

BIBLIOGRAPHY

TAYNAN, DEBORAH W. APRIL, 2008 Production and Marketing of Shiitake Mushroom at Bonglo, Atok Benguet. Benguet State University, La Trinidad, Benguet.

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ABSTRACT

This study aimed to find out the production practices, source of information and technology, marketing practices, net income and return on investment in shiitake mushroom production and the problems that were encountered by the growers.

An in-depth interview, guided with a close and open-ended questionnaire were used to collect relevant data and information.

The results of the study showed that majority of the respondents were engaged in vegetable gardening and recently in shiitake mushroom production. All the growers used mushroom houses or shed for production and used small sizes of oak logs as media for growing mushroom. Growers practiced storing oak logs in the mushroom houses. Spawns were planted around the oak logs, submerge the oak logs in water for 24 hours then wait for 10 days before harvesting. Respondents attended seminar about shiitake mushroom production. Packaging materials of the respondents were cellophane and styrofoam. Market outlets of the respondents were in the locality. Majority of the respondents delivered their product. The selling prices were based in the prevailing market price. Two of the respondent's encountered negative net income/return on investment.

Major problems that were encountered by the growers in production were the occurrences of pest/insect and lack of knowledge in producing shiitake mushroom. They also encountered problems in marketing their products because of the delayed payment of the shiitake mushroom, limited market outlet and lack of promotional activities.

In producing shiitake mushroom, they should follow the right procedures and follow up seminars and trainings are recommended to the shiitake mushroom producers to gain more knowledge.



TABLE OF CONTENTS

	Page
Bibliography.....	i
Abstract.....	i
Table of Contents.....	iii
INTRODUCTION	
Rationale of the Study.....	1
Statement of the Problem.....	2
Objectives of the Study.....	3
Importance of the Study.....	3
Scope and Limitation of the study.....	4
REVIEW OF LITERATURE	
History of mushroom.....	5
Types of Mushroom.....	6
Shiitake Mushroom.....	7
Management Consideration/Option.....	8
Market Consideration.....	9
METHODOLOGY	
Locale and time of the study.....	11
Respondents of the Study.....	11
Data Collection.....	11
Data Gathering.....	11
Data Analysis.....	11

RESULTS AND DISCUSSION

General Information of the Respondents.....	12
Production Practices of shiitake Mushroom.....	14
Source of Information and Technology.....	16
Market aspects.....	16
Marketing Practices.....	18
Cost and Return Analysis.....	19
Problems Encountered in Production.....	20
Marketing Problems.....	21
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	
Summary.....	22
Conclusions.....	23
Recommendations.....	24
LITERATURE CITED	25
APPENDIX	26

INTRODUCTION

Rationale

The municipality of Atok derived its name from its location. It is the short term of the native dialect “nanpapatok shi shontog” which means “top of the mountain” or “on the mountain top”. Municipality of Atok is geographically located at the center portion of Benguet Province. It is 44 km. from the Capitol of Benguet which is La Trinidad. It is bounded on the west by Kapangan on the south by Tublay, on the north by Kibungan and Buguias and in the east by Kabayan and Bokod. Atok has an elevation of 2400 meters above sea level located at Paoay and Cattubo, the highest point along Halsema Highway. The terrain is generally mountainous with a slope ranging from 40-60% degrees. The climate is temperate with two pronounced seasons. The wet seasons starts in the month of May and ends in October. The wettest part of the year is July and August. Dry season starts in November and ends in May. The municipality is accessible through land transportation and Igorots particularly the kankana-ey and the Ibalois inhabit it. Farming is the main economic activities in the area producing highland/semi temperate vegetables for the Metro Manila market, other outlets in the lowlands. The major crops planted are cabbage, potatoes, carrots, chayote and rice in the lower parts of the area. Other variety of crops like lettuce, celery, Chinese cabbage, beans, tomatoes and cucumber are planted in the various areas but minimal. (Draft Report, 2006).



Politically, it is divided into eight barangay's namely Abiang, Poblacion, Caliking, Central Naguey, Topdac, Paoay and Cattubo. But original barrios were Paoay, Naguey, Central Abiang and Caliking. This study was conducted at Paoay Atok, Benguet. Particularly in sitio Bonglo.

