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Mushroom Growing In Rubaya Subcounty In Kabale District,South Western Uganda

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Abstract*: The study was about assessing Mushroom growing in Rubaya Subcounty in Kabale district,south western Uganda and the specific objective was to examine mushroom growing and to assess the level of understanding of the farmers about the mushroom agribusiness and/or their interest in mushroom farming. The study had a study population of 100 farmers from the farmer groups from the selected villages.80 respondents were selected to act as representatives of the entire population using the Morgan's Table. It used Focus group discussions between 10-20 members were used in the farmer groups and these were guided by a set of corresponding questions to assess the rate of mushroom adoption and impact in the selected communities. Within the groups, the members were asked randomly and the Interviews were used for purposes of getting deep rooted and concise data, the researcher used interviews. These were conducted in a period of 10 minutes per each respondent. The collected data was edited, entered and coded. The findings were presented using frequency tables and pie charts. 50% of the members were trained to cut down the bean husks into small pieces for easy cooking and packaging. The sorting of materials was also done to enable farmers that they plant in materials which are well sorted and clear for planting. Mushroom spawns are packed in polythene bags and each polythene bag is counted as a garden and these constitute cotton husks where the mushroom spawns are introduced to grow. ''The gardens need to be placed in a dark, hygienic room free from insects, vectors, smells, and loud sounds that may affect production. 60% of the respondents who were interviewed through the farmer groups said that wild mushrooms were scarce compared to the past when they would harvest them every season. 50% of the respondents stated that providing loans,25% suggested that training extension workers and outsourcing labour would mitigate the challenges of mushroom growing. Furthermore, 70% of the respondents agreed that growing mushrooms have increased their incomes than before when they would wait for the season of wild mushrooms to harvest and sell. Findings from the study indicated that 30 farmers from Kashenyi village,27 from Musamba and other 30 from Ndarura villages were trained and participated in mushroom growing. Only 16 farmers from Kashenyi and Kagasha villages had contributed the locally available materials like water, substrates and poles for the enterprise. There was reduced pressure on the land in these villages than their neighboring villages that had not adopted the enterprise. More than 80% of the respondents said that apparently there were few related problems of much they cited low prices for the harvests because of being distant from the main collection and selling center in Kabale Town. Demand for mushrooms in the village is still low however mushroom training resource Centre promised market but it's also hard to be fulfilled due to high transport costs from villages to the market area which is between 16000-25000ugx. Long distances had negatively impacted the farmers by reducing their morale to plant the mushrooms because they would spend much on transportation than their net income since the farming was on a small scale. Majority of the farmers agreed that indeed mushroom farming had improved their livelihoods and improved food security and that the NGO support was indeed contributing a lot to their success. More females were participating in mushroom farming than their male counterparts owing to differences in gender roles. Mushroom growing was indeed seen to reduce pressure on land and curbing climate change. The study recommends for Support of the members who were trained with spawns to increase on yields and quantity to help when they are marketing in large quantities. More sensitization of the community members should be encouraged to enable the farmers to understand how they shall have increased incomes and food security.*

Background

Mushroom green enterprise contributes to improved farmers' incomes, increased food security and also helps to minimize impacts of climate change. Mushroom growing is an intensive indoor activity that utilizes agricultural remains/residues. The activity requires less space and land making it easy for even the urban dwellers. Mushrooms are a rich, low-calorie source of fiber, protein, and antioxidants and are rich in vitamin B, Riboflavin and these protect the heart health. They may also mitigate the risk of developing serious health conditions, such as Alzheimer's, heart disease, cancer, and diabetes. Mushroom growing is a green enterprise that reduces pressure on land by the farmers in the hilly areas of Kabale district. Kigezi hills have been highly degraded by the farmers looking for survival and thus an alternative source of income and food has reduced the burden on land. This activity has been involving more females than their male counterparts as most men see it as laborious and many farmers are always drinking alcohol and have less time for Agricultural activities. Mushrooms are so reactive to powerful perfumes, scents from soaps. They need a lot of care to get a high produce.

Purpose of the study

To examine mushroom growing and to assess the level of understanding of the farmers about the mushroom agribusiness and/or their interest in mushroom farming.

Requirements for growing mushrooms

- Polythene bags/papers (size 22)
- Metric grid
- Metallic drum
- Buckets
- Tapeline and sacks to be used during fermentation and cover while cooking
- Bean and sorghum hacks
- Fire wood for cooking
- Cups and plates for measuring
- Nido
- Threads
- Spawns
- Water for cleaning
- Knives
- Trays

Research Methodology

Appropriate participatory methods were used to examine mushroom growing and to assess the level of understanding of the farmers about the mushroom agribusiness and/or their interest in mushroom farming. Three mushroom farmer groups were reached in Ndarura, Kashenyi, Musamba and Kagasha villages.

Research Design

The study employed a correlational design by comparing the results to other factors and also it employed both qualitative and quantitative approaches. Qualitative approach was more descriptive in nature and Quantitative was numerical.

Study population

The study had a study population of 100 farmers from the farmer groups from the selected villages.

Sample size

80 respondents were selected to act as representatives of the entire population using the Morgan's Table.

Research Methods:

Focus group discussions between 10-20 members were used in the farmer groups and these were guided by a set of corresponding questions to assess the rate of mushroom adoption and impact in the selected communities. Within the groups, the members were asked randomly.

