was it?

The Entrepreneur: Commercial use of gas was required where mushroom seeds or spawn packets were made. In that case, there was no restriction on gas lines or any such restrictions as there was government approval for commercial use of gas. Again, when I used to sell mushroom spawn packets i.e. seeds, if I sold more than that, it could be sold to mushroom centers with government support. I have been getting government assistance or support in many other ways. And this government aid cooperation started to come down. On the other hand, those employees that I collected from different places and teach them to work through training and appoint them as paid employees in my own project were seemed that one went on vacation and never came back and also found that one started working from my project to another project. Thus, when I saw the slowness of the project, I slowly started reducing the business periphery.

Reporter: So when did you finally decide to close the business, and in what year?

The Entrepreneur: On the one hand the business was going down and when I myself got a little sick and my daughter was diagnosed with thalassemia minor, running around with her to various doctors and hospitals and at one stage, my husband was taken to Delhi for a spinal cord operation and where my daughter was also operated on and her spleen was removed. In those circumstances it was not possible for me to devote time to business. Right then I finally decided to close the business and closed it in 2015.

Reporter: As social media is now very advanced, there are many opportunities for mushroom promotion, so if you were asked to start the business again, what would you say?

The Entrepreneur: I may not be able to start again because I'm not as healthy as I used to be and I've sold everything I had. As big as my project was, it is very difficult and time-consuming to reorganize so many things. It is quite impossible for me now.

Reporter: Did you face any loss when closing the business?

The Entrepreneur: No, I didn't face any loss. I closed the business before the loss.

Reporter: Ok, if a young entrepreneur wants to move forward with mushrooms, what support do you think that he might be needed?

The Entrepreneur: Now if a new entrepreneur wants to start mushroom cultivation, since this is the age of media, now there will be no problem in spreading the word and I hope there is a good demand for mushroom now. If someone wants to grow mushrooms, first of all he has to undergo three days of training in cultivation, and then he can buy seeds and cultivate rhythmically and do marketing on his own initiative. But if it is to be done on a large scale then support is also needed from the mushroom center.

Reporter: Ok, that means government assistance must be needed.

The Entrepreneur: Yes, if you want to do it on a large scale, you will need government support must. It means that government support will be needed if we are going to produce seeds, otherwise if we just want to cultivate, we will continue even if there is no support, In sha Allah.

Reporter: So lastly, what would be your advice for any beginners in mushroom farming?

The Entrepreneur: Basically my suggestion for him would be that he should contact the official mushroom center and he should get training. Then he or she can do something with the mushroom. Besides, it is impossible to do anything with mushrooms without the training.

5.2. Success Stories:

5.2.1. Story-1:

A success story was reported at The Daily Naya Diganta in 29 May, 2006 by the correspondent Ashraf Ali. And the report was constructed as follows-

Ratna Islam, a housewife living in Savar's Chapin Road, has made the success in mushroom cultivation. She grabbed the opportunity of low capital mushroom farming. She now dreams of becoming self-reliant women by cultivating mushrooms. She is a successful mushroom farmer. Talking to this reporter at her own home in Savar, Ratna recounted her life's success story and detailed how she benefited from mushroom cultivation. Middle-aged Ratna, like other women of the district, set up a mushroom farm in her own home three years ago with an initial investment of just 10,000 taka after receiving training from the Mushroom Center Development Project of the Savar Agricultural Extension Department. From the backyard to the kitchen, drawing room, and bedroom, her mushroom packets are scattered everywhere. She said, currently her capital is only 20 thousand taka. Ratna said I am currently earning at least 6-7 thousand takas per month from my small farm. She said, if I can invest more capital, I will get more profit. Mushrooms as a vegetable have gained a lot of popularity these days. There is a huge demand for it at home and abroad. About marketing, she said, wholesalers come to her house to buy mushrooms. As a result there is no problem in marketing. She gets tk. 100 per kg for fresh mushrooms and tk. 1,000 for dried mushrooms from wholesalers. She is not able to meet the needs of the customers by cultivating on this small scale. She hopes to expand the farm in the future. She requested the Minister of Agriculture for government cooperation in the cultivation and production of this mushroom.

The then Agriculture Minister M. K. Anwar personally also visited this farm in Savar and saw the various methods of spawn production in that mushroom farm. The minister expressed satisfaction at the mushroom cultivation at personal and business level. He said, through mushroom cultivation, it is possible to create a wonderful opportunity to improve the nutrition of this country, alleviate poverty, create employment or eliminate unemployment, increase export income by reducing import costs, and improve health and environment. He urged those concerned to come forward in mushroom cultivation along with paddy and wheat to remove food shortage. He also assured the farmers of all possible cooperation from the government.

5.2.2. Story-2:

University graduate Zubayer Ahmed began growing mushrooms in his Keraniganj hometown two years ago, eschewing the allure of lucrative professions in favor of pursuing an independent endeavor. And it was an instant hit, with an average monthly profit of Tk 1 lakh. He only needs a little amount of money and some quick training from the National Mushroom Development and Extension Center to launch the business (NAMDEC).