Some resident's of Bonglo were invited to attend so cold seminar on how to rear shiitake mushroom which is know to be more advantageous to the health. Four residents namely Mr. Ruadap, Mr. Malbin, Mr. Taynan and Mr. Baquian responded to that seminar and started the shiitake mushroom production. From their first harvest, some problems occurred but some co-producers from other places gave them some knowledge on how to increase the production of shiitake mushroom. Until now shiitake growers continue to produce and supply Bonglo with shiitake mushroom.

Mushroom cultivation in the province of Benguet is very limited inspite of the environment, which is very suitable for mushroom production. This limitation is attributed not only to improper dissemination of available information but also to the lack of practical technology the local farmers in the locality could avail of.

This study was conducted to show the profitability of shiitake mushroom production. The result will serve as a basis for decision-making for the household or entrepreneur to go into business. It can provide information for shiitake growers to improve their management and marketing practices.

Statement of the Problem

The study intended to answer the following questions:

1. What are the practices involved in shiitake production?



2. What are the source of information and technology in shiitake production?
3. What are the marketing practices of shiitake mushroom growers?
4. What are the, net income and return on investment that could be derived for shiitake mushroom production.
5. What are the major problems in production and marketing encountered by the growers of shiitake mushroom in Bonglo Atok Benguet?

Objective of the Study

The study aimed to:

1. Determine the practices involve in shiitake production
2. Determine the source of information and technology in shiitake production.
3. Determine the marketing practices of shiitake mushroom growers.
4. Determine the, net income and return of investment that could be derived for shiitake mushroom production.
5. Determine the major problems in production and marketing encountered by the growers of shiitake mushroom in Bonglo Atok Benguet?

Importance of the Study

One of the deciding factors in enterprise development is the profitability of that kind of enterprise you would like to establish. The result of the study will serve as a basis for decision-making for the household or entrepreneur to go into business. It can also provide information for shiitake growers to improve their management and marketing practices.



Scope and Limitation of the Study

This study described the production and marketing practices of the four shiitake mushroom growers in Bonglo, Atok Benguet.



REVIEW OF LITERATURE

History of Mushroom

Long ago, people discovered that certain wild mushrooms were delicious to eat. For thousands of years wild mushrooms were gathered. They were enjoyed at royal banquets and valued by poorer folk as well because they were not only good to eat but free for picking. The cultivating or artificial planting of mushroom began in Europe about 200 years ago. Although many different kinds of mushrooms are good to eat, one kind- the field mushroom- grows particularly well under cultivation. The modern cultivation mushroom is closely related to the common field mushroom. The cultivated mushroom belongs to the fungi or fungus plant group. Mushrooms and other fungi have no chlorophyll, and so they are unable to make their own food by means of photosynthesis, as green plant do. Instead, all mushroom take their food from the matter they grow upon (Yerkovick, 1968).

Yerkovick, (1968) cited that mushrooms are fungus plant; they do not require sunlight for growth as green plants do. Cultivated mushrooms are grown in darkness because there is then fewer tendencies for the mushroom to darken in color and to become dried out. Mushrooms have many different shapes. Some of the best known kinds, including the cultivated mushrooms.

When we think of mushrooms, we often think of the soft caps & stems that we see in the grocery store. Hidden underground, however, is the vast majority of the mushroom mass itself- the network of feathery mycelia. These mycelia, often seen when turning



over compost, are what the mushroom uses to absorb food & moisture. The cap & stem that we commonly eat is just the fruiting body (Beetz and Kustudia, 2004).

Small-scale mushroom production represents an opportunity for farmers interested in an additional enterprise and is a specialty option for farmers without much land. This publication is designed for market gardens who want to incorporate mushrooms into their system and for those farmers who want to use mushroom cultivation as a way to extract value from woodlot thinning and other “waste” materials. Mushroom production can play an important role in managing farm organic wastes when agricultural and food processing by-products are used as growing media for edible fungi. The spent substrate can then be composted and applied directly back to the soil. Many people are intrigued by mushroom nutritional and medicinal properties, in addition to their culinary appeal. Mushrooms contain many essential amino acids; white button mushrooms for example, contain more protein than kidney beans. Shiitake mushrooms are less nutritious, but are still a good source of protein. As a group, mushrooms are also containing some unsaturated fatty acids; provide several of the minerals potassium, phosphorus, calcium, and magnesium (Beetz and Kustudia, 2004).