Interviews:

For purposes of getting deep rooted and concise data, the researcher used interviews. These were conducted in a period of 10 minutes per each respondent.

Data Analysis

The collected data was edited, entered and coded. The findings were presented using frequency tables and pie charts.

Presentation and Analysis of Findings

The process of mushroom growing

- **Cutting of bean husks and sorting of sorghum harks.**

50% of the members were trained to cut down the bean husks into small pieces for easy cooking and packaging. The sorting of materials was also done to enable farmers that they plant in materials which are well sorted and clear for planting. Mushroom spawns are packed in polythene bags and each polythene bag is counted as a garden and these constitute cotton husks where the mushroom spawns are introduced to grow. "The gardens need to be placed in a dark, hygienic room free from insects, vectors, smells, and loud sounds that may affect production.

- **Fermentation process.**

The study found out that Socking of materials take 24hours and after the materials are left to ferment for 2-3days.

- **Cooking/steaming**

The steaming was done for the 4hours, this is to enable all germs and contaminations die. After cooking materials are left for 2-3 days to rest.

- **Planting.**

Three plastic plates for materials are put in a polythene paper and one packet of spawn is mixed to make one garden.

Number of gardens planted

Name of cluster	Spawns planted	Members contribution
Kashenyi	30	8
Musamba	27	0
Ndarura	30	0
Kagasha	30	8
Total	**107**	**16**

Findings from the study indicated that 30 farmers from Kashenyi village,27 from Musamba and other 30 from Ndarura villages were trained and participated in mushroom growing. Only 16 farmers from Kashenyi and Kagasha villages had contributed the locally available materials like water, substrates and poles for the enterprise. There was reduced pressure on the land in these villages than their neighboring villages that had not adopted the enterprise.

Wild mushrooms

60% of the respondents who were interviewed through the farmer groups said that wild mushrooms were scarce compared to the past when they would harvest them every season**.** Furthermore, 70% of the respondents agreed that growing mushrooms have increased their incomes than before when they would wait for the season of wild mushrooms to harvest and sell.

Problems of mushrooms

More than 80% of the respondents said that apparently there were few related problems of much they cited low prices for the harvests because of being distant from the main collection and selling center in Kabale Town. Demand for mushrooms in the village is still low however mushroom training resource Centre promised market but it's also hard to be fulfilled due to high transport costs from villages to the market area which is between 16000-25000ugx. Long distances had negatively impacted the farmers by reducing their morale to plant the mushrooms because they would spend much on transportation than their net income since the farming was on a small scale.

Table 1: Proposed solutions to the challenges affecting mushroom farming

Response	Frequency	Percentage
Providing loans	40	50
Training Subcounty Agriculture Extension workers	20	25
Outsource Labour	20	25
Total	**80**	**100**

Source: Primary Data, 2019

Findings indicate that 50% of the respondents stated that providing loans,25% suggested that training extension workers and outsourcing labour would mitigate the challenges of mushroom growing.

Some of the pictorials of mushroom growing process

Cutting of bean husks

sorting in progress

Cooking/steaming in progress

demonstration

Incubation process

A farmer Harvesting mushrooms

Success story for one of the mushroom farmers:

Mushroom farming boosts the widow's livelihood.

Kyarisima Phebias a widow, mother of two from Kashenyi village, Kitooma parish, Rubaya Sub county in Kabale district after receiving training on how to grow mushrooms from the project in January, 2020, she planted 30 spawns in February 2020 and used substrates from sorghum and beans.Mrs.Phebias bought her own lime at 2000= and harvested 25 kgs of mushroom, ate 05 kgs and sold 20kgs of mushrooms each at 5000 ugx and got 100,000 ugx out of which she ate 10,000= and remained with a balance of 90,000=.

Mrs. Kyarisima Phebias used this 90,000ugx together with 60,000= she had saved in her VSLA group and bought an expectant sheep at 150,000ugx which is soon to deliver.

Below is a photo of Phebias opening her newly proposed mushroom house and on the right is her sheep and the chairperson LC1, Kashenyi village

"The mushrooms are an excellent add-on to our irish potato garden. Now we have something to harvest throughout the year. This contributes significantly to improving the living conditions of my family and education for my children" said Mrs. Kyarisima Phebias.

Used up substrate put in her banana plantation

Mrs. Kyarisima Phebias has a brother who works at Kyehugye Island where she has been selling her mushrooms before COVID-19 pandemic. Whenever she could be busy with her work, the brother could take her mushrooms to Kyehugye Island in L.Bunyonyi where he works and bring her money.

Phebias' brother in her sister's mushroom garden assisting her to harvest.

"Growing mushrooms has substantially increased my economic efficacy compared to Planting irish potatoes only". Phebias states

Conclusion

Majority of the farmers agreed that indeed mushroom farming had improved their livelihoods and improved food security and that the NGO support was indeed contributing a lot to their success. More females were participating in mushroom farming than their male counterparts owing to differences in gender roles. Mushroom growing was indeed seen to reduce pressure on land and curbing climate change.

Recommendations

The study recommends for Support of the members who were trained with spawns to increase on yields and quantity to help when they are marketing in large quantities.

More sensitization of the community members should be encouraged to enable the farmers to understand how they shall have increased incomes and food security.

Agricultural extension services by the government extension workers should be extended to the farmers encompassing mushroom growing.

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