PROBLEMS, POTENTIAL AND ECONOMICS OF MUSHROOM CULTIVATION IN H.P.

C.S. Vaidya
M.L. Sharma
N.K. Sharma

AGRO-ECONOMIC RESEARCH CENTRE
HIMACHAL PRADESH UNIVERSITY SHIMLA-5
2000

CONTENTS

CHAPTER - I

INTRODUCTION

Mushrooms are the fruiting bodies of some members of lower group of plants, called fungi. Due to this reason the mushrooms are also called fleshy fungi. The fungus and hence mushrooms are characterised by the absence of chlorophyll which is responsible for imparting green colour to plants. Due to absence of chlorophyll, mushrooms are not able to synthesise their own food and have to depend upon outside sources for their nutritional requirements. It is because of this that mushrooms grow sparophytically on dead organic matter or parasitically with other living matter. The mushrooms are fruit bodies or reproductive structures emanating from mycelium, which under natural conditions remain buried under the soil.

1.1 HISTORY

Mushrooms have attracted the attention of man from ancient times. The references of mushrooms can be traced back to classical texts of Indian, Greek and roman literature. The wild growing mushrooms were picked for their aroma and palatability. The first cultivation of mushrooms was reported from France during 1650 where from these spread to England, America and some other countries. In Asia, China, South Korea and Taiwan were the first cultivators of mushrooms. At present Taiwan is considered to be the largest contributor of mushrooms to the world market.

The first efforts in cultivation of mushrooms in India started way back in 1940 at college of Agriculture, Coimbatore. Here the work was started on paddy straw mushrooms. Later trials were started at many other research stations in India. During 1961, Indian Council of Agricultural Research started a project in collaboration with H.P. Govt. named “Development of Mushroom Cultivation in Himachal Pradesh”. The main aim was to grow mushrooms in the state with technology available within the country but some times with technology imported from abroad. It was realised that the imported technology was not compatible with the Indian conditions and hence the research work was taken up at different institutions in India to develop the indigenous technology for mushroom production. In 1970, the scientists started feeling that the indigenous mushroom production technology was standardised and could be made available to farmers. This induced the H.P. Govt. to establish a mushroom centre at Solan, in collaboration with United Nations Development Project (UNDP), with the objectives of providing technical know how to farmers along with critical inputs. The main aim was to induce large number of farmers to take up this activity. All efforts were concentrated on popularising the cultivation of white button mushrooms (Agaricus bisporus). This project started at the cost of Rs.1.26 crores had following specific objectives.

- To boost the research and development of mushrooms in the state.
- To make available quality spawn and compost.
- To make available latest production technology.
- To strengthen the marketing facilities for mushrooms.

The time period of project exhausted in 1982 after which the Department of Horticulture, H.P. is looking after the project activities. In addition to this the ICAR during 1982-83 established 'National Centre for Mushroom Research and Training' at Solan with the objectives of solving the problems faced by farmers in production of mushrooms and providing training to scientists, teachers, extension workers and mushroom cultivators regarding modern technique of mushroom cultivation.

1.2 WORLD SCENARIO

There are about 100 countries all over the world where mushrooms are cultivated which together are producing about 50 lakh tonnes of mushrooms. Of the total mushroom production, 50 percent is accounted by Europe, 27 percent North America and about 14 per cent by East Asian Countries. Presently, the production of mushrooms is increasing at a rate of 7 per cent the world own whereas in India this growth rate is 30 to 40 per cent. It is expected that the world production of mushroom would increase to 70 lakh tonnes per annum by the year 2010 and to 110 lakh tonnes by the year 2021. According to estimates of National Research Centre for Mushrooms the production in India was 40,000 MT during 1996-97 which is expected to increase to 1 lack MT by the year 2002. It is further estimated that this production would increase to 3 lakh MT. by year 2010 and 6 lakh MT by the year 2025.

1.3 INDIAN SCENARIO

The exports from India, during 1993, were insignificant but presently, it is reported that, India has pushed back Taiwan to gain position of top exporter of whole white button mushroom in the world. India has also gained the second position in the export of cut mushrooms. During 1997-98 total export of fresh, dried and covered mushrooms touched 57 crore rupees. Haryana, Himachal Pradesh, Uttar Pradesh, Punjab and Tamil Nadu are the main mushroom producing states in India.

1.4 IMPORTANCE

More than 80 per cent of population of the state depends upon agriculture for its livelihood. The increasing population has put increasing pressure on scarce and fixed land resource with a consequence that about 80 per cent of the holdings have become marginal or small. As a result the income generation from farms is continuously going down. The limited availability of land has made extension of farm limits almost impossible. The only viable alternative is the introduction of non-land based activities having good income generation capacity.

The state has wide variations in agro-climatic conditions. The state provides ideal situation for cultivation of mushrooms. Any region which is about 2000 ft above MSL, temperature varies between 10 to 30oC and has humidity of 75-85 percent have good potential for cultivation of mushrooms. Many places in the state like Chail, Solan, Shimla, Mandi, Dalhausi etc. and regions around them fulfil these criteria and it is possible to have four harvest per annum at these places. The importance of mushroom cultivation also stems out from following facts.

- Mushroom cultivation generates direct and indirect employment.
- It requires very little land as it is cultivated in closed rooms.
- The used compost can be reused as good manure in other field crops.
- It has capacity of being exported and earning foreign exchange.
- It provides rich diet to vegetarians.
- Being rich in proteins and low in carbohydrates and fat, it is very good for the patients of heart, diabetes and obesity etc.

The upper regions of the state have been identified for the cultivation of white button mushrooms and lower regions for 'Dhingri' (Plutorus sages kaju)

1.5 FOOD VALUE

The mushrooms are not only highly palatable but are very good for health as well. It has rich amounts of various proteins, vitamins, minerals etc. along with certain essential amino acids, which are normally not found in other vegetables. It has good amount of vitamin-B and C, which are good for beriberi, heart patients and healthy teeth of children. The acids like Niacin and pentathenic found in mushrooms are good for skin diseases. The folic acid found in mushroom can cure anaemia.

The composition of white button mushrooms (percent on wet weight basis) has been presented in following table:

TABLE: 1.1 COMPOSITION OF WHITE BUTTON MUSHROOMS.

CONSTITUENT	PERCENT
WATER	89.60
PROTEIN	3.94
FAT	0.19
EXTRACT MATTER	4.01
FIBBER	1.09
ASH	1.26

From nutritional point of view, the white button mushrooms have following constitution.

TABLE 1.2 NUTRITIONAL VALUE OF MUSHROOM

CONSTITUENT	PERCENT
CALCIUM	0.0022
PHOSPHORUS	0.5
POTASSIUM	0.15
IRON	19.5 PPM
COPPER	1.35 PPM

The fresh white button mushrooms have the following vitamins.

TABLE: 1.3 VITAMINS IN FRESH WHITE BUTTON MUSHROOMS

(MG/100gms)

VITAMIN	QUANTITY
VITAMIN B (THIAMINE)	0.12
VITAMIN B (RIBOFLAVIN)	0.52
VITAMIN C (ASCORBIC ACID)	8.60
VITAMIN K	Insignificant
NIACIN	5.85
PENTATHENIC ACID	2.38

The nutritional advantage provided by mushrooms along with its capacity of income and employment generation have prompted the scientists to strongly advocate the cultivation of white button mushrooms in the state. This could be step towards solving the problems of unemployment income generation and malnutrition among rural population. However, as is generally found there are gaps between expectations and realisation. there are also various problems and bottlenecks in production and marketing which can be solved with proper remedial measures taken well in time. Such remedial measures can go a long way in popularising this enterprise in the state and to establish it on commercial lines for better employment and income generation.

It is with this background that the present study has been carried out in H.P. with following specific objectives.

1.6 OBJECTIVES

The study is based on following objectives:

1. To study on going government schemes and programmes for development of mushrooms in the state.

2. To study the socio-economic profile of mushroom cultivators.

3. To work out economics of mushroom cultivation on different sizes of farms.

4. To study the financial efficiency of mushroom cultivation.

5. To study the relationship of productivity with capital and labour.

6. To examine the different marketing channels, margins and costs.

7. To study the socio-economic constraints and problems in production and marketing of mushrooms.

CHAPTER -II

REVIEW OF LITERATURE

The present chapter presents the review of literature. The review of literature is necessary for having an idea about the results and methodology of the similar studies conducted in the past. The following text provides some of the literature reviewed prior to initiation of the study and also during the course of the study. This chapter also includes the success stories of two of the entrepreneurs who had very humble beginning but due to their hard work and the concerted efforts have gained a solid foothold in the mushroom scenario of the State.

2.1 REVIEWS

NABARD, (1992) reported through their publication, “Model Bankable project on Button Mushroom for Export”, that there is a large scope for export potential and markets of mushroom in the world. The Ministry of Commerce, Government of India has identified mushroom as extreme focus segment for export purposes. India produced about 12,000 tonnes of mushrooms in 1992-93, which includes all the cultivated types and those collected from the forest. The country exported 49.174 tonnes dried and 1174.76 tonnes processed mushroom, valued at Rs.1222 lakhs and Rs.381.19 lakhs respectively in 1991-92. While India’s production is meagre, world production was 3.7 million tonnes of mushrooms, of which the share of button mushroom was 1.4 million tonnes in 1989-90. The major producers of button mushroom are USA, China, France, Holland, UK, Taiwan, Italy, Spain and Germany. The per capita consumption of mushrooms in the developed countries varies from 2.9 kg/annum (Germany) to 1.8kg/per annum (USA). Six countries share 85% of the total consumption of button mushrooms, USA (30%), Germany (17%), UK and France (11%) each, Italy (10%) and Canada (6%).

National Research Centre For Mushroom at ICAR Solan (1989) investigated the utilisation of spent Mushroom Compost with a view to recycle the spent mushroom compost (SMC) and to promote Farming System Research (FSR), an experiment was laid out at NRCM, Solan, during Kharif, 1998, utilizing two years old spent mushroom compost as a manure for maize cultivation. The varied doses of SMC were kept as treatments and no SMC application was used as a control. In the experiment, Kanchan hybrid was used for cultivation and no pesticides and only a single dose of urea @ 400g/16m2 plot as top-dressing was applied as a starter dose. The highest grain yield of 10.58kg/16m2 plot was recorded in treatment wherein

SMC @ 24 kg per plot was applied. An enhancement of 79% grain yield over control was obtained in the above treatment. However, it was observed that higher doses of SMC (28 kg and 32 kg/plot) resulted in lower grain yield.

Department of Horticultural in Himachal Pradesh (1999) stated in it's perspective plan that Mushrooms are popular for their delicacy, flavour as well as food value. The agro-climatic conditions prevailing in many parts of the State provides ample scope for the cultivation of mushrooms, both for domestic consumption as well as for export purposes. Mainly two types of mushroom viz; white button mushroom (Agaricus bisporous) and Dhingri (pleurotus app.) are being cultivated in the State. The modern technology in commercial cultivation of mushroom was introduced under two externally aided projects implemented in the State viz. FAO/UNDP. Mushroom Development Project, Chambaghat (Solan) during 6th Five Year Plan and Indo-Dutch Mushroom Development Project at Palampur (Distt. Kangra) during the 7th Five Year Plan. Two bulk pasteurisation units for compost have been established under these projects with total capacity of production of 1350 M.T. of pasteurised compost (Chambaghat -350 M.T. of pasteurised compost and Palampur 1000 M.T.). The pasteurised compost from these units is being made available to registered mushroom growers of Shimla, Solan, Sirmour, Kangra, Chamba, Hamirpur, Una and Bilaspur Districts. The small and marginal farmers and unemployed graduates are being given preference under these projects.

Tiwari and Kapoor (1988) conducted a study in two major growing district of Himachal Pradesh. In this study it was observed that the net returns over cost C from mushrooms on small, medium and large farms were found to be Rs.(-) 5010.33, Rs. 1238.00 and 8790.60 respectively. The study indicated that large mushroom farms in the study area were better managed. The average net return from mushrooms was about 13.45 per annum per square metre of spawned area. On an average, the output input ratio was 1.05. Further study revealed that the share of producer in consumer's rupee was the highest in case of the channel where producer is directly selling to consumer. It was also observed that more than 90 per cent of the labour requirement of the mushroom farms was met from the farm family.

Ajit Samachar (1999) published in its daily paper that the total production of mushroom was 40 thousand MT and it is estimated that the production will increase about one lack MT up to 2002. This is all due to the assistance provided by Government of India for development of mushroom cultivation. For this development GOI launched a central sponsored scheme during eighth plan. But during 9th plan no target for production and export was fixed by the government.

Shulini Samachar (1999) published that during 1960-61 ICAR introduced an alternative for agriculture production in the shape of mushroom cultivation at Solan district of Himachal Pradesh which was considered an origin of mushroom cultivation in India. Thereafter, government of Himachal Pradesh established a mushroom development project through Department of Horticulture during 1977. The main objective of the project was to develop research work on mushroom cultivation and to assist growers for availability of better quality compost and seed; to provide technology to growers and to facilitated marketing process of mushroom. This project completed in 1982 and thereafter department of horticulture of the state is providing assistance through supplying compost and training programmes to the growers and providing various subsidies. At the same time for the progress of mushroom cultivation in the state a number of units have been started for preparing compost so that growers in different districts can avail the facility of compost. On the other hand about 4300 trainees of state could be able to get training through horticulture department.

Yogesh (1999) reported in a paper Shulini Samachar that computer can play a better role for the production of mushroom. Computer is fully capable to indicate the situation of temperature, carbon dioxide and oxygen of the room where crop is grown. Further, it has also been mentioned that now Robot can be used against human labour in cultivation of Mushroom. In this regard programme of various works used to be fed in the computer so that Robot can be utilized for various type of works especially harvesting operation can be conducted through this system.

2.2 SUCCESS STORIES

2.2.1 Success Story of Vikas Banal

Vikas Banal born in Samlech village of district Solan in 1966. After getting the Masters degree in commerce from Himachal Pradesh University Shimla Banal preferred to establish a mushroom unit instead of migrating to urban area for seeking job. For the establishment of mushroom unit Banal invested Rs.6500 in 1991 and purchased 200 bags of mushroom compost for starting cultivation of white button mushroom at Solan. At present Banal is cultivating 2000 bags of compost and has started cultivation by air-conditioning the entire system which is the most suitable system for growing mushroom throughout the year. During last nine years Banal has gained popularity in the field of mushroom cultivation and has encouraged other youth of the area for joining in this enterprise for their livelihood. This way Mr. Banal has not only gained success himself but has been instrumental in the spread of the activity in district Solan. After a few years of successful operation he established his own pasteurisation unit for preparing compost. This is an example of vertical integration and now he is supplying compost regularly to the other growers. This has helped him not only in augmenting his income but has facilitated the adoption of mushroom cultivation by other farmers as they now don't have to depend upon the government source for compost. At present he has generated employment for about 10 persons in his unit and his father Sh. Mohan Lal looks very happy and satisfied with the achievements of his son.

2.2.2 Success Story of Koushalya Jinha

Koushalya born in rural area of Shimla district and after her marriage she generally used to think about generating income and employment through private enterprise so that she may help her husband and also this may act as an example for other rural people who may be motivated to generate their own livelihood. In 1981 she planned to cultivate mushroom crop in Shimla city where she could be able to collect mushroom compost easily from Solan about 60 km away from her unit. She also took into consideration the fact that Shimla city would provide her ready market. Initially she started cultivation of mushroom through 50 bags of compost but her continuous efforts and interest ultimately led her to production of quality mushroom in Shimla district. At present Koushalya is growing mushrooms in about more than 2000 bags. The venture ultimately turned out to be so successful that her husband, Sh. Mohan Jinha was compelled to join her in this enterprise by leaving his government job. Like Mr. Vikas she has now decided to go in for the production of compost. In fact, the construction work is under way in Ganahati, about 15 Kms. from Shimla. Koushalya has a secret desire to be able to provide compost to different new growers in Shimla district. And now she is about to materialise her dream. Her aim will definitely be achieved because Koushalya has created an environment for mushroom cultivation among all of her family members. Mr.Jinha expressed that once in the morning at 10.30 AM he was surprised to see 160 kg of mushrooms plucked by her wife which in fact is a job of two labourer. Her efforts for reaching to the top is really a matter of proud for all who are concerned with mushroom cultivation or even those who are not concerned with it. This is also a live example of the emerging women power in our society.

CHAPTER - III

METHODOLOGY

The present chapter includes study design, analytical methods, data collection and other related issues.

3.1 STUDY DESIGN

A complete list of registered growers indicated that there were 876 registered growers of mushrooms in the state by the end of December 1999. However, only 112 were actually engaged in mushroom production. There are also many unregistered mushroom cultivators who are also engaged in the activity. But no information on their number, location or scale of operation is available from any source. Thus, study design has been based only on the registered growers.

The data reveals that out of 112 registered growers who actually were growing mushrooms 49 were located in district Shimla, 55 in Solan six in Sirmour and only two in Bilaspur. Thus, districts Solan and Shimla were purposely selected for the detailed study. It was decided to draw a sample of 40 growers from each district. For this purpose in each of the districts, five locations were identified where maximum number of growers were located. These locations were identified with the help of officials of Horticulture department and Table 3.1 presents the details.

TABLE: 3.1 LOCATIONS IDENTIFIED FOR DETAILED STUDY.

	District Solan	District Shimla
LOCATIONS	Chambaghat	Kotkhai
	Saproon	Theog
	Barog	Mashobra
	Oachghat	Sanjauli
	Basal	Shoghi

The requisite sample of 40 producers was selected randomly in district Solan but it was found that in Shimla the requisite number of 40 producers could not be contacted due to very thin spread of activity. In the above stated locations a sample of only 30 registered growers could be obtained. Thus, the study is based on 70 mushroom cultivators located in two districts and ten locations.

The sampled producers were divided in to three size classes on the basis of scale of the operation. The producers having less than 100 trays have been categorised as small, 101 to 250 trays as medium and those having more than 251 trays were categorised as large mushroom producers. During data collection it was found that almost all of the producers were using polyethene bags instead of wooden trays. In terms of input use and out put, it was determined that four polyethene bags are equivalent to one wooden tray. Accordingly, the polyethens bags were converted to wooden trays for the purpose of determination of their size class. The distribution of mushroom producers according to their scale of operation has been presented in Table 3.2.

TABLE: 3.2 DISTRIBUTION OF MUSHROOM CULTIVATORS, ACCORDING TO SIZE OF THE OPERATION.

DISTRICT	CATEGORY			
	SMALL	MEDIUM	LARGE	TOTAL
SOLAN	12(30)	13(33)	15(37)	40(100)
SHIMLA	10(33)	18(60)	2(7)	30(100)
TOTAL	22(31)	31(44)	17(25)	70(100)

NOTE: figures in parenthesis are percentages to total.

It may be seen from the table that 31 per cent cultivators belong to small category, 44 percent to medium and remaining 25 per cent belong to large category.

3.2 ANALYSIS OF DATA

Various concepts and analytical tools used have been described in this section.

3.2.1 Cost Concepts The costs A, cost B and cost C have been used and explained below:-

Cost A_1: Included value of hired labour, hired machinery charges, value of spawn, compost, insecticides and pesticides, water and electricity charges, depreciation on implements, interest on working capital etc.

Cost A_2 Cost A_1 + rent-paid for leased in shed/building

Cost B Cost A_2 + imputed rental value of own shed/building + interest on own fixed capital

Cost C Cost B + imputed value of family labour

3.2.2 Financial Efficiency The financial efficiency has been measured by using following ratios.

1. Capital Turn over Ratio: Measures efficiency of capital invested and is measured as

   Capital turn over ratio = Gross Income /Fixed capital investment
2. Operating Ratio = Total operating & maintenance cost / Gross profit
3. Gross Ratio = Total cost of cultivation / Gross farm income
4. Rate of Return on capital = Net farm income /Fixed capital investment

3.2.3 Production Function Analysis The production function analysis has been used in order to study the relationship of mushroom yield (exogenous variable) with total working capital and human labour (endogenous variables). The Linear Production function having following form was used:-

$$Y = aX^{b1}{}_1 X^{b2}{}_2$$

where

Y = Mushroom yield

X_1 = Total working capital

X_2 = Human labour

a = Constant

b_i = Regression coefficients

The return to scale was calculated by adding up the elasticity coefficients i.e.

Returns to scale = $\sum_i^2 bi$

The marginal value products (MVPs) have been computed as under

MPV$_{xi}$ = $(biy / xi).Py$

Where b_i = Regression coefficient of i^{th} input

Y = Geometric mean of output

x_i = geometric mean of i input

and P_y = price of output

The MVP of factor cost ratio has been calculated as:

MVP of factor cost ratio = $MVPx_i/Px_i$

Where MVP = Marginal value product

MVP_{xi} = MVP of i^{th} input

P_{xi} = Price of i^{th} input

Optimum Resource Use: The optimum level of inputs has been calculated as:

$MPP\ x_i = Px_i / P_y$

3.3 DATA COLLECTION

The primary data was collected on a predesigned schedule which was pretested in order to know the short coming before hand. The data was collected by personal interview method by the trained and experienced investigators. The primary data has been supplemented by secondary data mainly from Directorate of Horticulture.

3.4. REFERENCE PERIOD Reference period of the study is 1999, calendar year.

CHAPTER – IV

CULTIVATION OF WHITE BUTTON MUSHROOMS

There are various types of mushrooms cultivated the world over. Out of these eight are important viz. button, oyster, straw, shiitake, woody ear, silver ear, winter and namekno which account for 99 per cent of total world production. In India, only three types of mushrooms viz. button, oyster and straw are commercially cultivated. Of these button mushrooms account for about 90 per cent of India's production, about 38 per cent of total world production of mushroom is bottom mushroom.

The white button mushrooms can be grown in the state around an altitude of 2000 M above MSL and it is possible to take five crops in a year. There are certain places in the state like Chail, Shimla, Mandi etc. where the cultivation is possible throughout the year except artificial heating during the winters. Three crops a year are possible in places like Kasauli, Dalhousi and Dharmasala and one to two crops are possible in places like Solan, Kotgarh, Palampur, Jagjeet Nagar etc.

The mushroom production is a complex process and requires special technical skills for raising the crops. For its growth it requires two type of temperatures, 23-28oc for spawn run or vegetative growth and 12-18oc for fruit body formation. The humidity during fructification should be 80-90 per cent with proper ventilation. The cultivation involves three basic steps.

1. Production or procurement of spawn
2. Preparation of compost
3. Production of crop.

The details of each of these steps have been presented in the following text.

4.1 PRODUCTION OR PROCUREMENT OF SPAWN

4.1.1 PROCUREMENT OF SPAWN

The spawn can be procured from the following sources within the state.

1. HPKVV, Palampur
2. Dr. Y.S. Parmar University of Horticulture & Forestry, Solan.
3. Mr. Chander Mehta, Pearless Quality spawn lab, saproon, Solan.

4.2 PRODUCTION OR PROCUREMENT OF SPAWN

Button mushroom like other plant species, require the seed for their cultivation which in this case is popularly known as spawn. Spawn is a pure culture of mushroom mycelium grown on a solid substrate such as cereal grains. Before the introduction of cereal grain spawn, the spawn was prepared on sterilised composted manure and was known manure spawn. In northern India most of the spawn is prepared on wheat grain while in south India Jawar is used as a substrate for spawn production. Though, there are number of methods for production of mushrooms i.e. tissue culture, multi spore culture and single spore culture but a typical method for making spawn from wheat grains is the popular one in Himachal Pradesh. In this concern method for preparation of substrate for spawn is as follows.

Clean whole grains are taken for the purpose. Broken grains would be avoided. The grains are permitted by boiling in water for 20-30 minutes. This raises the moisture content of the grains (about 50 per cent) and at the same time makes them soft enough for mycelium to grow on it. Boiling for a longer period will result in breaking of grains and they will become to soft and sticky which should be avoided. After boiling, excess water is drained off by spreading the grains on a wire mesh. Grains are now mixed with gypsum(calcium sulphate) and chalk powder (calcium carbonate) at the rate of 2 per cent and 0.5 per cent respectively on dry weight basis. More elaborately 10 kg of wheat grains will require about 200 gram gypsum and 50 gram chalk powder (Mehta and Kumar, 1988). This will help the check the Ph value of the medium and will prevent sticking of grains with one another. The grains are now filled in containers (glucose bottles or polypropylene bags) and mouth of the containers plugged with non absorbent cotton. These are then sterilised in an autoclave at 22 lb p.s.i pressure for 1 to 2 hours. This gives a uniform temperature of 126.5 c which is sufficient to kill bacterial and other contaminants which might spoil the culture afterwards. The grains are now allowed to cool to room temperature and inoculated with mushroom mycelium. From time to time different workers have given different formulations depending upon the availability of the basic raw materials. Formula given by mushroom research laboratory Solan for short method is as follows.

Wheat straw	1000 Kg.
Chicken Manure	400 Kg.
Brewers grain	72 kg.
Urea	14.5 kg.
Gypsum	36 kg.

For inoculation of grain spawn the mycelium grown on specific medium such as wheat extract agar is transferred to containers under sterile conditions and resulting spawn is called the master spawn. This master spawn is further used to inoculation of large number of bags, bottles and the resultant is commercial spawn. The commercial spawn is used for inoculating the compost beds. Now it becomes essential to discuss about the preparation of compost, which is the second major component for mushroom cultivation.

4.2 PREPARATION OF COMPOST

There are two methods i.e. long and short methods for preparation of compost. The long method of composting has many shortcomings hence, to overcome these shortcomings, Sinden and Hauser (1950,1953) came out with a noval method which is termed as short method of composting in which the compost is ready in about 16-20 days as compared to 28 days in long method. Compost obtained by such a method is free from the disease and pests and gives 18-25 kg mushrooms from every 100 kg of compost. Short method of composting primarily consists of two parts, out door composting for 10-20 days (Phase-1) followed by pasteurisation and conditioning of the compost inside an insulated room by free circulation of steam and air under set conditions (Phase-II). The main purpose of conditioning/pasteurisation is to kill or inactivate insects, pests and other competitors which may, if present, hamper the spawn run and reduce the yield.

Steam pasteurisation is done in a well insulated room designed for the purpose. This process of pasteurisation completed in an insulated room where walls, roof, ducts, which carry steam, and doors are insulated by proper insulating material. Boiler is required to produce the steam while a blower is needed to below air. The 'short method' of composting was introduced in India, by Hayes and shandilya in 1977. It is completed in two stages. In first phase all the ingredients are allowed to ferment under uncontrolled conditions for 10-12 days. After giving turning to various components 3 times in 6 days and adding Gypsum, the compost gets ready for pasteurisation for IInd phase. To start the procedure, firstly the peak heating room is heated with dry heat to bring the temperature of the room to around 48oc. After that compost from phase one is immediately transferred to minimise the heat losses in transit. All the doors and ventilators are closed and fan is switched on for two hours, to have uniform distribution of air on the second day live steam is introduced in the room to raise the temperature to 48-52^{0}C. This temperature is maintained for 2-4 days. After that fresh air is introduced for 15-20 minutes then all the doors and ventilators are closed and steam is injected to raise the temperature to 58-60^0 C for 4 hours. Steam supply is then cut off and fresh air is gradually introduced in the room to lower the temperature in the room. Temperature of the room is maintained at 48 to 52^0 C for 4 days. This temperature is maintained for the conditioning of the compost. During this period compost is generally freed from ammonia and compost temperature is further reduced to 24^0 C by introduction of fresh air. If there is no smell of ammonites it is ready for the spawning.

4.3 PRODUCTION OF CROP

Mushroom cultivation is still done seasonally under natural conditions in India. There are two systems of cultivation of mushroom in India i.e. cultivation in wooden trays and polythene bags. Due to shortage and control on wood cutting, bag cultivation has proved very suitable because of its easy availability, low cost, being easily disposable and due to very low threat of contamination due to use of fresh bags every time. A polythene bag of 35"x24" of 150 gauge thickness is large enough to accommodate 15.20 kg compost up to a depth of 30-37 cm. These bags after filling are kept in the growing rooms in racks. Five modern mushroom farms use shelf system for cultivation of crop of 72 days duration each. In Himachal Pradesh number of crops vary as per the climate and availability of technology, which results into various levels of production in different pockets where mushroom is cultivation.

4.4 SPAWNING

The process of mixing spawn (seed) in fully prepared compost is called spawning. Four main methods of spawning have frequently been used with grain spawn i.e. spot spawning, surface spawning, layer spawning and 'through' or mixed spawning. The last method is the most efficiently and widely used method and gives and early and uniform spawn run. For proper growth of crop, recommended dose of spawn is, 500gms to 750gms for 100 kg of compost. After spawning, the beds are pressed gently to have uniform surface. The best temperature for the growth of mycelium in compost is about 23^0 C. During winters it may become necessary to heat the rooms with dry heat/stream to bring the room temperature within this range. Heating with steam is a better alternative as steam has high latent heat of vaporization and will also maintain the humidity in the room. During summer however, cooling is required to bring the room temperature to optimum level for mycelial growth of button mushrooms. The temperature of the compost should not be allowed to go beyond 30^0C. Sufficient air should be circulated in the spawn running room to obtain uniform temperature throughout the room. As soon as the spawned compost gets the right temperature, the spawn grain becomes fluffy and mycellium starts to grow into the compost. Growth of mycelium in compost can be visualized in the form of circular spread of whitish silky mycelial threads spreading on all sides from grain spawn, 4 to 5 days after spawning. If the optimum conditions have been provided it takes about 12-15 days for compost to be fully impregnated with the mycelium.

4.5 CASING AND CROP MANAGEMENT

To introduce fruit body formation the compost surface has to be covered with a layer of casing soil. The process of applying casing layer over the compost bed is called 'Casing' of mushroom beds. It is normally believed that mushrooms do not fruit unless some stress is provided. There are however other reasons also which necessitate the application of casing soil on compost beds, which are:

(1) Casing supplies water for growth and development of fruit bodies and regulates the flow of nutrients from compost to developing fruit bodies;
(2) It prevents compost surface from drying out and act as a blanket;
(3) The casing soil provides physical support to growing fruit bodies etc.

For preparation of casing peat is a universally accepted medium of mushroom cultivation. But, in Himachal Pradesh due to non-availability of peat a mixture of 2 years old farm yard manure and loam soil in the ratio of 2:1 is to be used for preparation of casing. for killing various pests and disease, casing soil is treated chemically or pasteurised with steam and casing layer about 3-4 cm thick is applied uniformly over the entire surface of compost. Application of casing takes place after the mycelium has completely colonized the compost.

Temperature of the cropping room is maintained 23 ± 2^0 C for about a week to allow the mushroom mycelium to spread into casing layer. A very light spray of formalin is given after the casing has been done over the surface of casing soil. Normally after casing, the mycelium takes 7 days for spreading in casing soil before the fruit body formation starts. Casing soil provides moisture to growing fruit bodies therefore it is essential to keep the casing layer moist. This can be achieved by frequent watering of casing layer. Water is sprayed with the help of an ordinary foot sprayer in the form of mist. In about a week's time mycelium spreads in the casing soil. Now the stage comes when temperature toward to 14-18 C. Fruit body initials, which appear in the form of pinheads start growing and gradually developed into button stage. Harvesting is done at the button stage i.e. before caps expands and gills are closed. Open mushrooms are not accepted by consumer due to inferior quality and shorter shelf life.

Mushrooms are picked or harvested by gently holding the mushroom between the thumb and fingers, twisting slightly and gently pulling out. Lower position of the fruit body where mycelium threads and soil particles adhere is cut and discarded and the upper position is kept for human consumption.

CHAPTER - V

GOVERNMENT SCHEMES FOR DEVELOPMENT OF MUSHROOMS IN HIMACHAL PRADESH

The government of Himachal Pradesh has been providing various incentives to marginal and small farmers, scheduled caste and schedule tribe families. Such incentives are being provided under Mushroom Project, Chambaghat (Solan) for the districts Solan, Shimla and Sirmour and under Indo-Dutch Project, Palampur for districts Kangra, Mandi, Chamba and Hamirpur. The following incentives are available.

5.1 TRAINING

In order to provide technical know-how to farmers, ten day training programmes are organised by department of Horticulture, Himachal Pradesh. Such programmes are organised from time to time. The participants of such programmes belonging to the state are given training allowance at the rate of Rs. 50.75 per day.

5.2 REGISTRATION

The cultivators who are desirous of getting themselves registered with department of Horticulture are registered according to the category they belong to. It is necessary for the persons who have obtained training and belonging to H.P. to get themselves registered according to their category (like SC,ST etc.). For getting themselves registered a person has to obtain the certificate of being bona fide resident of H.P., certificate of his category from SDM office and submit these along with the training certificate to the department of Horticulture, H.P. Mushroom Project. After this they are issued a registration number. This number is important for getting compost or spawn and claiming subsidy on these.

5.3 BANK LOANS

The registered mushroom cultivators are recommended by the govt for obtaining loans from nationalised banks. Under this scheme a loan of Rs.35,000/- is recommended for the construction of mushroom house for accommodating 100 trays. Under this scheme a subsidy of 10 per cent subject to the maximum of Rs. 3500/- is admissible to SC & ST, magical and small farmers. A subsidy of 3 per cent is also available on the bank interest. The state department of civil supply provides consent, steel etc. on priority for construction of mushroom houses.

5.4 SUBSIDY

The registered SC and ST mushroom growers are eligible for a subsidy of 50% on the purchase of compost. The extent of subsidy on this account for marginal and small farmers and unemployed graduates is 25 per cent. Hundred percent subsidy is available for transportation subjected to the maximum of 400 trays.

5.5 TECHNICAL KNOW-HOW

Since mushroom cultivation is highly technical and skilled job it is essential that they get technical know-how. The technical officers provide the required knowledge to farmers by visiting their mushroom houses. Any problem is solved on the spot and guidance is provided by the officers on their visits.

5.6 MODEL BANKABLE PROJECT ON BUTTON MUSHROOM FOR EXPORT

The National Bank for Agriculture and Rural Development (NABARD) has prepared a 'Model Bankable Project on Button Mushrooms for Export' for refinance to commercial banks. The Bank accords top priority to this activity for providing refinance support to the turn of 90 per cent. The interest rate charged by NABARD for such refinance is 40 per cent less than the financing banks interest rate charged from the entrepreneur. The total cost of the project is Rs.213.32 lakhs including working capital for one year. The repayment of the loan starts from second year. It has been estimated that the Benefit-Cost Ratio (BCR) of the project at 15% rate is 1.31 and Internal Rate of Return (IRR) of 31 per cent.

CHAPTER -VI

SOCIO-ECONOMIC BACK GROUND OF MUSHROOM FARMERS IN H.P.

The present chapter intends to provide insight into the socio-economic background of mushroom farmers in the state. The socio-economic parameters form the basis for the production efficiency. These parameters have been discussed in the following text.

6.1 FAMILY SIZE

The family size forms the basis for determination of working force available for farm activities. Though it is affected by the occupational structure and age composition etc., it still remains the starting point. The average family size of the sampled farmers has been presented in Table 6.1 and it is 5.95 persons per family at overall level. The family size is higher in Shimla (5.63). Among different categories the highest family size is among medium farmers (6.32).

TABLE: 6.1 AVERAGE FAMILY SIZE OF MUSHROOM CULTIVATORS

(NO.)

DISTRICT	CATEGORY			
	SMALL	MEDIUM	LARGE	ALL FARMS
SOLAN	6.25	6.92	5.53	6.20
SHIMLA	5.10	5.88	6.00	5.63
OVERALL	5.72	6.32	5.58	5.95

6.2 EDUCATIONAL LEVEL

The literacy levels and more importantly the formal education plays a great role in opening the minds of people to venture into the new fields. About 91 per cent of the persons at overall level were observed to be literate and of them about 11 per cent had obtained some formal qualifications. This percentage was almost same in both the districts. It was personally observed during data collection that those entrepreneurs who graduates or attended colleges, were doing very good business and had expended their level of production many times since the humble beginning with equivalent of 100 trays (400 bags). This clearly indicates the importance of education especially in such unconventional and highly technical vocation like mushroom cultivation.

TABLE: 6.2 EDUCATIONAL LEVEL OF FAMILY MEMBERS OF MUSHROOM CULTIVATORS.

(%)

PARTICULARS	CATEGORY			
	SMALL	MEDIUM	LARGE	ALL FARMS
SOLAN				
ILLETERATE	4.11	14.94	9.88	9.96
LITERATE	60.27	73.56	90.12	75.10
FORMALLY EDUCATED	35.62	11.49	0.00	14.94
TOTAL	100.00	100.00	100.00	100.00
SHIMLA				
ILLETERATE	5.88	7.00	0.00	6.13
LITERATE	82.35	93.00	0.75	88.34
FORMALLY EDUCATED	11.76	0.00	0.25	5.52
TOTAL	100.00	100.00	100.00	100.00
OVERALL				
ILLETERATE	4.91	10.33	8.71	8.32
LITERATE	70.32	84.85	79.61	80.77
FORMALLY EDUCATED	24.77	4.82	0.04	10.91
TOTAL	100.00	100.00	100.00	100.00

6.3 OCCUPATIONAL PATTERN

The occupation pattern of all the workers was analysed and it was revealed that despite all of the sample being those of mushrooms farming households, only 21.60 per cent persons were engaged in mushroom production (Table 6.3) at overall level. The agriculture still remains the largest employees with about 62 per cent workers engaged in it. About 9 and 7 per cent workers at overall level had their main occupation as being employed in various govt. departments and trade/business respectively. The category wise analysis indicates that small and large mushroom cultivators had about 23 per cent of their work force had mushroom farming as their main occupation. This percentage was slightly lower in case of medium mushroom farmers. The district wise position may also be referred to from this table.