Types of Mushrooms

Shiitake mushrooms (*Dental edodes*), have a rich, meaty texture. The brown caps often grow up to 3-4 inches in diameter. They have been highly prized in the Orient for centuries and scientists are researching its medicinal, anti-viral properties. Indoors, the kits can be stored from 55 to 75F and will produce 2-3 pounds within 3 months.



Oyster mushrooms (*Pleurotus spp*) are named for the fact that their flavor & texture resembles oysters. The mushroom itself comes in different colors, depending on species, from pink, cream, white & gray. The white mushroom is the easiest to grow and will fruit over a wide temperature range from 55-75 F. These mushrooms are particularly sensitive to humidity and need to be misted 2-3 times per day.

Enoki mushrooms (*Flammulina velutipes*) have long delicate stems, joined at the base both the caps and stems are edible and are best eaten raw to take advantage of this variety's crisp texture. Toss them into salads, sandwiches, or as a garnish for soups. Enoki require a colder environment, 45 degrees compared to growing temperatures of about 60 degrees, which other varieties require (Arzeena, 1997).

Shiitake Mushroom

Shiitake mushroom (pronounced Shee Ta Kay) are a traditional delicacy in Japan, Korea and China. For at least a thousand years, shiitake mushrooms have been grown on logs, outdoors, in the temperature mountainous, region of Asia. To this day, shiitakes figure as the most popular of all the gourmet mushrooms. Only in the past several decades have techniques evolved for its rapid cycle cultivation indoors, on supplemented, heat-treated sawdust-based substrates. Cultivation of this mushroom is a centerpiece of Asian culture, having employed thousands of people for centuries. We may never know who actually first cultivated shiitake. The first written record of shiitake cultivation can be traced to Wu Sang Kwuang who was born in china during the Sung Dynasty (960-1127 AD). He observed that, by cutting logs from tress w/c harbored this mushroom; more mushroom grew when the loss were “soaked and striked”. In 1904, the Japanese



researchers Dr. Shozaburo Mimura published the first studies of inoculating logs with cultured mycelium. Once inoculated, logs produce six months to a year later. With the modern methods described here, the time period from inoculation to fruiting is reduced to only a few weeks (Staments, 1994).

Shiitake is the second most widely cultivated mushrooms in the world. In the past four decades, shiitake cultivation has grown to become a worldwide, multi-billion dollar industry. For centuries, this mushroom has been grown in Asia using traditional methods. Today, a steadily increasing market for fresh shiitake outside of Asia has created a demand for localized shiitake production in many new areas. By adapting traditional methods and developing new ones, growers around the world are successfully producing shiitake at many different scales, from backyard hobbyists to part-time farmers to large corporate endeavors (Przybylowics and Donoghue, 1988).

Shiitake Mushrooms is becoming well known as a superior way to improve your health and stimulate your immune system. Try it to build resistance against virus, infection, the common cold and macular degeneration, among many other ailments. Much research has been done in recent years, and numerous immunostimulating qualities have been attributed to this wonderful fungus (<http://www.herbaextractsplus.com/shiitake-mushroom.cfm>).

Management Considerations/Options

Shiitake mushrooms offer a good example for those interested in mushroom production. They may be cultivated using wild-simulated or artificial conditions. Wild-simulated mushroom enterprises generally use white oak logs under shaded forest



conditions and are best suited for the small-scale producer with an operation of 5,000 or fewer logs. High-intensity cultivation employs compressed sawdust/grain blend logs or blocks for growing medium and indoor growing environments. This method also requires a much larger capital investment including dedicated growing houses with climate control, sawdust logs (which may be pre-inoculated), and special equipment. Because of the large initial capital investments required, high-intensity mushroom cultivation incurs much greater economic risk than in wild-simulated operations.

