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Ref. No.

Date: April, 8, 2009.

Mr. Raj Babu Shrestha

Executive Director, PAF.

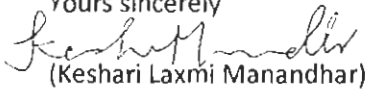
Subject: Second Quarterly Report of the Project on Mushroom & Organic Vegetable Production.

Dear Sir,

It is a pleasure to submit our Report of the project on "Empowering poor people through Mushroom and Organic vegetable Production" for the second quarter. The technical report contains the work completed on organic vegetable production and Training on mushroom cultivation as well as its production at the farmers. Financial Report has included the expenditure of the budget and the details of expenditure. We are very happy to inform you that we have received the second installment. Thank you for the kind cooperation and consideration.

Best Regards.

Yours sincerely


(Keshari Laxmi Manandhar)

Project coordinator.





Empowering poor people through Mushroom and Organic vegetable cultivation.

Second quarterly report of the project on Mushroom & Organic vegetable cultivation.

Project period - 16th November 2008 --- 15th March 2009

Submitted to: Poverty Alleviation Fund, Gyaneswor, Katmandu.

Submitted by; Center for Agriculture Technology and Training , Gwarko, Lalitpur.
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INTRODUCTION:

The First quarterly report of this project (submitted on Nov.2008) described the progress in Site/Group selection and steering committee formation and the work carried on Organic vegetable production, where training and demonstration on Asparagus and cauliflower at farmer's field were reported. In this second quarter work on Mushroom was done in full swing at all the 3 VCDs selected for this project, i.e Sankhu, Sarada-Base and Kavre.

Selection of VDC and participants:-

Selection criteria of working VDC's for the project:

a. Vicinity to the urban area

Mushroom is one of the highly perishable products by its nature so its production and marketing distance should be very near to the city and urban area. While carryout the mushroom production in commercial basis its marketing aspects must be planned in advance. Therefore, it has been compelled to select the VDC's which are very near to the city of Banepa and Dhulikhel for the selling opportunity. Due to this reason, the VDC's like Sankhupatichaur, Kavre and Sharadabatase were selected as project command area.

b. Small landholdings

The majority of farmers of these VDC's have small landholdings. The farm size is less than 5 ropanies in an average at minimum and less than a hectare at maximum in the project site. Therefore the mushroom suitability was found high other than field crops in aforementioned VDC's.

c. Availability of mushroom substrate

Substrate is very essential for commercial mushroom cultivation, since these VDC's are completely agrarian where 80% of the people depend upon agriculture as their main occupation. Rice, maize and wheat are major and staple crops of Nepal. The biomass of these cereals crops is available quite abundantly, that's why required quantity of substrates is easily available in cheaper rate.

d. Availability of cheap labor force

Since, agriculture is still traditional and dependent on natural rainfall it cannot absorb the total labor force available in the village people so, they do not have ample opportunity for the regular employment that is why problem of underemployment is abundant in the project sites. As a result, agricultural have low productivity and have not come into commercial scale. Likewise average land holding is not able to absorb the total labor force. That's why there is the underemployment or unemployment situation. The cost of per labor is also very cheap in rate.

e. Appropriate climatic condition

The natural environment for mushroom culture is quite suitable in aforementioned VDC's. Owing to the variation in temperature level, the diversity of environments can be found different in these VDC's. In brief, entire representations of ecological regions can be observed in this area. Orientation of mountainous ranges, deep valleys, varying slopes and aspects are major factors, which give rise to a number of micro-climatic regimes within a short distance

Cultivation Methods of Mushroom;

Oyster Mushroom: - The cultivation of this Mushroom is done in chopped straw. It requires drum for steaming, mesh wire net for draining water from straw, plastic sheets and bags for making packets. The straw after steaming is packed in plastic bags and is spawning with mushroom seeds and is incubated for three weeks to one month. After the spread of mycelium of mushroom the plastic is removed and then the ball is watered regularly. After a week mushroom heads appear and grow which is harvested.

White button Mushroom: - The cultivation process of this mushroom has several steps and takes about 5 months to complete. The raw material is rice straw which is composted with chemical fertilizer and pesticides. The steps are, compost making (1 month), bed making and spawn inoculation, spawn run (1 month), soil preparation for casing, Casing and watering. Thus it takes 3- 5 months for production of mushroom.

Shiitake mushroom: - It is cultivated in the wood logs. The recommended wood logs are from the trees of Alnus, Saur and Katush. The steps for cultivation are, Log cutting, log drying, inoculation, Waxing, spawn run, Cold shock/ dipping in water, Log arrangement for cropping, Storage of logs, Fruiting and harvesting. It takes 8 months for production of Shiitake mushroom and continues to produce for 3 years.

The trainings were conducted on all the 3 types of mushroom by Dr. Keshari Manandhar and Sarita shestha from CATT, Practical demonstration and field work was done by a experienced teacher Gokul Raut, assisted by Bacchu karki from District Agric Development office and Namita ghimire, (field staff), Observations were made by Madhusudan Paudel, DADO.