TABLE: 6.3 OCCUPATIONAL PATTERN OF MUSHRROOM CULTIVATORS (MAIN OCCUPATION)

(NO.)

CATEGORY	OCCUPATION				
	AGRI.	SERVICE	TRADE	MUSHROOM FARMING	NO. OF WORKER
SOLAN					
SMALL	53.06	16.33	6.12	24.49	49
MEDIUM	66.15	9.23	4.62	20.0	65
LARGE	60.32	11.11	4.76	23.81	63
TOTAL	60.45	11.86	5.08	22.60	177
SHIMLA					
SMALL	62.22	8.89	6.67	22.28	45
MEDIUM	65.59	5.38	9.68	19.35	93
LARGE	60.00	0.00	20.00	20.00	10
TOTAL	64.19	6.08	9.46	20.27	148
OVERALL					
SMALL	57.22	12.95	6.37	23.47	94
MEDIUM	65.83	6.99	7.56	19.62	158
LARGE	60.28	9.81	6.55	23.36	73
TOTAL	62.06	9.38	6.96	21.60	325

6.4 SUBSIDIARY OCCUPATION

It was observed that out of 325 workers 263 also had some subsidiary occupation. The largest number (53.75%) has mushroom farming as their subsidiary occupation and the rest, 46.78 per cent were helping in agriculture (Table 6.4). No person had service or trade as their secondary occupation. The district level analysis indicated very small variations in these figures.

TABLE: 6.4 OCCUPATIONAL PATTERN OF MUSHROOM CULTIVATORS (SUBSIDIARY OCCUPATION)

(NO.)

CATEGORY	OCCUPATION				
	AGRI.	SERVICE	TRADE	MUSHROOM FARMING	NO. OF WORKERS
SOLAN					
SMALL	50.00	0.00	0.00	50.00	46
MEDIUM	44.00	0.00	0.00	56.00	50
LARGE	44.64	0.00	0.00	55.36	56
TOTAL	46.05	0.00	0.00	51.95	152
SHIMLA					
SMALL	50.00	0.00	0.00	50.00	34
MEDIUM	46.38	0.00	0.00	53.62	69
LARGE	50.00	0.00	0.00	50.00	8
TOTAL	47.75	0.00	0.00	52.25	111
OVERALL					
SMALL	50.00	0.00	0.00	50.00	80
MEDIUM	43.96	0.00	0.00	56.04	119
LARGE	45.27	0.00	0.00	54.73	64
TOTAL	46.78	0.00	0.00	53.75	263

6.5 OFF FARM INCOME

The mushroom farmers have been deriving off-farm income from two sources viz. govt. job and trade/business. It was found that each family at overall level, derived an annual income of Rs.44,243/- (Table 6.5). The off-farm income was found to be directly related to category of household. The off-farm in district Solan was substantially higher (Rs.53,325/year/H.H.) as compared with Shimla where it was only Rs.32,133/H.H./year.

TABLE: 6.5 OFF-FARM INCOME GENERATION.

(Rs./ANNUM/H.H.)

DISTRICT	CATEGORY			
	SMALL	MEDIUM	LARGE	OVERALL
SOLAN	10,000	51,000	90,000	53,325
SHIMLA	8,000	42,000	64,000	32,133
OVERALL	9,094	45,774	86,941	44,243

6.6 LOCATION OF FARMS

All the farms were located either on road head or very near to it. Table 6.6 reveals that average distance of farm from road head is 0.29 kms for overall sample and was 0.26 kms for Solan and 0.32 kms for Shimla district. The smaller the category, greater was the distance. It may have been due to the reason that the mushroom farmers located on or very near to road head might have expended the scale of operation and with the time may have come into large category of farmers.

TABLE: 6.6 LOCATION OF FARM (AVERAGE DISTANCE FROM ROAD HEAD).

(Km)

DISTRICT	CATEGORY			
	SMALL	MEDIUM	LARGE	OVERALL
SOLAN	0.41	0.28	0.12	0.26
SHIMLA	0.47	0.30	0.15	0.32
OVERALL	0.44	0.26	0.13	0.29

6.7 LAND RESOURCES

The land resources owned by the sampled farmers have been presented in Table 6.7 where in it may be seen that each household at overall level own 1.97 Ha. of land of which 1.20 Ha. is cultivated. The land resources in Solan were considerably higher 2.79 Ha per household of which 1.28 Ha are under plough, as compared with Shimla where these figures stand at 0.87 Ha and 0.59 Ha respectively. The large mushroom farmers have the highest amount of land followed by small and medium (It may be recalled here that present categorisation is on the basis of scale of mushroom cultivation and not on amount of land).

TABLE: 6.7 LAND RESOURCES OF SELECTED MUSHROOM CULTIVATORS.

(Ha./Farm)

PARTICULARS	CATEGORY			OVERALL
	SMALL	MEDIUM	LARGE	
		SOLAN		
TOTAL LAND	2.42	2.10	3.67	2.79
CULT. LAND	1.11	0.97	1.69	1.28
		SHIMLA		
TOTAL LAND	0.79	0.84	1.60	0.87
CULTI. LAND	0.56	0.52	1.28	0.59
		OVERALL		
TOTAL LAND	1.68	1.37	3.43	1.97
CULTI. LAND	0.86	0.71	1.64	1.20

6.8 CROPPING PATTERN

The study of cropping pattern (Table 6.8) reveals that during kharif season maize and tomato are the main crops, 0.28 and 0.23 Ha. of area devoted for these by each household at overall level. The potato accounts for other 0.10 Ha. The number of crops during rabi season are more and most important, from area allocation points of view is wheat accounting for 0.28 Ha. per farm. This is followed by peas (0.22 Ha.) and cabbage (0.10 Ha.). Barley and cauliflower each accounted for 0.05 Ha on each farm. Tomatoes are not grown on sampled farms of Shimla in higher area allocation for potato (0.16 Ha.) was observed. In comparison, peas are not cultivated by the Solan farmers. Other details may also be referred to from the table.

TABLE: 6.8 CROPPING PATTERN ON THE FARMS OF SELECTED MUSHROOM CULTIVATORS.

(Ha/Farm)

PARTICULARS	CATEGORY			OVERALL
	SMALL	MEDIUM	LARGE	
SOLAN				
KHARIF				
1. Maize	0.58	0.36	0.53	0.49
2. Potato	0.07	0.04	0.08	0.06
3.Tomato	0.36	0.36	0.46	0.40
RABI				
1. Wheat	0.64	0.36	0.44	0.47
2. Barley	0.07	0.04	0.09	0.07
3.Cauliflower	0.05	0.00	0.17	0.08
4. Cabbage	0.04	0.00	0.19	0.08
5.Peas	0.25	0.37	0.28	0.00
SHIMLA				
KHARIF				
1. Maize	0.03	0.12	0.00	0.01
2. Potato	0.24	0.00	0.16	0.16
3. Tomato	0.00	0.00	0.00	0.00
RABI				
1.Wheat	0.04	0.00	0.00	0.01
2. Barley	0.06	0.00	0.00	0.02
3. Cauliflower	0.00	0.03	0.00	0.02
4. Cabbage	0.13	0.11	0.16	0.12
5. Peas	0.04	0.15	0.16	0.11
OVERALL				
KHARIF				
1. Maize	0.33	0.15	0.46	0.28
2. Potato	0.14	0.08	0.09	0.10
3. Tomato	0.19	0.15	0.40	0.23
RABI				
1. Wheat	0.37	0.15	0.39	0.28
2. Barley	0.06	0.02	0.08	0.05
3. Cauliflower	0.02	0.02	0.15	0.05
4. Cabbage	0.08	0.06	0.18	0.10
5. Peas	0.16	0.24	0.26	0.22

6.9 PRODUCTION PATTERN

The production pattern of different crops indicates the availability of such produce for home consumption or disposal in the market, which is the main purpose of cash crops like vegetables, production. The production pattern on the farms of different categories of mushroom farmers has been presented in Table 6.9. It may be seen from the table that at overall level 4.30 Qtls. of maize is produced on an average farm, which is primarily meant for home consumption. The other two kharif crops viz. potato and tomato are mainly disposed of in the market and their production is 6.98 Qtls and 5.97 Qtls per farm respectively. During rabi season each farm at overall level produce 4.60 Qtls. of wheat and 0.69 Qtls. of barley. The other crops are vegetable crops. The production of cauliflower, cabbage and peas was found to be 4.12, 5.55 and 8.34 Qtls per farm respectively at overall level. The analysis further indicates that per farm production of maize was higher in Solan and Potato in Shimla. The sampled farmers of Shimla were not cultivating tomato at all. The per farm production of all crops was higher in Solan except cabbage. The production pattern of different categories in both the districts as well as at overall situation has also been presented in this table.

6.10 LIVESTOCK PROFILE

The livestock profile for the sampled mushroom farmers has been presented in Table 6.10 wherein it may be seen that at overall level each farmers has on an average 1.51 cows, 0.75 buffaloes and 0.80 heads of other livestock. This gave them an income of Rs.19237 per year. The number of livestock in district Solan are higher them Shimla and so is the income from reasing livestock which has been Rs.23916 and Rs.12998 per year respectively.

6.11 CONCLUSIONS

It may be concluded from the above that the family size in Solan was higher than is Shimla but so is the income desired from other sources. Shimla has higher percentage of literates but lower percentage of persons who are formally educated. Agriculture is the main occupation of majority of persons and mushroom cultivation the subsidiary occupation. All the farms were either on the road head or very near to it. The land resources, total as well as cultivated land were higher with respondents from Solan. All the mushroom farmers were growing vegetables on their farms. As such the mushroom cultivation can be said to be an activity adopted only by the progressive farmers.

TABLE: 6.9 PRODUCTION PATTERN ON THE FARMS OF SELECTED MUSHROOM CULTIVATORS.

(Qtls./Farm)

PARTICULARS	CATEGORY			OVERALL
	SMALL	MEDIUM	LARGE	
SOLAN				
KHARIF				
1. Maize	11.33	6.46	5.20	7.45
2. Potato	4.75	2.00	5.00	3.95
3. Tomato	25.75	28.23	29.46	27.95
RABI				
1. Wheat	10.41	6.15	7.60	7.97
2. Barley	1.07	6.92	1.40	1.07
3. Cauliflower	4.08	0.00	13.80	6.40
4. Cabbage	1.92	0.00	11.67	4.95
5. Peas	9.50	13.15	10.75	11.15
SHIMLA				
KHARIF				
1. Maize	0.30	0.00	0.00	0.10
2. Potato	18.0	7.28	10.0	11.03
3. Tomato	0.00	0.00	0.00	0.00
RABI				
1. Wheat	0.30	0.00	0.00	0.10
2. Barley	0.60	0.00	0.00	0.20
3. Cauliflower	0.00	1.83	0.00	1.10
4. Cabbage	8.40	5.05	8.00	6.36
5. Peas	2.50	5.38	8.00	4.60
OVERALL				
KHARIF				
1. Maize	6.31	2.70	4.58	4.30
2. Potato	10.77	5.06	5.58	6.98
3. Tomato	14.04	11.83	26.00	5.97
RABI				
1. Wheat	5.81	2.58	6.70	4.60
2. Barley	0.85	0.29	1.23	0.69
3. Cauliflower	2.22	1.06	12.17	4.12
4. Cabbage	4.86	2.93	11.23	5.55
5. Peas	6.31	8.64	10.41	8.34

TABLE: 6.10 LIVESTOCK PROFILE ON THE FARMS OF SELECTED MUSHROOM CULTIVATORS.

(NO./FARM)

LIVESTOCK	CATEGORY			OVERALL
	SMALL	MEDIUM	LARGE	
		SOLAN		
COWS	2.25	2.30	1.86	2.12
BUFFALOES	1.75	0.92	0.46	1.00
OTHERS	0.91	0.92	0.80	0.87
INCOME (RS/YEAR/ FARM)	24367	23695	23746	23916
		SHIMLA		
COWS	0.50	0.83	0.50	0.70
BUFFALOES	0.40	0.44	0.50	0.43
OTHERS	0.50	0.83	0.50	0.70
INCOME (RS/YEAR/FARM)	10382	14562	12000	12998
		OVERALL		
COWS	1.45	1.45	1.70	1.51
BUFFALOES	1.13	0.64	0.47	0.75
OTHERS	0.72	0.87	0.76	0.80
INCOME (RS/YEAR/FARM)	18010	18392	22364	19237

CHAPTER -VII

ECONOMICS OF MUSHROOM CULTIVATION

The profitability of an enterprise is a result of inter-relationship between the costs and returns. The level of each determines the net flow of cash to farm to be used for on farm investments or consumption by farm families or to build up cash reserves. The two aspects have to be dealt separately for enhancing the net profits. In present chapter the costs and returns from mushroom cultivation have been analysed to work out the economics of this venture on different categories of farms in both the district and at overall level as well. An attempt has been made to present different costs involved and pattern of output and returns. The nature of costs stems out from type and extent of inputs used and the returns from the quantum of output.

7.1 TYPE OF MUSHROOMS

The National Research Centre from Mushrooms, Solan has propagated the cultivation of white bottom mushrooms (Agaricus bisporus) as a result the cultivation of only this type of mushrooms has caught on. Table 7.1 reveals that all the sampled mushroom cultivation's were growing only white bottom mushroom.

TABLE: 7.1 TYPE OF MUSHROOM GROWN.

(%)

TYPE	CATEGORY			OVERALL
	SMALL	MEDIUM	LARGE	
		SOLAN		
WHITE BUTTON	100.00	100.00	100.00	100.00
OTHERS	0.00	0.00	0.00	0.00
		SHIMLA		
WHITE BUTTON	100.00	100.00	100.00	100.00
OTHERS	0.00	0.00	0.00	0.00
		OVERALL		
WHITE BUTTON	100.00	100.00	100.00	100.00
OTHERS	0.00	0.00	0.00	0.00

7.2 TYPE OF BUILDING

The mushroom farming is an indoor activity because of strict temperature and humidity requirements, which can only be regulated indoors. Thus, this activity has to be carried out with in the buildings, residential or constructed separately for the specific purpose of mushroom farming. The enquiries revealed, that majority of mushroom farmers began with the cultivated in some room, usually unused, in the residential house, but later due to profitability of the venture, constructed separate buildings for the purpose. Table 7.2 reveals that all the sampled mushroom farmers have been cultivating mushroom in a separate building in district Solan. Such buildings are invariably cemented. The situation is almost similar in Shimla except that three medium farmers have been using mud plastered buildings for the cultivation. At overall level cent percent farmers were using separate buildings of which about 96 per cent were cemented. This indicates that farmers have been using the venture quite profitable and has generated enough income to enable them to invest in separate cemented buildings for the production of mushrooms.

TABLE: 7.2 TYPE OF BUILDING USED FOR MUSHROOM CULTIVATION.

(%)

CATEGORY	CULTIVATION IN		TYPE OF BUILDING		
	SEPARATE BUILDING	RESIDENTIAL HOUSE	CEMENTED	MUD PLASTERED	TENTS/GREEN HOUSE
SOLAN					
SMALL	100.00	0.00	100.00	0.00	0.00
MEDIUM	100.00	0.00	100.00	0.00	0.00
LARGE	100.00	0.00	100.00	0.00	0.00
OVERALL	100.00	0.00	100.00	0.00	0.00
SHIMLA					
SMALL	100.00	0.00	100.00	0.00	0.00
MEDIUM	100.00	0.00	83.33	16.17	0.00
LARGE	100.00	0.00	100.00	0.00	0.00
OVERALL	100.00	0.00	90.90	9.10	0.00
OVERALL					
SMALL	100.00	0.00	100.00	0.00	0.00
MEDIUM	100.00	0.00	90.32	9.68	0.00
LARGE	100.00	0.00	100.00	0.00	0.00
OVERALL	100.00	0.00	95.71	4.29	0.00

7.3 AREA DEVOTED FOR CULTIVATION OF MUSHROOM

Although, the quantum of production can be increased by housing the activity in a separate building, the main consideration is the area available and devoted for the cultivation. The analysis in this regard indicates that each farmer was devoting about 131 Sq. Meters of area for cultivation at overall level (Table 7.3). The area devoted does not necessarily means the floor area of the building as cultivation is carried out on racks having 3-5 tiers. The farmers of Solan had devoted considerably larger area (175.37 sq. M) as compared with Shimla farmers who had devoted an average of 73.46 Sq. Meters for the purpose. The small farmers at overall level had devoted only 33 Sq. Meters area which increased to 68.45 Sq. Meters in case of medium and 370.58 Sq. Meters, in case of large farmers.

TABLE: 7.3 AREA DEVOTED FOR CULTIVATION OF MUSHROOM

(SQ.METERS/H.H.)

DISTRICT	CATEGORY			
	SMALL	MEDIUM	LARGE	OVERALL
SOLAN	31.50	68.23	383.33	175.37
SHIMLA	34.80	68.61	275.00	73.46
OVERALL	33.00	68.45	370.58	130.68

7.4 NUMBER OF POLYTHENE BAGS

After the analysis of area devoted for the cultivation of mushrooms, it was thought to be pertinent to include the number of trays or bags used for the cultivation. The analysis revealed that none of the sampled farmers were using the wooden trays for the purpose (Table 7.4). The reason was the comparative economics. The wooden trays were reported to be costly and lasted only for two years. The capacity of wooden tray has been reported to be four times that of the polythene bags, which have 10-12 kgs of compost. The analysis indicates that at overall level each farmer had about 1184 polythene bags. The small farmers were using about 297 bags, the medium 618 and the large about 3365 bags at overall level. The average number of bags in Solan was far more (1590) as compared with Shimla farmers where number was only 643.

TABLE: 7.4 NUMBER OF WOODEN TRAYS AND POLYTHENE BAGS USED.

(No.)

PARTICULARS	CATEGORY			
	SMALL	MEDIUM	LARGE	OVERALL
SOLAN				
WOODEN TRAYS	-	-	-	-
POLYTHENE BAGS	283.33	615.38	34.80	1590
TOTAL	283.33	615.38	34.80	1590
SHIMLA				
WOODEN TRAYS	-	-	-	-
POLYTHENE BAGS	174.44	619.44	25.00	643
TOTAL	174.44	619.44	25.00	643
OVERALL				
WOODEN TRAYS	-	-	-	-
POLYTHENE BAGS	297.27	617.74	3364.70	1184.14
TOTAL	297.27	617.74	3364.70	1184.14

Note: Capacity of 1 polythene bags = 10-12 KG

7.5 COST OF CULTIVATION

The cost of cultivation of mushrooms has been worked for an average farm and per bag basis. Further cost A, B and C have been worked out and presented in Table 7.5. It may be seen from the table that cost A and B are almost same and were about Rs.50.50 per bag and B about Rs. 59806 per farm at overall level. The cost C for overall sample was Rs. 75544 per farm and Rs.63.80 per bag. The highest cost was observed to be in case of medium farmers followed by small and large. Similarly, the cost C was higher for Shimla farmers, Rs.65.99 per bag as compared with Rs. 63.13 per bag for Solan. However, the situation reverses if per farm basis is considered, the cost being Rs.100377 in Solan and Rs.42431 in Shimla. The cost of cultivation per bag, which is more relevant indicates that farms located in district Solan are generally more efficient them those of Shimla.

TABLE: 7.5 COST OF CULTIVATION OF MUSHROOMS.

(RS.)

CATEGORY	COST A PER FARM	COST B PER FARM	COST C PER FARM									
	890083											
	12516											
SMALL	10545	35.46	-	10570	35.54	-	16953.9253	-	• MEDIUM	34080.5645	-	34080.7618 -

•

7.6 COST OF PRODUCTION

The cost of mushroom production has been presented in Table 7.6 indicating that cost of producing mushroom in the State has been Rs.23.83 per kg. The cost was lower in Solan (Rs.23.08/Kg) as compared with Shimla (Rs.26.51/kg) again indicating the efficient operations and management by Solan farmers. The large farmers at overall level appeared to be most efficient registering Rs.22.87/kg as cost of production and medium the most inefficient having Rs. 26.41/kg as cost of production which being highest. Almost similar pattern was observed in both the districts.

TABLE: 7.6 COST OF PRODUCTION OF MUSHROOM.

(RS./KG.)

DISTRICT	CATEGORY			
	SMALL	MEDIUM	LARGE	OVERALL
SOLAN	24.59	25.39	22.65	23.08
SHIMLA	25.29	27.16	25.73	26.51
OVERALL	24.95	26.41	22.87	23.83

7.7 PRODUCTION PATTERN

The production pattern of mushrooms depends upon number of crops grown in a year and number of harvests. The farmers were observed to be taking two crops a year except for the large farmers of Shimla who were taking three crops a year. The number of harvests or pickings depends upon the maturity of individual fruits and market demand. It was observed that during the tourist season in Shimla, the farmer tend to increase the number of pickings as they did not want to wait for taking advantage of good prices. The details have been presented in Table 7.7. It may be seen from the table that number of harvests were 73 for overall level in Solan and for the individual categories this figure was 70,74 and 75 for small, medium and large farmers respectively. In Shimla number of harvests were 75,76 and 102 for small, medium and large farmers. The abnormal high figure for large category is due to additional crop this category is taking. The average number of harvests in Shimla was 7.7. At overall level of the state, the average number of harvests were 75 and for individual categories these were 73,75 and 78 for small, medium and large categories respectively. The average production per harvest was higher (116.55 kg) in Solan as compared with only 40.12 kg per harvest per farm in Shimla. At overall level per harvest production was 83.79 kg per farm. The table further presents the percentage of different grades of mushrooms in total production. At overall level about 69 per cent of the produce belonged to grade 'A', about 23 per cent to 'B' and the rest about 8 per cent to grade 'C'. The percentage of 'A' and 'B' grade produce was higher in Solan than Shimla. The details in this respect may be referred from the table.

TABLE: 7.7 PRODUCTION PATTERN OF MUSHROOM AT SAMPLED FARMS.

(Per Farm)

PARTICULARS• CATEGORY CATEGORY • • • SMALL• • • SMALL• • SMALL• MEDIUM• LARGE• OVERALL • • SOLAN• • SMALL• MEDIUM• LARGE • OVERALL• MEDIUM• LARGE• OVERALL• • SOLAN • • NO.OF HARVESTS/YEAR• 70• 74 • 75• 73• • **AV.PROD./HARVEST(KG.)** • 20.23• 44.38• 256.17• 116.55• • **% OF GRADE A LARGE• OVERALL• • SOLAN• • NO.OF HARVESTS/YEAR•** 70• 74 • 75• 73• • **AV.PROD./HARVEST(KG.)** • 20.23• 44.38• 256.17• 116.55• • **% OF GRADE A OVERALL• • • SOLAN• • NO.OF HARVESTS/YEAR•** 70• 74 • 75• 73• • **AV.PROD./HARVEST(KG.)** • 20.23• 44.38• 256.17• 11

6.55• • **% OF GRADE A SOLAN**• • **NO .OF HARVESTS/Y EAR**• 70• 74 • 75• 73• • **A V.PROD./HA RVEST(KG.)** • 20.23• 44.3 8• 256.17• 11 6.55• • **% OF GRADE A** • **NO.OF HARVESTS/Y EAR**• 70• 74 • 75• 73• • **A V.PROD./HA RVEST(KG.)** • 20.23• 44.3 8• 256.17• 11 6.55• • **% OF GRADE A NO.OF HARVESTS/Y EAR**• 70• 74 • 75• 73• • **A V.PROD./HA RVEST(KG.)** • 20.23• 44.3 8• 256.17• 11 6.55• • **% OF GRADE A** 70• 74• 75• 7 3• • **AV.PRO D./HARVEST(KG.)**• 20.23• 74• 75• 73• • 75• 73• • **AV. PROD./HARV EST(KG.)**• 20 .23• 44.38• 2 56.17• 116.55 • • **% OF GRADE A** 73• • **AV.PRO D./HARVEST(KG.)**• 20.23• • **AV.PROD./ HARVEST(K G.)**• 20.23• 4 4.38• 256.17

• 116.55• • **% OF GRADE A**
AV.PROD./HARVEST(KG.)
• 20.23• 44.38• 256.17• 116.55• • **% OF GRADE A**
20.23• 44.38• 256.17• 116.55• • **% OF GRADE A**
44.38• 256.17• 116.55• • **% OF GRADE A**
256.17• 116.55• • **% OF GRADE A**
116.55• • **% OF GRADE A**
• **% OF GRADE A**
% OF GRADE A
% OF GRADE B
% OF GRADE C• 72.50
72.50
20.17
7.33• 66.15
66.15
32.30
1.55• 69.67
69.67
25.00
5.33• 69.37
69.37
25.93
4.70• • **SHIMLA**• • **NO.OF HARVESTS/YEAR**• 75• 76
• 102• 77• •
• **SHIMLA**• •
SHIMLA• • **NO.OF HARVESTS/Y**

EAR• 75• 76
• 102• 77• •
• **NO.OF**
HARVESTS/Y
EAR• 75• 76
• 102• 77• •
NO.OF
HARVESTS/Y
EAR• 75• 76
• 102• 77• •
75• 76• 102•
76• 102• 77•
102• 77• • **AV**
.PROD./HAR
VEST(KG.)• 1
7.86• 42.25•
77• • **AV.PRO**
D./HARVEST(
KG.)• 17.86•
• **AV.PROD./**
HARVEST(K
G.)• 17.86• 4
2.25• 132.35
• 40.12• • **%**
OF GRADE
A
AV.PROD./H
ARVEST(KG.)
• 17.86• 42.2
5• 132.35• 40
.12• • **% OF**
GRADE A
17.86• 42.25
• 132.35• 40.
12• • **% OF**
GRADE A
42.25• 132.35
• 40.12• • **%**
OF GRADE
A
132.35• 40.12
• • **% OF**
GRADE A
40.12• • **%**
OF GRADE
A
• **% OF**
GRADE A
% OF GRADE
A
% OF GRADE
B

% OF GRADE C• 73.27 73.27 19.31 7.42• 65.05 65.05 18.47 16.48• 80.00 80.00 10.00 10.00• 68.86 68.86 18.18 12.96• • **OVE RALL**• • **NO. OF HARVESTS/Y EAR**• 73• 75 • 78• 75• • **A V.PROD./HA RVEST(KG.)** • 19.15• 43.1 4• 241.60• 83 .79• • **% OF GRADE A** • **OVERALL**• **OVERALL**• • • **NO.OF HARVESTS/Y EAR**• 73• 75 • 78• 75• • **A V.PROD./HA RVEST(KG.)** • 19.15• 43.1 4• 241.60• 83 .79• • **% OF GRADE A** **NO.OF HARVESTS/Y EAR**• 73• 75 • 78• 75• • **A V.PROD./HA RVEST(KG.)** • 19.15• 43.1 4• 241.60• 83 .79• • **% OF GRADE A** 73• 75• 78• 7 5• • **AV.PRO D./HARVEST(KG.)**• 19.15• 75• 78• 75• •

78• 75• • **AV. PROD./HARVEST(KG.)**• 19 .15• 43.14• 2 41.60• 83.79 • • **% OF GRADE A** 75• • **AV.PROD./HARVEST(KG.)**• 19.15• • **AV.PROD./HARVEST(KG.)**• 19.15• 4 3.14• 241.60 • 83.79• • **% OF GRADE A** **AV.PROD./HARVEST(KG.)** • 19.15• 43.1 4• 241.60• 83 .79• • **% OF GRADE A** 19.15• 43.14 • 241.60• 83. 79• • **% OF GRADE A** 43.14• 241.60 • 83.79• • **% OF GRADE A** 241.60• 83.79 • • **% OF GRADE A** 83.79• • **% OF GRADE A** • **% OF GRADE A** **% OF GRADE A** **% OF GRADE B** **% OF GRADE C**• 72.85 72.85 19.77 7.38• 65.52 65.52 24.35 10.13• 70.88 70.88

23.23
5.89• 69.15
69.15
22.63
8.22• •
•

7.8 DIFFERENT COST COMPONENTS IN VARIABLE COST

The share of different components in total variable cost indicates the relative importance of different heads in total production sequence.

The results of analysis have been presented in Table 7.8 wherein it may be seen that total variable cost at overall level was

Rs.59804 per season (or per crop). The highest percentage of this was required for purchase of compost which accounted for about 54 per cent. The cost of compost also includes the cost of casing oil and lime stone as the compost supplied by private traders includes these and it was very difficult to separate their costs. This was followed by labour cost, consuming about 29 per cent of the total variable cost. The miscellaneous expenditure including electricity and water changes, interest and depreciation etc. accounted for other 9.5 per cent of total variable cost. Only about five percent of variable cost was incurred on spawn. The expenditure on compost was quite high (in percentage terms) in Shimla whereas hired labour accounted for higher share in Solan. The total variable cost per farm was substantially higher in

Solan (Rs.82854) as compared with Shimla, where it was only Rs.29072 per farm.

TABLE: 7.8 SHARE OF DIFFERENT COST COMPONENTS IN TOTAL

VARIABLE COST.

(%)

ITEM• CATEGORY CATEGORY • • • SMALL• • • SMALL• • SMALL• MEDIUM• LARGE• OVERALL • • SOLAN• • SMALL• MEDIUM• LARGE • OVERALL• MEDIUM• LARGE• OVERALL• • SOLAN • • 1. COMPOST• 77.85• 58.75• **LARGE• OVERALL• • SOLAN• • 1. COMPOST•** 77.85• 58.75• **OVERALL• • • SOLAN• • 1 . COMPOST•** 77.85• 58.75• **SOLAN• • 1. COMPOST•** 77.85• 58.75•

• **1. COMPOST**• 77.85• 58.75• **1. COMPOST**• 77.85• 58.75• 77.85• 58.75 • 46.21• 48.73• • **2. SPAWN**• 7.96 • 5.04• 4.64• 58.75• 46.21 • 48.73• • **2. SPAWN**• 7.96 • 5.04• 4.64• 46.21• 48.73 • • **2. SPAWN**• 7.96 • 5.04• 4.64• 48.73• • **2. SPAWN**• 7.96 • 5.04• 4.64• • **2. SPAWN**• 7.96 • 5.04• 4.64• **2. SPAWN**• 7.96 • 5.04• 4.64• 7.96• 5.04• 4.64• 4.80• • **3. CASING OIL**• -• -• -• - • • **4. LIME STONE**• -• - • -• -• • **5. MEDICINES**• 5.04• 4.64• 4.80• • **3. CASING OIL**• -• -• -• - • • **4. LIME STONE**• -• - • -• -• • **5. MEDICINES**• 4.64• 4.80• • 4.80• • **3. CASING OIL**• -• -• -• - • • **4. LIME STONE**• -• - • -• -• • **5. MEDICINES**•

• 3. CASING
OIL• -• -• -• -
• • 4. LIME
STONE• -• -
• -• -• • 5.
MEDICINES•
3. CASING
OIL• -• -• -• -
• • 4. LIME
STONE• -• -
• -• -• • 5.
MEDICINES•
-• -• -• -• • 4.
LIME
STONE• -• -
• -• -• • 5.
MEDICINES•
-• -• -• • 4.
LIME
STONE• -• -
• -• -• • 5.
MEDICINES•
-• -• • 4. LIME
STONE• -• -
• -• -• • 5.
MEDICINES•
-• • 4. LIME
STONE• -• -
• -• -• • 5.
MEDICINES•
• 4. LIME
STONE• -• -
• -• -• • 5.
MEDICINES•
4. LIME
STONE• -• -
• -• -• • 5.
MEDICINES•
-• -• -• -• • 5.
MEDICINES•
-• -• -• • 5.
MEDICINES•
-• -• • 5.
MEDICINES•
-• • 5.
MEDICINES•
• 5.
MEDICINES•
5.
MEDICINES•
4.07• 2.42• 2.
04• 2.15• • 6.

HIRED LABOUR 2.42• 2.04• 2. 15• • **6. HIRED LABOUR** 2.04• 2.15• • 2.15• • **6. HIRED LABOUR** • **6. HIRED LABOUR** **6. HIRED LABOUR** **7. MISCELLANEOUS**• - - 10.12• 24.21 24.21 9.58• 37.70 37.70 9.41• 34.87 34.87 9.45• • **TOTAL COST RS/FARM**• 8900• 30507• 187385• 82854 • • **SHIMLA**• • **TOTAL COST RS/FARM**• 8900• 30507• 187385• 82854 • • **SHIMLA**• **TOTAL COST RS/FARM**• 8900• 30507• 187385• 82854 • • **SHIMLA**• 8900• 30507 • 187385• 82854• • **SHIMLA**• • **1. COMPOST**• 80.65• 70.30• 30507• 187385• 82854• • **SHIMLA**• • **1. COMPOST**• 80.65• 70.30•

187385• 8285 4• • **SHIMLA** • • **1. COMPOST•** 80.65• 70.30• 82854• • **SHIMLA•** • **1. COMPOST•** 80.65• 70.30• • **SHIMLA•** • **SHIMLA•** • **1. COMPOST•** 80.65• 70.30• • **1. COMPOST•** 80.65• 70.30• **1. COMPOST•** 80.65• 70.30• 80.65• 70.30 • 77.85• 73.63• • **2. SPAWN•** 6.03 • 5.20• 5.90• 70.30• 77.85 • 73.63• • **2. SPAWN•** 6.03 • 5.20• 5.90• 77.85• 73.63 • • **2. SPAWN•** 6.03 • 5.20• 5.90• 73.63• • **2. SPAWN•** 6.03 • 5.20• 5.90• • **2. SPAWN•** 6.03 • 5.20• 5.90• **2. SPAWN•** 6.03 • 5.20• 5.90• 6.03• 5.20• 5.90• 5.49• • **3. CASING OIL•** -• -• -• - • • **4. LIME STONE•** -• - • -• -• • **5. MEDICINES•** 5.20• 5.90• 5.49• • **3. CASING**

OIL• -• -• -• -
• • **4. LIME**
STONE• -• -
• -• -• • **5.**
MEDICINES•
5.90• 5.49• •
5.49• • **3.**
CASING
OIL• -• -• -• -
• • **4. LIME**
STONE• -• -
• -• -• • **5.**
MEDICINES•
• **3. CASING**
OIL• -• -• -• -
• • **4. LIME**
STONE• -• -
• -• -• • **5.**
MEDICINES•
3. CASING
OIL• -• -• -• -
• • **4. LIME**
STONE• -• -
• -• -• • **5.**
MEDICINES•
-• -• -• -• • **4.**
LIME
STONE• -• -
• -• -• • **5.**
MEDICINES•
-• -• -• • **4.**
LIME
STONE• -• -
• -• -• • **5.**
MEDICINES•
-• -• • **4. LIME**
STONE• -• -
• -• -• • **5.**
MEDICINES•
-• • **4. LIME**
STONE• -• -
• -• -• • **5.**
MEDICINES•
• **4. LIME**
STONE• -• -
• -• -• • **5.**
MEDICINES•
4. LIME
STONE• -• -
• -• -• • **5.**
MEDICINES•
-• -• -• -• • **5.**

MEDICINES• **-• -• -• • 5.** **MEDICINES•** **-• -• • 5.** **MEDICINES•** **-• • 5.** **MEDICINES•** **• 5.** **MEDICINES•** **5.** **MEDICINES•** 3.19• 2.88• 2. 35• 2.79• • **6.** **HIRED** **LABOUR** 2.88• 2.35• 2. 79• • **6.** **HIRED** **LABOUR** 2.35• 2.79• • 2.79• • **6.** **HIRED** **LABOUR** **• 6. HIRED** **LABOUR** **6. HIRED** **LABOUR** **7.** **MISELLANE** **OUS•** - - 10.13• 11.67 11.67 9.95• 4.10 4.10 9.80• 8.15 8.15 9.94• • **TOTA** **L COST** **RS.•** 12516• **• TOTAL** **COST** **RS.•** 12516• **TOTAL COST** **RS.•** 12516• 12516• 29726 • 105962• 29 072• • **OVER** **ALL• • 1.** **COMPOST•** 7 9.36• 65.38• 29726• 10596

2• 29072• • **O VERALL• • 1. COMPOST•** 79.36• 65.38• 105962• 29072• • **OVERALL• • 1. COMPOST•** 79.36• 65.38• 29072• • **OVERALL• • 1. COMPOST•** 79.36• 65.38• **• OVERALL• OVERALL• • • 1. COMPOST•** 79.36• 65.38• **1. COMPOST•** 79.36• 65.38• 79.36• 65.38 • 48.43• 53.92• • **2. SPAWN•** 6.92 • 5.13• 4.73• 65.38• 48.43 • 53.92• • **2. SPAWN•** 6.92 • 5.13• 4.73• 48.43• 53.92 • • **2. SPAWN•** 6.92 • 5.13• 4.73• 53.92• • **2. SPAWN•** 6.92 • 5.13• 4.73• **• 2. SPAWN•** 6.92 • 5.13• 4.73• **2. SPAWN•** 6.92 • 5.13• 4.73• 6.92• 5.13• 4.73• 4.94• • **3. CASING OIL•** -• -• -• - • • **4. LIME STONE•** -• - • -• -• • **5. MEDICINES•** 5.13• 4.73• 4.