Typical small-scale wild-simulated shiitake operations produce mushrooms on logs under forest shade conditions. Suitable growing logs are hardwood species and are four to eight inches in diameter and three to four feet long. Tree species desired include the white oak family, elm, sweetgum, yellow-poplar, hornbeam, ironwood, hard maple, blackgum, black locust, and white ash. White oak is often cited as the most desirable species. Species in the red oak family should be avoided as should pine species due to their fungicidal resins. Tree species are chosen with consideration given to moderate bark thickness as mushroom "pins" must be able to push through the bark at the onset of fruiting. The bark also serves as a barrier to other fungi. Another consideration essential to successful shiitake production is bark retention which may be accomplished by cutting trees during dormant months (e.g. October through February). Logs should be handled gently to preserve bark and should be inoculated within two weeks after cutting to avoid infection from other fungal species (Kays et al.).

Market Consideration



One of the important decisions is whether the mushroom will be marketed fresh or dried. Once the market has been defined, decisions can be made concerning the fruiting strategy and the amount of capital and labor that can be profitably invested.

Dried shiitake has the long storage life can be endure long shipping times without losing quality. This means that the fruiting area can be remote from the market. Dried shiitake can be produce seasonally in large quantities and then sold throughout the year. Generally, dried shiitake brings lower price than en equivalent weight of fresh mushrooms sold on the fresh markets.

Fresh-market shitake must be grown where it can be rapidly delivered to the market. Because, even under ideal conditions, fresh shitake has a shelf life of about two weeks, long shipping times can result in mushroom deterioration and loss of revenue. The higher price paid for shitake compensates the grower for the higher facility and labor costs needed to produce, market, package, and store and transport a perishable product (Przybylowics, Donoghue, 1988).



METHODOLOGY

Locale and Time of the Study

The study was conducted at Bonglo Paoay, Atok Benguet, where mushroom can grow because it's favorable environment suitable for mushroom production.

Respondents of the Study

There are four (4) growers of shiitake mushroom in Bonglo Paoay, Atok Benguet, who served as respondents of the study.

Data Collection

An in depth interview using a close and open-ended questionnaires was used by the researcher in gathering data.

Data Gathered

The data gathered were profile of respondents, production and marketing practices and problems, and cost and production data.

Data Analysis

The data gathered were tabulated and analyzed using simple statistical tools such as frequency counts and percentage, descriptive analysis. A cost and return analysis was also done.



RESULTS AND DISCUSSION

General Information of the Respondents

This section shows the general information of the respondents. It includes the age, gender, civil status, educational attainment, number of years engaged in shiitake mushroom production and other source of income aside from mushroom production. These were presented in Table 1.

Age .Half (50%) of the respondents were 54 years old, one (25 %) was 49 years old, and one (25 %) was 31 years old. It indicates that the respondents were on their middle age.

Gender .All the respondents were male. This shows that male's were more interested in mushroom production than the females.

Civil status .Majority (75 %) of the respondents were married and one (25 %) was single. It shows that married people were more interested in mushroom production than the single person.

Educational attainment .Two (50 %) of the respondents have attended formal education having reached high school level and two (50%) elementary level.

Numbers of years engaged in mushroom production .Majority (75 %) of the respondents have been engaged in mushroom production for 2 years and 25 % had been engaged in mushroom production for a year. This result reveals that shiitake mushroom production just is a new enterprise in Bonglo Atok Benguet.



Other sources of income .There were other sources of income of the respondents aside from the mushroom production such as gardening/vegetable production (57.14 %) employment as laborer (28.57 %). These are the hired laborers that were hired by co-farmers and government employee (14.28 %).

Table 1. General information of the respondents

CHARACTERISTICS	FREQUENCY	PERCENTAGE
Age		
31	1	25
49	1	25
54	2	50
TOTAL	4	100
Gender		
Male	4	100
Female	0	0
TOTAL	4	100
Civil status		
Single	1	25
Married	3	75
TOTAL	4	100



Table 1. continued...