"Shortly after graduating, I started a job. But I've always had a passion for business," Zubayer added. He stated, "I discovered mushroom farming to have a lot of financial potential," and noted that through mushroom farming, he was also able to create jobs for others. He explained that it was a stand-alone firm that could be launched with a modest outlay on a tiny plot of land.

Due of mushrooms farming's great profitability, many educated young people, particularly women, are increasingly entering the industry, much like Zubayer. Owner of the Khidmah Mushroom Centre in Cumilla, Saiful Islam Chowdhury, has worked in the family mushroom industry since he was a little child. After graduating, he turned to mushroom growing as a career since he couldn't find a suitable employment. "My family began growing mushrooms on a limited scale; afterwards, I greatly enlarged the company," he said. "Now, on average, Fifty people are working at my farm on such a daily basis, and I make Tk4-5 lakh monthly," he continued, noting that he gave his employees Tk5 lakh in compensation each month.

Chapter-6

6. SWOT Analysis

Identifying strategic concerns for a corporation or organization is aided by the use of SWOT analysis. For visualization products, certain adjustments may be necessary, but the study might offer important information regarding the future feasibility of different methods. By taking into account each system's strengths and weaknesses in relation to its surroundings, the approach is able to anticipate what will happen and what will not. Each system's performance will be evaluated in the context of a rapidly changing environment. It does this through evaluating an organization's strengths and weaknesses, as well as prospective risks and opportunities (conditions that may be advantageous for an organization). Our firm's current strengths and weaknesses seem to be well to us. External elements impact our firm, such as potential opportunities and threats. The first step in doing a SWOT analysis is to identify your business strengths. Once you've done that, you can prioritize addressing your company's shortcomings and work toward a solution. In order to prepare for our firm's development in the future, we need to identify the areas of our company that have the potential to increase our profits. And last but not least, we need to become aware of the threats that arise from the outside world and take measures to protect ourselves from those threats.

6.1. Strengths:

Look at how our strengths stack up against our competition and how they stack up against our customers. First and foremost, this organization's members are mostly Microbiologists, making them uniquely qualified to address issues relating to germs. Second, it offers unique benefits not offered by any other business. Third, the professional association of the members of the paradigm's mushroom might increase acceptance. Finally, we are able to provide the goods at a lesser cost. For example, all of our rivals may sell over the phone, but we prefer to do business face-to-face. A customer's desire for a product or service that we provide but our competition does not is a potential strength. Only when a customer's wants are met can a company's strength be really relevant. At this stage, we have the ability to use our strength. When drafting strengths, it is important to examine them both from the perspective of the company and from the perspective of the clients it serves. It's important to be honest with yourself about these abilities. Two questions should be able to be answered by a well-developed list of strengths.

6.2. Weaknesses:

The flaws of a company may be discovered via a SWOT analysis that is customer-focused. Some flaws may be minor, but if they affect particular client demands, they should be reduced. In addition, highlighting a company's advertising and marketing skills is essential for raising awareness of a company's strong points. Consumers are more likely to respond positively to this strategy, which also removes the shortcomings from consideration. We can thus – First and foremost, there is a lack of familiarity with and respect for the company's brand and image. Second, the market has already been taken by another firm. We must first break into the market, which is a challenge. As a third aspect, paradigm's product is affected by macro environmental conditions. It's important to look at strengths and weaknesses from both the inside and the outside. It's critical to be honest when describing a company's shortcomings so that barriers may be removed as fast as feasible. It's counterproductive for a business to put off fixing problems which already exists. One well vulnerability list must be ready to clarify things.

6.3. Opportunities:

In order to identify strengths and weaknesses, the internal element of SWOT is responsible for determining where resources are accessible or depleted. Using this information, a marketing manager may construct marketing plans that take use of the strengths and opportunities identified in the SWOT analysis. Opportunity is the opportunity to provide a new product in the market that may yield higher profits. Changes in the market might lead to new opportunities. New prospects for profit and development might be discovered by analyzing the external environment. Unlike other companies, Paradigm can supply Mushroom at a lower cost and in a safer manner. Increased competition, on the other hand, exacerbates the predicament. The threat is to contain the widespread pollution. It may seem simple to a technical person, but the reality may be very different.

6.4. Threats:

Managers who are preoccupied with improving their strengths and competencies may fail to notice changes in their surrounding environment, such as threats. An error of this scale might cause an organization that is otherwise successful to become ineffective as a result of external factors that prevent the company from being able to give value to the consumer segments that it has targeted. These shifts might take place in the pace of total market growth as well as in the economic, competitive, political/legal, technical, or sociocultural settings. Technological advances may render our offerings outdated. Alterations in the market may occur as a consequence of changes in the wants of customers, the actions of rivals, or demographic trends.