94• • **3. CASING OIL• -• -• -• -**
• • 4. LIME STONE• -• -
• -• -• • 5. MEDICINES•
4.73• 4.94• •
4.94• • **3. CASING OIL• -• -• -• -**
• • 4. LIME STONE• -• -
• -• -• • 5. MEDICINES•
• 3. CASING OIL• -• -• -• -
• • 4. LIME STONE• -• -
• -• -• • 5. MEDICINES•
3. CASING OIL• -• -• -• -
• • 4. LIME STONE• -• -
• -• -• • 5. MEDICINES•
-• -• -• -• • 4. LIME STONE• -• -
• -• -• • 5. MEDICINES•
-• -• -• • 4. LIME STONE• -• -
• -• -• • 5. MEDICINES•
-• -• • 4. LIME STONE• -• -
• -• -• • 5. MEDICINES•
-• • 4. LIME STONE• -• -
• -• -• • 5. MEDICINES•
• 4. LIME STONE• -• -
• -• -• • 5. MEDICINES•
4. LIME STONE• -• -
• -• -• • 5.

MEDICINES• -• -• -• -• • **5. MEDICINES•** -• -• -• • **5. MEDICINES•** -• -• • **5. MEDICINES•** -• • **5. MEDICINES•** • **5. MEDICINES•** **5. MEDICINES•** 3.59• 2.68• 2.06• 2.28• • **6. HIRED LABOUR** 2.68• 2.06• 2.28• • **6.HIRED LABOUR** 2.06• 2.28• • 2.28• • **6.HIRED LABOUR** • **6.HIRED LABOUR** **6.HIRED LABOUR** **7. MISELLANEOUS•** - - 10.13• 17.00 17.00 9.81• 35.34 35.34 9.44• 29.30 29.30 9.56• • **TOTAL COST RS.•** 10543• • **TOTAL COST RS.•** 10543• **TOTAL COST RS.•** 10543• 10543• 30054 • 177805• 59804• • 30054• 177805• 59804• • 177805• 59804• •

59804• •
•

7.9 LABOUR DISTRIBUTION

Labour use pattern has been presented in 7.9 which depicts that on an average 664 mandays of labour required in one season to raise mushroom crop successfully. It varied between 927 days in Solan and 314 days in Shimla districts. The category wise analysis indicates that on small farms only 176 mandays were required which increased to

356 in case of medium and 1859 mandays in case of large farmers. The abnormally higher labour use in case of large farms was due to the fact that some of them are also engaged in making of compost. Some proportion of the compost made is used on the farm and the rest is sold to other farmers who are willing to buy. The analysis indicates that crop management, which includes maintenance of

temperature and watering of trays, is the major head accounting for about 67 percent of the total labour. The cleaning and coshing are other important functions from labour point of view. The crop management has been observed to be most important in both the districts but in Solan it consumed about 71 per cent of labour whereas in Shimla only about 51 percent. The other details may also be referred to from the table.

TABLE: 7.9 OPERATION-WISE DISTRIBUTION OF LABOUR.

(%)

OPERATION• CATEGORY CATEGORY • • • SMALL• MEDIUM• LARGE • OVERALL• • SOLAN• • 1. STERILISATION OF TRAYS ETC.• 1.17• 1.08 • 0.51• 0.54• • **2. FILLING OF COMPOST•** 5.29 • 5.15• 5.69• 5.61• • **3. SPAWNING•** 14.90• 9.48• 4.21• 5.50• • **4. CASING•** 17.65 • 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.•** 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS•** 2.95• 2.17• **• • SMALL• MEDIUM• LARGE• • SMALL• MEDIUM• LARGE• O**

VERALL• • SOL
AN• • 1.
STERILISATION
OF TRAYS
ETC.• 1.17• 1.08
• 0.51• 0.54• • 2.
FILLING OF
COMPOST• 5.29
• 5.15• 5.69• 5.6
1• • 3.
SPAWNING• 14.
90• 9.48• 4.21• 5
.50• • 4.
CASING• 17.65
• 18.43• 3.62• 6.
26• • 5. CROP
MANAGEMENT
• 50.00• 55.56• 7
4.33• 70.66• • 6.
CLEANING
ETC.• 8.24• 8.13
• 9.17• 8.95• • 7.
MISCELLANEO
US• 2.95• 2.17•
SMALL• MEDIU
M• LARGE• OV
ERALL• • SOLA
N• • 1.
STERILISATION
OF TRAYS
ETC.• 1.17• 1.08
• 0.51• 0.54• • 2.
FILLING OF
COMPOST• 5.29
• 5.15• 5.69• 5.6
1• • 3.
SPAWNING• 14.
90• 9.48• 4.21• 5
.50• • 4.
CASING• 17.65
• 18.43• 3.62• 6.
26• • 5. CROP
MANAGEMENT
• 50.00• 55.56• 7
4.33• 70.66• • 6.
CLEANING
ETC.• 8.24• 8.13
• 9.17• 8.95• • 7.
MISCELLANEO
US• 2.95• 2.17•
MEDIUM• LARG
E• OVERALL• •
LARGE• OVERA
LL• • SOLAN• •
OVERALL• • SO
LAN• • 1.
STERILISATION
OF TRAYS
ETC.• 1.17• 1.08
• 0.51• 0.54• • 2.
FILLING OF
COMPOST• 5.29

• 5.15• 5.69• 5.6 1• • **3. SPAWNING•** 14. 90• 9.48• 4.21• 5 .50• • **4. CASING•** 17.65 • 18.43• 3.62• 6. 26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 7 4.33• 70.66• • **6. CLEANING ETC.•** 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEO US•** 2.95• 2.17• • **SOLAN• • 1. STERILISATION OF TRAYS ETC.•** 1.17• 1.08 • 0.51• 0.54• • **2. FILLING OF COMPOST•** 5.29 • 5.15• 5.69• 5.6 1• • **3. SPAWNING•** 14. 90• 9.48• 4.21• 5 .50• • **4. CASING•** 17.65 • 18.43• 3.62• 6. 26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 7 4.33• 70.66• • **6. CLEANING ETC.•** 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEO US•** 2.95• 2.17• **SOLAN• • 1. STERILISATION OF TRAYS ETC.•** 1.17• 1.08 • 0.51• 0.54• • **2. FILLING OF COMPOST•** 5.29 • 5.15• 5.69• 5.6 1• • **3. SPAWNING•** 14. 90• 9.48• 4.21• 5 .50• • **4. CASING•** 17.65 • 18.43• 3.62• 6. 26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 7 4.33• 70.66• • **6. CLEANING ETC.•** 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEO US•** 2.95• 2.17•

• **1. STERILISATION OF TRAYS ETC.**• 1.17• 1.08 • 0.51• 0.54• • **2. FILLING OF COMPOST**• 5.29 • 5.15• 5.69• 5.6 1• • **3. SPAWNING**• 14. 90• 9.48• 4.21• 5 .50• • **4. CASING**• 17.65 • 18.43• 3.62• 6. 26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 7 4.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17•

1. STERILISATION OF TRAYS ETC.• 1.17• 1.08 • 0.51• 0.54• • **2. FILLING OF COMPOST**• 5.29 • 5.15• 5.69• 5.6 1• • **3. SPAWNING**• 14. 90• 9.48• 4.21• 5 .50• • **4. CASING**• 17.65 • 18.43• 3.62• 6. 26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 7 4.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17•

1.17• 1.08• 0.51 • 0.54• • **2. FILLING OF COMPOST**• 5.29 • 5.15• 5.69• 5.6 1• • **3. SPAWNING**• 14. 90• 9.48• 4.21• 5 .50• • **4. CASING**• 17.65 • 18.43• 3.62• 6. 26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 7 4.33• 70.66• • **6. CLEANING**

ETC.• 8.24• 8.13
• 9.17• 8.95• • **7.**
MISCELLANEO
US• 2.95• 2.17•
1.08• 0.51• 0.54
• • **2. FILLING**
OF
COMPOST• 5.29
• 5.15• 5.69• 5.6
1• • **3.**
SPAWNING• 14.
90• 9.48• 4.21• 5
.50• • **4.**
CASING• 17.65
• 18.43• 3.62• 6.
26• • **5. CROP**
MANAGEMENT
• 50.00• 55.56• 7
4.33• 70.66• • **6.**
CLEANING
ETC.• 8.24• 8.13
• 9.17• 8.95• • **7.**
MISCELLANEO
US• 2.95• 2.17•
0.51• 0.54• • **2.**
FILLING OF
COMPOST• 5.29
• 5.15• 5.69• 5.6
1• • **3.**
SPAWNING• 14.
90• 9.48• 4.21• 5
.50• • **4.**
CASING• 17.65
• 18.43• 3.62• 6.
26• • **5. CROP**
MANAGEMENT
• 50.00• 55.56• 7
4.33• 70.66• • **6.**
CLEANING
ETC.• 8.24• 8.13
• 9.17• 8.95• • **7.**
MISCELLANEO
US• 2.95• 2.17•
0.54• • **2.**
FILLING OF
COMPOST• 5.29
• 5.15• 5.69• 5.6
1• • **3.**
SPAWNING• 14.
90• 9.48• 4.21• 5
.50• • **4.**
CASING• 17.65
• 18.43• 3.62• 6.
26• • **5. CROP**
MANAGEMENT
• 50.00• 55.56• 7
4.33• 70.66• • **6.**
CLEANING
ETC.• 8.24• 8.13
• 9.17• 8.95• • **7.**
MISCELLANEO
US• 2.95• 2.17•

• **2. FILLING OF COMPOST**• 5.29 • 5.15• 5.69• 5.61• • **3. SPAWNING**• 14.90• 9.48• 4.21• 5.50• • **4. CASING**• 17.65 • 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• **2. FILLING OF COMPOST**• 5.29 • 5.15• 5.69• 5.61• • **3. SPAWNING**• 14.90• 9.48• 4.21• 5.50• • **4. CASING**• 17.65 • 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• 5.29• 5.15• 5.69 • 5.61• • **3. SPAWNING**• 14.90• 9.48• 4.21• 5.50• • **4. CASING**• 17.65 • 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• 5.15• 5.69• 5.61 • • **3. SPAWNING**• 14.90• 9.48• 4.21• 5.50• • **4. CASING**• 17.65 • 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 7

4.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• 5.69• 5.61• • **3. SPAWNING**• 14.90• 9.48• 4.21• 5.50• • **4. CASING**• 17.65 • 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• 5.61• • **3. SPAWNING**• 14.90• 9.48• 4.21• 5.50• • **4. CASING**• 17.65 • 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• • **3. SPAWNING**• 14.90• 9.48• 4.21• 5.50• • **4. CASING**• 17.65 • 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• **3. SPAWNING**• 14.90• 9.48• 4.21• 5.50• • **4. CASING**• 17.65 • 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING**

ETC.• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• 14.90• 9.48• 4.21• 5.50• • **4. CASING**• 17.65 • 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• 9.48• 4.21• 5.50 • • **4. CASING**• 17.65 • 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• 4.21• 5.50• • **4. CASING**• 17.65 • 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• 5.50• • **4. CASING**• 17.65 • 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• • **4. CASING**• 17.65 • 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING**

ETC.• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• **4. CASING**• 17.65 • 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• 17.65• 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• 18.43• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• 3.62• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• 6.26• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13 • 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17• • **5. CROP MANAGEMENT** • 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13

• 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17•
5. CROP MANAGEMENT
• 50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13
• 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17•
50.00• 55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13
• 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17•
55.56• 74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13
• 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17•
74.33• 70.66• • **6. CLEANING ETC.**• 8.24• 8.13
• 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17•
70.66• • **6. CLEANING ETC.**• 8.24• 8.13
• 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17•
• **6. CLEANING ETC.**• 8.24• 8.13
• 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17•
6. CLEANING ETC.• 8.24• 8.13
• 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17•
8.24• 8.13• 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17•
8.13• 9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17•
9.17• 8.95• • **7. MISCELLANEOUS**• 2.95• 2.17•
8.95• • **7. MISCELLANEOUS**• 2.95• 2.17•

• **7. MISCELLANEOUS**• 2.95• 2.17• **7. MISCELLANEOUS**• 2.95• 2.17• 2.95• 2.17• 2.47 • 2.48• • **TOTAL LABOUR USED (DAYS/SEASON)**• 170• 369• 201 8• 927• • SHIML **A**• • 1. **STERILISATION OF TRAYS ETC.**• 1.63• 1.16 • 0.76• 1.27• • **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• 2.17• 2.47• 2.48 • • **TOTAL LABOUR USED (DAYS/SEASON)**• 170• 369• 201 8• 927• • SHIML **A**• • 1. **STERILISATION OF TRAYS ETC.**• 1.63• 1.16 • 0.76• 1.27• • **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• 2.47• 2.48• • **TOTAL LABOUR USED (DAYS/SEASON)**• 170• 369• 201 8• 927• • SHIML **A**• • 1. **STERILISATION OF TRAYS ETC.**• 1.63• 1.16 • 0.76• 1.27• • **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• 2.48• • **TOTAL LABOUR USED (DAYS/SEASON)**• 170• 369• 201 8• 927• • SHIML

A• • 1.
STERILISATION OF TRAYS ETC.• 1.63• 1.16 • 0.76• 1.27• • **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• • **TOTAL LABOUR USED (DAYS/SEASON)**• 170• 369• 201 8• 927• • SHIML **A**• • 1.
STERILISATION OF TRAYS ETC.• 1.63• 1.16 • 0.76• 1.27• • **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• **TOTAL LABOUR USED (DAYS/SEASON)**• 170• 369• 201 8• 927• • SHIML **A**• • 1.
STERILISATION OF TRAYS ETC.• 1.63• 1.16 • 0.76• 1.27• • **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• 170• 369• 2018• 369• 2018• 927• 2018• 927• • SHI **MLA**• • 1.
STERILISATION OF TRAYS ETC.• 1.63• 1.16 • 0.76• 1.27• • **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• 927• • SHIMLA• • SHIMLA• • **1. STERILISATION OF TRAYS ETC.**• 1.63• 1.16

• 0.76• 1.27• • **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• **SHIMLA**• • 1. **STERILISATION OF TRAYS ETC.**• 1.63• 1.16 • 0.76• 1.27• • **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• • **1. STERILISATION OF TRAYS ETC.**• 1.63• 1.16 • 0.76• 1.27• • **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• **1. STERILISATION OF TRAYS ETC.**• 1.63• 1.16 • 0.76• 1.27• • **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• 1.63• 1.16• 0.76 • 1.27• • **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• 1.16• 0.76• 1.27 • • **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• 0.76• 1.27• • **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79•

1.27• • **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• • **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• **2. FILLING OF COMPOST**• 5.43 • 5.78• 13.49• 6. 69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• 5.43• 5.78• 13.4 9• 6.69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• 5.78• 13.49• 6.6 9• • **3. SPAWNING**• 14. 13• 9.25• 10.79• 13.49• 6.69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• 6.69• • **3. SPAWNING**• 14. 13• 9.25• 10.79• • **3. SPAWNING**• 14. 13• 9.25• 10.79• **3. SPAWNING**• 14. 13• 9.25• 10.79• 14.13• 9.25• 10. 79• 10.51• • **4. CASING**• 17.39 • 19.36• 8.99• 17 .51• • **5. CROP MANAGEMENT** • 50.00• 52.60• 4 3.93• 50.96• • **6. CLEANING ETC.**• 8.16• 9.25 • 18.29• 10.19• 9.25• 10.79• 10. 51• • **4. CASING**• 17.39 • 19.36• 8.99• 17 .51• • **5. CROP MANAGEMENT** • 50.00• 52.60• 4 3.93• 50.96• • **6. CLEANING ETC.**• 8.16• 9.25 • 18.29• 10.19• 10.79• 10.51• • **4** **.**

CASING• 17.39
• 19.36• 8.99• 17
.51• • **5. CROP**
MANAGEMENT
• 50.00• 52.60• 4
3.93• 50.96• • **6.**
CLEANING
ETC.• 8.16• 9.25
• 18.29• 10.19•
10.51• • **4.**
CASING• 17.39
• 19.36• 8.99• 17
.51• • **5. CROP**
MANAGEMENT
• 50.00• 52.60• 4
3.93• 50.96• • **6.**
CLEANING
ETC.• 8.16• 9.25
• 18.29• 10.19•
• **4.**
CASING• 17.39
• 19.36• 8.99• 17
.51• • **5. CROP**
MANAGEMENT
• 50.00• 52.60• 4
3.93• 50.96• • **6.**
CLEANING
ETC.• 8.16• 9.25
• 18.29• 10.19•
4.
CASING• 17.39
• 19.36• 8.99• 17
.51• • **5. CROP**
MANAGEMENT
• 50.00• 52.60• 4
3.93• 50.96• • **6.**
CLEANING
ETC.• 8.16• 9.25
• 18.29• 10.19•
17.39• 19.36• 8.
99• 17.51• • **5.**
CROP
MANAGEMENT
• 50.00• 52.60• 4
3.93• 50.96• • **6.**
CLEANING
ETC.• 8.16• 9.25
• 18.29• 10.19•
19.36• 8.99• 17.
51• • **5. CROP**
MANAGEMENT
• 50.00• 52.60• 4
3.93• 50.96• • **6.**
CLEANING
ETC.• 8.16• 9.25
• 18.29• 10.19•
8.99• 17.51• • **5.**
CROP
MANAGEMENT
• 50.00• 52.60• 4
3.93• 50.96• • **6.**
CLEANING

ETC.• 8.16• 9.25
• 18.29• 10.19•
17.51• • **5.**
CROP
MANAGEMENT
• 50.00• 52.60• 4
3.93• 50.96• • **6.**
CLEANING
ETC.• 8.16• 9.25
• 18.29• 10.19•
• **5. CROP**
MANAGEMENT
• 50.00• 52.60• 4
3.93• 50.96• • **6.**
CLEANING
ETC.• 8.16• 9.25
• 18.29• 10.19•
5. CROP
MANAGEMENT
• 50.00• 52.60• 4
3.93• 50.96• • **6.**
CLEANING
ETC.• 8.16• 9.25
• 18.29• 10.19•
50.00• 52.60• 43
.93• 50.96• • **6.**
CLEANING
ETC.• 8.16• 9.25
• 18.29• 10.19•
52.60• 43.93• 50
.96• • **6.**
CLEANING
ETC.• 8.16• 9.25
• 18.29• 10.19•
43.93• 50.96• • **6**
. CLEANING
ETC.• 8.16• 9.25
• 18.29• 10.19•
50.96• • **6.**
CLEANING
ETC.• 8.16• 9.25
• 18.29• 10.19•
• **6. CLEANING**
ETC.• 8.16• 9.25
• 18.29• 10.19•
6. CLEANING
ETC.• 8.16• 9.25
• 18.29• 10.19•
8.16• 9.25• 18.2
9• 10.19• • **7.**
MISCELLANEO
US• 3.26• 2.60•
9.25• 18.29• 10.
19• • **7.**
MISCELLANEO
US• 3.26• 2.60•
18.29• 10.19• • **7**
.
MISCELLANEO
US• 3.26• 2.60•
10.19• • **7.**
MISCELLANEO

US• 3.26• 2.60•
• **7.**
MISCELLANEO
US• 3.26• 2.60•
7.
MISCELLANEO
US• 3.26• 2.60•
3.26• 2.60• 3.75
• 2.87• • **TOTAL**
LABOUR USED
(DAYS/SEASON
)• 184• 346• 667
• 314• • OVERA
LL• • 1.
STERILISATION
OF TRAYS
ETC.• 1.13• 1.12
• 0.49• 0.61• • **2.**
FILLING OF
COMPOST• 5.11
• 5.62• 6.02• 5.7
2• • **3.**
SPAWNING• 14.
77• 9.27• 4.46• 6
.78• • **4.**
CASING• 17.05
• 19.10• 3.87• 8.
58• • **5. CROP**
MANAGEMENT
• 50.57• 53.93• 7
3.05• 66.56• • **6.**
CLEANING
ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
2.60• 3.75• 2.87
• • **TOTAL**
LABOUR USED
(DAYS/SEASON
)• 184• 346• 667
• 314• • OVERA
LL• • 1.
STERILISATION
OF TRAYS
ETC.• 1.13• 1.12
• 0.49• 0.61• • **2.**
FILLING OF
COMPOST• 5.11
• 5.62• 6.02• 5.7
2• • **3.**
SPAWNING• 14.
77• 9.27• 4.46• 6
.78• • **4.**
CASING• 17.05
• 19.10• 3.87• 8.
58• • **5. CROP**
MANAGEMENT
• 50.57• 53.93• 7
3.05• 66.56• • **6.**
CLEANING
ETC.• 8.53• 8.71

• 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• 3.75• 2.87• • **TOTAL LABOUR USED (DAYS/SEASON)**• 184• 346• 667 • 314• • OVERA **LL**• • 1. **STERILISATION OF TRAYS ETC.**• 1.13• 1.12 • 0.49• 0.61• • **2. FILLING OF COMPOST**• 5.11 • 5.62• 6.02• 5.7 2• • **3. SPAWNING**• 14. 77• 9.27• 4.46• 6 .78• • **4. CASING**• 17.05 • 19.10• 3.87• 8. 58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 7 3.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• 2.87• • **TOTAL LABOUR USED (DAYS/SEASON)**• 184• 346• 667 • 314• • OVERA **LL**• • 1. **STERILISATION OF TRAYS ETC.**• 1.13• 1.12 • 0.49• 0.61• • **2. FILLING OF COMPOST**• 5.11 • 5.62• 6.02• 5.7 2• • **3. SPAWNING**• 14. 77• 9.27• 4.46• 6 .78• • **4. CASING**• 17.05 • 19.10• 3.87• 8. 58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 7 3.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• • **TOTAL LABOUR USED**

(DAYS/SEASON)• 184• 346• 667 • 314• • OVERA **LL**• • 1. **STERILISATION OF TRAYS ETC.**• 1.13• 1.12 • 0.49• 0.61• • **2. FILLING OF COMPOST**• 5.11 • 5.62• 6.02• 5.7 2• • **3. SPAWNING**• 14. 77• 9.27• 4.46• 6 .78• • **4. CASING**• 17.05 • 19.10• 3.87• 8. 58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 7 3.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEO US**• 2.84• 2.25• **TOTAL LABOUR USED (DAYS/SEASON)**• 184• 346• 667 • 314• • OVERA **LL**• • 1. **STERILISATION OF TRAYS ETC.**• 1.13• 1.12 • 0.49• 0.61• • **2. FILLING OF COMPOST**• 5.11 • 5.62• 6.02• 5.7 2• • **3. SPAWNING**• 14. 77• 9.27• 4.46• 6 .78• • **4. CASING**• 17.05 • 19.10• 3.87• 8. 58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 7 3.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEO US**• 2.84• 2.25• 184• 346• 667• 3 14• • OVERALL • • 1. **STERILISATION OF TRAYS ETC.**• 1.13• 1.12 • 0.49• 0.61• • **2. FILLING OF**

COMPOST• 5.11 • 5.62• 6.02• 5.7 2• • **3. SPAWNING**• 14. 77• 9.27• 4.46• 6 .78• • **4. CASING**• 17.05 • 19.10• 3.87• 8. 58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 7 3.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEO US**• 2.84• 2.25• 346• 667• 314• 667• 314• • OVE **RALL**• • 1. **STERILISATION OF TRAYS ETC.**• 1.13• 1.12 • 0.49• 0.61• • **2. FILLING OF COMPOST**• 5.11 • 5.62• 6.02• 5.7 2• • **3. SPAWNING**• 14. 77• 9.27• 4.46• 6 .78• • **4. CASING**• 17.05 • 19.10• 3.87• 8. 58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 7 3.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEO US**• 2.84• 2.25• 314• • OVERALL • • 1. **STERILISATION OF TRAYS ETC.**• 1.13• 1.12 • 0.49• 0.61• • **2. FILLING OF COMPOST**• 5.11 • 5.62• 6.02• 5.7 2• • **3. SPAWNING**• 14. 77• 9.27• 4.46• 6 .78• • **4. CASING**• 17.05 • 19.10• 3.87• 8. 58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 7 3.05• 66.56• • **6. CLEANING**

ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
• OVERALL• • **1.**
STERILISATION
OF TRAYS
ETC.• 1.13• 1.12
• 0.49• 0.61• • **2.**
FILLING OF
COMPOST• 5.11
• 5.62• 6.02• 5.7
2• • **3.**
SPAWNING• 14.
77• 9.27• 4.46• 6
.78• • **4.**
CASING• 17.05
• 19.10• 3.87• 8.
58• • **5. CROP**
MANAGEMENT
• 50.57• 53.93• 7
3.05• 66.56• • **6.**
CLEANING
ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
OVERALL• • 1.
STERILISATION
OF TRAYS
ETC.• 1.13• 1.12
• 0.49• 0.61• • **2.**
FILLING OF
COMPOST• 5.11
• 5.62• 6.02• 5.7
2• • **3.**
SPAWNING• 14.
77• 9.27• 4.46• 6
.78• • **4.**
CASING• 17.05
• 19.10• 3.87• 8.
58• • **5. CROP**
MANAGEMENT
• 50.57• 53.93• 7
3.05• 66.56• • **6.**
CLEANING
ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
• **1.**
STERILISATION
OF TRAYS
ETC.• 1.13• 1.12
• 0.49• 0.61• • **2.**
FILLING OF
COMPOST• 5.11
• 5.62• 6.02• 5.7
2• • **3.**
SPAWNING• 14.
77• 9.27• 4.46• 6
.78• • **4.**

CASING• 17.05
• 19.10• 3.87• 8.
58• • **5. CROP**
MANAGEMENT
• 50.57• 53.93• 7
3.05• 66.56• • **6.**
CLEANING
ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
1.
STERILISATION
OF TRAYS
ETC.• 1.13• 1.12
• 0.49• 0.61• • **2.**
FILLING OF
COMPOST• 5.11
• 5.62• 6.02• 5.7
2• • **3.**
SPAWNING• 14.
77• 9.27• 4.46• 6
.78• • **4.**
CASING• 17.05
• 19.10• 3.87• 8.
58• • **5. CROP**
MANAGEMENT
• 50.57• 53.93• 7
3.05• 66.56• • **6.**
CLEANING
ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
1.13• 1.12• 0.49
• 0.61• • **2.**
FILLING OF
COMPOST• 5.11
• 5.62• 6.02• 5.7
2• • **3.**
SPAWNING• 14.
77• 9.27• 4.46• 6
.78• • **4.**
CASING• 17.05
• 19.10• 3.87• 8.
58• • **5. CROP**
MANAGEMENT
• 50.57• 53.93• 7
3.05• 66.56• • **6.**
CLEANING
ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
1.12• 0.49• 0.61
• • **2. FILLING**
OF
COMPOST• 5.11
• 5.62• 6.02• 5.7
2• • **3.**
SPAWNING• 14.
77• 9.27• 4.46• 6

.78• • **4. CASING•** 17.05 • 19.10• 3.87• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.•** 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS•** 2.84• 2.25• 0.49• 0.61• • **2. FILLING OF COMPOST•** 5.11 • 5.62• 6.02• 5.72• • **3. SPAWNING•** 14.77• 9.27• 4.46• 6.78• • **4. CASING•** 17.05 • 19.10• 3.87• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.•** 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS•** 2.84• 2.25• 0.61• • **2. FILLING OF COMPOST•** 5.11 • 5.62• 6.02• 5.72• • **3. SPAWNING•** 14.77• 9.27• 4.46• 6.78• • **4. CASING•** 17.05 • 19.10• 3.87• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.•** 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS•** 2.84• 2.25• • **2. FILLING OF COMPOST•** 5.11 • 5.62• 6.02• 5.72• • **3. SPAWNING•** 14.77• 9.27• 4.46• 6.78• • **4. CASING•** 17.05 • 19.10• 3.87• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 7

3.05• 66.56• • **6.**
CLEANING
ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
2. FILLING OF
COMPOST• 5.11
• 5.62• 6.02• 5.7
2• • **3.**
SPAWNING• 14.
77• 9.27• 4.46• 6
.78• • **4.**
CASING• 17.05
• 19.10• 3.87• 8.
58• • **5. CROP**
MANAGEMENT
• 50.57• 53.93• 7
3.05• 66.56• • **6.**
CLEANING
ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
5.11• 5.62• 6.02
• 5.72• • **3.**
SPAWNING• 14.
77• 9.27• 4.46• 6
.78• • **4.**
CASING• 17.05
• 19.10• 3.87• 8.
58• • **5. CROP**
MANAGEMENT
• 50.57• 53.93• 7
3.05• 66.56• • **6.**
CLEANING
ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
5.62• 6.02• 5.72
• • **3.**
SPAWNING• 14.
77• 9.27• 4.46• 6
.78• • **4.**
CASING• 17.05
• 19.10• 3.87• 8.
58• • **5. CROP**
MANAGEMENT
• 50.57• 53.93• 7
3.05• 66.56• • **6.**
CLEANING
ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
6.02• 5.72• • **3.**
SPAWNING• 14.
77• 9.27• 4.46• 6
.78• • **4.**
CASING• 17.05
• 19.10• 3.87• 8.

58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• 5.72• • **3. SPAWNING**• 14.77• 9.27• 4.46• 6.78• • **4. CASING**• 17.05 • 19.10• 3.87• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• • **3. SPAWNING**• 14.77• 9.27• 4.46• 6.78• • **4. CASING**• 17.05 • 19.10• 3.87• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• **3. SPAWNING**• 14.77• 9.27• 4.46• 6.78• • **4. CASING**• 17.05 • 19.10• 3.87• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• 14.77• 9.27• 4.46• 6.78• • **4. CASING**• 17.05 • 19.10• 3.87• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6.**

CLEANING ETC.• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• 9.27• 4.46• 6.78 • • **4. CASING**• 17.05 • 19.10• 3.87• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• 4.46• 6.78• • **4. CASING**• 17.05 • 19.10• 3.87• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• 6.78• • **4. CASING**• 17.05 • 19.10• 3.87• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• • **4. CASING**• 17.05 • 19.10• 3.87• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• **4. CASING**• 17.05 • 19.10• 3.87• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING**

ETC.• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• 17.05• 19.10• 3.87• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• 19.10• 3.87• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• 3.87• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• 8.58• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• • **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25• **5. CROP MANAGEMENT** • 50.57• 53.93• 73.05• 66.56• • **6. CLEANING ETC.**• 8.53• 8.71 • 9.58• 9.34• • **7. MISCELLANEOUS**• 2.84• 2.25•

50.57• 53.93• 73
.05• 66.56• • **6.**
CLEANING
ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
53.93• 73.05• 66
.56• • **6.**
CLEANING
ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
73.05• 66.56• • **6**
. CLEANING
ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
66.56• • **6.**
CLEANING
ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
• **6. CLEANING**
ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
6. CLEANING
ETC.• 8.53• 8.71
• 9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
8.53• 8.71• 9.58
• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
8.71• 9.58• 9.34
• • **7.**
MISCELLANEO
US• 2.84• 2.25•
9.58• 9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
9.34• • **7.**
MISCELLANEO
US• 2.84• 2.25•
• **7.**
MISCELLANEO
US• 2.84• 2.25•
7.
MISCELLANEO
US• 2.84• 2.25•
2.84• 2.25• 2.53
• 2.41• • **TOTAL**
LABOUR USED
(DAYS/SEASON
)• 176• 350• 185
9• 664• •

2.25• 2.53• 2.41 • • **TOTAL LABOUR USED (DAYS/SEASON)**• 176• 350• 1859• 664• • 2.53• 2.41• • **TOTAL LABOUR USED (DAYS/SEASON)**• 176• 350• 1859• 664• • 2.41• • **TOTAL LABOUR USED (DAYS/SEASON)**• 176• 350• 1859• 664• • • **TOTAL LABOUR USED (DAYS/SEASON)**• 176• 350• 1859• 664• • **TOTAL LABOUR USED (DAYS/SEASON)**• 176• 350• 1859• 664• • 176• 350• 1859• 350• 1859• 664• 1859• 664• • 664• • •

7.10 SOURCES OF LABOUR

In this analysis the extent of labour from family and hired sources have been analysed and result presented in Table 7.10. It may be seen from the table that at overall level about 53 per cent labour is contributed by hired hands and rest from family sources. The percentage of hired labour was very high in Solan (62%) as against only about 15% in Shimla. The category wise analysis indicates that whereas small farmers were not at all hiring labour for mushroom production, the large farmers were fulfilling about 68 per cent of labour requirements from hired sources.

TABLE: 7.10 SOURCES OF LABOUR USED.

(%)

SOURCE• CATEGORY CATEGORY • • • SMALL• • • SMALL• • SMALL• MEDIUM• LARGE• OVERALL • • SOLAN• • SMALL• MEDIUM• LARGE • OVERALL• MEDIUM• LARGE• OVERALL• • SOLAN
• • HIRED• -
• 40.00• 70.00• 62.27• • **FAMILY•** 100.00• 60.00• 30.00• 37.73• •
LARGE• OVERALL• • SOLAN• • HIRED
• -
• 40.00• 70.00• 62.27• • **FAMILY•** 100.00• 60.00• 30.00• 37.73• •
OVERALL• •
• SOLAN• • H
IRED• -
• 40.00• 70.00• 62.27• • **FAMILY•** 100.00• 60.00• 30.00• 37.73• •
SOLAN• • HI
RED• -
• 40.00• 70.00• 62.27• • **FAMILY•** 100.0

0• 60.00• 30.
00• 37.73• •
• HIRED• -
• 40.00• 70.0
0• 62.27• • **F**
AMILY• 100.0
0• 60.00• 30.
00• 37.73• •
HIRED• -
• 40.00• 70.0
0• 62.27• • **F**
AMILY• 100.0
0• 60.00• 30.
00• 37.73• •
-
• 40.00• 70.0
0• 62.27• • **F**
AMILY• 100.0
0• 60.00• 30.
00• 37.73• •
40.00• 70.00
• 62.27• • **FA**
MILY• 100.00
• 60.00• 30.0
0• 37.73• • **T**
OTAL• 100.0
0• 100.00• 10
0.00• 100.00
• • **SHIMLA•**
70.00• 62.27
• • **FAMILY•**
62.27• • **FAMI**
LY• 100.00• 6
0.00• 30.00•
• **FAMILY•** 10
0.00• 60.00•
FAMILY• 100.
00• 60.00• 30
.00• 37.73• •
100.00• 60.00
• 30.00• 37.7
3• • **TOTAL•**
60.00• 30.00
• 37.73• • **TO**
TAL• 100.00
• 100.00• 100
.00• 100.00•
30.00• 37.73
• • **TOTAL•** 1
00.00• 100.00
• 100.00• 100
.00• • **SHIML**
A• • HIRED• -

• 19.99• 13.04• 15.10• • **FAMILY**• 100.00• 80.01• 86.96• 84.90• • 37.73• • **TOTAL**• 100.00• 100.00• 100.00 • 100.00• • **SHIMLA**• • **HIRED**• - • 19.99• 13.04• 15.10• • **FAMILY**• 100.00• 80.01• 86.96• 84.90• • • **TOTAL**• 100.00• 100.00• **TOTAL**• 100.00• 100.00• 100.00• 100.00 • • **SHIMLA**• 100.00• 100.00• 100.00• 100.00• • **SHIMLA**• • **HIRED** • - • 19.99• 13.04• 15.10• • **FAMILY**• 100.00• 80.01• 86.96• 84.90• • 100.00• 100.00• 100.00• • 100.00• 100.00• • **SHIMLA** • • **HIRED**• - • 19.99• 13.04• 15.10• • **FAMILY**• 100.00• 80.01• 86.96• 84.90• • 100.00• • **SHIMLA**• • **HIRED**• - • 19.99• 13.04• 15.10• • **FAMILY**• 100.00• 80.01• 86.96• 84.90• • • **SHIMLA**• • **SHIMLA**• • **HI**

RED• -
• 19.99• 13.0
4• 15.10• • **F
AMILY**• 100.0
0• 80.01• 86.
96• 84.90• •
• **HIRED**• -
• 19.99• 13.0
4• 15.10• • **F
AMILY**• 100.0
0• 80.01• 86.
96• 84.90• •
HIRED• -
• 19.99• 13.0
4• 15.10• • **F
AMILY**• 100.0
0• 80.01• 86.
96• 84.90• •
-
• 19.99• 13.0
4• 15.10• • **F
AMILY**• 100.0
0• 80.01• 86.
96• 84.90• •
19.99• 13.04
• 15.10• • **FA
MILY**• 100.00
• 80.01• 86.9
6• 84.90• • **T
OTAL**• 100.0
0• 100.00• 10
0.00• 100.00
• • **OVERALL**
• • **HIRED**• -
• 28.69• 67.5
9• 52.73• • **F
AMILY**• 100.0
0• 71.31• 32.
41• 47.27• •
13.04• 15.10
• • **FAMILY**•
15.10• • **FAMI
LY**• 100.00• 8
0.01• 86.96•
• **FAMILY**• 10
0.00• 80.01•
FAMILY• 100.
00• 80.01• 86
.96• 84.90• •
100.00• 80.01
• 86.96• 84.9
0• • **TOTAL**•
80.01• 86.96

• 84.90• • **TO TAL**• 100.00 • 100.00• 100 .00• 100.00• 86.96• 84.90 • • **TOTAL**• 1 00.00• 100.00 • 100.00• 100 .00• • **OVERA LL**• • **HIRED**• - • 28.69• 67.5 9• 52.73• • **F AMILY**• 100.0 0• 71.31• 32. 41• 47.27• • 84.90• • **TOT AL**• 100.00• 1 00.00• 100.00 • 100.00• • **O VERALL**• • **HI RED**• - • 28.69• 67.5 9• 52.73• • **F AMILY**• 100.0 0• 71.31• 32. 41• 47.27• • • **TOTAL**• 100 .00• 100.00• **TOTAL**• 100. 00• 100.00• 1 00.00• 100.00 • • **OVERALL** • • **HIRED**• - • 28.69• 67.5 9• 52.73• • **F AMILY**• 100.0 0• 71.31• 32. 41• 47.27• • 100.00• 100.0 0• 100.00• 10 0.00• • **OVER ALL**• • **HIRE D**• - • 28.69• 67.5 9• 52.73• • **F AMILY**• 100.0 0• 71.31• 32. 41• 47.27• • 100.00• 100.0 0• 100.00• • 100.00• 100.0

0• • **OVERAL**
L• • **HIRED**• -
• 28.69• 67.5
9• 52.73• • **F**
AMILY• 100.0
0• 71.31• 32.
41• 47.27• •
100.00• • **OV**
ERALL• • **HI**
RED• -
• 28.69• 67.5
9• 52.73• • **F**
AMILY• 100.0
0• 71.31• 32.
41• 47.27• •
• **OVERALL**•
OVERALL• •
• **HIRED**• -
• 28.69• 67.5
9• 52.73• • **F**
AMILY• 100.0
0• 71.31• 32.
41• 47.27• •
HIRED• -
• 28.69• 67.5
9• 52.73• • **F**
AMILY• 100.0
0• 71.31• 32.
41• 47.27• •
-
• 28.69• 67.5
9• 52.73• • **F**
AMILY• 100.0
0• 71.31• 32.
41• 47.27• •
28.69• 67.59
• 52.73• • **FA**
MILY• 100.00
• 71.31• 32.4
1• 47.27• • **T**
OTAL• 100.0
0• 100.00• 10
0.00• 100.00
• •
67.59• 52.73
• • **FAMILY**•
52.73• • **FAMI**
LY• 100.00• 7
1.31• 32.41•
• **FAMILY**• 10
0.00• 71.31•
FAMILY• 100.