CHARACTERISTICS	FREQUENCY	PERCENTAGE
Educational attainment		
Elementary graduate	2	50
High School graduate	2	50
TOTAL	4	100
Years engaged in mushroom		
Production		
1 year	1	25
2 year	3	75
TOTAL	4	100
Other sources of income		
Employment	1	14.8
Laborer	2	28.58
Gardening	4	57.14

* Multiple responses

Production Practices of Shiitake Mushroom

This section shows the practices/process involved in shiitake mushroom production. It includes mushroom house, source of logs and spawns, cutting logs, storing, and method of planting, soaking/submerge, post harvest and marketing.



Mushroom house. All respondents have mushroom house but differ in size, as 20 x 40 ft, 22 x 16 ft, 18 x 24 ft, and 10 x 18 ft. The mushroom houses were made up of wood, plastic; and they used plastics to cover the sides, and the roofing was iron steel.

Logs .The respondents got their oak logs in the forest they owned. According to the respondents, the oak logs used should be in their mature stage and theirs the proper time in getting oak logs; you need to consider the proper timing of its moisture content.

Spawns .Respondents bought the spawns at the Benguet State University (BSU).

Cutting logs .Respondents cut their oak logs into small sizes. Some respondents say that good measurement of the oak logs for good production was one (1) meter so that it would be easily carried and soaked.

Storing .All of the respondents store their small oak logs in the mushroom house for three (3) weeks.

Method of planting .All (100 %) respondents has the same way of planting the spawns. They make small wholes around the oak logs and plant the spawns.

According to the respondents, after they planted the spawns, they store the oak logs for one (1) year and five (5) month. While the oak logs were stored, the frequency of watering was once a week so that the moisture content of the oak logs will be maintained.

Soaking/submerge .All (100 %) respondents soaked or submerged the oak logs after one year five months storage in the mushroom house for twenty-four (24) hours. Then they wait for ten (10) days before harvesting. While waiting, frequency of watering was twice a day.

Harvesting .All (100 %) respondents harvest their product manually. Majority (75%) of the respondents harvest their product in 4-7 days.



Production Data

Table 2 shows the production data of the respondents. Respondents A harvested 181 kilos of shiitake mushroom, 168 kilos was sold and 13 kilos was used at home. Respondent B harvested 64 kilos of shiitake, out of those 64 kilos, he sold 55 kilos and 9 kilos was used at home. Respondent C harvested 33 kilos of shiitake, 28.85 kilos was sold and 4015 for home consumption. This shows that the respondents harvest has wide range gap.

Table 2. Production data

PARTICULARS (kls.)	RESPONDENTS		
	A	B	C
D			
Harvested	181	64	33
Sold	168	55	28.85
Home consumption	13	9	4.15
5			

Source of Information and Technology in Shiitake Production

Seminars .All of the respondents attended seminars that were held at Benguet State University (BSU) conducted by Dr. Bernard Tad-awan and company.

The respondents say that their other source of information was from their co-producers from other places and from their friends.

Marketing Aspect



Table 3 shows the marketing aspect. This includes the packaging materials, outlets, and ways of disposing product.

Packaging materials .The respondents used cellophane (75 %) and Styrofoam (75 %) as their packaging materials.

Market outlets .Majority (70 %) of the respondents sell their product to the neighbors. 1 (25 %) sell to the retailer and 25 % sell at restaurant. This shows that the major buyers of the respondents were in the locality.

Ways of disposing product. Most (75 %) of the respondents delivered their products to the buyers and 50 % of buyers picked-up the product.

Table 3. Marketing aspect

CHARACTERISTICS	FREQUENCY	PERCENTAGE
Packaging materials		
Cellophane	3	75
Styrofoam	3	75
Outlets		
Retailers (stores)	1	25
Neighbors	3	75
Restaurants	1	25
Ways of disposing		
Delivered	3	75
Pick-up	2	50

*Multiple responses



Marketing Practices

Table 4 presents the marketing practices of the respondents. It includes mode of selling, price determination and basis in pricing.

Mode of selling .Most (75 %) of the respondents sells through cash on delivery, while some (75 %) of the respondents sell in credit.