Chapter-7

7.1. Findings:

- Despite a massive domestic market for button mushrooms, Bangladesh is lagging behind the rest of the world.
- There are no government programs to encourage the development of new kinds of mushroom.
- With so much potential for mushroom cultivation, the nation is still unable to satisfy its own needs because it lacks the necessary resources, including new kinds, contemporary procedures, and storage facilities.
- Mushroom output is expanding in the nation despite claims that there has been no change in the types or methods used to cultivate and preserve them, according to farmers and experts.
- New mushroom kinds are being developed and growers are being trained at the institution (MDI). Because of the country's climate and environmental conditions, there is currently no contemporary approach that can be used.
- It's not possible to grow button mushrooms in a proper setting due to low temperatures, according to experts.
- In an interview with The Business Standard, Dr. Ahmed Imtiaz, a professor of botany at Rajshahi University who has been doing research on mushrooms since 2005, said that mushroom growing in Bangladesh is still dependent on outdated concepts and species.
- Dr. Ahmed Imtiaz stated farmers would only grow mushrooms if they can reliably harvest and distribute them. Local market acquisition is impossible otherwise.
- Around the globe, plenty of improved varieties have been produced with nutritional values that are multiples greater. As a result, high-end restaurants around the country avoid utilizing locally produced mushrooms.
- Although the overall consumption of mushrooms in Bangladesh is quite low, there is a subset of homes that do eat mushrooms. These households include diabetes patients and those who are health aware. The gastronomic, nutritional, and health advantages it offers are contributing to the ever-increasing demand for it.
- Because there is a lack of competent supervision and adaptation to modern techniques in farming and also a lack of conservation facilities, few growers are prevented from farming mushrooms. This is due to the fact that there are no facilities available.

- Due to the lack of assistance from agricultural authorities and distributors, many farmers were compelled to discontinue mushroom cultivation.
- Mushroom farming must be modernized in order to keep up with rising demand in the region and to take advantage of worldwide markets, the cultivators suggested. They also noted that there isn't a lot of public awareness about this.

7.2. Recommendations:

- Each of the localities should have its own training center throughout the country.
- Specifically for this industry, we need a powerful and reliable policy.
- Officials should be upfront and honest since they often break their promises.
- For the development of this industry farmers need to have more accessible financing options.
- Mushroom cultivation has to be encouraged throughout the country.
- Mushrooms should be available for all the citizens of the country.
- We have a responsibility to increase awareness about the benefits of having mushrooms within our own community.
- In order to break down the psychological barriers that prevent people from realizing that this stuff is tasty, healthy, and completely Halal, it must be made more approachable.
- Mushroom spawn has to be supplied in large quantities hence the supply must be flexible.
- The crop now has established a significant demand at super markets and restaurants serving, indicating that there is an opportunity for mushroom business in Bangladesh.
- There is a steadily growing segment of Bangladeshi families who eat mushrooms, are mostly including the diabetics and health-conscious individuals. The culinary, nutritional, and medicinal benefits of mushroom continually improve its appeal growing among the people of our country.
- In order to acquire the necessary level of knowledge and experience in mushroom farming, a person who wishes to launch his or her own mushroom cultivation firm is required to complete specialized training in mushroom cultivation.
- Entrepreneurs should be well aware of the potential and importance of mushroom farming in this country.

- Today, Bangladesh requires farming, processing, and preservation facilities for mushrooms that are totally geared toward export.
- Mushrooms have the potential to become a valuable stream of revenue from the young entrepreneurs who distribute them on the domestic market.
- Because of the minimal initial investment and thus the fact mushroom farming can be started by anybody and it may provide the means of support for several low-income households.
- The Department of Agricultural Extension (DAE) of the government need to initiate additional extension programs in order to boost the development of mushrooms and promotions for their consumption.
- Need to strengthen the amount of expertise assistance provided to the farmers.

Chapter-8

8. Conclusion:

In Bangladesh, mushrooms are consumed as a nutritional supplement and healthy meal. In the recent year, the output of mushroom has reached 40000 metric tons. Oyster mushrooms are farmed widely all year round in this country, which has a wide variety of mushrooms. Despite the difficulties of processing and marketing, the mushroom industry in Bangladesh has a great deal of potential considering the country's massive unemployment and malnutrition rates. It is possible for farmers and entrepreneurs with little land, resources, or technological know-how to eliminate poverty in a short period of time by cultivating mushrooms on a modest scale. Landless persons, rural women, youths, and those with physical disabilities may all earn a living via mushroom growing. The mushroom-based firm's expansion also opens the door to the exportation of mushrooms goods, which might result in new jobs for the jobless. Based on the aforementioned information, following recommendation may be made: Diverse methods exist for developing the Bangladeshi mushroom industry, including increasing the availability of quality spawn, creating a marketing framework, spreading awareness of mushrooms in new locations, building storage facilities and boosting the MDI's institutional capability. In order to enhance mushrooms production and consumption, the DAE of the government should implement additional outreach programs.

Chapter-9

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