00• 71.31• 32
.41• 47.27• •
100.00• 71.31
• 32.41• 47.2
7• • **TOTAL•**
71.31• 32.41
• 47.27• • **TO
TAL•** 100.00
• 100.00• 100
.00• 100.00•
32.41• 47.27
• • **TOTAL•** 1
00.00• 100.00
• 100.00• 100
.00• •
47.27• • **TOT
AL•** 100.00• 1
00.00• 100.00
• 100.00• •
• **TOTAL•** 100
.00• 100.00•
TOTAL• 100.
00• 100.00• 1
00.00• 100.00
• •
100.00• 100.0
0• 100.00• 10
0.00• •
100.00• 100.0
0• 100.00• •
100.00• 100.0
0• •
100.00• •
•

NOTE: PERCENTAGES FROM RESPECTIVE TOTALS.

7.11 NET RETURNS

The net returns from mushroom cultivation were very high in Solan, Rs.68732 per season as compared with Shimla where the figure stood at Rs.25927 per farm per season. At overall level each sampled farmer had a net return of Rs.50386 per season. As expected the net returns were directly correlated with farm size in both the districts (Table 7.11).

TABLE: 7.11 NET RETURNS FROM MUSHROOM CULTIVATIO N.

(RS./FARM) PARTICULAR S• CATEGOR Y CATEGORY • • • SMALL• • • SMALL• • SMALL• ME DIUM• LARG E• OVERALL • • SOLAN• • SMALL• MED IUM• LARGE • OVERALL• MEDIUM• LA RGE• OVERA LL• • SOLAN • • TOTAL YIELD (KG.)• 708• 1 600• 9600• 4 400• • **GROS S INCOME•** 283 90• 64378• 3 72450• 16910 9• • **TOTAL COST•** 17421 66• 41603• 2 17678• 10037 7• • **NET RETURNS•** 1 0968• 22775 • 154773• 68 732• • **SHIML A• • TOTAL YIELD (KG.)•** 860• 1 605• 5250• 1 600• • **GROS S**

INCOME• 342
28• 67690• 2
45018• 68358
• • **TOTAL**
COST• 21756
• 43618• 135
108• 42431•
LARGE• **OVE**
RALL• • **SOL**
AN• • **TOTAL**
YIELD
(KG.)• 708• 1
600• 9600• 4
400• • **GROS**
S
INCOME• 283
90• 64378• 3
72450• 16910
9• • **TOTAL**
COST• 17421
66• 41603• 2
17678• 10037
7• • **NET**
RETURNS• 1
0968• 22775
• 154773• 68
732• • **SHIML**
A• • **TOTAL**
YIELD
(KG.)• 860• 1
605• 5250• 1
600• • **GROS**
S
INCOME• 342
28• 67690• 2
45018• 68358
• • **TOTAL**
COST• 21756
• 43618• 135
108• 42431•
OVERALL• •
• **SOLAN**• • **T**
OTAL YIELD
(KG.)• 708• 1
600• 9600• 4
400• • **GROS**
S
INCOME• 283
90• 64378• 3
72450• 16910
9• • **TOTAL**
COST• 17421

66• 41603• 2
17678• 10037
7• • **NET**
RETURNS• 1
0968• 22775
• 154773• 68
732• • **SHIML**
A• • **TOTAL**
YIELD
(KG.)• 860• 1
605• 5250• 1
600• • **GROS**
S
INCOME• 342
28• 67690• 2
45018• 68358
• • **TOTAL**
COST• 21756
• 43618• 135
108• 42431•
SOLAN• • **TO**
TAL YIELD
(KG.)• 708• 1
600• 9600• 4
400• • **GROS**
S
INCOME• 283
90• 64378• 3
72450• 16910
9• • **TOTAL**
COST• 17421
66• 41603• 2
17678• 10037
7• • **NET**
RETURNS• 1
0968• 22775
• 154773• 68
732• • **SHIML**
A• • **TOTAL**
YIELD
(KG.)• 860• 1
605• 5250• 1
600• • **GROS**
S
INCOME• 342
28• 67690• 2
45018• 68358
• • **TOTAL**
COST• 21756
• 43618• 135
108• 42431•
• **TOTAL**

YIELD (KG.)• 708• 1 600• 9600• 4 400• • **GROSS INCOME**• 28390• 64378• 372450• 169109• • **TOTAL COST**• 1742166• 41603• 217678• 100377• • **NET RETURNS**• 10968• 22775 • 154773• 68732• • **SHIMLA**• • **TOTAL YIELD (KG.)**• 860• 1605• 5250• 1600• • **GROSS INCOME**• 34228• 67690• 245018• 68358 • • **TOTAL COST**• 21756 • 43618• 135108• 42431• **TOTAL YIELD (KG.)**• 708• 1 600• 9600• 4 400• • **GROSS INCOME**• 28390• 64378• 372450• 169109• • **TOTAL COST**• 1742166• 41603• 217678• 100377• • **NET RETURNS**• 10968• 22775 • 154773• 68732• • **SHIMLA**• • **TOTAL YIELD (KG.)**• 860• 1605• 5250• 1

600• • **GROSS INCOME**• 34228• 67690• 245018• 68358• • **TOTAL COST**• 21756• 43618• 135108• 42431• 708• 1600• 9600• 4400• • 1600• 9600• 9600• 4400• 4400• • **GROSS INCOME**• 28390• 64378• 372450• 169109• • **TOTAL COST**• 1742166• 41603• 217678• 100377• • **NET RETURNS**• 10968• 22775• 154773• 68732• • **SHIMLA**• • **TOTAL YIELD (KG.)**• 860• 1605• 5250• 1600• • **GROSS INCOME**• 34228• 67690• 245018• 68358• • **TOTAL COST**• 21756• 43618• 135108• 42431• • **GROSS INCOME**• 28390• 64378• 372450• 169109• • **TOTAL COST**• 1742166• 41603• 217678• 100377• • **NET RETURNS**• 10968• 22775• 154773• 68

732• • **SHIML**
A• • **TOTAL**
YIELD
(KG.)• 860• 1
605• 5250• 1
600• • **GROS**
S
INCOME• 342
28• 67690• 2
45018• 68358
• • **TOTAL**
COST• 21756
• 43618• 135
108• 42431•
GROSS
INCOME• 283
90• 64378• 3
72450• 16910
9• • **TOTAL**
COST• 17421
66• 41603• 2
17678• 10037
7• • **NET**
RETURNS• 1
0968• 22775
• 154773• 68
732• • **SHIML**
A• • **TOTAL**
YIELD
(KG.)• 860• 1
605• 5250• 1
600• • **GROS**
S
INCOME• 342
28• 67690• 2
45018• 68358
• • **TOTAL**
COST• 21756
• 43618• 135
108• 42431•
28390• 64378
• 372450• 16
9109• • **TOTA**
L
COST• 17421
66• 41603• 2
17678• 10037
7• • **NET**
RETURNS• 1
0968• 22775
• 154773• 68
732• • **SHIML**

A• • TOTAL YIELD (KG.)• 860• 1 605• 5250• 1 600• • **GROSS INCOME•** 342 28• 67690• 2 45018• 68358 • • **TOTAL COST•** 21756 • 43618• 135 108• 42431• 64378• 37245 0• 169109• • 372450• 1691 09• • **TOTAL COST•** 17421 66• 41603• 2 17678• 10037 7• • **NET RETURNS•** 1 0968• 22775 • 154773• 68 732• • **SHIML A• • TOTAL YIELD (KG.)•** 860• 1 605• 5250• 1 600• • **GROSS INCOME•** 342 28• 67690• 2 45018• 68358 • • **TOTAL COST•** 21756 • 43618• 135 108• 42431• 169109• • **TOTAL COST•** 17421 66• 41603• 2 17678• 10037 7• • **NET RETURNS•** 1 0968• 22775 • 154773• 68 732• • **SHIML A• • TOTAL YIELD (KG.)•** 860• 1 605• 5250• 1

600• • **GROS S INCOME**• 34228• 67690• 245018• 68358 • • **TOTAL COST**• 21756 • 43618• 135108• 42431• • **TOTAL COST**• 1742166• 41603• 217678• 100377• • **NET RETURNS**• 10968• 22775 • 154773• 68732• • **SHIMLA**• • **TOTAL YIELD (KG.)**• 860• 1605• 5250• 1600• • **GROS S INCOME**• 34228• 67690• 245018• 68358 • • **TOTAL COST**• 21756 • 43618• 135108• 42431• **TOTAL COST**• 1742166• 41603• 217678• 100377• • **NET RETURNS**• 10968• 22775 • 154773• 68732• • **SHIMLA**• • **TOTAL YIELD (KG.)**• 860• 1605• 5250• 1600• • **GROS S INCOME**• 34228• 67690• 245018• 68358 • • **TOTAL COST**• 21756 • 43618• 135

108• 42431•
1742166• 416
03• 217678•
41603• 21767
8• 100377• •
217678• 1003
77• • **NET**
RETURNS• 1
0968• 22775
• 154773• 68
732• • **SHIML**
A• • **TOTAL**
YIELD
(KG.)• 860• 1
605• 5250• 1
600• • **GROS**
S
INCOME• 342
28• 67690• 2
45018• 68358
• • **TOTAL**
COST• 21756
• 43618• 135
108• 42431•
100377• • **NE**
T
RETURNS• 1
0968• 22775
• 154773• 68
732• • **SHIML**
A• • **TOTAL**
YIELD
(KG.)• 860• 1
605• 5250• 1
600• • **GROS**
S
INCOME• 342
28• 67690• 2
45018• 68358
• • **TOTAL**
COST• 21756
• 43618• 135
108• 42431•
• **NET**
RETURNS• 1
0968• 22775
• 154773• 68
732• • **SHIML**
A• • **TOTAL**
YIELD
(KG.)• 860• 1
605• 5250• 1

600• • **GROS**
S
INCOME• 342
28• 67690• 2
45018• 68358
• • **TOTAL**
COST• 21756
• 43618• 135
108• 42431•
NET
RETURNS• 1
0968• 22775
• 154773• 68
732• • **SHIML**
A• • **TOTAL**
YIELD
(KG.)• 860• 1
605• 5250• 1
600• • **GROS**
S
INCOME• 342
28• 67690• 2
45018• 68358
• • **TOTAL**
COST• 21756
• 43618• 135
108• 42431•
10968• 22775
• 154773• 68
732• • **SHIML**
A• • **TOTAL**
YIELD
(KG.)• 860• 1
605• 5250• 1
600• • **GROS**
S
INCOME• 342
28• 67690• 2
45018• 68358
• • **TOTAL**
COST• 21756
• 43618• 135
108• 42431•
22775• 15477
3• 68732• • **S**
HIMLA• • **TO**
TAL YIELD
(KG.)• 860• 1
605• 5250• 1
600• • **GROS**
S
INCOME• 342

28• 67690• 2
45018• 68358
• • **TOTAL**
COST• 21756
• 43618• 135
108• 42431•
154773• 6873
2• • **SHIMLA**
• • **TOTAL**
YIELD
(KG.)• 860• 1
605• 5250• 1
600• • **GROS**
S
INCOME• 342
28• 67690• 2
45018• 68358
• • **TOTAL**
COST• 21756
• 43618• 135
108• 42431•
68732• • **SHI**
MLA• • **TOTA**
L YIELD
(KG.)• 860• 1
605• 5250• 1
600• • **GROS**
S
INCOME• 342
28• 67690• 2
45018• 68358
• • **TOTAL**
COST• 21756
• 43618• 135
108• 42431•
• **SHIMLA**• •
SHIMLA• • **T**
OTAL YIELD
(KG.)• 860• 1
605• 5250• 1
600• • **GROS**
S
INCOME• 342
28• 67690• 2
45018• 68358
• • **TOTAL**
COST• 21756
• 43618• 135
108• 42431•
• **TOTAL**
YIELD
(KG.)• 860• 1

605• 5250• 1 600• • **GROS S INCOME•** 342 28• 67690• 2 45018• 68358 • • **TOTAL COST•** 21756 • 43618• 135 108• 42431• **TOTAL YIELD (KG.)•** 860• 1 605• 5250• 1 600• • **GROS S INCOME•** 342 28• 67690• 2 45018• 68358 • • **TOTAL COST•** 21756 • 43618• 135 108• 42431• 860• 1605• 5 250• 1600• • 1605• 5250• 5250• 1600• 1600• • **GRO SS INCOME•** 342 28• 67690• 2 45018• 68358 • • **TOTAL COST•** 21756 • 43618• 135 108• 42431• • **GROSS INCOME•** 342 28• 67690• 2 45018• 68358 • • **TOTAL COST•** 21756 • 43618• 135 108• 42431• **GROSS INCOME•** 342 28• 67690• 2 45018• 68358 • • **TOTAL COST•** 21756 • 43618• 135 108• 42431• 34228• 67690

• 245018• 68
358• • **TOTAL
COST**• 21756
• 43618• 135
108• 42431•
67690• 24501
8• 68358• • **T
OTAL
COST**• 21756
• 43618• 135
108• 42431•
245018• 6835
8• • **TOTAL
COST**• 21756
• 43618• 135
108• 42431•
68358• • **TOT
AL
COST**• 21756
• 43618• 135
108• 42431•
• **TOTAL
COST**• 21756
• 43618• 135
108• 42431•
**TOTAL
COST**• 21756
• 43618• 135
108• 42431•
21756• 43618
• 135108• 42
431• • **NET
RETURNS**• 1
2472• 24072
• 109910• 25
927• • **OVER
ALL**• • **TOTA
L YIELD
(KG.)**• 800• 1
600• 9094• 3
171• • **GROS
S
INCOME**• 310
44• 66301• 3
57458• 12593
0• • **TOTAL
COST**• 19395
• 42773• 207
965• 75544•
43618• 13510
8• 42431• • **N
ET**

RETURNS• 1 2472• 24072 • 109910• 25 927• • **OVER ALL•** • **TOTA L YIELD (KG.)•** 800• 1 600• 9094• 3 171• • **GROS S INCOME•** 310 44• 66301• 3 57458• 12593 0• • **TOTAL COST•** 19395 • 42773• 207 965• 75544• 135108• 4243 1• • **NET RETURNS•** 1 2472• 24072 • 109910• 25 927• • **OVER ALL•** • **TOTA L YIELD (KG.)•** 800• 1 600• 9094• 3 171• • **GROS S INCOME•** 310 44• 66301• 3 57458• 12593 0• • **TOTAL COST•** 19395 • 42773• 207 965• 75544• 42431• • **NET RETURNS•** 1 2472• 24072 • 109910• 25 927• • **OVER ALL•** • **TOTA L YIELD (KG.)•** 800• 1 600• 9094• 3 171• • **GROS S INCOME•** 310 44• 66301• 3 57458• 12593 0• • **TOTAL COST•** 19395

• 42773• 207
965• 75544•
• **NET**
RETURNS• 1
2472• 24072
• 109910• 25
927• • **OVER**
ALL• • **TOTA**
L YIELD
(KG.)• 800• 1
600• 9094• 3
171• • **GROS**
S
INCOME• 310
44• 66301• 3
57458• 12593
0• • **TOTAL**
COST• 19395
• 42773• 207
965• 75544•
NET
RETURNS• 1
2472• 24072
• 109910• 25
927• • **OVER**
ALL• • **TOTA**
L YIELD
(KG.)• 800• 1
600• 9094• 3
171• • **GROS**
S
INCOME• 310
44• 66301• 3
57458• 12593
0• • **TOTAL**
COST• 19395
• 42773• 207
965• 75544•
12472• 24072
• 109910• 25
927• • **OVER**
ALL• • **TOTA**
L YIELD
(KG.)• 800• 1
600• 9094• 3
171• • **GROS**
S
INCOME• 310
44• 66301• 3
57458• 12593
0• • **TOTAL**
COST• 19395

• 42773• 207 965• 75544• 24072• 109910• 25927• • **OVERALL**• • **TOTAL YIELD (KG.)**• 800• 1 600• 9094• 3 171• • **GROSS INCOME**• 310 44• 66301• 3 57458• 125930• • **TOTAL COST**• 19395 • 42773• 207 965• 75544• 109910• 25927• • **OVERALL**• • **TOTAL YIELD (KG.)**• 800• 1 600• 9094• 3 171• • **GROSS INCOME**• 310 44• 66301• 3 57458• 125930• • **TOTAL COST**• 19395 • 42773• 207 965• 75544• 25927• • **OVERALL**• • **TOTAL YIELD (KG.)**• 800• 1 600• 9094• 3 171• • **GROSS INCOME**• 310 44• 66301• 3 57458• 125930• • **TOTAL COST**• 19395 • 42773• 207 965• 75544• • **OVERALL**• **OVERALL**• • • **TOTAL YIELD (KG.)**• 800• 1 600• 9094• 3

171• • **GROSS INCOME•** 31044• 66301• 357458• 125930• • **TOTAL COST•** 19395 • 42773• 207965• 75544• **TOTAL YIELD (KG.)•** 800• 1600• 9094• 3171• • **GROSS INCOME•** 31044• 66301• 357458• 125930• • **TOTAL COST•** 19395 • 42773• 207965• 75544• 800• 1600• 9094• 3171• • 1600• 9094• 9094• 3171• 3171• • **GROSS INCOME•** 31044• 66301• 357458• 125930• • **TOTAL COST•** 19395 • 42773• 207965• 75544• • **GROSS INCOME•** 31044• 66301• 357458• 125930• • **TOTAL COST•** 19395 • 42773• 207965• 75544• **GROSS INCOME•** 31044• 66301• 357458• 125930• • **TOTAL COST•** 19395 • 42773• 207965• 75544• 31044• 66301 • 357458• 12

5930• • **TOTAL COST•** 19395 • 42773• 207965• 75544• 66301• 357458• 125930• • 357458• 125930• • **TOTAL COST•** 19395 • 42773• 207965• 75544• 125930• • **TOTAL COST•** 19395 • 42773• 207965• 75544• • **TOTAL COST•** 19395 • 42773• 207965• 75544• **TOTAL COST•** 19395 • 42773• 207965• 75544• 19395• 42773 • 207965• 75544• • **NET RETURNS•** 11649• 23528 • 149493• 50386• • 42773• 207965• 75544• • **NET RETURNS•** 11649• 23528 • 149493• 50386• • 207965• 75544• • **NET RETURNS•** 11649• 23528 • 149493• 50386• • 75544• • **NET RETURNS•** 11649• 23528 • 149493• 50386• • • **NET RETURNS•** 11649• 23528

• 149493• 50 386• •
NET RETURNS• 11649• 23528 • 149493• 50 386• • 11649• 23528 • 149493• 50 386• • 23528• 149493• 50386• • 149493• 50386• • 50386• • •

7.12 OUTPUT INPUT RATIO

The output-input ratios have been presented in Table 7.12 for different categories of farmers and over different costs. The results of analysis indicate that farmers of Shimla are more efficient of cost A and B are considered but if cost C is taken in to consideration the farmers of Solan are more efficient. The class wise results indicate that small category farmers are most efficient followed by medium and large if costs A and B are considered. The large farmers are most efficient is cost C is under consideration.

TABLE: 7.12 OUTPUT-INPUT RATIOS.

COSTS• CATEGORY CATEGORY • • • SMALL•

• • **SMALL•**
• SMALL• ME
DIUM• LARG
E• OVERALL
• • SOLAN• •
SMALL• MED
IUM• LARGE
• OVERALL•
MEDIUM• LA
RGE• OVERA
LL• • SOLAN
• • COST
A• 3.19• 2.11
• 1.98• 2.04•
LARGE• OVE
RALL• • SOL
AN• • COST
A• 3.19• 2.11
• 1.98• 2.04•
OVERALL• •
• SOLAN• • C
OST
A• 3.19• 2.11
• 1.98• 2.04•
SOLAN• • CO
ST
A• 3.19• 2.11
• 1.98• 2.04•
• COST
A• 3.19• 2.11
• 1.98• 2.04•
COST
A• 3.19• 2.11
• 1.98• 2.04•
3.19• 2.11• 1.
98• 2.04• • **C**
OST
B• 3.18• 2.10
• 1.98• 2.04•
2.11• 1.98• 2.
04• • **COST**
B• 3.18• 2.10
• 1.98• 2.04•
1.98• 2.04• •
2.04• • **COST**
B• 3.18• 2.10
• 1.98• 2.04•
• **COST**
B• 3.18• 2.10
• 1.98• 2.04•
COST
B• 3.18• 2.10

• 1.98• 2.04•
3.18• 2.10• 1.
98• 2.04• • **C
OST
C**• 1.62• 1.55
• 1.71• 1.68•
2.10• 1.98• 2.
04• • **COST
C**• 1.62• 1.55
• 1.71• 1.68•
1.98• 2.04• •
2.04• • **COST
C**• 1.62• 1.55
• 1.71• 1.68•
• **COST
C**• 1.62• 1.55
• 1.71• 1.68•
**COST
C**• 1.62• 1.55
• 1.71• 1.68•
1.62• 1.55• 1.
71• 1.68• • **S
HIMLA**• • **CO
ST
A**• 2.73• 2.28
• 2.31• 2.35•
1.55• 1.71• 1.
68• • **SHIMLA**
• • **COST
A**• 2.73• 2.28
• 2.31• 2.35•
1.71• 1.68• •
1.68• • **SHIM
LA**• • **COST
A**• 2.73• 2.28
• 2.31• 2.35•
• **SHIMLA**• •
SHIMLA• • **C
OST
A**• 2.73• 2.28
• 2.31• 2.35•
• **COST
A**• 2.73• 2.28
• 2.31• 2.35•
**COST
A**• 2.73• 2.28
• 2.31• 2.35•
2.73• 2.28• 2.
31• 2.35• • **C
OST
B**• 2.72• 2.27
• 2.30• 2.34•

2.28• 2.31• 2.
35• • **COST**
B• 2.72• 2.27
• 2.30• 2.34•
2.31• 2.35• •
2.35• • **COST**
B• 2.72• 2.27
• 2.30• 2.34•
• **COST**
B• 2.72• 2.27
• 2.30• 2.34•
COST
B• 2.72• 2.27
• 2.30• 2.34•
2.72• 2.27• 2.
30• 2.34• • **C**
OST
C• 1.57• 1.55
• 1.81• 1.61•
2.27• 2.30• 2.
34• • **COST**
C• 1.57• 1.55
• 1.81• 1.61•
2.30• 2.34• •
2.34• • **COST**
C• 1.57• 1.55
• 1.81• 1.61•
• **COST**
C• 1.57• 1.55
• 1.81• 1.61•
COST
C• 1.57• 1.55
• 1.81• 1.61•
1.57• 1.55• 1.
81• 1.61• • **O**
VERALL• • **C**
OST
A• 2.94• 2.21
• 2.01• 2.11•
1.55• 1.81• 1.
61• • **OVERA**
LL• • **COST**
A• 2.94• 2.21
• 2.01• 2.11•
1.81• 1.61• •
1.61• • **OVER**
ALL• • **COST**
A• 2.94• 2.21
• 2.01• 2.11•
• **OVERALL**•
OVERALL• •
• **COST**

A• 2.94• 2.21
• 2.01• 2.11•
COST
A• 2.94• 2.21
• 2.01• 2.11•
2.94• 2.21• 2.
01• 2.11• • **C**
OST
B• 2.93• 2.20
• 2.01• 2.10•
2.21• 2.01• 2.
11• • **COST**
B• 2.93• 2.20
• 2.01• 2.10•
2.01• 2.11• •
2.11• • **COST**
B• 2.93• 2.20
• 2.01• 2.10•
• **COST**
B• 2.93• 2.20
• 2.01• 2.10•
COST
B• 2.93• 2.20
• 2.01• 2.10•
2.93• 2.20• 2.
01• 2.10• • **C**
OST
C• 1.60• 1.55
• 1.72• 1.66•
2.20• 2.01• 2.
10• • **COST**
C• 1.60• 1.55
• 1.72• 1.66•
2.01• 2.10• •
2.10• • **COST**
C• 1.60• 1.55
• 1.72• 1.66•
• **COST**
C• 1.60• 1.55
• 1.72• 1.66•
COST
C• 1.60• 1.55
• 1.72• 1.66•
1.60• 1.55• 1.
72• 1.66• •
1.55• 1.72• 1.
66• •
1.72• 1.66• •
1.66• •
•

7.13 BREAK-EVEN ANALYSIS

The break even volume is that volume of production at which the farmers have no profit or loss. For this purpose the cost has been taken to be variable cost plus depreciation and interest on fixed cost. The results have been presented in Table 7.13 which indicate that farmers at overall level need to produce only about 747 kg of mushroom per season whereas the actual production was observed to be about 3170 kg. Even a cursory look at the table reveals that each category in both the district had production level far in excess of break even volume.

TABLE: 7.13 BREAK EVEN ANALYSIS.

COSTS• CAT EGORY CATEGORY • • • SMALL•

• • **SMALL•** **• SMALL• ME DIUM• LARG E• OVERALL • • SOLAN• • SMALL• MED IUM• LARGE • OVERALL• MEDIUM• LA RGE• OVERA LL• • SOLAN** • • Total Fixed **cost/year• 85** 2.08• 1109.61 • 3029.26• 17 52.22• • **Total Veriable cost/year•** 89 00.83• 3050.3 0• 187385.13 • 82854.52• • **LARGE• OVE RALL• • SOL AN•** • Total **Fixed cost/year• 85** 2.08• 1109.61 • 3029.26• 17 52.22• • **Total Veriable cost/year•** 89 00.83• 3050.3 0• 187385.13 • 82854.52• • **OVERALL• • • SOLAN•** • T**otal Fixed cost/year• 85** 2.08• 1109.61 • 3029.26• 17 52.22• • **Total Veriable cost/year•** 89 00.83• 3050.3 0• 187385.13 • 82854.52• • **SOLAN•** • Tot**al Fixed cost/year• 85** 2.08• 1109.61 • 3029.26• 17 52.22• • **Total**

Veriable cost/year• 8900.83• 3050.30• 187385.13 • 82854.52• • • Total Fixed **cost/year• 85**2.08• 1109.61 • 3029.26• 1752.22• • **Total Veriable cost/year**• 8900.83• 3050.30• 187385.13 • 82854.52• • **Total Fixed cost/year• 85**2.08• 1109.61 • 3029.26• 1752.22• • **Total Veriable cost/year**• 8900.83• 3050.30• 187385.13 • 82854.52• • 852.08• 1109.61• 3029.26• 1109.61• 3029.26• 1752.22 • • **Total Veriable cost/year**• 8900.83• 3050.30• 187385.13 • 82854.52• • 3029.26• 1752.22• • **Total Veriable cost/year**• 8900.83• 3050.30• 187385.13 • 82854.52• • 1752.22• • **Total Veriable cost/year**• 8900.83• 3050.30• 187385.13 • 82854.52• • • **Total Veriable cost/year**• 8900.83• 3050.30• 187385.13

• 82854.52• • **Total Veriable cost/year•** 8900.83• 3050.30• 187385.13 • 82854.52• • 8900.83• 3050.30• 187385.13• 82854.52 • • **Average sale price 1 kg.•** 40.08• 39.20• 38.77• 3050.30• 187385.13• 82854.52• • **Average sale price 1 kg.•** 40.08• 39.20• 38.77• 187385.13• 82854.52• • **Average sale price 1 kg.•** 40.08• 39.20• 38.77• 82854.52• • **Average sale price 1 kg.•** 40.08• 39.20• 38.77• • **Average sale price 1 kg.•** 40.08• 39.20• 38.77• **Average sale price 1 kg.•** 40.08• 39.20• 38.77• 40.08• 39.20 • 38.77• 39.35• • **Break-even volum (kgs)•** 243.33 • 106.12• 4911.38• 2150.10 • • **Actual Production kg/season•** 708.33• 1642.30• 9606.66• 4

348.75• • SHI
MLA• • Total
Fixed
cost/year• 92
4.00• 1389.16
• 2914.50• 13
35.80• • **Total**
Veriable
cost/year• 12
515.70• 2972
6.94• 105962
• 29-
72.20• • **Aver**
age sale
price 1
kg.• 39.80• 4
2.16• 46.67•
39.20• 38.77
• 39.35• • **Bre**
ak-even
volum
(kgs)• 243.33
• 106.12• 491
1.38• 2150.10
• • **Actual**
Production
kg/season• 7
08.33• 1642.3
0• 9606.66• 4
348.75• • SHI
MLA• • Total
Fixed
cost/year• 92
4.00• 1389.16
• 2914.50• 13
35.80• • **Total**
Veriable
cost/year• 12
515.70• 2972
6.94• 105962
• 29-
72.20• • **Aver**
age sale
price 1
kg.• 39.80• 4
2.16• 46.67•
38.77• 39.35
• • **Break-**
even volum
(kgs)• 243.33
• 106.12• 491
1.38• 2150.10

• • **Actual**
Production
kg/season• 7
08.33• 1642.3
0• 9606.66• 4
348.75• • SHI
MLA• • Total
Fixed
cost/year• 92
4.00• 1389.16
• 2914.50• 13
35.80• • **Total**
Veriable
cost/year• 12
515.70• 2972
6.94• 105962
• 29-
72.20• • **Aver**
age sale
price 1
kg.• 39.80• 4
2.16• 46.67•
39.35• • **Brea**
k-even volum
(kgs)• 243.33
• 106.12• 491
1.38• 2150.10
• • **Actual**
Production
kg/season• 7
08.33• 1642.3
0• 9606.66• 4
348.75• • SHI
MLA• • Total
Fixed
cost/year• 92
4.00• 1389.16
• 2914.50• 13
35.80• • **Total**
Veriable
cost/year• 12
515.70• 2972
6.94• 105962
• 29-
72.20• • **Aver**
age sale
price 1
kg.• 39.80• 4
2.16• 46.67•
• **Break-even**
volum
(kgs)• 243.33

• 106.12• 491
1.38• 2150.10
• • **Actual Production kg/season**• 7
08.33• 1642.3
0• 9606.66• 4
348.75• • SHI
MLA• • Total
Fixed cost/year• 92
4.00• 1389.16
• 2914.50• 13
35.80• • **Total Veriable cost/year**• 12
515.70• 2972
6.94• 105962
• 29-
72.20• • **Aver age sale price 1 kg.**• 39.80• 4
2.16• 46.67•
Break-even volum (kgs)• 243.33
• 106.12• 491
1.38• 2150.10
• • **Actual Production kg/season**• 7
08.33• 1642.3
0• 9606.66• 4
348.75• • SHI
MLA• • Total
Fixed cost/year• 92
4.00• 1389.16
• 2914.50• 13
35.80• • **Total Veriable cost/year**• 12
515.70• 2972
6.94• 105962
• 29-
72.20• • **Aver age sale price 1 kg.**• 39.80• 4
2.16• 46.67•
243.33• 106.1

2• 4911.38• 2
150.10• • **Act
ual
Production
kg/season**• 7
08.33• 1642.3
0• 9606.66• 4
348.75• • SHI
MLA• • Total
**Fixed
cost/year**• 92
4.00• 1389.16
• 2914.50• 13
35.80• • **Total
Veriable
cost/year**• 12
515.70• 2972
6.94• 105962
• 29-
72.20• • **Aver
age sale
price 1
kg.**• 39.80• 4
2.16• 46.67•
106.12• 4911.
38• 2150.10•
4911.38• 215
0.10• • **Actua
l Production
kg/season**• 7
08.33• 1642.3
0• 9606.66• 4
348.75• • SHI
MLA• • Total
**Fixed
cost/year**• 92
4.00• 1389.16
• 2914.50• 13
35.80• • **Total
Veriable
cost/year**• 12
515.70• 2972
6.94• 105962
• 29-
72.20• • **Aver
age sale
price 1
kg.**• 39.80• 4
2.16• 46.67•
2150.10• • **Ac
tual
Production**

kg/season• 7
08.33• 1642.3
0• 9606.66• 4
348.75• • SHI
MLA• • Total
Fixed
cost/year• 92
4.00• 1389.16
• 2914.50• 13
35.80• • **Total**
Veriable
cost/year• 12
515.70• 2972
6.94• 105962
• 29-
72.20• • **Aver**
age sale
price 1
kg.• 39.80• 4
2.16• 46.67•
• **Actual**
Production
kg/season• 7
08.33• 1642.3
0• 9606.66• 4
348.75• • SHI
MLA• • Total
Fixed
cost/year• 92
4.00• 1389.16
• 2914.50• 13
35.80• • **Total**
Veriable
cost/year• 12
515.70• 2972
6.94• 105962
• 29-
72.20• • **Aver**
age sale
price 1
kg.• 39.80• 4
2.16• 46.67•
Actual
Production
kg/season• 7
08.33• 1642.3
0• 9606.66• 4
348.75• • SHI
MLA• • Total
Fixed
cost/year• 92
4.00• 1389.16

• 2914.50• 13
35.80• • **Total
Veriable
cost/year**• 12
515.70• 2972
6.94• 105962
• 29-
72.20• • **Aver
age sale
price 1
kg.**• 39.80• 4
2.16• 46.67•
708.33• 1642.
30• 9606.66•
1642.30• 960
6.66• 4348.75
• • SHIMLA•
9606.66• 434
8.75• • SHIM
LA• • Total
**Fixed
cost/year**• 92
4.00• 1389.16
• 2914.50• 13
35.80• • **Total
Veriable
cost/year**• 12
515.70• 2972
6.94• 105962
• 29-
72.20• • **Aver
age sale
price 1
kg.**• 39.80• 4
2.16• 46.67•
4348.75• • S
HIMLA• • Tot
**al Fixed
cost/year**• 92
4.00• 1389.16
• 2914.50• 13
35.80• • **Total
Veriable
cost/year**• 12
515.70• 2972
6.94• 105962
• 29-
72.20• • **Aver
age sale
price 1
kg.**• 39.80• 4
2.16• 46.67•

• SHIMLA• • **SHIMLA**• • To**tal Fixed cost/year**• 924.00• 1389.16 • 2914.50• 1335.80• • **Total Veriable cost/year**• 12515.70• 29726.94• 105962 • 29-72.20• • **Average sale price 1 kg.**• 39.80• 42.16• 46.67• • **Total Fixed cost/year**• 924.00• 1389.16 • 2914.50• 1335.80• • **Total Veriable cost/year**• 12515.70• 29726.94• 105962 • 29-72.20• • **Average sale price 1 kg.**• 39.80• 42.16• 46.67• **Total Fixed cost/year**• 924.00• 1389.16 • 2914.50• 1335.80• • **Total Veriable cost/year**• 12515.70• 29726.94• 105962 • 29-72.20• • **Average sale price 1 kg.**• 39.80• 42.16• 46.67• 924.00• 1389.16• 2914.50• 1389.16• 2914.50• 1335.80 • • **Total**

Veriable cost/year• 12 515.70• 2972 6.94• 105962 • 29-72.20• • **Average sale price 1 kg.**• 39.80• 42.16• 46.67• 2914.50• 1335.80• • **Total Veriable cost/year**• 12 515.70• 2972 6.94• 105962 • 29-72.20• • **Average sale price 1 kg.**• 39.80• 42.16• 46.67• 1335.80• • **Total Veriable cost/year**• 12 515.70• 2972 6.94• 105962 • 29-72.20• • **Average sale price 1 kg.**• 39.80• 42.16• 46.67• • **Total Veriable cost/year**• 12 515.70• 2972 6.94• 105962 • 29-72.20• • **Average sale price 1 kg.**• 39.80• 42.16• 46.67• **Total Veriable cost/year**• 12 515.70• 2972 6.94• 105962 • 29-72.20• • **Average sale**

price 1 kg.• 39.80• 42.16• 46.67• 12515.70• 29726.94• 105962• 29-72.20• • **Average sale price 1 kg.**• 39.80• 42.16• 46.67• 29726.94• 105962• 29-72.20• • **Average sale price 1 kg.**• 39.80• 42.16• 46.67• 105962• 29-72.20• • **Average sale price 1 kg.**• 39.80• 42.16• 46.67• 29-72.20• • **Average sale price 1 kg.**• 39.80• 42.16• 46.67• • **Average sale price 1 kg.**• 39.80• 42.16• 46.67• **Average sale price 1 kg.**• 39.80• 42.16• 46.67• 39.80• 42.16 • 46.67• 42.87• • **Break-even volum (kgs)**• 337.68 • 738.04• 2332.90• 709.31 • • **Actual Production kg/season**• 860.00• 1605.55• 5250.00• 1600.00• • **OVERALL**• • Tot

al Fixed cost/year• 884.77• 1271.93 • 3015.76• 1573.75• • **Total Veriable cost/year**• 10543.95• 3054.16• 177805.94• 59804.95• 42.16• 46.67 • 42.87• • **Break-even volum (kgs)**• 337.68 • 738.04• 2332.90• 709.31 • • **Actual Production kg/season**• 860.00• 1605.55• 5250.00• 1600.00• • OV**ERALL**• • Tot**al Fixed cost/year**• 884.77• 1271.93 • 3015.76• 1573.75• • **Total Veriable cost/year**• 10543.95• 3054.16• 177805.94• 59804.95• 46.67• 42.87 • • **Break-even volum (kgs)**• 337.68 • 738.04• 2332.90• 709.31 • • **Actual Production kg/season**• 860.00• 1605.55• 5250.00• 1600.00• • OV**ERALL**• • Tot**al Fixed cost/year**• 884.77• 1271.93 • 3015.76• 1573.75• • **Total**