Price determination. Majority (75 %) of the respondents set their own market price for their product. Respondents sell their product P100.00 per half kilo of the shiitake mushroom.

Basis in pricing. Majority (75 %) of the respondents based their price on prevailing market price. This shows that the producers depend on the market price and not in the production cost.

Table 4. Marketing practices

CHARACTERISTICS PERCENTAGE	FREQUENCY	
<u>Mode of selling</u>		
Cash on delivery	3	75
Credit	3	75
<u>Price determination</u>		
Set by farmer	3	75
Set by buyers	0	0
<u>Basis in pricing</u>		
Based on production cost	0	0
Based on prevailing market price	3	75



*Multiple responses

Cost and Return

Table 5 shows the sales, cost, net income and return on investment of the respondents. Total costs of the respondents were Php. 12,407, Php. 8,349, Php. 7,868 and Php. 7,418 respectively. As to the net income, two of the respondents have positive net income, one encountered negative. Return on investment of the respondent were 170%, 31%, (27%) respectively. This shows that respondents C has negative return on investment and respondent D don't have net income and return on investment because of not having sales.

Table 5. Cost and Return

PARTICULARS	RESPONDENTS			
	A	B	C	D
A. Sales				
Shiitake mushroom	33,600	11,000	5,770	
Non cash (home consumption)				1,000
B. Expenses				
Variable cash cost				
Packing materials	60	49	10	
Spawns	6,500	3,500	3,500	3,500
TOTAL	6,560	3,549	3,510	3,500
Variable non cost				
Logs	1,500	1,000	1,500	2,000
Family labor				
Submerging	30	30	30	30
Watering	15	15	15	15
Harvesting	30	30	30	15



TOTAL	1,575	1,075	1,575	2,060
TOTAL VARIABLE COST	8,135	4,624	5,085	5,560

Table 5 continued...

PARTICULARS	RESPONDENTS			
	A	B	C	D
3. Fixed non cost				
Salary	1,000	2,500	1,500	1,000
Depreciation cost				
Mushroom house	3,152	1,000	1,063	438
Logs	100	200	200	400
Plastic crates	20	20	20	20
TOTAL FIXED COST	4,272	3,720	2,783	1,858
TOTAL COST	12,407	8,344	7,868	7,418
NET INCOME	21,193	2,656	(2,098)	
ROI (%)	170	31	(27)	

Problem Encountered in Producing Shiitake Mushroom

Table 6 presents the problems encountered in shiitake mushroom production. The major problems identified by the respondents include occurrences of pest/insect (100%) and insufficient knowledge in producing shiitake (100%).

Table 6. Production problems encountered in producing shiitake mushroom

PARTICULARS	FREQUENCY
PERCENTAGE	



Occurrence of pest/insect	4	100
Insufficient knowledge in production	4	100

* Multiple responses

Marketing Problems Encountered by the Respondents

Table 7 shows the marketing problems of the respondents. There were 3 problems encountered by the respondent. These were delayed payment (75%), limited market outlet (75%) and lack of promotional activities (75%).

Table 7. Marketing Problem Encountered

PARTICULARS	FREQUENCY	PERCENTAG
Delay of payment of shiitake mushroom	3	75
Limited market outlet	3	75
Lack of promotional activities	3	75

* Multiple Responses



SUMMARY, CONCLUSION AND RECOMMENDATION

Summary

This research work aimed to identify the production and marketing of shiitake mushroom in Bonglo, Atok, Benguet, to determine the production practices, source of information and technology, marketing practices, net income and return on investment that could be derived from shiitake mushroom production and problems encountered by the growers in terms of production and marketing.

There were 4 respondents of the study who were engaged in shiitake mushroom production. This study was conducted in Bonglo, Atok Benguet. Data gathering was done through personal interview using guide questionnaire.