Veriable cost/year• 10543.95• 3054.16• 177805.94• 59804.95• 42.87• • **Break-even volum (kgs)**• 337.68 • 738.04• 2332.90• 709.31 • • **Actual Production kg/season**• 860.00• 1605.55• 5250.00• 1600.00• • OV**ERALL**• • Tot**al Fixed cost/year**• 884.77• 1271.93 • 3015.76• 1573.75• • **Total Veriable cost/year**• 10543.95• 3054.16• 177805.94• 59804.95• • **Break-even volum (kgs)**• 337.68 • 738.04• 2332.90• 709.31 • • **Actual Production kg/season**• 860.00• 1605.55• 5250.00• 1600.00• • OV**ERALL**• • Tot**al Fixed cost/year**• 884.77• 1271.93 • 3015.76• 1573.75• • **Total Veriable cost/year**• 10543.95• 3054.16• 177805.94• 59804.95• **Break-even volum (kgs)**• 337.68

• 738.04• 2332.90• 709.31 • • **Actual Production kg/season**• 860.00• 1605.55• 5250.00• 1600.00• • OV **ERALL**• • Tot **al Fixed cost/year**• 884.77• 1271.93 • 3015.76• 1573.75• • **Total Veriable cost/year**• 10543.95• 3054.16• 177805.94• 59804.95• 337.68• 738.04• 2332.90• 709.31• • **Actu al Production kg/season**• 860.00• 1605.55• 5250.00• 1600.00• • OV **ERALL**• • Tot **al Fixed cost/year**• 884.77• 1271.93 • 3015.76• 1573.75• • **Total Veriable cost/year**• 10543.95• 3054.16• 177805.94• 59804.95• 738.04• 2332.90• 709.31• • 2332.90• 709.31• • **Actual Production kg/season**• 860.00• 1605.55• 5250.00• 1600.00• • OV **ERALL**• • Tot **al Fixed cost/year**• 884.77• 1271.93 • 3015.76• 1573.75• • **Total**

Veriable cost/year• 10543.95• 3054.16• 177805.94• 59804.95• 709.31• • **Actual Production kg/season**• 860.00• 1605.55• 5250.00• 1600.00• • **OVERALL**• • Tot**al Fixed cost/year**• 884.77• 1271.93 • 3015.76• 1573.75• • **Total Veriable cost/year**• 10543.95• 3054.16• 177805.94• 59804.95• • **Actual Production kg/season**• 860.00• 1605.55• 5250.00• 1600.00• • **OVERALL**• • Tot**al Fixed cost/year**• 884.77• 1271.93 • 3015.76• 1573.75• • **Total Veriable cost/year**• 10543.95• 3054.16• 177805.94• 59804.95• **Actual Production kg/season**• 860.00• 1605.55• 5250.00• 1600.00• • **OVERALL**• • Tot**al Fixed cost/year**• 884.77• 1271.93 • 3015.76• 1573.75• • **Total**

Veriable cost/year• 10543.95• 3054.16• 177805.94• 59804.95• 860.00• 1605.55• 5250.00• 1605.55• 5250.00• 1600.00 • • OVERALL • • Total Fixed **cost/year**• 884.77• 1271.93 • 3015.76• 1573.75• • **Total Veriable cost/year**• 10543.95• 3054.16• 177805.94• 59804.95• 5250.00• 1600.00• • OVER **ALL**• • Total **Fixed cost/year**• 884.77• 1271.93 • 3015.76• 1573.75• • **Total Veriable cost/year**• 10543.95• 3054.16• 177805.94• 59804.95• 1600.00• • O **VERALL**• • T **otal Fixed cost/year**• 884.77• 1271.93 • 3015.76• 1573.75• • **Total Veriable cost/year**• 10543.95• 3054.16• 177805.94• 59804.95• • OVERALL• **OVERALL**• • • **Total Fixed cost/year**• 884.77• 1271.93 • 3015.76• 1573.75• • **Total Veriable**

cost/year• 10
543.95• 3054.
16• 177805.9
4• 59804.95•
**Total Fixed
cost/year**• 88
4.77• 1271.93
• 3015.76• 15
73.75• • **Total
Veriable
cost/year**• 10
543.95• 3054.
16• 177805.9
4• 59804.95•
884.77• 1271.
93• 3015.76•
1271.93• 301
5.76• 1573.75
• • **Total
Veriable
cost/year**• 10
543.95• 3054.
16• 177805.9
4• 59804.95•
3015.76• 157
3.75• • **Total
Veriable
cost/year**• 10
543.95• 3054.
16• 177805.9
4• 59804.95•
1573.75• • **To
tal Veriable
cost/year**• 10
543.95• 3054.
16• 177805.9
4• 59804.95•
• **Total
Veriable
cost/year**• 10
543.95• 3054.
16• 177805.9
4• 59804.95•
**Total
Veriable
cost/year**• 10
543.95• 3054.
16• 177805.9
4• 59804.95•
10543.95• 30
54.16• 17780
5.94• 59804.9
5• • **Average**

sale price 1
kg.• 39.85• 4
0.91• 39.69•
3054.16• 177
805.94• 5980
4.95• • **Avera**
ge sale price
1
kg.• 39.85• 4
0.91• 39.69•
177805.94• 5
9804.95• • **Av**
erage sale
price 1
kg.• 39.85• 4
0.91• 39.69•
59804.95• • **A**
verage sale
price 1
kg.• 39.85• 4
0.91• 39.69•
• **Average**
sale price 1
kg.• 39.85• 4
0.91• 39.69•
Average sale
price 1
kg.• 39.85• 4
0.91• 39.69•
39.85• 40.91
• 39.69• 40.8
5• • **Break-**
even volum
(kgs)• 142.96
• 385.03• 211
6.35• 746.51
• • **Actual**
Production
kg/season• 7
77.27• 1620.9
6• 9094.11• 3
170.71• •
40.91• 39.69
• 40.85• • **Bre**
ak-even
volum
(kgs)• 142.96
• 385.03• 211
6.35• 746.51
• • **Actual**
Production
kg/season• 7

77.27• 1620.96• 9094.11• 3170.71• • 39.69• 40.85 • • **Break-even volum (kgs)**• 142.96 • 385.03• 2116.35• 746.51 • • **Actual Production kg/season**• 777.27• 1620.96• 9094.11• 3170.71• • 40.85• • **Break-even volum (kgs)**• 142.96 • 385.03• 2116.35• 746.51 • • **Actual Production kg/season**• 777.27• 1620.96• 9094.11• 3170.71• • • **Break-even volum (kgs)**• 142.96 • 385.03• 2116.35• 746.51 • • **Actual Production kg/season**• 777.27• 1620.96• 9094.11• 3170.71• • **Break-even volum (kgs)**• 142.96 • 385.03• 2116.35• 746.51 • • **Actual Production kg/season**• 777.27• 1620.96• 9094.11• 3170.71• • 142.96• 385.03• 2116.35• 746.51• • **Actual Production**

kg/season• 7
77.27• 1620.9
6• 9094.11• 3
170.71• •
385.03• 2116.
35• 746.51• •
2116.35• 746.
51• • **Actual
Production
kg/season**• 7
77.27• 1620.9
6• 9094.11• 3
170.71• •
746.51• • **Act
ual
Production
kg/season**• 7
77.27• 1620.9
6• 9094.11• 3
170.71• •
• **Actual
Production
kg/season**• 7
77.27• 1620.9
6• 9094.11• 3
170.71• •
**Actual
Production
kg/season**• 7
77.27• 1620.9
6• 9094.11• 3
170.71• •
777.27• 1620.
96• 9094.11•
1620.96• 909
4.11• 3170.71
• •
9094.11• 317
0.71• •
3170.71• •
•

CHAPTER –
VIII

PRODUCTION FUNCTION ANALYSIS

The present chapter deals with the financial ratios and the production function analysis. Four types of financial ratios viz. Capital turn over ratio, Gross ratio, Operating ratio and Rate of return on capital have been worked out for studying the financial structure of the mushroom cultivation in the state. On the other hand the production function analysis has been carried out by taking the productivity of mushrooms per tray as dependent variable and the per tray use of labour and capital invested as independent variables. The linear production function has been used in the present analysis.

8.1 FINANCIAL RATIOS

The financial ratios as described above have been presented in Table 8.1 wherein it may be seen that the Capital turn over ratio at the overall level was 1.0728 and it varied between 0.7053 and 1.1914 for small and large farms respectively. This indicates that on an average each rupee of fixed investment, the gross revenue was Rs. 1.0728 only. Similarly this indicated that each rupee of fixed investment in district Solan yielded Rs.1.3240 and Rs. 0.7379 in district Shimla. Among different categories at the overall level the highest capital turn over ratio was among large farmers and the least among small farmers. This higher magnitude of this ratio also indicated the efficiency of the farmers in utilizing the fixed capital.

The next ratio worked out was gross ratio which is the ratio of the total cost to the gross returns. Thus, to be more efficient in this respect the magnitude of the ratio should be lowest possible. The analysis indicates that the gross ratio at the overall level was 0.6203 and it varied between 0.5690 and 0.6451 for large and medium farmers. This ratio stood at 0.6200 in district Solan and 0.6207 in district Shimla. This indicated that the mushroom farmers of Solan are little more efficient than the farmers of Shimla.

The operating ratio which is the ratio of total operating and maintaining cost to the gross profits should have lowest possible value to be more efficient. The analysis indicates that the operating ratio at overall level of the sample was 0.4263 and it was observed to be 0.4367 in Solan and 0.4125 in Shimla. This indicates the higher level of efficiency obtained by the Shimla mushroom farmers.

Finally, the Rate of return on capital, which is the ratio of net farm income to the fixed capital investment was found to be 0.3730 at overall level of the sample.

This ratio was found to be 0.4514 and 0.2687 in district Solan and Shimla respectively. Most efficient farmers at overall level on this consideration were observed to be the Solan farmers. The other details of various categories in both the districts may also be referred to from this table.

TABLE: 8.1 FINANCIAL RATIOS.

RATIOS• CATEGORY• • • SMALL• MEDIUM• LARGE• OVERAL

L• • SOLAN• • C
APITAL TURN
OVER
RATIO• 0.6367•
CATEGORY• •
• • SMALL• ME
DIUM• LARGE•
• SMALL• MEDI
UM• LARGE• O
VERALL• • SOL
AN• • CAPITAL
TURN OVER
RATIO• 0.6367•
SMALL• MEDIU
M• LARGE• OV
ERALL• • SOLA
N• • CAPITAL
TURN OVER
RATIO• 0.6367•
MEDIUM• LARG
E• OVERALL• •
LARGE• OVERA
LL• • SOLAN• •
OVERALL• • SO
LAN• • CAPITAL
TURN OVER
RATIO• 0.6367•
• SOLAN• • CAP
ITAL TURN
OVER
RATIO• 0.6367•
SOLAN• • CAPI
TAL TURN
OVER
RATIO• 0.6367•
• CAPITAL
TURN OVER
RATIO• 0.6367•
CAPITAL TURN
OVER
RATIO• 0.6367•
0.6367• 1.6967•
1.6967• 1.1567•

1.1567• 1.3240•
1.3240• • **GROS**
S
RATIO• 0.6136•
• **GROSS RATIO**• 0.6136•
GROSS
RATIO• 0.6136•
0.6136• 0.6462•
0.6462• 0.5844•
0.5844• 0.6200•
0.6200• • **OPER**
ATING
RATIO• 0.3135•
• **OPERATING RATIO**• 0.3135•
OPERATING
RATIO• 0.3135•
0.3135• 0.4739•
0.4739• 0.5031•
0.5031• 0.4367•
0.4367• • **RATE**
OF RETURN ON
CAPITAL• 0.246
0• 0.6074• 0.480
7• 0.4514• • SHI
MLA• • CAPITA **L TURN OVER**
RATIO• 0.7900•
• **RATE OF RETURN ON**
CAPITAL• 0.246
0• 0.6074• 0.480
7• 0.4514• • SHI
MLA• • CAPITA **L TURN OVER**
RATIO• 0.7900•
RATE OF
RETURN ON
CAPITAL• 0.246
0• 0.6074• 0.480
7• 0.4514• • SHI
MLA• • CAPITA

L TURN OVER
RATIO• 0.7900•
0.2460• 0.6074•
0.6074• 0.4807•
0.4807• 0.4514•
0.4514• • SHIML
A• • CAPITAL **TURN OVER**
RATIO• 0.7900•
• SHIMLA• • **CA PITAL TURN**
OVER
RATIO• 0.7900•
SHIMLA• • CAPI **TAL TURN**
OVER
RATIO• 0.7900•
• **CAPITAL TURN OVER**
RATIO• 0.7900•
CAPITAL TURN
OVER
RATIO• 0.7900•
0.7900• 0.6067•
0.6067• 1.4519•
1.4519• 0.7379•
0.7379• • **GROS**
S
RATIO• 0.6355•
• **GROSS RATIO**• 0.6355•
GROSS
RATIO• 0.6355•
0.6355• 0.6444•
0.6444• 0.5514•
0.5514• 0.6207•
0.6207• • **OPER**
ATING
RATIO• 0.3657•
• **OPERATING RATIO**• 0.3657•
OPERATING
RATIO• 0.3657•

0.3657• 0.4392•
0.4392• 0.4325•
0.4325• 0.4125•
0.4125• • **RATE OF RETURN ON CAPITAL**• 0.2878• 0.2157• 0.6513• 0.2687• • OV**ERALL**• • CAPIT**AL TURN OVER RATIO**• 0.7053•
• **RATE OF RETURN ON CAPITAL**• 0.2878• 0.2157• 0.6513• 0.2687• • OV**ERALL**• • CAPIT**AL TURN OVER RATIO**• 0.7053•
RATE OF RETURN ON CAPITAL• 0.2878• 0.2157• 0.6513• 0.2687• • OV**ERALL**• • CAPIT**AL TURN OVER RATIO**• 0.7053•
0.2878• 0.2157•
0.2157• 0.6513•
0.6513• 0.2687•
0.2687• • OVER**ALL**• • CAPITAL **TURN OVER RATIO**• 0.7053•
• OVERALL• • **CAPITAL TURN OVER RATIO**• 0.7053•
OVERALL• • CA**PITAL TURN OVER RATIO**• 0.7053•
• **CAPITAL TURN OVER**

RATIO• 0.7053•
CAPITAL TURN
OVER
RATIO• 0.7053•
0.7053• 0.8216•
0.8216• 1.1914•
1.1914• 1.0728•
1.0728• • **GROS**
S
RATIO• 0.6246•
• **GROSS**
RATIO• 0.6246•
GROSS
RATIO• 0.6246•
0.6246• 0.6451•
0.6451• 0.5690•
0.5690• 0.6203•
0.6203• • **OPER**
ATING
RATIO• 0.3372•
• **OPERATING**
RATIO• 0.3372•
OPERATING
RATIO• 0.3372•
0.3372• 0.4537•
0.4537• 0.4948•
0.4948• 0.4263•
0.4263• • **RATE**
OF RETURN ON
CAPITAL• 0.264
7• 0.3799• 0.500
7• 0.3730• •
• **RATE OF**
RETURN ON
CAPITAL• 0.264
7• 0.3799• 0.500
7• 0.3730• •
RATE OF
RETURN ON
CAPITAL• 0.264
7• 0.3799• 0.500
7• 0.3730• •
0.2647• 0.3799•

0.3799• 0.5007• 0.5007• 0.3730• 0.3730• • •

8.2 PRODUCTION FUNCTION ANALYSIS

The analysis of costs and returns which has been presented in the previous chapter does provide clear picture on the efficiency with which the resources of production are being utilized for the mushroom production. In other words, the efficiency of resource allocation is not appropriately highlighted, although, it provides a good indication of the overall productivity on mushroom farms. The specific contribution of input factors is necessary for the determination of efficiency of factor proportions. It is with this background that an attempt has been made to derive more precise measure of efficiency in the resource allocation in mushroom cultivation. For this purpose production function analysis has been attempted.

The linear production function has been used as it was found to be giving the satisfactory results.

For fitting the production function the production of mushrooms per tray has been taken to be the dependent variable. The independent variables included in the study are the working capital invested per tray and the labour used per try. The unit of the former was taken to be the rupees per tray per season and for the labour it has been actual hours utilized per tray. It may be mentioned here that for the labour the units of rupees was also tried but the this led to unsatisfactory results.

The results of the analysis have been presented separately for each of the size class in each of the districts and also for each class category pooled for both the districts. The results have been presented in tables 8.2 to 8.12 and discussed below for each district and for the pooled sample.

8.2.1 SOLAN

The results of regression analysis have been presented in tables 8.2 to 8.4 for each size class and in 8.5 for the pooled sample of this district.

***SMALL CULTIVATORS*:** The coefficient of Multiple Determination (R^2) indicates that the endogenous variables viz. working capital and labour explain about 93 per cent of the total variation in the mushroom yield (Table 8.2). The values of the regression coefficients indicate that the yield would increase by 0.4439 and 0.1348 per cent by increasing the working capital and labour by one per cent respectively and keeping the other constant at its geometric mean level. The coefficients were found to be significant at one per cent level of probability. The returns to the scale was found to be 0.5787 indicating that it was diminishing. This also indicated that the mushroom would increase by 0.5787 per cent if all the variables under consideration are simultaneously increased by one per cent. The estimated production function revealed that the resources were not being optimally utilized. In fact, both the resources were being over utilized. The small farmers of Solan should use the working capital of Rs. 23.25 per bag instead of Rs. 44.25 and labour use should be decreased from 4.28 hours to 3.37 hours per bag.

TABLE: 8.2 REGRESSION COEFFICIENTS, T-VALUES, MVP FACTOR COST RATIO

FOR SMALL MUSHROOM CULTIVATORS OF DISTRICT SOLAN.

FACTOR• COEFFICIENT• COEFFICIENT• MVP• MVP -FACTOR COST RATIO• EXISTING LEVEL• OPTI

MUM LEVEL• • TO TAL WORKING CAPITAL (XI)• 0.4439* MVP• MVP- FACTOR COST RATIO• EXIS TING LEVEL• OPTI MUM LEVEL• • TO TAL WORKING CAPITAL (XI)• 0.4439* MVP- FACTOR COST RATIO• EXIS TING LEVEL• OPTI MUM LEVEL• • TO TAL WORKING CAPITAL (XI)• 0.4439* EXISTING LEVEL• OPTI MUM LEVEL• • TO TAL WORKING CAPITAL (XI)• 0.4439* OPTIMUM LEVEL• • TO

TAL WORKING CAPITAL (XI)• 0.4439* • **TOTAL WORKING CAPITAL (XI)**• 0.4439* **TOTAL WORKING CAPITAL (XI)**• 0.4439* 0.4439* (4.7628)• 1.50 44• 0.5278• 4 4.25• 23.25• 1.5044• 0.527 8• 44.25• 23. 25• • **HUMAN LABOUR (X2)**• 0.1348* 0.5278• 44.25 • 23.25• • **HU MAN LABOUR (X2)**• 0.1348* 44.25• 23.25 • • **HUMAN LABOUR (X2)**• 0.1348* 23.25• • **HUM AN LABOUR (X2)**• 0.1348* • **HUMAN LABOUR (X2)**• 0.1348* **HUMAN LABOUR (X2)**• 0.1348* 0.1348* (9.9851)• 4.72 88• 3.3692• 4 .28• 3.37• • 4.7288• 3.369 2• 4.28• 3.37 • • 3.3692• 4.28 • 3.37• • 4.28• 3.37• • 3.37• • •

R^2 = 0.9298
RETURNS TO SCALE = 0.5787

NOTE: Figures in parenthesis are t – values.

* Significant at 1% level of probability
** Significant at 5% level of probability.

MEDIUM CULTIVATORS: The results of the regression analysis for the medium category have been presented in table 8.3 wherein it may be seen that the endogenous variables were able explain

78.37 per cent of the total variation in the mushroom yield of this category, being the value of R^2. The summation of the regression coefficients indicate the diminishing returns to scale. The values of the coefficients stood at 0.4058and 0.1348 for working capital and labour respectively. Both the coefficients were found to be significant, working capital at one per cent level of probability and labour at 5 per cent.

The analysis also indicated the about 3.5 times the use of working capital than the optimum level.
Similarly, the optimum labour use was found to be 3.18 hours per bag as against the 4.08 hours of the present use.

TABLE: 8.3 REGRESSION COEFFICIENTS, T-VALUE, MVP FACTOR COST

RATIO FOR MEDIUM MUSHROOM CULTIVATORS OF DISTRICT SOLAN.

FACTOR• CO

EFFICIENT•

COEFFICIEN

T• MVP• MVP -FACTOR COST RATIO• EXISTING LEVEL• OPTIMUM LEVEL• • TOTAL WORKING CAPITAL (XI)• 0.4058** **MVP• MVP-FACTOR COST RATIO• EXISTING LEVEL• OPTIMUM LEVEL• • TOTAL WORKING CAPITAL (XI)•** 0.4058** **MVP-FACTOR COST RATIO• EXISTING LEVEL• OPTIMUM LEVEL• • TOTAL WORKING CAPITAL (XI)•** 0.4058** **EXISTING LEVEL• OPTI**

MUM LEVEL• • TOTAL WORKING CAPITAL (XI)• 0.4058** **OPTIMUM LEVEL• • TOTAL WORKING CAPITAL (XI)•** 0.4058** **• TOTAL WORKING CAPITAL (XI)•** 0.4058** **TOTAL WORKING CAPITAL (XI)•** 0.4058** 0.4058** (2.7928)• 12.7753• 0.3041• 12.7753• 0.3041• 42.00• 12.78• • **HUMAN LABOUR (X2)•** 0.1348 0.3041• 42.00 • 12.78• • **HUMAN LABOUR (X2)•** 0.1348 42.00• 12.78 • • **HUMAN LABOUR (X2)•** 0.1348 12.78• • **HUMAN LABOUR (X2)•** 0.1348 **• HUMAN LABOUR (X2)•** 0.1348 **HUMAN LABOUR (X2)•** 0.1348 0.1348 (5.0676)*• 4.0963• 0.6827• 4.0963• 0.682

7• 4.086• 3.1
8• •
0.6827• 4.086
• 3.18• •
4.086• 3.18•
3.18• •
•

R^2 = 0.7837 RETURNS TO SCALE = 0.5406

NOTE: Figures in parenthesis are t – values.

* Significant at 1% level of probability
** Significant at 5% level of probability.

.

LARGE CULTIVATORS: In case of large cultivators the exogenous variables were able to explain 89.12 per cent variation in the total mushroom yield (Table 8.4). The values of the regression coefficients were observed to be 0.4398 and 0.1220 respectively for working capital and labour. Both of these were significant at one per cent level of probability. The summation of these further indicated the diminishing returns to scale in their case. This category of cultivators was also found to be over using the factors of production.

The working capital was found to be Rs. 44.60 per bag as against the optimum of Rs. 13.51 only. In case of labour the optimum level was 3.05 hours per bag whereas its present use was 4.34 hours.

TABLE: 8.4 REGRESSION COEFFICIENTS, T-VALUES, MVP FACTOR COST

RATIO FOR LARGE MUSHROOM CULTIVATORS OF DISTRICT SOLAN.

FACTOR• CO EFFICIENT• COEFFICIEN

T• MVP• MVP -FACTOR COST RATIO• EXIS TING LEVEL• OPTI MUM LEVEL• • TO TAL WORKING CAPITAL (XI)• 0.4398* MVP• MVP- FACTOR COST RATIO• EXIS TING LEVEL• OPTI MUM LEVEL• • TO TAL WORKING CAPITAL (XI)• 0.4398* MVP- FACTOR COST RATIO• EXIS TING LEVEL• OPTI MUM LEVEL• • TO TAL WORKING CAPITAL (XI)• 0.4398* EXISTING LEVEL• OPTI

MUM   **LEVEL• • TO**   **TAL WORKING CAPITAL (XI)•** 0.4398*   **OPTIMUM**   **LEVEL• • TO**   **TAL WORKING CAPITAL (XI)•** 0.4398*   **• TOTAL WORKING CAPITAL (XI)•** 0.4398*   **TOTAL WORKING CAPITAL (XI)•** 0.4398*   0.4398*   (6.2649)• 13.5 058• 2.7619• 13.5058• 2.76 19• 44.60• 13 .51• • **HUMA N LABOUR (X2)•** 0.1220*   2.7619• 44.60 • 13.51• • **HU MAN LABOUR (X2)•** 0.1220*   44.60• 13.51   • • **HUMAN LABOUR (X2)•** 0.1220*   13.51• • **HUM AN LABOUR (X2)•** 0.1220*   **• HUMAN LABOUR (X2)•** 0.1220*   **HUMAN LABOUR (X2)•** 0.1220*   0.1220*   (8.9051)• 4.22 13• 0.7035• 4 .34• 3.05• •

4.2213• 0.7035• 4.34• 3.05 • •
0.7035• 4.34 • 3.05• •
4.34• 3.05• •
3.05• •
•

R^2 = 0.8912
RETURNS TO SCALE = 0.5618

NOTE: Figures in parenthesis are t – values.

* Significant at 1% level of probability
** Significant at 5% level of probability.

ALL CULTIVATORS: The results of analysis for all cultivators of district Solan pooled together have been presented in table 8.5 which depicts that the value of R^2 was 0.8573 indicating that 85.73 per cent of the variations in the mushroom yield was due to the factors under consideration in the present model. The values of the regression coefficients were 0.4324 and 0.1298 for working capital and labour respectively. Both the coefficients were significant at one per cent level of probability. The returns to scale was

0.5622 indicating the diminishing returns to scale as was the case in the individual class categories. This means that if all the inputs i.e. capital and labour are simultaneously increased by one per cent the output would increase by 0.5622 per cent. For the production to be efficient the ratio of MVP to the factor cost should be as close to unity as possible. However, in the present case the ratio was well below the

unity (0.3086 for working capital and 0.7522 for labour) indicating that the inputs were not being efficiently used and in order to increase the value of this ratio the farmers must decrease the use of these inputs. This case was also observed in the individual class categories of the district Solan with similar results and recommendations. The further analysis indicates that both the inputs were being over used in district Solan. The use of working capital should be curtailed from present level of Rs.44.70 per bag to Rs. 13.79 and the use of labour should be reduced from4.34 hours per bag to an optimum of 3.26 hours.

TABLE: 8.5 REGRESSION COEFFICIENTS, T-VALUES, MVP FACTOR COST

RATIO FOR ALL MUSHROOM CULTIVATORS OF DISTRICT SOLAN.

FACTOR• CO EFFICIENT• COEFFICIENT• MVP• MVP

-FACTOR COST RATIO• EXISTING LEVEL• OPTIMUM LEVEL• • TOTAL WORKING CAPITAL (XI)• 0.4324*
MVP• MVP-FACTOR COST RATIO• EXISTING LEVEL• OPTIMUM LEVEL• • TOTAL WORKING CAPITAL (XI)• 0.4324*
MVP-FACTOR COST RATIO• EXISTING LEVEL• OPTIMUM LEVEL• • TOTAL WORKING CAPITAL (XI)• 0.4324*
EXISTING LEVEL• OPTIMUM

LEVEL• • TO

TAL WORKING CAPITAL (XI)• 0.4324*
OPTIMUM

LEVEL• • TO

TAL WORKING CAPITAL (XI)• 0.4324*
• TOTAL WORKING CAPITAL (XI)• 0.4324*
TOTAL WORKING CAPITAL (XI)• 0.4324*
0.4324*
(7.6802)• 1.45
98• 0.3086• 4
4.70• 13.79•
1.4598• 0.308
6• 44.70• 13.
79• **• HUMAN LABOUR (X2)•** 0.1298*
0.3086• 44.70
• 13.79• **• HU MAN LABOUR (X2)•** 0.1298*
44.70• 13.79
• • HUMAN LABOUR (X2)• 0.1298*
13.79• **• HUM AN LABOUR (X2)•** 0.1298*
• HUMAN LABOUR (X2)• 0.1298*
HUMAN LABOUR (X2)• 0.1298*
0.1298*
(13.2448)• 4.5
134• 0.7522•
4.5134• 0.752
2• 4.34• 3.26

• •
0.7522• 4.34
• 3.26• •
4.34• 3.26• •
3.26• •
•

R^2 = 0.8573
RETURNS TO SCALE = 0.5622

NOTE: Figures in parenthesis are t – values.

* Significant at 1% level of probability
** Significant at 5% level of probability.

8.2.2 SHIMLA

The results of the regression analysis have been presented in tables 8.6 and 8.7 for individual size categories and in table

8.8 for the all sample of this district.

SMALL CULTIVATORS: The regression analysis for this category of farmers of district Shimla indicates that the variables under consideration were able to explain 85.20 per cent variation in the yield of mushrooms. The regression coefficients turned out to be 0.5178 and 0.1360 in case of working capital and labour respectively, the former being

significant at five percent and the latter at one per cent level of probability. The cultivators of this category were also experiencing the diminishing returns to scale as indicated by the value of the returns to scale which turned out to be 0.6538. Both the factors of production were being inefficiently used, their value being considerably lower than unity especially in case of the working capital. The

optimum level of the working capital was calculated to be only Rs. 20.15 whereas it was being used at a level of Rs. 43.40 per bag. Similarly the farmers should put in only 3.19 hours of labour per bag whereas they are putting in 4.23 hours presently.

TABLE: 8.6 REGRESSION COEFFICIENTS, T-VALUES, MVP FACTOR COST

RATIO FOR SMALL MUSHROOM CULTIVATORS OF DISTRICT SHIMLA.

FACTOR• CO EFFICIENT• COEFFICIEN T• MVP• MVP -FACTOR COST RATIO• EXIS TING LEVEL• OPTI MUM LEVEL• • TO TAL WORKING CAPITAL (XI)• 0.5178** MVP• MVP- FACTOR COST RATIO• EXIS TING LEVEL• OPTI MUM LEVEL• • TO TAL WORKING CAPITAL (XI)• 0.5178** MVP- FACTOR COST RATIO• EXIS TING LEVEL• OPTI MUM LEVEL• • TO TAL WORKING CAPITAL

(XI)• 0.5178** **EXISTING LEVEL• OPTI MUM LEVEL• • TO TAL WORKING CAPITAL (XI)**• 0.5178** **OPTIMUM LEVEL• • TO TAL WORKING CAPITAL (XI)**• 0.5178** • **TOTAL WORKING CAPITAL (XI)**• 0.5178** **TOTAL WORKING CAPITAL (XI)**• 0.5178** 0.5178** (3.9085)• 1.68 09• 0.4643• 4 3.4• 20.15• • 1.6809• 0.464 3• 43.4• 20.1 5• • **HUMAN LABOUR (X2)**• 0.1360* 0.4643• 43.4 • 20.15• • **HU MAN LABOUR (X2)**• 0.1360* 43.4• 20.15• 20.15• • **HUM AN LABOUR (X2)**• 0.1360* • **HUMAN LABOUR (X2)**• 0.1360* **HUMAN LABOUR (X2)**• 0.1360* 0.1360* (5.6211)• 4.52

98• 0.7549• 4
.23• 3.19• •
4.5298• 0.754
9• 4.23• 3.19
• •
0.7549• 4.23
• 3.19• •
4.23• 3.19• •
3.19• •
•

R^2 = 0.8520 RETURNS TO SCALE = 0.6538

NOTE: Figures in parenthesis are t – values.

* Significant at 1% level of probability
** Significant at 5% level of probability.

MEDIUM CULTIVATORS: The value of R^2 (Table 8.7), the coefficient of multiple determination for medium farmers of Shimla has been worked out to be 0.7841 indicating that the model could explain the 78.41 per cent of the variation in mushroom yield of this category. The regression coefficients turned out to be 0.3792 and 0.1131 for working capital and labour respectively indicating as many per cent increase in the yield if other factors are held constant at their respective geometric mean level. Diminishing returns to scale were observed in this case also, the returns to scale being 0.4923. The MVP factor cost ratio indicates that both the factors of production under consideration here are being used inefficiently. The analysis indicates that the optimum level of the working capital is Rs. 15.95 whereas the present use has been Rs. 46.17 per bag. In same fashion the labour use should have been 3.46 hours per bag instead of 5.05 hours per bag at the present level.

TABLE: 8.7 REGRESSION COEFFICIENTS, T-VALUES, MVP FACTOR COST

RATIO FOR MEDIUM MUSHROOM CULTIVATORS OF DISTRICT SHIMLA.

FACTOR• CO EFFICIENT• COEFFICIENT• MVP• MVP -FACTOR COST RATIO• EXISTING LEVEL• OPTIMUM LEVEL• • TOTAL WORKING CAPITAL (XI)• 0.3792* **MVP• MVP-FACTOR COST RATIO• EXISTING**

LEVEL• OPTI
MUM
LEVEL• • TO
TAL WORKING CAPITAL (XI)• 0.3792*
MVP-
FACTOR
COST
RATIO• EXIS
TING
LEVEL• OPTI
MUM
LEVEL• • TO
TAL WORKING CAPITAL (XI)• 0.3792*
EXISTING
LEVEL• OPTI
MUM
LEVEL• • TO
TAL WORKING CAPITAL (XI)• 0.3792*
OPTIMUM
LEVEL• • TO
TAL WORKING CAPITAL (XI)• 0.3792*
• TOTAL WORKING CAPITAL (XI)• 0.3792*
TOTAL WORKING CAPITAL (XI)• 0.3792*
0.3792*
(4.5686)• 1.50

63• 0.3454• 4 6.16• 15.95• 1.5063• 0.345 4• 46.16• 15. 95• • **HUMAN LABOUR (X2)**• 0.1136* 0.3454• 46.16 • 15.95• • **HU MAN LABOUR (X2)**• 0.1136* 46.16• 15.95 • • **HUMAN LABOUR (X2)**• 0.1136* 15.95• • **HUM AN LABOUR (X2)**• 0.1136* • **HUMAN LABOUR (X2)**• 0.1136* **HUMAN LABOUR (X2)**• 0.1136* 0.1136* (4.7422)• 4.10 73• 0.6845• 5 .05• 3.46• • 4.1073• 0.684 5• 5.05• 3.46 • • 0.6845• 5.05 • 3.46• • 5.05• 3.46• • 3.46• • •
R^2= 0. 7841 RETURNS TO SCALE = 0.4923
NOTE: Figures in parenthesis are t – values.
* Significant at

1% level of probability
** Significant at 5% level of probability.

LARGE CULTIVATORS: In the sample of Shimla, only two large farmers were found. This number did not leave any degree of freedom to carry out the regression analysis. Thus, the present analysis could not be carried out for this particular category. However, these two farmers have been included in the total sample for Shimla and other relevant categories.

ALL CULTIVATORS: The regression analysis for the all sample of district Shimla reveals that both of the variables were able to explain 85.25 per cent of the variations in the total yield. The value of the regression coefficients were 0.4253 and 0.1251 for working capital and labour respectively. Both of the coefficients were significant at one per cent level of probability. The return to scale was found to be 0.5504 again showing the diminishing returns to scale. As in the case of individual categories of this district the resources were being inefficiently used, the total working capital to a greater extent. The results indicate that the farmers should use only Rs.17.83 per bag as working capital and not Rs. 44.83 as they are using at present. In the same manner, the labour was also being over used and its use should be curtailed from present 4.76 hours per bag to 3.59 hours per bag in order to arrive at the optimum resource allocation.

TABLE: 8.8 REGRESSION COEFFICIENTS, T-VALUE, MVP FACTOR COST

RATIO FOR ALL MUSHROOM CULTIVATORS OF DISTRICT SHIMLA.

FACTOR• COEFFICIENT• COEFFICIENT• MVP• MVP -FACTOR COST RATIO• EXIS

TING LEVEL• OPTI MUM LEVEL• • TO TAL WORKING CAPITAL (XI)• 0.4253* MVP• MVP- FACTOR COST RATIO• EXIS TING LEVEL• OPTI MUM LEVEL• • TO TAL WORKING CAPITAL (XI)• 0.4253* MVP- FACTOR COST RATIO• EXIS TING LEVEL• OPTI MUM LEVEL• • TO TAL WORKING CAPITAL (XI)• 0.4253* EXISTING LEVEL• OPTI MUM LEVEL• • TO TAL WORKING CAPITAL (XI)• 0.4253*

OPTIMUM

LEVEL• • TO

TAL
WORKING
CAPITAL
(XI)• 0.4253*
• TOTAL
WORKING
CAPITAL
(XI)• 0.4253*
TOTAL
WORKING
CAPITAL
(XI)• 0.4253*
0.4253*
(7.0181• 1.63
48• 0.3977• 4
4.83• 17.83•
1.6348• 0.397
7• 44.83• 17.
83• • **HUMAN**
LABOUR
(X2)• 0.1251*
0.3977• 44.83
• 17.83• • **HU**
MAN
LABOUR
(X2)• 0.1251*
44.83• 17.83
• • **HUMAN**
LABOUR
(X2)• 0.1251*
17.83• • **HUM**
AN LABOUR
(X2)• 0.1251*
• HUMAN
LABOUR
(X2)• 0.1251*
HUMAN
LABOUR
(X2)• 0.1251*
0.1251*
(8.5197)• 4.50
36• 0.7506• 4
.76• 3.59• •
4.5036• 0.750
6• 4.76• 3.59
• •
0.7506• 4.76
• 3.59• •
4.76• 3.59• •

3.59• •
•

R^2 = 0. 8525 RETURNS TO SCALE = 0.5504

NOTE: Figures in parenthesis are t – values.

- Significant at 1% level of probability

** Significant at 5% level of probability.

8.2.3 OVERALL SAMPLE OF BOTH DISTRICTS

In this section, different categories of both the districts have been pooled and the analysis has been carried for pooled categories and overall sample of both the districts.

SMALL CULTIVATORS: The analysis reveals that in present case the value of coefficient of multiple determination is 0.8944 (Table 8.9). The individual coefficients stood at0.3973 and 0.1243 for working capital and labour. Both of the coefficients were significant at one per cent level of probability.

The returns to scale stood at 0.6289. The resource allocation was found to be inefficient as the values of MVP-factor Cost Ratio were at variance from unity. The optimum allocation required that the working capital be slashed by about 50 per cent and he use of labour by 25 per cent.

TABLE: 8.9 REGRESSION COEFFICIENTS, T-VALUES, MVP

FACTOR COST RATIO FOR SMALL MUSHROOM CULTIVATOR S OF BOTH DISTRICTS FACTOR• CO EFFICIENT• COEFFICIEN T• MVP• MVP -FACTOR COST RATIO• EXIS TING LEVEL• OPTI MUM LEVEL• • TO TAL WORKING CAPITAL (XI)• 0.4831* MVP• MVP- FACTOR COST RATIO• EXIS TING LEVEL• OPTI MUM LEVEL• • TO TAL WORKING CAPITAL (XI)• 0.4831* MVP- FACTOR COST

RATIO• EXIS
TING
LEVEL• OPTI
MUM
LEVEL• • TO
TAL
WORKING
CAPITAL
(XI)• 0.4831*
EXISTING
LEVEL• OPTI
MUM
LEVEL• • TO
TAL
WORKING
CAPITAL
(XI)• 0.4831*
OPTIMUM
LEVEL• • TO
TAL
WORKING
CAPITAL
(XI)• 0.4831*
• TOTAL
WORKING
CAPITAL
(XI)• 0.4831*
TOTAL
WORKING
CAPITAL
(XI)• 0.4831*
0.4831*
(6.4845)• 1.60
55• 0.4986• 4
3.8• 21.87• •
1.6055• 0.498
6• 43.8• 21.8
7• • **HUMAN**
LABOUR
(X2)• 0.1358*
0.4986• 43.8
• 21.87• • **HU**
MAN
LABOUR
(X2)• 0.1358*
43.8• 21.87•
21.87• • **HUM**

AN LABOUR (X2)• 0.1358*
• **HUMAN LABOUR (X2)**• 0.1358*
HUMAN LABOUR (X2)• 0.1358*
0.1358*
(11.4117)• 4.6532• 0.7755•
4.6532• 0.7755• 4.25• 3.30
• •
0.7755• 4.25
• 3.30• •
4.25• 3.30• •
3.30• •
•

R^2 = 0. 8944 RETURNS TO SCALE = 0.6189

NOTE: Figures in parenthesis are t – values.

* Significant at 1% level of probability
** Significant at 5% level of probability.

MEDIUM CULTIVATORS: The value

of R^2 in case of medium farmers was found to be 0.7966 indicating that about 80 per cent of the variations in the mushroom output are explained by the present model. The regression coefficients which were significant at one per cent level of probability were 0.3973 and 0.1243 for working capital and labour respectively. In this case also the returns to the scale were diminishing. The resource allocation was inefficient as there was over use of the resources. The working capital should be reduced from its present level of Rs.45.77 per bag to Rs. 15.97 and in same manner the labour use should be curtailed to 3.63 hours per bag from present level of 4.77 hours.

TABLE: 8.10 REGRESSION COEFFICIENTS, T-VALUES, MVP FACTOR COST RATIO FOR MEDIUM MUSHROOM CULTIVATORS OF BOTH DISTRICTS FACTOR• COEFFICIENT• MVP• MVP-FACTOR COST RATIO• EXISTING LEVEL• OPTIMUM LEVEL• • TOTAL WORKING CAPITAL (XI)• 0.3973* **COEFFICIENT• MVP • MVP-FACTOR COST RATIO• EXISTING LEVEL• OPTIMUM LEVEL• • TOTAL WORKING CAPITAL (XI)•** 0.3973* **MVP• MVP-FACTOR**

COST

RATIO• EXISTING

LEVEL• OPTIMUM

LEVEL• • TOTAL

WORKING CAPITAL (XI)• 0.3973*
MVP-FACTOR COST

RATIO• EXISTING

LEVEL• OPTIMUM

LEVEL• • TOTAL

WORKING CAPITAL (XI)• 0.3973*
EXISTING

LEVEL• OPTIMUM

LEVEL• • TOTAL

WORKING CAPITAL (XI)• 0.3973*
OPTIMUM

LEVEL• • TOTAL

WORKING CAPITAL (XI)• 0.3973*
• TOTAL WORKING CAPITAL (XI)• 0.3973*
TOTAL WORKING CAPITAL (XI)• 0.3973*
0.3973*
(5.9738)• 1.4681• 0.3321• 45.77• 15.97• •
1.4681• 0.3321• 45.77• 15.97• • **HUMAN LABOUR (X2)•** 0.1243*
0.3321• 45.77• 15.97 • • **HUMAN LABOUR (X2)•** 0.1243*
45.77• 15.97• • **HUMAN LABOUR (X2)•** 0.1243*
15.97• • **HUMAN LABOUR (X2)•** 0.1243*
• HUMAN LABOUR (X2)• 0.1243*
HUMAN LABOUR (X2)• 0.1243*
0.1243*
(7.3186)• 4.4010• 0.7335• 4.77• 3.63• •
4.4010• 0.7335• 4.77 • 3.63• •
0.7335• 4.77• 3.63•
4.77• 3.63• •
3.63• •
•

R^2 = 0. 7966 RETURNS TO SCALE = 0.5216

NOTE: Figures in parenthesis are t – values.

* Significant at 1% level of probability

** Significant at 5% level of probability.

LARGE CULTIVATORS: The model applied to large cultivators of both the districts together returned the value of R^2 as 0.9360 and the coefficients stood at1.4007 and 0.1161 for working capital and labour respectively. The coefficients were significant at one per cent level of probability. The results of the analysis indicate that the use of working capital should be reduced from Rs. 45.29 per bag to Rs. 14.43 and the labour from 4.76 hours per bag to 3.35 for getting the production to the optimum level.

TABLE: 8.11 REGRESSION COEFFICIENTS, STANDRED ERRORS, MVP FACTOR COST

RATIO FOR LARGE MUSHROOM CULTIVATORS OF BOTH DISTRICTS

FACTOR• CO EFFICIENT• COEFFICIENT• MVP• MVP -FACTOR

COST RATIO• EXISTING MVP• MVP-FACTOR COST RATIO• EXISTING MVP-FACTOR COST RATIO• EXISTING EXISTING LEVEL • OPTIMUM LEVEL• • TOTAL WORKING CAPITAL (XI)• 0.4007* **OPTIMUM LEVEL• • TOTAL WORKING CAPITAL (XI)•** 0.4007* **• TOTAL WORKING CAPITAL (XI)•** 0.4007* **TOTAL WORKING CAPITAL (XI)•** 0.4007* 0.4007* (7.4963)• 1.5216• 0.3170• 45.529• 14.43 **• • HUMAN LABOUR (X2)•** 0.116*

1.5216• 0.317 0• 45.529• 14 .43• • **HUMAN LABOUR (X2)•** 0.116* 0.3170• 45.52 9• 14.43• • **HUMAN LABOUR (X2)•** 0.116* 45.529• 14.43 • • **HUMAN LABOUR (X2)•** 0.116* 14.43• • **HUMAN LABOUR (X2)•** 0.116* • **HUMAN LABOUR (X2)•** 0.116* **HUMAN LABOUR (X2)•** 0.116* 0.116* (10.8512)• 4.4 316• 0.7386• 4.4316• 0.738 6• 4.5294• 3. 3454• • 0.7386• 4.529 4• 3.3454• • 4.5294• 3.345 4• • 3.3454• • •

R^2 = 0. 9360 RETURNS TO SCALE = 0.5168

NOTE: Figures in parenthesis are t – values.

* Significant at 1% level of

probability

** Significant at 5% level of probability.

OVERALL SAMPLE: At over all level of all sample of both the districts, the model was able to explain 86.47 per cent variations in the mushroom output, the value of R^2 being 0.8647. The value of returns to scale was found to be 0.5432 indicating that in the state if both the inputs under consideration are increased by one per cent the output of mushroom would on an average increase by 0.5432 per cent. Still the diminishing returns to scale have been observed in the present case. The MVP-factor cost ratio in case of working capital was only 0.3348 considerably lower than unity indicating the over use of this resource. On the other hand, this statistics for labour was comparatively closer to unity, being 0.7303. But still this resource was also being

overused.
The analysis indicates that the working capital should be curtailed from present level of Rs. 44.83 per bag to Rs. 15.06 to attain optimum level of production. These figures for labour stood at 4.76 and 3.48 hour per bag.

TABLE: 8.12 REGRESSION COEFFICIENTS, STANDRED ERRORS, MVP FACTOR COST

RATIO FOR ALL MUSHROOM CULTIVATORS OF BOTH DISTRICTS

FACTOR• COEFFICIENT• COEFFICIENT• MVP• MVP

-FACTOR COST RATIO• EXISTING LEVEL• OPTIMUM LEVEL• • TOTAL WORKING CAPITAL (XI)• 0.4169* **MVP• MVP-FACTOR COST RATIO• EXISTING LEVEL• OPTIMUM LEVEL• • TOTAL WORKING CAPITAL (XI)•** 0.4169* **MVP-FACTOR COST RATIO• EXISTING LEVEL• OPTIMUM LEVEL• • TOTAL WORKING CAPITAL (XI)•** 0.4169* **EXISTING LEVEL• OPTIMUM**

LEVEL• • TO
TAL WORKING CAPITAL (XI)• 0.4169* **OPTIMUM**
LEVEL• • TO
TAL WORKING CAPITAL (XI)• 0.4169*
• **TOTAL WORKING CAPITAL (XI)•** 0.4169*
TOTAL WORKING CAPITAL (XI)• 0.4169*
0.4169* (11.0349)• 1.5 367• 0.3348• 1.5367• 0.334 8• 44.83• 15. 01• • **HUMAN LABOUR (X2)•** 0.1263*
0.3348• 44.83 • 15.01• • **HU MAN LABOUR (X2)•** 0.1263*
44.83• 15.01 • • **HUMAN LABOUR (X2)•** 0.1263*
15.01• • **HUM AN LABOUR (X2)•** 0.1263*
• **HUMAN LABOUR (X2)•** 0.1263*
HUMAN LABOUR (X2)• 0.1263*
0.1263* (15.5925)• 4.3 819• 0.73032 • 4.76• 3.48• 4.3819• 0.730 32• 4.76• 3.4

8• •
0.73032• 4.76
• 3.48• •
4.76• 3.48• •
3.48• •
•

R^2 = 0. 8647
RETURNS TO SCALE = 0.5432

NOTE: Figures in parenthesis are t – values.

* Significant at 1% level of probability
** Significant at 5% level of probability.

8.3 CONCLUSIONS

From the above discussion it may be concluded that the mushroom production in

the state is operating in the state of diminishing returns to scale. The regression coefficients have turned out to be invariably significant and hence can be used for the planning purpose. The values of R^2 in different cases indicate that the working capital and labour are the most crucial inputs but are being overused in all the cases. It is recommended that their use may be curtailed to the optimum level. There

is need of educating the farmers regarding this aspect. This can be achieved various extension agencies concerned with this job.

CHAPTER -IX

MARKETING OF MUSHROOMS

Although, the mushroom cultivation in the state can be considered to be in its infancy, it is bound to increase in future due to concerted efforts of State Govt and agencies like National

Mushroom Research Centre which is providing valuable research input. The vocation of mushroom production can not be successful if the efforts in its production are not matched by the development of marketing infrastructure and strategy. The production can not be said to be complete unless steps are taken to transfer the production to the hands of the consumers. It is a consumer

who ultimately pay for every thing. Thus, it is very important to provide place utility to the final product and this where the role of marketing becomes crucial. The aim should be to make available the product to consumer in fresh form and at least possible price, providing sustainable incentives to all engaged in production and marketing. The ideal marketing system should also take into account the changing tastes and preferences, future demand and supply, processing, stabilisation of demand and prices etc.

In the present chapter, an attempt has been made to study the existing marketing system of mushroom. The chapter includes marketing channels, pattern of disposal, mode of transportation, marketing margins and costs etc.

9.1. Marketing Channels

The various marketing

channels being used by the sampled mushroom cultivators are following:

1. Producer-Retailer-Consumer
2. Producer-Consumer
3. Producer-Co-operative-Retailer-Consumer

9.2 PATTERN OF MUSHROOM DISPOSAL

All the production of mushroom is disposed off through the above listed marketing channels. The percentage of produce finding its way through different channels varied in each district. The following provides details.

9.2.1 SOLAN

The analysis reveals that in district Solan the channel-III through co-operatives is most prevalent (Table 9.1). Of the total about 1740 Qtls of mushrooms marketed by sampled growers in Solan, about 68 per cent was disposed of through this channel. Also the popularity of this channel decreased with size of operation. This is because it is difficult to market small quantities without pooling them. On the other hand larger categories could manage as they had larger marketable surplus. The second in popularity was selling the mushrooms to retailers. About 22 per cent produce found its way through this channel. The rest about 10 per cent was disposed of directly to consumers.

9.2.2 SHIMLA

In district

Shimla only two channels viz. through retailers and direct sale to consumers were observed. The channel involving the co-operative was absent in this district. The reason for this scenario is that most of the growers in this district are located in vicinity of Shimla city. Thus, it was possible for them to have direct contacts with the retailers or many of them also sold it house to house i.e. directly to consumers. Despite this

being labour intensive, increases their profits as compared with other channels.

The analysis reveals that at overall level, about 78 per cent of marketable surplus was being disposed of through channel-I i.e. through retailers and the rest about 22 per cent by selling directly to consumers i.e. channel-II.

9.2.3 OVERALL

At overall level channel-III was most commonly used channel, about 53 per cent of

2219.50 Qtls of mushrooms finding their way through this channel. The next in importance is the channel-I, 34.32 per cent of marketed mushroom being disposed of through this channel. About 12 per cent of mushroom were marketed directly to consumers at overall land.

TABLE: 9.1 PATTERN OF DISPOSAL OF MUSHROOMS.

(% OF TOTAL QTY)

CHANNEL• CATEGORY• • • SMALL• MEDIUM• LARGE• OVERALL• • SOLAN• CATEGORY• • • SMALL• MEDIUM• LARGE• OVERALL• • SOLAN• • CHANNEL-1
• • SMALL• MEDIUM• LARGE• OVERALL• • SOLAN• • CHANNEL-1
• SMALL• MEDIUM• LARGE• OVERALL• • SOLAN• • CHANNEL-1

SMALL• MEDIUM• L ARGE• OVERALL• MEDIUM• LARGE• LARGE• OVERALL• OVERALL• • SOLAN • • CHANNEL-1 • SOLAN• • CHANN EL-1 SOLAN• • CHANNE L-1 • CHANNEL-1 CHANNEL-1 -II - III• 15.00 15.00 5.00 80.00• 20.00 20.00 8.00 72.00• 23.00 23.00 10.00 67.00• 22.24 22.24 9.50 68.26• • **TOTAL QTY.MARKETED•** 8 5.00 • **TOTAL QTY.MARKETED•** 8 5.00 **TOTAL QTY.MARKETED•** 8 5.00 85.00 (100.00)• 213.50 213.50 (100.00)• 1441.00 1441.00 (100.00)• 1739.50 1739.50 (100.00)• • **SHIMLA • • CHANNEL-1 • SHIMLA• • CHANN EL-1 SHIMLA• • CHANNE L-1 • CHANNEL-1 CHANNEL-1 -II - III•** 82.00 82.00 18.00 -• 78.00 78.00 22.00 -• 75.00 75.00 25.00 -• 78.06 78.06 21.94 -• • **TOTAL QTY.MARKETED•** 8 6.00 • **TOTAL QTY.MARKETED•** 8 6.00 **TOTAL QTY.MARKETED•** 8 6.00 86.00 (100.00)• 289.00 289.00 (100.00)• 105.00• 48 0.00• • **OVERALL• •**

105.00• 480.00• • O
VERALL• • CHANNE
L-1
480.00• • OVERALL
• • CHANNEL-1
• OVERALL• • CHA
NNEL-1
OVERALL• • CHAN
NEL-1
• CHANNEL-1
CHANNEL-1
-II
-
III• 48.69
48.69
11.54
39.77• 53.36
53.36
16.05
30.59• 26.53
26.53
11.02
62.45• 34.32
34.32
12.19
53.49• • TOTAL
QTY.MARKETED• 1
71.00• 502.50• 1546.
00• 2219.50• •
• TOTAL
QTY.MARKETED• 1
71.00• 502.50• 1546.
00• 2219.50• •
TOTAL
QTY.MARKETED• 1
71.00• 502.50• 1546.
00• 2219.50• •
171.00• 502.50• 154
6.00• 2219.50• •
502.50• 1546.00• 22
19.50• •
1546.00• 2219.50• •
2219.50• •
•

9.3 GRADING

The grades provided by the National Centre for Mushroom Research and Training have become more or less accepted norms for producers as well as buyers. These in descending order are:

1. **Buttons** Where cap of mushroom is between 1-2 inches in diameter and membrane is intact. This most superior grade.

2. **Cups** In cups the membrane is breaking and has second position in grading.

3. **Flats/Opens/U**

mbrella

Where the gills are fully visible and is most inferior or third grade.

9.4 PACKING

The fresh mushrooms are packed only in polythene bags of 200 gms. This is the only size packed and available in the market. These bags are further packed in cfb cartons for taking these to market. The capacity of these cartons are around 10 kg each. The carton are collected back after delivery and are re-used two to three times.

9.5 MODE OF TRANSPORTATION

The different modes of transportation were observed to be different for local and distant markets. Far local markets of Solan and Shimla these were as head load, cycle or being sold at farm itself (Table 9.2). For distant markets of Shimla (for growers of

Solan and those located away from Shimla city) and Chandigarh it was invariably the buses. The quantum of produce was such that trucks are not used at all. The following provides details of different modes of transportation used in both the districts and at overall level.

9.5.1 SOLAN In Solan 56 per cent produce was sent by buses to Shimla and 14 per cent to Chandigarh by same mode. In local market of Solan 24.80 per cent of the total produce was marketed by using cycles/scooters and the rest 5.20 per cent was sold at farm itself.

9.5.2 SHIMLA In Shimla 80 percent of the total produce was brought to Shimla market using buses. No supplies were made to Chandigarh. In the local market, 1.82 per cent was sold by carrying it as head load and the rest 11.67 per cent was sold at farm gate itself.

9.5.3 OVERALL

At overall level 61.19 and 10.97 percent of total marketed quantity of mushrooms was sent to Shimla and Chandigarh respectively using buses. In local market 1.82 percent was marketed by carrying as head load, 19.44 per cent by using cycle/scooter and the rest 6.58 percent was disposed of at the farm gate to consumers.

TABLE: 9.2 MODE OF TRANSPORTATION ADOPTED.

(% of produce) MODE• • • • • • • LOCAL MARKET• DISTANT MARKETS • • LOCAL MARKET• DISTANT MARKETS • LOCAL MARKET• DISTANT MARKETS LOCAL MARKET• DISTANT MARKETS DISTANT MARKETS Shimla Chandigarh• • • • I• II• • SOLAN• • HEAD LOAD• -• - • - • • CYCLE• 24.80• -• - • • BUS• - • 56.00• 14.00• • TRUCK• **• • I• II• • SOLAN•** • HEAD LOAD• -• -• - • • CYCLE• 24.80• -• - • • BUS• - • 56.00• 14.00• • TRUCK• **• I• II• • SOLAN•** • HEAD LOAD• -• -• - • • CYCLE• 24.80• -• - • • BUS• - • 56.00• 14.00• • TRUCK• **I• II• • SOLAN•** • HEAD LOAD• -• -• - • • CYCLE• 2

4.80• -• -
• • BUS• -
• 56.00• 14.0
0• • TRUCK•
II• • SOLAN•
• **SOLAN•** • H
EAD LOAD• -
• -• -
• • CYCLE• 2
4.80• -• -
• • BUS• -
• 56.00• 14.0
0• • TRUCK•
SOLAN• • HE
AD LOAD• -
• -• -
• • CYCLE• 2
4.80• -• -
• • BUS• -
• 56.00• 14.0
0• • TRUCK•
• HEAD
LOAD• -• -• -
• • CYCLE• 2
4.80• -• -
• • BUS• -
• 56.00• 14.0
0• • TRUCK•
HEAD
LOAD• -• -• -
• • CYCLE• 2
4.80• -• -
• • BUS• -
• 56.00• 14.0
0• • TRUCK•
-• -• -
• • CYCLE• 2
4.80• -• -
• • BUS• -
• 56.00• 14.0
0• • TRUCK•
-• -
• • CYCLE• 2
4.80• -• -
• • BUS• -
• 56.00• 14.0
0• • TRUCK•
-
• • CYCLE• 2
4.80• -• -
• • BUS• -
• 56.00• 14.0
0• • TRUCK•

• CYCLE• 24.
80• -• -
• • BUS• -
• 56.00• 14.0
0• • TRUCK•
CYCLE• 24.8
0• -• -
• • BUS• -
• 56.00• 14.0
0• • TRUCK•
24.80• -• -
• • BUS• -
• 56.00• 14.0
0• • TRUCK•
-• -• • BUS• -
• 56.00• 14.0
0• • TRUCK•
-• • BUS• -
• 56.00• 14.0
0• • TRUCK•
• BUS• -
• 56.00• 14.0
0• • TRUCK•
BUS• -
• 56.00• 14.0
0• • TRUCK•
-
• 56.00• 14.0
0• • TRUCK•
56.00• 14.00
• • TRUCK• -
• -• -• • AT
FARM• 5.20•
14.00• • TRU
CK• -• -• -
• • AT
FARM• 5.20•
• TRUCK• -• -
• -• • AT
FARM• 5.20•
TRUCK• -• -
• -• • AT
FARM• 5.20•
-• -• -• • AT
FARM• 5.20•
-• -• • AT
FARM• 5.20•
-• • AT
FARM• 5.20•
• AT
FARM• 5.20•
AT
FARM• 5.20•

5.20• -• -
• • **SHIMLA•**
-• -
• • **SHIMLA•**
-
• • **SHIMLA•**
• **SHIMLA•** •
SHIMLA• • H
EAD
LOAD• 8.33•
• HEAD
LOAD• 8.33•
HEAD
LOAD• 8.33•
8.33• -• -
• • CYCLE• -
• -• -
• • BUS• -
• 80.00• -
• • TRUCK• -
• -• -• • AT
FARM• 11.67
• -• -
• • **OVERALL**
• • HEAD
LOAD• 1.82•
-• -
• • CYCLE• -
• -• -
• • BUS• -
• 80.00• -
• • TRUCK• -
• -• -• • AT
FARM• 11.67
• -• -
• • **OVERALL**
• • HEAD
LOAD• 1.82•
-• • CYCLE• -
• -• -
• • BUS• -
• 80.00• -
• • TRUCK• -
• -• -• • AT
FARM• 11.67
• -• -
• • **OVERALL**
• • HEAD
LOAD• 1.82•
• CYCLE• -• -
• -• • BUS• -
• 80.00• -
• • TRUCK• -

• -• -• • AT FARM• 11.67 • -• -
• • **OVERALL** • • HEAD LOAD• 1.82• CYCLE• -• - • -• • BUS• - • 80.00• - • • TRUCK• - • -• -• • AT FARM• 11.67 • -• -
• • **OVERALL** • • HEAD LOAD• 1.82• -• -• - • • BUS• - • 80.00• - • • TRUCK• - • -• -• • AT FARM• 11.67 • -• -
• • **OVERALL** • • HEAD LOAD• 1.82• -• -• • BUS• - • 80.00• - • • TRUCK• - • -• -• • AT FARM• 11.67 • -• -
• • **OVERALL** • • HEAD LOAD• 1.82• -• • BUS• - • 80.00• - • • TRUCK• - • -• -• • AT FARM• 11.67 • -• -
• • **OVERALL** • • HEAD LOAD• 1.82• • BUS• - • 80.00• - • • TRUCK• - • -• -• • AT FARM• 11.67 • -• -
• • **OVERALL** • • HEAD LOAD• 1.82•

BUS• - • 80.00• - • • TRUCK• - • -• -• • AT FARM• 11.67 • -• - • • **OVERALL** • • HEAD LOAD• 1.82• -• 80.00• - • • TRUCK• - • -• -• • AT FARM• 11.67 • -• - • • **OVERALL** • • HEAD LOAD• 1.82• 80.00• - • • TRUCK• - • -• -• • AT FARM• 11.67 • -• - • • **OVERALL** • • HEAD LOAD• 1.82• -• • TRUCK• - • -• -• • AT FARM• 11.67 • -• - • • **OVERALL** • • HEAD LOAD• 1.82• • TRUCK• -• - • -• • AT FARM• 11.67 • -• - • • **OVERALL** • • HEAD LOAD• 1.82• TRUCK• -• - • -• • AT FARM• 11.67 • -• - • • **OVERALL** • • HEAD LOAD• 1.82• -• -• -• • AT FARM• 11.67 • -• - • • **OVERALL** • • HEAD LOAD• 1.82• -• -• • AT

FARM• 11.67
• -• -
• • **OVERALL**
• • HEAD
LOAD• 1.82•
-• • AT
FARM• 11.67
• -• -
• • **OVERALL**
• • HEAD
LOAD• 1.82•
• AT
FARM• 11.67
• -• -
• • **OVERALL**
• • HEAD
LOAD• 1.82•
AT
FARM• 11.67
• -• -
• • **OVERALL**
• • HEAD
LOAD• 1.82•
11.67• -• -
• • **OVERALL**
• • HEAD
LOAD• 1.82•
-• -
• • **OVERALL**
• • HEAD
LOAD• 1.82•
-
• • **OVERALL**
• • HEAD
LOAD• 1.82•
• **OVERALL•**
OVERALL• •
• HEAD
LOAD• 1.82•
HEAD
LOAD• 1.82•
1.82• -• -
• • CYCLE• 1
9.44• -• -
• • BUS• -
• 61.19• 10.9
7• • TRUCK•
-• -
• • CYCLE• 1
9.44• -• -
• • BUS• -
• 61.19• 10.9
7• • TRUCK•

-
• • CYCLE• 1
9.44• -• -
• • BUS• -
• 61.19• 10.9
7• • TRUCK•
• CYCLE• 19.
44• -• -
• • BUS• -
• 61.19• 10.9
7• • TRUCK•
CYCLE• 19.4
4• -• -
• • BUS• -
• 61.19• 10.9
7• • TRUCK•
19.44• -• -
• • BUS• -
• 61.19• 10.9
7• • TRUCK•
-• -• • BUS• -
• 61.19• 10.9
7• • TRUCK•
-• • BUS• -
• 61.19• 10.9
7• • TRUCK•
• BUS• -
• 61.19• 10.9
7• • TRUCK•
BUS• -
• 61.19• 10.9
7• • TRUCK•
-
• 61.19• 10.9
7• • TRUCK•
61.19• 10.97
• • TRUCK• -
• -• -• • AT
FARM• 6.58•
10.97• • TRU
CK• -• -• -
• • AT
FARM• 6.58•
• TRUCK• -• -
• -• • AT
FARM• 6.58•
TRUCK• -• -
• -• • AT
FARM• 6.58•
-• -• -• • AT
FARM• 6.58•
-• -• • AT
FARM• 6.58•

-• • AT FARM• 6.58• • AT FARM• 6.58• AT FARM• 6.58• 6.58• -• -• • -• -• • -• • •

9.6 MARKETING COSTS AND MARGINS

The marketing process for mushrooms has to be very quick and efficient because due to high parishability the produce has to reach the consumer within least possible time. The high parishability also dictates that the marketing channels have to be short so that least possible time is consumed in marketing process. In this regard, the study of mushroom marketing assumes greater importance because from it a judgement regarding efficiency of marketing can be made and idea can be had as to weather various intermediaries are providing the services at reasonable rates or not. The marketing margins for various intermediaries have been worked out for different channels in both the district and results presented in Table 9.3 and 9.4, the following test provides the details.

9.6.1 SOLAN

All the three marketing channels detailed in 9.1 above are present in Solan.

Channel -I

This channel refers to the produce being directly sold to retailers from whom it is purchased by the consumers. Many growers, over the years, have developed contacts with local retailers and dispose of the mushroom through them. it has been observed that in this channel the average price paid by the consumer was Rs.64.06 per kg. Out of this amount producers share is 67.06 percent. But he has to incur expenses on packing, transportation and other items like labour etc. This his net margin turned out to be 61.19 per cent or Rs.39.20 per kg. The retailers purchase price was Rs.42.96 per kg. The expenses born by retailer were Rs.4.75 per kg. and they were observed to be taking a profit margin of Rs.16.35 per kg.

Channel-II

In this channel the producer directly sell the mushrooms to consumer who visit their farms for to purpose. Though this is a most profitable channel, the transaction through this is very low. The consumer were observed to be paying are average price of Rs.45 per kg of mushroom on farm gate. The only expenses the producer has to incur is packing which amounted to only Rs.0.58 per kg. Hence, the producer could earn Rs.44.82 per kg or 98.71 per cent of the price paid by the consumer.

Channel- III

This channel refers to involvement of co-operative in the marketing chain. When the produce is sent to Shimla market it is brought to a shop which is rented by the

group of mushroom growers and they have posted a person to look after further marketing process. This co-operative is not a registered co-operative but all the functions of marketing co-operatives are performed. All the members get pooled prices after payments for shop, marketing assistant, other expenses etc. Under this channel average price paid by the consumers was observed to be

Rs.66.76 per kg. Of this Rs.44.67 was the producers share but after deducting for his expenses of Rs.4.17 per kg the net margin of grower was observed to be Rs.40.50 per kg or 60.66 per cent of the consumer price.

TABLE: 9.3 MARKETING MARGINS AND COSTS THROUGH DIFFERENT

MARKETING CHANNELS IN SOLAN

GROWERS **(RS/KG)** **PARTICULARS• CHANNEL-I• CHANNEL-II• CHANNEL-III•** • 1. PRICE RECEIVED BY GROWER• 42.96(67.06)• 45.00(100.00)• **CHANNEL-I• CHANNEL-II• CHANNEL-III•** • 1. PRICE RECEIVED BY GROWER• 42.96(67.06)• 45.00(100.00)• **CHANNEL-II• CHANNEL-III•** • 1. PRICE RECEIVED BY GROWER• 42.96(67.06)• 45.00(100.00)• **CHANNEL-III•** • 1. PRICE RECEIVED BY GROWER• 42.96(67.06)• 45.00(100.00)• • 1. PRICE RECEIVED BY GROWER• 42.96(67.06)• 45.00(100.00)• 1. PRICE RECEIVED BY GROWER• 4

2.96(67.06)• 4
5.00(100.00)•
42.96(67.06)•
45.00(100.00)
• 44.67(66.91)
• • 2.
MARKETING
COSTS
INCURRED
BY
GROWER• 3.
76• 0.58• 4.1
7• • -
PACKING• 0.
58• 0.58• 0.5
8• • -
TRANSPORT
ATION• 0.11
• -• 0.30• • -
OTHERS• 3.0
7• -
• 3.29• • 3.
NET MARGIN
OF
GROWER• 3
9.20(61.19)• 4
4.42
(98.71)• 40.50
(60.66)• • 4.
MARKETING
COST BY
CO-
OPERATIVE
44.67(66.91)•
• 2.
MARKETING
COSTS
INCURRED
BY
GROWER• 3.
76• 0.58• 4.1
7• • -
PACKING• 0.
58• 0.58• 0.5
8• • -
TRANSPORT
ATION• 0.11
• -• 0.30• • -
OTHERS• 3.0
7• -
• 3.29• • 3.
NET MARGIN
OF

GROWER• 3
9.20(61.19)• 4
4.42
(98.71)• 40.50
(60.66)• • 4.
MARKETING
COST BY
CO-
OPERATIVE
2.
MARKETING
COSTS
INCURRED
BY
GROWER• 3.
76• 0.58• 4.1
7• • -
PACKING• 0.
58• 0.58• 0.5
8• • -
TRANSPORT
ATION• 0.11
• -• 0.30• • -
OTHERS• 3.0
7• -
• 3.29• • 3.
NET MARGIN
OF
GROWER• 3
9.20(61.19)• 4
4.42
(98.71)• 40.50
(60.66)• • 4.
MARKETING
COST BY
CO-
OPERATIVE
3.76• 0.58• 4.
17• • -
PACKING• 0.
58• 0.58• 0.5
8• • -
TRANSPORT
ATION• 0.11
• -• 0.30• • -
OTHERS• 3.0
7• -
• 3.29• • 3.
NET MARGIN
OF
GROWER• 3
9.20(61.19)• 4
4.42

(98.71)• 40.50
(60.66)• • 4.
MARKETING
COST BY
CO-
OPERATIVE
0.58• 4.17• •
4.17• • -
PACKING• 0.
58• 0.58• 0.5
8• • -
TRANSPORT
ATION• 0.11
• -• 0.30• • -
OTHERS• 3.0
7• -
• 3.29• • 3.
NET MARGIN
OF
GROWER• 3
9.20(61.19)• 4
4.42
(98.71)• 40.50
(60.66)• • 4.
MARKETING
COST BY
CO-
OPERATIVE
• -
PACKING• 0.
58• 0.58• 0.5
8• • -
TRANSPORT
ATION• 0.11
• -• 0.30• • -
OTHERS• 3.0
7• -
• 3.29• • 3.
NET MARGIN
OF
GROWER• 3
9.20(61.19)• 4
4.42
(98.71)• 40.50
(60.66)• • 4.
MARKETING
COST BY
CO-
OPERATIVE
-
PACKING• 0.
58• 0.58• 0.5
8• • -

TRANSPORT
ATION• 0.11
• -• 0.30• • -
OTHERS• 3.0
7• -
• 3.29• • 3.
NET MARGIN
OF
GROWER• 3
9.20(61.19)• 4
4.42
(98.71)• 40.50
(60.66)• • 4.
MARKETING
COST BY
CO-
OPERATIVE
0.58• 0.58• 0.
58• • -
TRANSPORT
ATION• 0.11
• -• 0.30• • -
OTHERS• 3.0
7• -
• 3.29• • 3.
NET MARGIN
OF
GROWER• 3
9.20(61.19)• 4
4.42
(98.71)• 40.50
(60.66)• • 4.
MARKETING
COST BY
CO-
OPERATIVE
0.58• 0.58• •
0.58• • -
TRANSPORT
ATION• 0.11
• -• 0.30• • -
OTHERS• 3.0
7• -
• 3.29• • 3.
NET MARGIN
OF
GROWER• 3
9.20(61.19)• 4
4.42
(98.71)• 40.50
(60.66)• • 4.
MARKETING
COST BY

CO-
OPERATIVE
• -
TRANSPORT
ATION• 0.11
• -• 0.30• • -
OTHERS• 3.0
7• -
• 3.29• • 3.
NET MARGIN
OF
GROWER• 3
9.20(61.19)• 4
4.42
(98.71)• 40.50
(60.66)• • 4.
MARKETING
COST BY
CO-
OPERATIVE
-
TRANSPORT
ATION• 0.11
• -• 0.30• • -
OTHERS• 3.0
7• -
• 3.29• • 3.
NET MARGIN
OF
GROWER• 3
9.20(61.19)• 4
4.42
(98.71)• 40.50
(60.66)• • 4.
MARKETING
COST BY
CO-
OPERATIVE
0.11• -
• 0.30• • -
OTHERS• 3.0
7• -
• 3.29• • 3.
NET MARGIN
OF
GROWER• 3
9.20(61.19)• 4
4.42
(98.71)• 40.50
(60.66)• • 4.
MARKETING
COST BY
CO-

OPERATIVE -• 0.30• • - OTHERS• 3.0 7• - • 3.29• • 3. NET MARGIN OF GROWER• 3 9.20(61.19)• 4 4.42 (98.71)• 40.50 (60.66)• • 4. MARKETING COST BY CO- OPERATIVE 0.30• • - OTHERS• 3.0 7• - • 3.29• • 3. NET MARGIN OF GROWER• 3 9.20(61.19)• 4 4.42 (98.71)• 40.50 (60.66)• • 4. MARKETING COST BY CO- OPERATIVE • - OTHERS• 3.0 7• - • 3.29• • 3. NET MARGIN OF GROWER• 3 9.20(61.19)• 4 4.42 (98.71)• 40.50 (60.66)• • 4. MARKETING COST BY CO- OPERATIVE - OTHERS• 3.0 7• - • 3.29• • 3. NET MARGIN OF GROWER• 3

9.20(61.19)• 4 4.42 (98.71)• 40.50 (60.66)• • 4. MARKETING COST BY CO-OPERATIVE 3.07• - • 3.29• • 3. NET MARGIN OF GROWER• 3 9.20(61.19)• 4 4.42 (98.71)• 40.50 (60.66)• • 4. MARKETING COST BY CO-OPERATIVE -• 3.29• • 3. NET MARGIN OF GROWER• 3 9.20(61.19)• 4 4.42 (98.71)• 40.50 (60.66)• • 4. MARKETING COST BY CO-OPERATIVE 3.29• • 3. NET MARGIN OF GROWER• 3 9.20(61.19)• 4 4.42 (98.71)• 40.50 (60.66)• • 4. MARKETING COST BY CO-OPERATIVE • 3. NET MARGIN OF GROWER• 3 9.20(61.19)• 4 4.42 (98.71)• 40.50 (60.66)• • 4. MARKETING

COST BY CO-OPERATIVE 3. NET MARGIN OF GROWER• 39.20(61.19)• 44.42 (98.71)• 40.50 (60.66)• • 4. MARKETING COST BY CO-OPERATIVE 39.20(61.19)• 44.42 (98.71)• 40.50 (60.66)• • 4. MARKETING COST BY CO-OPERATIVE 40.50(60.66)• • 4. MARKETING COST BY CO-OPERATIVE 4. MARKETING COST BY CO-OPERATIVE - PACKING• - • -• 1.94 -• -• 1.94 -• 1.94 1.94 -• • - WASTAGE AND SPOILAGE• - • -• -• • - MARKET FEE• - • • 0.43• • - HANDLING• - • -• 0.50• • - RENT FOR SHOP• -• - • 0.81• • - WAGES FOR LABOUR• -• -

• 0.20• • 5. RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES BY RETAILERS• • - WASTAGE AND SPOILAGE• - • -• -• • - MARKET FEE• - • • 0.43• • - HANDLING• - • -• 0.50• • - RENT FOR SHOP• -• - • 0.81• • - WAGES FOR LABOUR• -• - • 0.20• • 5. RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES BY RETAILERS• - WASTAGE AND SPOILAGE• - • -• -• • - MARKET FEE• - • • 0.43• • - HANDLING• - • -• 0.50• • - RENT FOR SHOP• -• - • 0.81• • - WAGES FOR LABOUR• -• - • 0.20• • 5. RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES

BY
RETAILERS•
-• -• -• • -
MARKET
FEE• -
• • 0.43• • -
HANDLING• -
• -• 0.50• • -
RENT FOR
SHOP• -• -
• 0.81• • -
WAGES FOR
LABOUR• -• -
• 0.20• • 5.
RETAILERS
PURCHASE
PRICE• 42.96
• -
• 46.61• • 6.
EXPENSES
BY
RETAILERS•
-• -• • -
MARKET
FEE• -
• • 0.43• • -
HANDLING• -
• -• 0.50• • -
RENT FOR
SHOP• -• -
• 0.81• • -
WAGES FOR
LABOUR• -• -
• 0.20• • 5.
RETAILERS
PURCHASE
PRICE• 42.96
• -
• 46.61• • 6.
EXPENSES
BY
RETAILERS•
-• • -MARKET
FEE• -
• • 0.43• • -
HANDLING• -
• -• 0.50• • -
RENT FOR
SHOP• -• -
• 0.81• • -
WAGES FOR
LABOUR• -• -
• 0.20• • 5.

RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES BY RETAILERS• • -MARKET FEE• - • • 0.43• • - HANDLING• - • -• 0.50• • - RENT FOR SHOP• -• - • 0.81• • - WAGES FOR LABOUR• -• - • 0.20• • 5. RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES BY RETAILERS• -MARKET FEE• - • • 0.43• • - HANDLING• - • -• 0.50• • - RENT FOR SHOP• -• - • 0.81• • - WAGES FOR LABOUR• -• - • 0.20• • 5. RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES BY RETAILERS• -• • 0.43• • - HANDLING• - • -• 0.50• • - RENT FOR SHOP• -• - • 0.81• • - WAGES FOR

LABOUR• -• -
• 0.20• • 5.
RETAILERS
PURCHASE
PRICE• 42.96
• -
• 46.61• • 6.
EXPENSES
BY
RETAILERS•
• 0.43• • -
HANDLING• -
• -• 0.50• • -
RENT FOR
SHOP• -• -
• 0.81• • -
WAGES FOR
LABOUR• -• -
• 0.20• • 5.
RETAILERS
PURCHASE
PRICE• 42.96
• -
• 46.61• • 6.
EXPENSES
BY
RETAILERS•
0.43• • -
HANDLING• -
• -• 0.50• • -
RENT FOR
SHOP• -• -
• 0.81• • -
WAGES FOR
LABOUR• -• -
• 0.20• • 5.
RETAILERS
PURCHASE
PRICE• 42.96
• -
• 46.61• • 6.
EXPENSES
BY
RETAILERS•
• -
HANDLING• -
• -• 0.50• • -
RENT FOR
SHOP• -• -
• 0.81• • -
WAGES FOR
LABOUR• -• -
• 0.20• • 5.

RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES BY RETAILERS• - HANDLING• - • -• 0.50• • - RENT FOR SHOP• -• - • 0.81• • - WAGES FOR LABOUR• -• - • 0.20• • 5. RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES BY RETAILERS• -• -• 0.50• • - RENT FOR SHOP• -• - • 0.81• • - WAGES FOR LABOUR• -• - • 0.20• • 5. RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES BY RETAILERS• -• 0.50• • - RENT FOR SHOP• -• - • 0.81• • - WAGES FOR LABOUR• -• - • 0.20• • 5. RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES

BY RETAILERS• 0.50• • - RENT FOR SHOP• -• - • 0.81• • - WAGES FOR LABOUR• -• - • 0.20• • 5. RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES BY RETAILERS• • - RENT FOR SHOP• -• - • 0.81• • - WAGES FOR LABOUR• -• - • 0.20• • 5. RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES BY RETAILERS• - RENT FOR SHOP• -• - • 0.81• • - WAGES FOR LABOUR• -• - • 0.20• • 5. RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES BY RETAILERS• -• -• 0.81• • - WAGES FOR LABOUR• -• - • 0.20• • 5. RETAILERS PURCHASE PRICE• 42.96 • -

• 46.61• • 6. EXPENSES BY RETAILERS• -• 0.81• • - WAGES FOR LABOUR• -• - • 0.20• • 5. RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES BY RETAILERS• 0.81• • - WAGES FOR LABOUR• -• - • 0.20• • 5. RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES BY RETAILERS• • - WAGES FOR LABOUR• -• - • 0.20• • 5. RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES BY RETAILERS• - WAGES FOR LABOUR• -• - • 0.20• • 5. RETAILERS PURCHASE PRICE• 42.96 • - • 46.61• • 6. EXPENSES BY RETAILERS• -• -• 0.20• • 5.

RETAILERS
PURCHASE
PRICE• 42.96
• -
• 46.61• • 6.
EXPENSES
BY
RETAILERS•
-• 0.20• • 5.
RETAILERS
PURCHASE
PRICE• 42.96
• -
• 46.61• • 6.
EXPENSES
BY
RETAILERS•
0.20• • 5.
RETAILERS
PURCHASE
PRICE• 42.96
• -
• 46.61• • 6.
EXPENSES
BY
RETAILERS•
• 5.
RETAILERS
PURCHASE
PRICE• 42.96
• -
• 46.61• • 6.
EXPENSES
BY
RETAILERS•
5.
RETAILERS
PURCHASE
PRICE• 42.96
• -
• 46.61• • 6.
EXPENSES
BY
RETAILERS•
42.96• -
• 46.61• • 6.
EXPENSES
BY
RETAILERS•
-• 46.61• • 6.
EXPENSES
BY
RETAILERS•

46.61• • 6. EXPENSES BY RETAILERS• • 6. EXPENSES BY RETAILERS• 6. EXPENSES BY RETAILERS• 4.75• - • 4.75• • - CARRIAGE• -• 4.75• • - CARRIAGE• 4.75• • - CARRIAGE• • - CARRIAGE• - CARRIAGE• 0.20• - • 0.25• • - LOSSES• 3.9 2• -• 4.30• • - HANDLING• 0 .20• - • 0.20• • - MARKET FEE• 0.43• • -• 0.25• • - LOSSES• 3.9 2• -• 4.30• • - HANDLING• 0 .20• - • 0.20• • - MARKET FEE• 0.43• • 0.25• • - LOSSES• 3.9 2• -• 4.30• • - HANDLING• 0 .20• - • 0.20• • - MARKET FEE• 0.43• • • - LOSSES• 3.9 2• -• 4.30• • - HANDLING• 0 .20• -

• 0.20• • -
MARKET
FEE• 0.43• •
-
LOSSES• 3.9
2• -• 4.30• • -
HANDLING• 0
.20• -
• 0.20• • -
MARKET
FEE• 0.43• •
3.92• -
• 4.30• • -
HANDLING• 0
.20• -
• 0.20• • -
MARKET
FEE• 0.43• •
-• 4.30• • -
HANDLING• 0
.20• -
• 0.20• • -
MARKET
FEE• 0.43• •
4.30• • -
HANDLING• 0
.20• -
• 0.20• • -
MARKET
FEE• 0.43• •
• -
HANDLING• 0
.20• -
• 0.20• • -
MARKET
FEE• 0.43• •
-
HANDLING• 0
.20• -
• 0.20• • -
MARKET
FEE• 0.43• •
0.20• -
• 0.20• • -
MARKET
FEE• 0.43• •
-• 0.20• • -
MARKET
FEE• 0.43• •
0.20• • -
MARKET
FEE• 0.43• •
• - MARKET

FEE• 0.43• • - MARKET FEE• 0.43• • 0.43• • -• • 7. RETAILERS MARGIN• 16. 35• - • 15.40• • 8. CONSUMER PRICE• 64.06 (100.00)• 45.0 0(100.00)• 66. 76(100.00)• • • -• • 7. RETAILERS MARGIN• 16. 35• - • 15.40• • 8. CONSUMER PRICE• 64.06 (100.00)• 45.0 0(100.00)• 66. 76(100.00)• • -• • 7. RETAILERS MARGIN• 16. 35• - • 15.40• • 8. CONSUMER PRICE• 64.06 (100.00)• 45.0 0(100.00)• 66. 76(100.00)• • • 7. RETAILERS MARGIN• 16. 35• - • 15.40• • 8. CONSUMER PRICE• 64.06 (100.00)• 45.0 0(100.00)• 66. 76(100.00)• • 7. RETAILERS MARGIN• 16. 35• - • 15.40• • 8. CONSUMER PRICE• 64.06 (100.00)• 45.0 0(100.00)• 66. 76(100.00)• •

16.35• -
• 15.40• • 8. CONSUMER PRICE• 64.06 (100.00)• 45.00(100.00)• 66.76(100.00)• •
-• 15.40• • 8. CONSUMER PRICE• 64.06 (100.00)• 45.00(100.00)• 66.76(100.00)• •
15.40• • 8. CONSUMER PRICE• 64.06 (100.00)• 45.00(100.00)• 66.76(100.00)• •
• 8. CONSUMER PRICE• 64.06 (100.00)• 45.00(100.00)• 66.76(100.00)• •
8. CONSUMER PRICE• 64.06 (100.00)• 45.00(100.00)• 66.76(100.00)• •
64.06(100.00) • 45.00(100.00)• 66.76(100.00)• •
45.00(100.00) • 66.76(100.00)• •
66.76(100.00) • •
•

Note: Figures in parenthesis are percentage from total.

9.6.2

SHIMLA In

Shimla only two channels viz. retailers and directly to consumers were found. No marketing through co-operative or whole sales was prevalent. The details have been presented in Table 9.4.

Channel - 1
The average price paid by consumer was observed to be Rs.67.03 per kg. The grower received an average of Rs.45.83 per kg and after deducting his expenses of Rs.3.67 per kg the net margin of grower was 64.21 per

cent. The expenses incurred by retailers were Rs.5.10 per kg and their margin of profit was Rs.16.10 per kg.

Channel- II Under this channel average sale price of mushroom was Rs.47.00 per kg and net margin of grower was 98.62 per cent.

It may be concluded from the above that marketing channels for mushroom for local and Shimla market are fairly efficient, the net margin of growers in the range of 60 per cent. This is higher as compared with apple and vegetable marketing channels where this margin is in the range of only 40-50 per cent of consumers price. The length of marketing channels is also shorts as compared with other commodities.

TABLE: 9.4 MARKETING MARGINS AND COSTS THROUGH DIFFERENT

MARKETING CHANNELS IN SHIMLA GROWERS

(RS/KG)
PARTICULARS• CHANNEL -

I• CHANNEL-II• • 1. PRICE RECEIVED BY GROWER• 45.83(68.37)• 47.00(100.00)• **CHANNEL-I• CHANNEL-II•** • 1. PRICE RECEIVED BY GROWER• 45.83(68.37)• 47.00(100.00)• **CHANNEL-II•** • 1. PRICE RECEIVED BY GROWER• 45.83(68.37)• 47.00(100.00)• • 1. PRICE RECEIVED BY GROWER• 45.83(68.37)• 47.00(100.00)• 1. PRICE RECEIVED BY GROWER• 45.83(68.37)• 47.00(100.00)• 45.83(68.37)• 47.00(100.00) • • 2. MARKETING COSTS INCURRED BY GROWER• 3.67• 0.65• • - PACKING• 0.65• 0.65• • - TRANSPORTATION• 0.17 • -• • - OTHERS• 2.85(64.21)• - • • 3. NET WHOLESALE PRICE• 42.98

• 46.35(98.62)
• • 4.
RETAILER
PURCHASE
PRICE
• 45.83• -
• • 5.
RETAILERS
EXPENSES•
• 2.
MARKETING
COSTS
INCURRED
BY
GROWER• 3.
67• 0.65• • -
PACKING• 0.
65• 0.65• • -
TRANSPORT
ATION• 0.17
• -• • -
OTHERS• 2.8
5(64.21)• -
• • 3. NET
WHOLESALE
PRICE• 42.98
• 46.35(98.62)
• • 4.
RETAILER
PURCHASE
PRICE
• 45.83• -
• • 5.
RETAILERS
EXPENSES•
2.
MARKETING
COSTS
INCURRED
BY
GROWER• 3.
67• 0.65• • -
PACKING• 0.
65• 0.65• • -
TRANSPORT
ATION• 0.17
• -• • -
OTHERS• 2.8
5(64.21)• -
• • 3. NET
WHOLESALE
PRICE• 42.98
• 46.35(98.62)

• • 4.
RETAILER
PURCHASE
PRICE
• 45.83• -
• • 5.
RETAILERS
EXPENSES•
3.67• 0.65• •
0.65• • -
PACKING• 0.
65• 0.65• • -
TRANSPORT
ATION• 0.17
• -• • -
OTHERS• 2.8
5(64.21)• -
• • 3. NET
WHOLESALE
PRICE• 42.98
• 46.35(98.62)
• • 4.
RETAILER
PURCHASE
PRICE
• 45.83• -
• • 5.
RETAILERS
EXPENSES•
• -
PACKING• 0.
65• 0.65• • -
TRANSPORT
ATION• 0.17
• -• • -
OTHERS• 2.8
5(64.21)• -
• • 3. NET
WHOLESALE
PRICE• 42.98
• 46.35(98.62)
• • 4.
RETAILER
PURCHASE
PRICE
• 45.83• -
• • 5.
RETAILERS
EXPENSES•
-
PACKING• 0.
65• 0.65• • -
TRANSPORT

ATION• 0.17 • -• • - OTHERS• 2.8 5(64.21)• - • • 3. NET WHOLESALE PRICE• 42.98 • 46.35(98.62) • • 4. RETAILER PURCHASE PRICE • 45.83• - • • 5. RETAILERS EXPENSES• 0.65• 0.65• • 0.65• • - TRANSPORT ATION• 0.17 • -• • - OTHERS• 2.8 5(64.21)• - • • 3. NET WHOLESALE PRICE• 42.98 • 46.35(98.62) • • 4. RETAILER PURCHASE PRICE • 45.83• - • • 5. RETAILERS EXPENSES• • - TRANSPORT ATION• 0.17 • -• • - OTHERS• 2.8 5(64.21)• - • • 3. NET WHOLESALE PRICE• 42.98 • 46.35(98.62) • • 4. RETAILER PURCHASE PRICE • 45.83• - • • 5. RETAILERS EXPENSES•

- TRANSPORTATION• 0.17 • -• • - OTHERS• 2.85(64.21)• - • • 3. NET WHOLESALE PRICE• 42.98 • 46.35(98.62) • • 4. RETAILER PURCHASE PRICE • 45.83• - • • 5. RETAILERS EXPENSES• 0.17• -• • - OTHERS• 2.85(64.21)• - • • 3. NET WHOLESALE PRICE• 42.98 • 46.35(98.62) • • 4. RETAILER PURCHASE PRICE • 45.83• - • • 5. RETAILERS EXPENSES• -• • - OTHERS• 2.85(64.21)• - • • 3. NET WHOLESALE PRICE• 42.98 • 46.35(98.62) • • 4. RETAILER PURCHASE PRICE • 45.83• - • • 5. RETAILERS EXPENSES• • - OTHERS• 2.85(64.21)• - • • 3. NET WHOLESALE

PRICE• 42.98
• 46.35(98.62)
• • 4.
RETAILER
PURCHASE
PRICE
• 45.83• -
• • 5.
RETAILERS
EXPENSES•
-
OTHERS• 2.8
5(64.21)• -
• • 3. NET
WHOLESALE
PRICE• 42.98
• 46.35(98.62)
• • 4.
RETAILER
PURCHASE
PRICE
• 45.83• -
• • 5.
RETAILERS
EXPENSES•
2.85(64.21)• -
• • 3. NET
WHOLESALE
PRICE• 42.98
• 46.35(98.62)
• • 4.
RETAILER
PURCHASE
PRICE
• 45.83• -
• • 5.
RETAILERS
EXPENSES•
-• • 3. NET
WHOLESALE
PRICE• 42.98
• 46.35(98.62)
• • 4.
RETAILER
PURCHASE
PRICE
• 45.83• -
• • 5.
RETAILERS
EXPENSES•
• 3. NET
WHOLESALE
PRICE• 42.98

• 46.35(98.62) • • 4. RETAILER PURCHASE PRICE • 45.83• - • • 5. RETAILERS EXPENSES• 3. NET WHOLESALE PRICE• 42.98 • 46.35(98.62) • • 4. RETAILER PURCHASE PRICE • 45.83• - • • 5. RETAILERS EXPENSES• 42.98• 46.35(98.62)• • 4. RETAILER PURCHASE PRICE • 45.83• - • • 5. RETAILERS EXPENSES• 46.35(98.62)• • 4. RETAILER PURCHASE PRICE • 45.83• - • • 5. RETAILERS EXPENSES• 4. RETAILER PURCHASE PRICE • 45.83• - • • 5. RETAILERS EXPENSES• 45.83• -• • 5. RETAILERS EXPENSES• -• • 5. RETAILERS EXPENSES• • 5.

RETAILERS
EXPENSES•
5.
RETAILERS
EXPENSES•
5.10• -• • -
CARRIAGE•
-• • -
CARRIAGE•
• -
CARRIAGE•
-
CARRIAGE•
0.25• -• • -
LOSSES• 4.2
2• -• • -
HANDLING• 0
.20• -• • -
MARKET
FEE• 0.43• -
• • 6.
RETAILER'S
MARGIN
• 16.10• -
• • 7.
CONSUMER
S
PRICE• 67.03
(100.00)• 47.0
0(100.00)• •
-• • -
LOSSES• 4.2
2• -• • -
HANDLING• 0
.20• -• • -
MARKET
FEE• 0.43• -
• • 6.
RETAILER'S
MARGIN
• 16.10• -
• • 7.
CONSUMER
S
PRICE• 67.03
(100.00)• 47.0
0(100.00)• •
• -
LOSSES• 4.2
2• -• • -
HANDLING• 0
.20• -• • -
MARKET

FEE• 0.43• - • • 6. RETAILER’S MARGIN • 16.10• - • • 7. CONSUMERS PRICE• 67.03 (100.00)• 47.00(100.00)• • - LOSSES• 4.22• -• • - HANDLING• 0.20• -• • - MARKET FEE• 0.43• - • • 6. RETAILER’S MARGIN • 16.10• - • • 7. CONSUMERS PRICE• 67.03 (100.00)• 47.00(100.00)• • 4.22• -• • - HANDLING• 0.20• -• • - MARKET FEE• 0.43• - • • 6. RETAILER’S MARGIN • 16.10• - • • 7. CONSUMERS PRICE• 67.03 (100.00)• 47.00(100.00)• • -• • - HANDLING• 0.20• -• • - MARKET FEE• 0.43• - • • 6. RETAILER’S MARGIN • 16.10• - • • 7.

CONSUMER S PRICE• 67.03 (100.00)• 47.0 0(100.00)• • • - HANDLING• 0 .20• -• • - MARKET FEE• 0.43• - • • 6. RETAILER'S MARGIN • 16.10• - • • 7. CONSUMER S PRICE• 67.03 (100.00)• 47.0 0(100.00)• • - HANDLING• 0 .20• -• • - MARKET FEE• 0.43• - • • 6. RETAILER'S MARGIN • 16.10• - • • 7. CONSUMER S PRICE• 67.03 (100.00)• 47.0 0(100.00)• • 0.20• -• • - MARKET FEE• 0.43• - • • 6. RETAILER'S MARGIN • 16.10• - • • 7. CONSUMER S PRICE• 67.03 (100.00)• 47.0 0(100.00)• • -• • - MARKET FEE• 0.43• - • • 6. RETAILER'S

MARGIN
• 16.10• -
• • 7.
CONSUMER
S
PRICE• 67.03
(100.00)• 47.0
0(100.00)• •
• - MARKET
FEE• 0.43• -
• • 6.
RETAILER'S
MARGIN
• 16.10• -
• • 7.
CONSUMER
S
PRICE• 67.03
(100.00)• 47.0
0(100.00)• •
- MARKET
FEE• 0.43• -
• • 6.
RETAILER'S
MARGIN
• 16.10• -
• • 7.
CONSUMER
S
PRICE• 67.03
(100.00)• 47.0
0(100.00)• •
0.43• -• • 6.
RETAILER'S
MARGIN
• 16.10• -
• • 7.
CONSUMER
S
PRICE• 67.03
(100.00)• 47.0
0(100.00)• •
-• • 6.
RETAILER'S
MARGIN
• 16.10• -
• • 7.
CONSUMER
S
PRICE• 67.03
(100.00)• 47.0
0(100.00)• •
• 6.

RETAILER'S MARGIN
• 16.10• -
• • 7.
CONSUMERS PRICE• 67.03 (100.00)• 47.00(100.00)• •
6.
RETAILER'S MARGIN
• 16.10• -
• • 7.
CONSUMERS PRICE• 67.03 (100.00)• 47.00(100.00)• •
16.10• -• • 7.
CONSUMERS PRICE• 67.03 (100.00)• 47.00(100.00)• •
-• • 7.
CONSUMERS PRICE• 67.03 (100.00)• 47.00(100.00)• •
• 7.
CONSUMERS PRICE• 67.03 (100.00)• 47.00(100.00)• •
7.
CONSUMERS PRICE• 67.03 (100.00)• 47.00(100.00)• •
67.03(100.00)
• 47.00(100.00)• •
47.00(100.00)
• •
•

Note: The figures in parenthesis

are percentages from the total.

CHAPTER -X

PROBLEMS FACED BY MUSHROOM FARMERS

During the course of investigation it was observed that there were 876 registered mushroom farmers spread in five district of the state. But at the time of data collection only 112 were actually cultivating mushrooms, the rest had either temporarily or permanently given up the vocation. Such a scenario could emerge only because the vocation is riddled with many problems. Such problems were envisaged on two stages viz. production stage and marketing stage. Thus, the problems related with these aspects were listed and analysed with the help of multiple response analysis. In this analysis it was felt that responses of those farmers who had currently given up the operations carried more weight because they faced these to such an extent that they were force to give up the vocation temporarily or permanently. Thus, such farmers who were registered mushroom cultivators but presently not growing mushrooms were also included in analysis of problems. This way the sample size was increased to 60 in Solan and 55 in district Shimla from 40 and 30 respectively in all other parts of the study.

10.1 PRODUCTION STAGE PROBLEMS

The results of analysis have been presented in Table 10.1 and elicited below.

10.1.1 PRODUCTION TECHNIQUE

About 49 percent farmers felt that they lacked up to date knowledge of production techniques and any doubts can be cleared only by visiting Solan which is not always possible. This problem was reported by larger percentage in Solan as the farmers there have understood the importance of the activity.

10.1.2 CAPITAL

The lack of capital is a big hurdle in undertaking the activity and further increasing the scale of operation. Infect, this is most important problem, more that 71 per cent farmers reporting it at overall level. The farmers of Solan being more progressive were observed to be managing the problem more effectively and hence was not reported by as many farmers as in Shimla where 90 per cent farmers faced problems on this account.

10.1.3 LABOUR

The cultivation of mushrooms being highly scientific endeavour, requires specialised labour for the purpose. About 31 per cent farmers reported that it is very difficult to find required labour force conversant with the activity. The problem was observed to be more acute in Shimla where more than 63 per cent farmers faced the problem. On the other hand this problem was hardly faced in Solan, only 7.50 per cent farmers reporting it. The main reason for this scenario is that the activity has gained a firm footing in district Solan and is more wide spread. This has helped in creation of specialised and trained labour force required for the purpose.

10.1.4 INPUTS

The inputs required for mushroom cultivation like spawn have to prepared by employing proper scientific techniques therefore and not easily available except from National Research Centre for Mushrooms, Solan and a few private dealers. A few sources of critical inputs, many times, create problems of their availability, 36 per cent farmers reporting this problem.

However, the problem is not as acute in Solan where 40 per cent persons faced it as in Shimla where about 83 per cent encountered the unavailability of inputs. Again the reason for higher prevalence of problem in Shimla appears to be that such inputs are available in Solan itself ensuring better availability where as the farmers of Shimla have to visit or contact at Solan for supply of inputs, resulting in present situation.

10.1.5 CREDIT

The mushroom cultivation being highly capital intensive venture, makes provision of credit an important issue. Although the banks have a provision of credit for this activity and NABARD has refinance scheme for commercial banks for loans granted for this activity, the farmers usually face many difficulties in obtaining credit for either taking up this activity or increasing the scale of operation. The long procedures and difficult requirements are reported to be the main cause. About 53 per cent farmers at overall level faced problems in obtaining credit for mushroom cultivation. The percentage of such farmers was 30 in Solan and 83 in Shimla districts.

10.1.6 OTHERS

There are various other

miscellaneous problem being faced by the mushroom cultivators in its production. The most important among these is the higher electricity charges. The State Electricity Board charges the mushroom farmers at commercial rates which are higher than domestic charges. Seventy percent farmers reported that the electricity consumed for the activity should be charged at domestic rates rather than

commercial rates.

10.2 MARKETING STAGE PROBLEMS

The results of analysis regarding problems faced during marketing of mushrooms have been presented in Table 10.2 and described below.

10.2.1 LOW VOLUME

Majority of the mushroom farmers are small and as a result have low volume of production. The marketing of small quantities increases the per unit cost of marketing resulting in lower profits. This problems as reported by about 61 per cent farmers at overall level and district wise percentage was 53 in Solan and 73 in Shimla. Though, in both the districts the farmers are largely concentrated in villages near to the towns, in Shimla the distances analogies resulting in above situation.

10.2.2 FAR AWAY MARKETS

For the producers of both the

districts, Shimla city is the main consumption center. The demand in Shimla is continuously picking up. As such marketing is not much of a problem. However, the large producers who market their produce in Chandigarh or Delhi have complaints regarding these markets being far away especially because the produce is highly perishable and its marketing in above two cities especially

during summer months is problematic. Only about 16 per cent farmers at overall level reported this problem.

TABLE: 10.1 PROBLEMS FACED BY MUSHROOM FARMERS DURING

PRODUCTION STAGE.

(MULTIPLE RESPONSE %)

PROBLEMS• CATEGORY• • •

CATEGORY• •
• • SMALL• ME
DIUM• LARGE•
• SMALL• MEDI
UM• LARGE• O
VERALL• • SOL
AN• • 1. LACK
OF
KNOWLEDGE
OF
PROD.TECHNIQ
UE• 91.67• 38.4
6• 33.33• 52.50•
SMALL• MEDIU
M• LARGE• OV
ERALL• • SOLA
N• • 1. LACK OF
KNOWLEDGE
OF
PROD.TECHNIQ
UE• 91.67• 38.4
6• 33.33• 52.50•
MEDIUM• LARG
E• OVERALL• •
LARGE• OVERA
LL• • SOLAN• •
OVERALL• • SO
LAN• • 1. LACK
OF
KNOWLEDGE
OF
PROD.TECHNIQ
UE• 91.67• 38.4
6• 33.33• 52.50•
• SOLAN• • 1.
LACK OF
KNOWLEDGE
OF
PROD.TECHNIQ
UE• 91.67• 38.4
6• 33.33• 52.50•
SOLAN• • 1.
LACK OF
KNOWLEDGE
OF
PROD.TECHNIQ
UE• 91.67• 38.4
6• 33.33• 52.50•
• 1. LACK OF
KNOWLEDGE
OF
PROD.TECHNIQ
UE• 91.67• 38.4
6• 33.33• 52.50•
1. LACK OF
KNOWLEDGE
OF
PROD.TECHNIQ
UE• 91.67• 38.4
6• 33.33• 52.50•
91.67• 38.46• 33
.33• 52.50• • 2.

LACK OF CAPITAL• 58.33 • 69.23• 46.67• 5 7.50• • **3. LACK OF LABOUR**• 16.67 • -
• 06.67• 7.50• • 38.46• 33.33• 52 .50• • **2. LACK OF CAPITAL**• 58.33 • 69.23• 46.67• 5 7.50• • **3. LACK OF LABOUR**• 16.67 • -
• 06.67• 7.50• • 33.33• 52.50• • **2 . LACK OF CAPITAL**• 58.33 • 69.23• 46.67• 5 7.50• • **3. LACK OF LABOUR**• 16.67 • -
• 06.67• 7.50• • 52.50• • **2. LACK OF CAPITAL**• 58.33 • 69.23• 46.67• 5 7.50• • **3. LACK OF LABOUR**• 16.67 • -
• 06.67• 7.50• • • **2. LACK OF CAPITAL**• 58.33 • 69.23• 46.67• 5 7.50• • **3. LACK OF LABOUR**• 16.67 • -
• 06.67• 7.50• • **2. LACK OF CAPITAL**• 58.33 • 69.23• 46.67• 5 7.50• • **3. LACK OF LABOUR**• 16.67 • -
• 06.67• 7.50• • 58.33• 69.23• 46 .67• 57.50• • **3. LACK OF LABOUR**• 16.67 • -
• 06.67• 7.50• • 69.23• 46.67• 57 .50• • **3. LACK OF LABOUR**• 16.67 • -

• 06.67• 7.50• •
46.67• 57.50• • **3**
. LACK OF
LABOUR• 16.67
• -
• 06.67• 7.50• •
57.50• • **3.**
LACK OF
LABOUR• 16.67
• -
• 06.67• 7.50• •
• **3. LACK OF**
LABOUR• 16.67
• -
• 06.67• 7.50• •
3. LACK OF
LABOUR• 16.67
• -
• 06.67• 7.50• •
16.67• -
• 06.67• 7.50• •
-
• 06.67• 7.50• •
06.67• 7.50• • **4.**
UNAVAILABILIT
Y OF
INPUTS• 58.33•
7.50• • **4.**
UNAVAILABILIT
Y OF
INPUTS• 58.33•
• **4.**
UNAVAILABILIT
Y OF
INPUTS• 58.33•
4.
UNAVAILABILIT
Y OF
INPUTS• 58.33•
58.33• 46.15• 20
.00• 40.00• • **5.**
LACK OF
CREDIT• 50.00•
46.15• 20.00• 40
.00• • **5. LACK**
OF
CREDIT• 50.00•
20.00• 40.00• • **5**
. LACK OF
CREDIT• 50.00•
40.00• • **5.**
LACK OF
CREDIT• 50.00•
• **5. LACK OF**
CREDIT• 50.00•
5. LACK OF
CREDIT• 50.00•
50.00• 23.07• 20
.00• 30.00• • **6.**
OTHERS• 66.67
• 76.92• 80.00• 7
5.00• • **SHIMLA**
•• **1. LACK OF**

KNOWLEDGE OF PROD.TECHNIQUE• 50.00• 38.88• 50.00• 43.33• 23.07• 20.00• 30.00• • **6. OTHERS**• 66.67• 76.92• 80.00• 75.00• • **SHIMLA**• • **1. LACK OF KNOWLEDGE OF PROD.TECHNIQUE**• 50.00• 38.88• 50.00• 43.33• 20.00• 30.00• • **6. OTHERS**• 66.67• 76.92• 80.00• 75.00• • **SHIMLA**• • **1. LACK OF KNOWLEDGE OF PROD.TECHNIQUE**• 50.00• 38.88• 50.00• 43.33• 30.00• • **6. OTHERS**• 66.67• 76.92• 80.00• 75.00• • **SHIMLA**• • **1. LACK OF KNOWLEDGE OF PROD.TECHNIQUE**• 50.00• 38.88• 50.00• 43.33• • **6. OTHERS**• 66.67• 76.92• 80.00• 75.00• • **SHIMLA**• • **1. LACK OF KNOWLEDGE OF PROD.TECHNIQUE**• 50.00• 38.88• 50.00• 43.33• **6. OTHERS**• 66.67• 76.92• 80.00• 75.00• • **SHIMLA**• • **1. LACK OF KNOWLEDGE OF PROD.TECHNIQUE**• 50.00• 38.88• 50.00• 43.33• 66.67• 76.92• 80.00• 75.00• • **SHIMLA**• • **1. LACK OF KNOWLEDGE**

OF PROD.TECHNIQUE• 50.00• 38.88• 50.00• 43.33• 76.92• 80.00• 75.00• • **SHIMLA**• 80.00• 75.00• • 75.00• • **SHIMLA** • • **1. LACK OF KNOWLEDGE OF PROD.TECHNIQUE**• 50.00• 38.88• 50.00• 43.33• • **SHIMLA**• • **1. LACK OF KNOWLEDGE OF PROD.TECHNIQUE**• 50.00• 38.88• 50.00• 43.33• **SHIMLA**• • **1. LACK OF KNOWLEDGE OF PROD.TECHNIQUE**• 50.00• 38.88• 50.00• 43.33• • **1. LACK OF KNOWLEDGE OF PROD.TECHNIQUE**• 50.00• 38.88• 50.00• 43.33• **1. LACK OF KNOWLEDGE OF PROD.TECHNIQUE**• 50.00• 38.88• 50.00• 43.33• 50.00• 38.88• 50.00• 43.33• • **2. LACK OF CAPITAL**• 70.00 • 100.00• 100.00 • 90.00• • **3. LACK OF LABOUR**• 60.00 • 61.11• 100.00• 38.88• 50.00• 43.33• • **2. LACK OF CAPITAL**• 70.00 • 100.00• 100.00 • 90.00• • **3. LACK OF LABOUR**• 60.00 • 61.11• 100.00• 50.00• 43.33• • **2. LACK OF CAPITAL**• 70.00 • 100.00• 100.00

• 90.00• • **3. LACK OF LABOUR**• 60.00 • 61.11• 100.00• 43.33• • **2. LACK OF CAPITAL**• 70.00 • 100.00• 100.00 • 90.00• • **3. LACK OF LABOUR**• 60.00 • 61.11• 100.00• • **2. LACK OF CAPITAL**• 70.00 • 100.00• 100.00 • 90.00• • **3. LACK OF LABOUR**• 60.00 • 61.11• 100.00• **2. LACK OF CAPITAL**• 70.00 • 100.00• 100.00 • 90.00• • **3. LACK OF LABOUR**• 60.00 • 61.11• 100.00• 70.00• 100.00• 1 00.00• 90.00• • **3 . LACK OF LABOUR**• 60.00 • 61.11• 100.00• 100.00• 100.00• 100.00• 90.00• • 90.00• • **3. LACK OF LABOUR**• 60.00 • 61.11• 100.00• • **3. LACK OF LABOUR**• 60.00 • 61.11• 100.00• **3. LACK OF LABOUR**• 60.00 • 61.11• 100.00• 60.00• 61.11• 10 0.00• 63.33• • **4. UNAVAILABILIT Y OF INPUTS**• 60.00• 61.11• 100.00• 6 3.33• • **4. UNAVAILABILIT Y OF INPUTS**• 60.00• 100.00• 63.33• • 63.33• • **4. UNAVAILABILIT Y OF INPUTS**• 60.00• • **4. UNAVAILABILIT Y OF INPUTS**• 60.00• **4.**