Half (50%) of the respondents were on their middle age, they were all male, and majority (75%) were married, they are all literate, majority (75%) were engaged in mushroom and vegetable production. As to the production practices, majority, (75%) of the respondents used mushroom house for production. Small sizes of oak logs were used/good for production. Storing of oak logs was practiced by the respondents. Spawns are planted around the oak logs. Oak logs were in water submerge for 24 hours. The producer will wait for 10 days before harvesting. Method of harvesting was done manually. All the respondents attended the seminar on mushroom production at Benguet State University. As to the marketing aspect and marketing practices, most (75%) used cellophane and styrofoam as their packaging materials. Market outlets of the respondents were in the locality. Majority (75%) delivered their product to the end users. Respondents set their own price and it was based on the prevailing market price. As to the net income



and return on investment of the respondents, two respondents encountered negative net income because of higher expense than sales and the other did not sell his produce. The major production problems encountered by the respondents include the following; occurrences of pest/insects and lack of knowledge and technology in producing shiitake mushroom. The marketing problems encountered by the respondents were; delay of payment of shiitake mushroom, limited market outlet and lack of promotional activities.

Conclusions

Based on the results of the study, the following conclusions were drawn.

1. Mushroom houses were used by the shiitake growers.
2. Attendance to seminar is major source of information and technology in shiitake production.
3. Market outlet of the shiitake producers were in the locality.
4. All the respondents based the price of their product on the prevailing market price.
5. Respondents encountered problems in production due to occurrences of pest/insects and lack of knowledge.
6. The marketing problems that were encountered by the respondents were delay of payment, limited market outlet and lack of promotional activities.



Recommendations

In line with the findings of the study, the following recommendations were made:

1. Growers of shiitake mushroom should follow the right procedures in producing shiitake mushroom.
2. Follow up seminars and trainings are recommended to the shiitake mushroom growers in order for the growers to gain more knowledge on pest and disease control to be updated on mushroom production.



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APPENDIX A

Questionnaire

1. General information

Name: _____

Age: _____ Gender: _____ male _____ female

Civil Status:

_____ single

_____ married

_____ widow/er

_____ separated/divorced

Educational Attainment: (kindly check)

Graduate

Undergraduate

Elementary level _____

High school level _____

College level _____

Vocational _____

No. of years engaged in mushroom production

_____ less than one year

_____ one year

_____ two years

_____ others; specify _____



Sources of income aside from mushroom production:

_____ employment (pls. specify) _____
 _____ sari-sari store
 _____ hired labor
 _____ gardening
 _____ other; specify _____

2. Farm profile

A. type of farm:

_____ mushroom house _____ size of mushroom
 house
 _____ open field _____ size of farm

B. type of mushroom house:

_____ steel/plastic roofing
 _____ wood/plastic roofing
 _____ other; specify _____

C. how much did you spend to start your business? _____

D. Production:

a. source of planting :

Spawns

Logs

_____ bought

_____ bought

_____ donated

_____ owned

_____ others;

specify _____



b. frequency of watering:

_____ once a day

_____ twice a day

_____ other; specify

c. time of harvesting:

_____ days _____ how many days

_____ weeks _____ how many weeks

d. Cost of production

_____ spawns others, specify

_____ Logs _____

_____ mushroom house _____

e. Labor cost

_____ planting others, specify

_____ harvesting _____

_____ submerging _____

f. Production data

Particulars	Volume	Value (P)
Harvested		
Sold		
Home consumption		



E. Source of information regarding mushroom production

_____ seminars

_____ trainings

F. Marketing Aspects

a. Packaging:

_____ cellophane

_____ styrofoam

b.. Outlets:

_____ whole sellers

_____ retailer (stores)

_____ neighbors

_____ other; specify _____

c. How do you dispose your product?

_____ delivered

_____ pick-up

G. Marketing Practices

a. Mode of selling:

_____ cash on delivery

_____ credit

_____ consignment



b. pricing determination:

_____ set by the farmer

_____ set by the buyer

_____ other; specify _____

c. what is your bases in pricing your product:

_____ based on production cost

_____ based on prevailing market price

_____ other; specify _____

H. Problems encountered in production:

_____ lack of facilities

_____ lack of capital

_____ occurrences of pest/insects

_____ insufficient in knowledge in producing shiitake mushroom

_____ Other, specify: _____

I. Marketing problems encountered:

_____ delay of payment

_____ limited market outlet

_____ lack of promotional activities

_____ others, specify: _____