UNAVAILABILIT
Y OF
INPUTS• 60.00•
60.00• 66.67• 10
0.00• 66.67• • **5.
LACK OF
CREDIT**• 70.00•
66.67• 100.00• 6
6.67• • **5. LACK
OF
CREDIT**• 70.00•
100.00• 66.67• •
66.67• • **5.
LACK OF
CREDIT**• 70.00•
• **5. LACK OF
CREDIT**• 70.00•
**5. LACK OF
CREDIT**• 70.00•
70.00• 88.89• 10
0.00• 83.33• • **6.
OTHERS**• 50.00
• 66.67• 100.00•
88.89• 100.00• 8
3.33• • **6.
OTHERS**• 50.00
• 66.67• 100.00•
100.00• 83.33• •
83.33• • **6.
OTHERS**• 50.00
• 66.67• 100.00•
• **6.
OTHERS**• 50.00
• 66.67• 100.00•
**6.
OTHERS**• 50.00
• 66.67• 100.00•
50.00• 66.67• 10
0.00• 63.33• • **O
VERALL**• • **1.
LACK OF
KNOWLEDGE
OF
PROD.TECHNIQ
UE**• 72.72• 38.7
0• 35.29• 48.57•
66.67• 100.00• 6
3.33• • **OVERAL
L**• • **1. LACK OF
KNOWLEDGE
OF
PROD.TECHNIQ
UE**• 72.72• 38.7
0• 35.29• 48.57•
100.00• 63.33• •
63.33• • **OVERA
LL**• • **1. LACK
OF
KNOWLEDGE
OF
PROD.TECHNIQ
UE**• 72.72• 38.7
0• 35.29• 48.57•

• OVERALL• • 1
. LACK OF
KNOWLEDGE
OF
PROD.TECHNIQ
UE• 72.72• 38.7
0• 35.29• 48.57•
OVERALL• • 1.
LACK OF
KNOWLEDGE
OF
PROD.TECHNIQ
UE• 72.72• 38.7
0• 35.29• 48.57•
• 1. LACK OF
KNOWLEDGE
OF
PROD.TECHNIQ
UE• 72.72• 38.7
0• 35.29• 48.57•
1. LACK OF
KNOWLEDGE
OF
PROD.TECHNIQ
UE• 72.72• 38.7
0• 35.29• 48.57•
72.72• 38.70• 35
.29• 48.57• • **2.**
LACK OF
CAPITAL• 63.63
• 87.09• 52.94• 7
1.42• • **3. LACK**
OF
LABOUR• 36.36
• 35.48• 17.64• 3
1.42• • **4.**
UNAVAILABILIT
Y OF
INPUTS• 59.09•
38.70• 35.29• 48
.57• • **2. LACK**
OF
CAPITAL• 63.63
• 87.09• 52.94• 7
1.42• • **3. LACK**
OF
LABOUR• 36.36
• 35.48• 17.64• 3
1.42• • **4.**
UNAVAILABILIT
Y OF
INPUTS• 59.09•
35.29• 48.57• • **2**
. LACK OF
CAPITAL• 63.63
• 87.09• 52.94• 7
1.42• • **3. LACK**
OF
LABOUR• 36.36
• 35.48• 17.64• 3
1.42• • **4.**
UNAVAILABILIT

Y OF
INPUTS• 59.09•
48.57• • **2.**
LACK OF
CAPITAL• 63.63
• 87.09• 52.94• 7
1.42• • **3. LACK**
OF
LABOUR• 36.36
• 35.48• 17.64• 3
1.42• • **4.**
UNAVAILABILIT
Y OF
INPUTS• 59.09•
• **2. LACK OF**
CAPITAL• 63.63
• 87.09• 52.94• 7
1.42• • **3. LACK**
OF
LABOUR• 36.36
• 35.48• 17.64• 3
1.42• • **4.**
UNAVAILABILIT
Y OF
INPUTS• 59.09•
2. LACK OF
CAPITAL• 63.63
• 87.09• 52.94• 7
1.42• • **3. LACK**
OF
LABOUR• 36.36
• 35.48• 17.64• 3
1.42• • **4.**
UNAVAILABILIT
Y OF
INPUTS• 59.09•
63.63• 87.09• 52
.94• 71.42• • **3.**
LACK OF
LABOUR• 36.36
• 35.48• 17.64• 3
1.42• • **4.**
UNAVAILABILIT
Y OF
INPUTS• 59.09•
87.09• 52.94• 71
.42• • **3. LACK**
OF
LABOUR• 36.36
• 35.48• 17.64• 3
1.42• • **4.**
UNAVAILABILIT
Y OF
INPUTS• 59.09•
52.94• 71.42• • **3**
. LACK OF
LABOUR• 36.36
• 35.48• 17.64• 3
1.42• • **4.**
UNAVAILABILIT
Y OF
INPUTS• 59.09•

71.42• • **3. LACK OF LABOUR**• 36.36 • 35.48• 17.64• 31.42• • **4. UNAVAILABILITY OF INPUTS**• 59.09• • **3. LACK OF LABOUR**• 36.36 • 35.48• 17.64• 31.42• • **4. UNAVAILABILITY OF INPUTS**• 59.09• **3. LACK OF LABOUR**• 36.36 • 35.48• 17.64• 31.42• • **4. UNAVAILABILITY OF INPUTS**• 59.09• 36.36• 35.48• 17.64• 31.42• • **4. UNAVAILABILITY OF INPUTS**• 59.09• 35.48• 17.64• 31.42• • **4. UNAVAILABILITY OF INPUTS**• 59.09• 17.64• 31.42• • **4. UNAVAILABILITY OF INPUTS**• 59.09• 31.42• • **4. UNAVAILABILITY OF INPUTS**• 59.09• • **4. UNAVAILABILITY OF INPUTS**• 59.09• **4. UNAVAILABILITY OF INPUTS**• 59.09• 59.09• 58.06• 29.41• 51.42• • **5. LACK OF CREDIT**• 59.09• 58.06• 29.41• 51.42• • **5. LACK OF CREDIT**• 59.09• 29.41• 51.42• • **5. LACK OF CREDIT**• 59.09• 51.42• • **5. LACK OF**

CREDIT• 59.09•
• **5. LACK OF CREDIT**• 59.09•
5. LACK OF CREDIT• 59.09•
59.09• 61.29• 29.41• 52.86• • **6. OTHERS**• 59.09
• 70.96• 82.35• 70.00• •
61.29• 29.41• 52.86• • **6. OTHERS**• 59.09
• 70.96• 82.35• 70.00• •
29.41• 52.86• • **6. OTHERS**• 59.09
• 70.96• 82.35• 70.00• •
52.86• • **6. OTHERS**• 59.09
• 70.96• 82.35• 70.00• •
• **6. OTHERS**• 59.09
• 70.96• 82.35• 70.00• •
6. OTHERS• 59.09
• 70.96• 82.35• 70.00• •
59.09• 70.96• 82.35• 70.00• •
70.96• 82.35• 70.00• •
82.35• 70.00• •
70.00• •
•

10.2.3 LOW LOCAL DEMAND

The local demand here means the demand by the households located within the village itself where the farm is situated.

about 36 per cent farmers thought that it would have been ideal if their entire produce is consumed within the village and they would be saved from marketing problems and its costs. In the process they were ready to forego higher profits and contend with lower returns.

10.2.4 PERISHABILITY

As described earlier the highly perishable nature of mushrooms poses problems during marketing and the time available is quite low. This is especially true in absence of processing which increases the shelf life. This problem was reported by about 56 per cent farmers and was more pronounced in Solan mainly because this district being located at lower elevation, the temperature is higher as compared with Shimla. The higher atmospheric temperature further lowers the shelf life as a result larger number of farmers face problems on this account.

10.2.5 LOW PRICES

Although not many farmers complained of low prices, about 24 per cent farmers at overall level felt that prices are low in comparison with other fresh vegetables and these are also not increasing in tune with other vegetables.

10.2.6 MARKETING COST

About 53 per cent farmers at overall level felt that marketing cost of mushrooms was quite high. The problem was more acute in Shimla, 70 percent farmers complaining on this account as compared with 40 per cent farmers in Solan.

10.2.7 MARKET INFORMATION

Those farmers who either were marketing the produce in distant markets or were planning to do so complained that no market information for these markets was available. In absence of this it was impossible to tap full potential and comparative advantage of these markets. About 29 per cent farmers at overall level had complain in this respect.

10.3 CONCLUSIONS

It may be concluded from the above discussion that the production of mushrooms is riddled with many problems. Some of these e.g. lack of knowledge of production

techniques will go on reducing with time as the spread of the activity further widens. Same is true for lack of specialised labour. More and more persons are being trained and hence the problems will go on reducing. Same is true for availability of inputs as more and more persons are undertaking the supply of inputs. However, the govt. will have to look into supply of credit by further streamlining the

operations. On the marketing front govt. should include the mushroom prices in price bulletins so that farmers can get ready information on prices. The processing of mushrooms require boost to tackle problem of perishability.

TABLE: 10.2 PROBLEMS FACED BY MUSHROOM FARMERS DURING

MARKETING STAGE.

(MULTIPLE RESPONSE %)
PROBLEMS• CATEGORY• • • CATEGORY• • • • SMALL• MEDIUM• LARGE• • SMALL• MEDIUM• LARGE• OVERALL• • SOLAN• • 1. LOW VOLUME OF PRODUCTION• SMALL• MEDIUM• LARGE• OVERALL• • SOLAN• • 1. LOW VOLUME OF PRODUCTION•

MEDIUM• LARGE• OVERALL• • LARGE• OVERALL• • SOLAN• • OVERALL• • SOLAN• • 1. LOW VOLUME OF PRODUCTION• • SOLAN• • 1. LOW VOLUME OF PRODUCTION• SOLAN• • 1. LOW VOLUME OF PRODUCTION• • 1. LOW VOLUME OF PRODUCTION• 1. LOW VOLUME OF PRODUCTION• 66.67• 61.53• 33.33• 52.50• • 2. FAR AWAY MARKETS• 25.00• 23.07• 20.00• 61.53• 33.33• 52.50• • 2. FAR AWAY MARKETS• 25.00• 23.07• 20.00• 33.33• 52.50• • 2. FAR AWAY MARKETS• 25.00• 23.07• 20.00• 52.50• • 2. FAR AWAY MARKETS• 25.00• 23.07• 20.00• • 2. FAR AWAY MARKETS• 25.00• 23.07• 20.00• 2. FAR AWAY MARKETS• 25.00• 23.07• 20.00• 25.00• 23.07• 20.00• 22.50• • 3. LOW LOCAL DEMAND• 25.00• 7.69• 6.67• 12.50• • 4. HIGHLY PERISHABLE• 91.67• 53.84• 60.00• 67.50• • 5. LOW PRICES• 41.67• 23.07• 20.00• 22.50• • 3. LOW LOCAL DEMAND• 25.00• 7.69• 6.67• 12.

50• • **4. HIGHLY PERISHABLE•** 91.67• 53.84• 60.00• 67.50• • **5. LOW PRICES•** 41.67• 20.00• 22.50• • **3. LOW LOCAL DEMAND•** 25.00 • 7.69• 6.67• 12.50• • **4. HIGHLY PERISHABLE•** 91.67• 53.84• 60.00• 67.50• • **5. LOW PRICES•** 41.67• 22.50• • **3. LOW LOCAL DEMAND•** 25.00 • 7.69• 6.67• 12.50• • **4. HIGHLY PERISHABLE•** 91.67• 53.84• 60.00• 67.50• • **5. LOW PRICES•** 41.67• • **3. LOW LOCAL DEMAND•** 25.00 • 7.69• 6.67• 12.50• • **4. HIGHLY PERISHABLE•** 91.67• 53.84• 60.00• 67.50• • **5. LOW PRICES•** 41.67• **3. LOW LOCAL DEMAND•** 25.00 • 7.69• 6.67• 12.50• • **4. HIGHLY PERISHABLE•** 91.67• 53.84• 60.00• 67.50• • **5. LOW PRICES•** 41.67• 25.00• 7.69• 6.67• 12.50• • **4. HIGHLY PERISHABLE•** 91.67• 53.84• 60.00• 67.50• • **5. LOW PRICES•** 41.67• 7.69• 6.67• 12.50• • **4. HIGHLY PERISHABLE•** 91.67• 53.84• 60.00• 67.50• • **5. LOW PRICES•** 41.67• 6.67• 12.50• • **4. HIGHLY**

PERISHABLE• 9
1.67• 53.84• 60.
00• 67.50• • **5.
LOW
PRICES**• 41.67•
12.50• • **4.
HIGHLY
PERISHABLE**• 9
1.67• 53.84• 60.
00• 67.50• • **5.
LOW
PRICES**• 41.67•
• **4. HIGHLY
PERISHABLE**• 9
1.67• 53.84• 60.
00• 67.50• • **5.
LOW
PRICES**• 41.67•
**4. HIGHLY
PERISHABLE**• 9
1.67• 53.84• 60.
00• 67.50• • **5.
LOW
PRICES**• 41.67•
91.67• 53.84• 60
.00• 67.50• • **5.
LOW
PRICES**• 41.67•
53.84• 60.00• 67
.50• • **5. LOW
PRICES**• 41.67•
60.00• 67.50• • **5
. LOW
PRICES**• 41.67•
67.50• • **5. LOW
PRICES**• 41.67•
• **5. LOW
PRICES**• 41.67•
**5. LOW
PRICES**• 41.67•
41.67• 46.15• 26
.67• 37.50• • **6.
HIGH
MARKETING
COST**• 58.33• 1
5.38• 46.67• 40.
00• • **7.LACK
OF MARKET
INFORMATION**
• 25.00• 15.38• 6
.67• 15.00• • SHI
MLA• • 1. LOW
**VOLUME OF
PRODUCTION**•
46.15• 26.67• 37
.50• • **6. HIGH
MARKETING
COST**• 58.33• 1
5.38• 46.67• 40.
00• • **7.LACK
OF MARKET
INFORMATION**

• 25.00• 15.38• 6
.67• 15.00• • SHI
MLA• • 1. LOW
VOLUME OF
PRODUCTION•
26.67• 37.50• • **6**
. HIGH
MARKETING
COST• 58.33• 1
5.38• 46.67• 40.
00• • **7.LACK**
OF MARKET
INFORMATION
• 25.00• 15.38• 6
.67• 15.00• • SHI
MLA• • 1. LOW
VOLUME OF
PRODUCTION•
37.50• • **6. HIGH**
MARKETING
COST• 58.33• 1
5.38• 46.67• 40.
00• • **7.LACK**
OF MARKET
INFORMATION
• 25.00• 15.38• 6
.67• 15.00• • SHI
MLA• • 1. LOW
VOLUME OF
PRODUCTION•
• 6. HIGH
MARKETING
COST• 58.33• 1
5.38• 46.67• 40.
00• • **7.LACK**
OF MARKET
INFORMATION
• 25.00• 15.38• 6
.67• 15.00• • SHI
MLA• • 1. LOW
VOLUME OF
PRODUCTION•
6. HIGH
MARKETING
COST• 58.33• 1
5.38• 46.67• 40.
00• • **7.LACK**
OF MARKET
INFORMATION
• 25.00• 15.38• 6
.67• 15.00• • SHI
MLA• • 1. LOW
VOLUME OF
PRODUCTION•
58.33• 15.38• 46
.67• 40.00• • **7.L**
ACK OF
MARKET
INFORMATION
• 25.00• 15.38• 6
.67• 15.00• • SHI
MLA• • 1. LOW

VOLUME OF PRODUCTION• 15.38• 46.67• 40 .00• • **7.LACK OF MARKET INFORMATION** • 25.00• 15.38• 6 .67• 15.00• • SHI **MLA•** • 1. LOW **VOLUME OF PRODUCTION•** 46.67• 40.00• • **7 .LACK OF MARKET INFORMATION** • 25.00• 15.38• 6 .67• 15.00• • SHI **MLA•** • 1. LOW **VOLUME OF PRODUCTION•** 40.00• • **7.LACK OF MARKET INFORMATION** • 25.00• 15.38• 6 .67• 15.00• • SHI **MLA•** • 1. LOW **VOLUME OF PRODUCTION•** • **7.LACK OF MARKET INFORMATION** • 25.00• 15.38• 6 .67• 15.00• • SHI **MLA•** • 1. LOW **VOLUME OF PRODUCTION•** **7.LACK OF MARKET INFORMATION** • 25.00• 15.38• 6 .67• 15.00• • SHI **MLA•** • 1. LOW **VOLUME OF PRODUCTION•** 25.00• 15.38• 6. 67• 15.00• • SHI **MLA•** • 1. LOW **VOLUME OF PRODUCTION•** 15.38• 6.67• 15. 00• • SHIMLA• • 6.67• 15.00• • S **HIMLA•** • 1. **LOW VOLUME OF PRODUCTION•** 15.00• • SHIMLA • • 1. LOW **VOLUME OF PRODUCTION•** • SHIMLA• • **1. LOW VOLUME**

OF PRODUCTION• **SHIMLA**• • 1. **LOW VOLUME OF PRODUCTION**• • **1. LOW VOLUME OF PRODUCTION**• **1. LOW VOLUME OF PRODUCTION**• 90.00• 72.22• 0.00• 73.33• • **2. FAR AWAY MARKETS**• 20.00• 0.00• 0.00• 6.67• • **3. LOW LOCAL DEMAND**• 70.00 • 72.22• 0.00• 66.67• • **4. HIGHLY PERISHABLE**• 20.00• 55.55• 0.00• 40.00• • **5. LOW PRICES**• 20.00• 72.22• 0.00• 73.33• • **2. FAR AWAY MARKETS**• 20.00• 0.00• 0.00• 6.67• • **3. LOW LOCAL DEMAND**• 70.00 • 72.22• 0.00• 66.67• • **4. HIGHLY PERISHABLE**• 20.00• 55.55• 0.00• 40.00• • **5. LOW PRICES**• 20.00• 0.00• 73.33• • **2. FAR AWAY MARKETS**• 20.00• 0.00• 0.00• 6.67• • **3. LOW LOCAL DEMAND**• 70.00 • 72.22• 0.00• 66.67• • **4. HIGHLY PERISHABLE**• 20.00• 55.55• 0.00• 40.00• • **5. LOW PRICES**• 20.00• 73.33• • **2. FAR AWAY MARKETS**• 20.00• 0.00• 0.00• 6.67• • **3. LOW LOCAL**

DEMAND• 70.00
• 72.22• 0.00• 66
.67• • **4. HIGHLY**
PERISHABLE• 2
0.00• 55.55• 0.0
0• 40.00• • **5.**
LOW
PRICES• 20.00•
• **2. FAR AWAY**
MARKETS• 20.0
0• 0.00• 0.00• 6.
67• • **3. LOW**
LOCAL
DEMAND• 70.00
• 72.22• 0.00• 66
.67• • **4. HIGHLY**
PERISHABLE• 2
0.00• 55.55• 0.0
0• 40.00• • **5.**
LOW
PRICES• 20.00•
2. FAR AWAY
MARKETS• 20.0
0• 0.00• 0.00• 6.
67• • **3. LOW**
LOCAL
DEMAND• 70.00
• 72.22• 0.00• 66
.67• • **4. HIGHLY**
PERISHABLE• 2
0.00• 55.55• 0.0
0• 40.00• • **5.**
LOW
PRICES• 20.00•
20.00• 0.00• 0.0
0• 6.67• • **3.**
LOW LOCAL
DEMAND• 70.00
• 72.22• 0.00• 66
.67• • **4. HIGHLY**
PERISHABLE• 2
0.00• 55.55• 0.0
0• 40.00• • **5.**
LOW
PRICES• 20.00•
0.00• 0.00• 6.67
• • **3. LOW**
LOCAL
DEMAND• 70.00
• 72.22• 0.00• 66
.67• • **4. HIGHLY**
PERISHABLE• 2
0.00• 55.55• 0.0
0• 40.00• • **5.**
LOW
PRICES• 20.00•
0.00• 6.67• • **3.**
LOW LOCAL
DEMAND• 70.00
• 72.22• 0.00• 66
.67• • **4. HIGHLY**
PERISHABLE• 2
0.00• 55.55• 0.0

0• 40.00• • **5. LOW PRICES•** 20.00• 6.67• • **3. LOW LOCAL DEMAND•** 70.00 • 72.22• 0.00• 66 .67• • **4. HIGHLY PERISHABLE•** 2 0.00• 55.55• 0.0 0• 40.00• • **5. LOW PRICES•** 20.00• • **3. LOW LOCAL DEMAND•** 70.00 • 72.22• 0.00• 66 .67• • **4. HIGHLY PERISHABLE•** 2 0.00• 55.55• 0.0 0• 40.00• • **5. LOW PRICES•** 20.00• **3. LOW LOCAL DEMAND•** 70.00 • 72.22• 0.00• 66 .67• • **4. HIGHLY PERISHABLE•** 2 0.00• 55.55• 0.0 0• 40.00• • **5. LOW PRICES•** 20.00• 70.00• 72.22• 0. 00• 66.67• • **4. HIGHLY PERISHABLE•** 2 0.00• 55.55• 0.0 0• 40.00• • **5. LOW PRICES•** 20.00• 72.22• 0.00• 66. 67• • **4. HIGHLY PERISHABLE•** 2 0.00• 55.55• 0.0 0• 40.00• • **5. LOW PRICES•** 20.00• 0.00• 66.67• • **4. HIGHLY PERISHABLE•** 2 0.00• 55.55• 0.0 0• 40.00• • **5. LOW PRICES•** 20.00• 66.67• • **4. HIGHLY PERISHABLE•** 2 0.00• 55.55• 0.0 0• 40.00• • **5. LOW PRICES•** 20.00• • **4. HIGHLY**

PERISHABLE• 20.00• 55.55• 0.00• 40.00• • **5. LOW PRICES•** 20.00• **4. HIGHLY PERISHABLE•** 20.00• 55.55• 0.00• 40.00• • **5. LOW PRICES•** 20.00• 20.00• 55.55• 0.00• 40.00• • **5. LOW PRICES•** 20.00• 55.55• 0.00• 40.00• • **5. LOW PRICES•** 20.00• 0.00• 40.00• • **5. LOW PRICES•** 20.00• 40.00• • **5. LOW PRICES•** 20.00• • **5. LOW PRICES•** 20.00• **5. LOW PRICES•** 20.00• 20.00• 0.00• 0.00• 6.67• • **6. HIGH MARKETING COST•** 40.00• 88.89• 50.00• 70.00• • **7.LACK OF MARKET INFORMATION** • 40.00• 44.44• 100.00• 46.67• • 0.00• 0.00• 6.67 • • **6. HIGH MARKETING COST•** 40.00• 88.89• 50.00• 70.00• • **7.LACK OF MARKET INFORMATION** • 40.00• 44.44• 100.00• 46.67• • 0.00• 6.67• • **6. HIGH MARKETING COST•** 40.00• 88.89• 50.00• 70.00• • **7.LACK OF MARKET INFORMATION** • 40.00• 44.44• 100.00• 46.67• • 6.67• • **6. HIGH MARKETING COST•** 40.00• 88.89• 50.00• 70.

00• • **7.LACK OF MARKET INFORMATION** • 40.00• 44.44• 100.00• 46.67• •
• **6. HIGH MARKETING COST**• 40.00• 88.89• 50.00• 70.00• • **7.LACK OF MARKET INFORMATION** • 40.00• 44.44• 100.00• 46.67• •
6. HIGH MARKETING COST• 40.00• 88.89• 50.00• 70.00• • **7.LACK OF MARKET INFORMATION** • 40.00• 44.44• 100.00• 46.67• •
40.00• 88.89• 50.00• 70.00• • **7.LACK OF MARKET INFORMATION** • 40.00• 44.44• 100.00• 46.67• •
88.89• 50.00• 70.00• • **7.LACK OF MARKET INFORMATION** • 40.00• 44.44• 100.00• 46.67• •
50.00• 70.00• • **7.LACK OF MARKET INFORMATION** • 40.00• 44.44• 100.00• 46.67• •
70.00• • **7.LACK OF MARKET INFORMATION** • 40.00• 44.44• 100.00• 46.67• •
• **7.LACK OF MARKET INFORMATION** • 40.00• 44.44• 100.00• 46.67• •
7.LACK OF MARKET INFORMATION • 40.00• 44.44• 100.00• 46.67• •
40.00• 44.44• 100.00• 46.67• • O
VERALL• • 1.
LOW VOLUME OF

PRODUCTION• 44.44• 100.00• 46.67• • OVERALL• • 1. LOW VOLUME OF PRODUCTION• 100.00• 46.67• • 46.67• • OVERALL• • 1. LOW VOLUME OF PRODUCTION• • OVERALL• • **1. LOW VOLUME OF PRODUCTION**• **OVERALL**• 1. **LOW VOLUME OF PRODUCTION**• • **1. LOW VOLUME OF PRODUCTION**• **1. LOW VOLUME OF PRODUCTION**• 77.27• 67.74• 29.41• 61.42• • **2. FAR AWAY MARKETS**• 22.72• 9.67• 17.64• 15.71• • **3. LOW LOCAL DEMAND**• 45.45• 45.16• 5.88• 35.71• • **4. HIGHLY PERISHABLE**• 59.09• 54.83• 52.94• 55.71• • **5. LOW PRICES**• 31.81• 67.74• 29.41• 61.42• • **2. FAR AWAY MARKETS**• 22.72• 9.67• 17.64• 15.71• • **3. LOW LOCAL DEMAND**• 45.45• 45.16• 5.88• 35.71• • **4. HIGHLY PERISHABLE**• 59.09• 54.83• 52.94• 55.71• • **5. LOW PRICES**• 31.81• 29.41• 61.42• • **2. FAR AWAY MARKETS**• 22.72• 9.67• 17.64• 15.71• • **3. LOW LOCAL DEMAND**• 45.45

• 45.16• 5.88• 35 .71• • **4. HIGHLY PERISHABLE**• 59.09• 54.83• 52.94• 55.71• • **5. LOW PRICES**• 31.81• 61.42• • **2. FAR AWAY MARKETS**• 22.72• 9.67• 17.64• 15.71• • **3. LOW LOCAL DEMAND**• 45.45 • 45.16• 5.88• 35 .71• • **4. HIGHLY PERISHABLE**• 59.09• 54.83• 52.94• 55.71• • **5. LOW PRICES**• 31.81• • **2. FAR AWAY MARKETS**• 22.72• 9.67• 17.64• 15.71• • **3. LOW LOCAL DEMAND**• 45.45 • 45.16• 5.88• 35 .71• • **4. HIGHLY PERISHABLE**• 59.09• 54.83• 52.94• 55.71• • **5. LOW PRICES**• 31.81• **2. FAR AWAY MARKETS**• 22.72• 9.67• 17.64• 15.71• • **3. LOW LOCAL DEMAND**• 45.45 • 45.16• 5.88• 35 .71• • **4. HIGHLY PERISHABLE**• 59.09• 54.83• 52.94• 55.71• • **5. LOW PRICES**• 31.81• 22.72• 9.67• 17.64• 15.71• • **3. LOW LOCAL DEMAND**• 45.45 • 45.16• 5.88• 35 .71• • **4. HIGHLY PERISHABLE**• 59.09• 54.83• 52.94• 55.71• • **5. LOW PRICES**• 31.81• 9.67• 17.64• 15.71• • **3. LOW LOCAL DEMAND**• 45.45 • 45.16• 5.88• 35

.71• • **4. HIGHLY PERISHABLE•** 59.09• 54.83• 52.94• 55.71• • **5. LOW PRICES•** 31.81• 17.64• 15.71• • **3. LOW LOCAL DEMAND•** 45.45 • 45.16• 5.88• 35.71• • **4. HIGHLY PERISHABLE•** 59.09• 54.83• 52.94• 55.71• • **5. LOW PRICES•** 31.81• 15.71• • **3. LOW LOCAL DEMAND•** 45.45 • 45.16• 5.88• 35.71• • **4. HIGHLY PERISHABLE•** 59.09• 54.83• 52.94• 55.71• • **5. LOW PRICES•** 31.81• • **3. LOW LOCAL DEMAND•** 45.45 • 45.16• 5.88• 35.71• • **4. HIGHLY PERISHABLE•** 59.09• 54.83• 52.94• 55.71• • **5. LOW PRICES•** 31.81• **3. LOW LOCAL DEMAND•** 45.45 • 45.16• 5.88• 35.71• • **4. HIGHLY PERISHABLE•** 59.09• 54.83• 52.94• 55.71• • **5. LOW PRICES•** 31.81• 45.45• 45.16• 5.88• 35.71• • **4. HIGHLY PERISHABLE•** 59.09• 54.83• 52.94• 55.71• • **5. LOW PRICES•** 31.81• 45.16• 5.88• 35.71• • **4. HIGHLY PERISHABLE•** 59.09• 54.83• 52.94• 55.71• • **5. LOW PRICES•** 31.81• 5.88• 35.71• • **4. HIGHLY**

PERISHABLE• 5 9.09• 54.83• 52. 94• 55.71• • **5.** **LOW** **PRICES**• 31.81• 35.71• • **4.** **HIGHLY** **PERISHABLE**• 5 9.09• 54.83• 52. 94• 55.71• • **5.** **LOW** **PRICES**• 31.81• • **4. HIGHLY** **PERISHABLE**• 5 9.09• 54.83• 52. 94• 55.71• • **5.** **LOW** **PRICES**• 31.81• **4. HIGHLY** **PERISHABLE**• 5 9.09• 54.83• 52. 94• 55.71• • **5.** **LOW** **PRICES**• 31.81• 59.09• 54.83• 52 .94• 55.71• • **5.** **LOW** **PRICES**• 31.81• 54.83• 52.94• 55 .71• • **5. LOW** **PRICES**• 31.81• 52.94• 55.71• • **5** **. LOW** **PRICES**• 31.81• 55.71• • **5. LOW** **PRICES**• 31.81• • **5. LOW** **PRICES**• 31.81• **5. LOW** **PRICES**• 31.81• 31.81• 19.35• 23 .52• 24.28• • **6.** **HIGH** **MARKETING** **COST**• 50.00• 5 8.06• 47.05• 52. 85• • **7.LACK** **OF MARKET** **INFORMATION** • 31.81• 32.25• 1 7.64• 28.57• • 19.35• 23.52• 24 .28• • **6. HIGH** **MARKETING** **COST**• 50.00• 5 8.06• 47.05• 52. 85• • **7.LACK** **OF MARKET** **INFORMATION** • 31.81• 32.25• 1 7.64• 28.57• • 23.52• 24.28• • **6**

. HIGH MARKETING COST• 50.00• 58.06• 47.05• 52.85• • **7.LACK OF MARKET INFORMATION** • 31.81• 32.25• 17.64• 28.57• • 24.28• • **6. HIGH MARKETING COST**• 50.00• 58.06• 47.05• 52.85• • **7.LACK OF MARKET INFORMATION** • 31.81• 32.25• 17.64• 28.57• • • **6. HIGH MARKETING COST**• 50.00• 58.06• 47.05• 52.85• • **7.LACK OF MARKET INFORMATION** • 31.81• 32.25• 17.64• 28.57• • **6. HIGH MARKETING COST**• 50.00• 58.06• 47.05• 52.85• • **7.LACK OF MARKET INFORMATION** • 31.81• 32.25• 17.64• 28.57• • 50.00• 58.06• 47.05• 52.85• • **7.LACK OF MARKET INFORMATION** • 31.81• 32.25• 17.64• 28.57• • 58.06• 47.05• 52.85• • **7.LACK OF MARKET INFORMATION** • 31.81• 32.25• 17.64• 28.57• • 47.05• 52.85• • **7.LACK OF MARKET INFORMATION** • 31.81• 32.25• 17.64• 28.57• • 52.85• • **7.LACK OF MARKET INFORMATION** • 31.81• 32.25• 17.64• 28.57• • • **7.LACK OF MARKET**

INFORMATION • 31.81• 32.25• 1 7.64• 28.57• • **7.LACK OF MARKET INFORMATION** • 31.81• 32.25• 1 7.64• 28.57• • 31.81• 32.25• 17 .64• 28.57• • 32.25• 17.64• 28 .57• • 17.64• 28.57• • 28.57• •

CHAPTER – XI

CONCLUSIONS AND POLICY IMPLICATIONS

From data collection, analysis, personal observations and discussions with the experts in the field of mushroom cultivation many points emerge which have been presented in the following text.

11.1 PRELIMINARY

The cultivation of mushrooms is important in the state, as it would help in reducing the population pressure on the scarce land resource. The generation of additional employment opportunities would be able to ease the unemployment situation, may be in whatever smaller degree. With this in mind the mushroom cultivation was introduced in the state, but the growth rate of adoption of this activity did not touch the desired level. Even those farmers who initially adopted this activity, later on abandoned it due to one reason or another. Most important from these were the high technicality involved in mushroom production and this venture being highly capital and labour intensive. It has been observed that farmers have to depend on purchased inputs like spawn and compost, which is some times not easily available; the capital requirements may not be easy to meet with.

11.2 METHODOLOGY

The study has been based on 70 mushroom cultivators located in two districts viz Solan and Shimla of Himachal Pradesh. The sample has been divided in to three categories, small, medium and large depending upon the scale of mushroom cultivation.

11.3 GOVERNMENT INITIATIVE

The state government of Himachal Pradesh on its part has been providing many incentives and initiated many schemes to boost this activity in the state. The farmers are being provided training for imparting the production technology. Bank loans are arranged to meet with the capital requirements. There is also a provision of subsidy for marginal and small farmers, unemployed youth and schedule caste and schedule farmers.

11.4 BACKGROUND OF MUSHROOM CULTIVATORS

The analysis reveals that the average family size of mushroom cultivators in the state was 5.95 persons per family of which about 81% were literate and about 11% were formally educated. This indicates that due to high level of technology involved only those persons have adopted this activity that had some formal education or at least were literate. Despite good returns only about 22% persons had mushroom cultivation as their primary occupation, agriculture still remains the main source of employment. About 54% farmers had mushroom farming as their secondary occupation. The mushroom farms were invariably located very near to road head or on the road head it self. The mushroom farmer of the state were observed to be having about two hectares of farm land of which only 1.20 hectares was cultivator.

11.5 ECONOMICS OF MUSHROOM CULTIVATORS

The mushroom farmers of the state were observed to be cultivating only white button mushrooms that were invariably cultivated in separate buildings. In most of the cases these buildings were cemented. At overall level about hundred 30 sq.mts. of area was devoted for mushroom cultivation by each farmer. The use of wooden trays for cultivation was found to be non-existent and polythene bags were used for the purpose as these were reported to be cheep. The cost A of cultivation was observed to be Rs. 50.51 at overall level were as cost B and C were Rs.50.53 and Rs.63.80 per bag respectively. The cost of production of mushroom at overall level was Rs.23.83 per kg and it was highest in medium farmers and lowest in case of large farmers. They were observed to taking about 75 harvest of mushroom per year and average production per harvest was about 84 kgs. About 70 per cent of the total production was of grade A about 23% grade B and the rest grade C. Compost has been observed to be the highest cost component followed by the labour. Highest amount of labour was absorbed by crop management, which was followed by spawning and filling of compost in the bag. About 53% of the labour came from higher sources and rest belongs to family. The average net returns at overall level from mushroom cultivation were observed to be about Rs. 50 thousand per farm. The output-input ratios were observed to be quite favourable and farmers were observed to be growing about four times the quantity of mushrooms than the break even volume.

The analysis further revealed that the financial ratios like capital turn over ratio, gross ratio, operating ratio and rate of return over the capital are favourable for the cultivation of mushroom in the state. The production function analysis indicated that total working capital and human labour are the important inputs determining the yield of mushroom in the state. However, both these inputs were being used in quantities that were in excess of the optimum values.

11.6 MARKETING

The marketing of mushroom was observed to be very risky process as the mushrooms are highly perishable and have to reach the final consumer with in least possible time. Three marketing channels were existence for accomplishing this task. For marketing the mushrooms are packed in polythene bags of two hundred grams each which in turn are packed in cfb cartons for transporting these to the markets. Shimla is the main market for disposal of the produce, some quantity from Solan is also sent to Chandigarh. The mold of transportation for distant markets is the bus where as for local market it is either head load or scooter/cycle etc. are used for transporting mushrooms to local market. About 7% of the produce is sold at the farm gate. The producer share in consumer rupee was observed to be varying between 43 and 45 per cent in Solan depending upon the channel used where as it was about 47 per cent in district Shimla.

11.7 PROBLEM FACED

The highly technical nature of production of mushrooms put various problems to the farmers on this front. Many farmers complained about the lack of knowledge of production techniques. Other common problems faced by farmers include lack of capital and labour, unavailability of inputs and lack of credit. On the other hand low volume of production was the most common complained in the market scenario. The other problems faced during marketing include far away markets, low local demand, high parshibility, low prices and high marketing cost.

11.8 POLICY IMPLICATIONS

1. The private units for production of compost and spawn be encouraged as these are the inputs whose availability is critical for the adoption and spread of the activity.

2. The benefit of training should be extended to larger number of people. More persons can be motivated for attending these training by increasing the daily allowance and other benefits can be included as a package e.g. some quantity of free compost or spawn or other inputs like polythene bags etc.

3. The importance of the activity and the training programme schedules and importance should be widely advertised in local Hindi newspapers, read in rural areas.

4. Transportation subsidy should be provided on the produce for bringing it to the market.

5. The extension services should be geared up for providing technical advice on the doorstep of the farmers.

6. The department of horticulture should provide the compost not only to registered growers but also to any one who grows mushrooms, whether registered or not.

7. The farmers are advised to reduce the use of labour for mushroom cultivation

8. The working capital per bag needs reduction.

9. None of the mushroom growers was observed to be processing the mushrooms. The importance of this should be told to them.

10. The extent of the activity can be increased many times without having any fear of market demand. The present production is not sufficient to meet the demand of even Shimla city.