Activities in Mushroom Training and demonstration:

The training on mushroom program was conducted in 3 steps

1. The first step was Theory class (classroom) followed by practical demonstrations in Kanye chyau, Oyster mushroom (Pluerotus). Gobre chyau, White button mushroom (Agaricus) and Shitake mushroom.
2. The second step was the formation of groups in all the three VDCs and organized the practical mushroom cultivation processes in all groups.
3. The third step is to cultivate the Mushroom in a group and in individual houses of the participating farmers. For this program CATT provided the seeds (spawn) of the Mushroom, plastic bags and other necessary items for cultivation of Oyster mushroom and other mushrooms too.

First step

Training and demonstration on Oyster mushroom cultivation was done as the first step. The details of location and participants are:-

Site	No.of *participants	Date	Inputs	Remarks
Sankhu,:-daltar	48(23 women)	2065/8/6	Inputs supplied	Followed by practical demonstration
Kavre :-Kavre bhanjyang	33(24 women)	2065/8/11	Inputs supplied	Followed by practical demonstration
Dhokre Darimbot	41(36women) 32(16women)all dalits	2065/10/9 2065/10/17		
Sarada batase:- Jaitole	64(36women)	2065/8/13	Inputs supplied	Followed by practical demonstration

*List of participants are given in annex.

Second step

The second step in training is the group formation for practical demonstration of the cultivation process

Practical training was conducted in all 3 VDCs in each group at different dates. Three groups each were formed at Sarada batase and Kavre each and 4 groups were formed at Sankhu .All the 10 groups were provided with drum, net, Plastic bags, plastic sheets and shed construction, Spawn(seeds), Fuel and other necessary items.

The details of group formation and its activities are given below:

Sarada Batase VDC:-

1. Shyamki Rai group: This group consisted of 29 members. The practical work was conducted at Jai tole on 2065/8/21. All the members made 9 packets of straw balls for Oyster mushroom cultivation. All the packets made were good and produced mushroom .The participants harvested about 2 kg of fresh mushroom from each packet.
2. Subhadra humagain's group: - This group had 21 members. Practical demonstration was done at Sarada Batase-1 on 2065/8/22. Almost all packets were good and harvested 1 – 1 ½ kg per packet and used for local consumption.
3. Shyam Adhikary's group :- Fifteen participants were present in the practical demonstration and formed the group. The cultivated packets were good and produced 1 – 1 ½ kg. per packet and was used for local consumption.

Kavre VDC:-

The training was organized at Pani Tanki of kavre -9 on 2065/10/10 .There were 22 participants and 3 groups were formed as following:

1. Rajendra Karki's group: This group had 12 members. All the members made 9 packets of straw balls for mushroom production. Each Packet produced 1 ½ kg. Of mushroom and was locally consumed.
2. Subhadra K.C's group: - There were 10 members in this group. All the members prepared 5 packets each of straw ball and harvested quality mushroom from the packets.
3. Faskot group: - This group also had 10 members and prepared packets of straw balls. Each ball produced quality mushroom.

Sankhu VDC:-

Four groups were formed in this VDC. Each group had 15-20 members. Practical demonstration on the cultivation of Oyster mushroom was done at Ete, Akhleket. Dahaltar and Patalechau. These groups were also provided with necessary inputs like seed of mushroom, plastic sheet, Shed, drum and others. The details of the group are given below:-

1. Nila shrestha's group: - There were 10 members in this group at Ete.. The members prepared 25 packets for mushroom cultivation quality mushroom were produced from the packets and were locally consumed. 10-12 kg of mushroom produced was sold in the local market at Rs. 120/- per kilo of mushroom. They also participated in the exhibitions organized by district agric. Office and displayed the packets of mushroom

2. Kumar Bhujel's group:-There were 10 members in this group at Ankhlekhet, and prepared 25 packets of straw balls. They produced 37kg. of mushroom and were very happy to see mushroom growth and with the income they got from mushroom sale.
3. Tulashi's group: - There were 15 members in this group at Patalechaur. They prepared 25 packets of mushroom and hanged in their rooms. At this site the production of mushroom was high and produced 3 kg. from a packet. The quality of mushroom was good and a bunch of mushroom weighed 1 ½ kg.
4. Dahaltar group: - There were also 15 members in this group. The members prepared 25 packets of straw balls. All packets produced quality mushroom.

Third step:-

The third step in mushroom production was started in the month of Falgun 2065. In this step seed of mushroom and plastic bags and sheets were distributed to the participating members for individual cultivation of mushroom. The details are given in table below:-

VDC	Groups	No.of seeds distributed	Plastic sheets provided	Remarks
Sankhu	Nila's at Ete	100	yes	Dalits
	Kumar Bhujel's at Ankhlekhet	100		
	Tulsi' at Patalechaur	60		
	Namita's at Dahaltar	80		
	Shanker Purkoti's	50		
Sarada Batase	S.Rai's at Jaitole	80	yes	
	S.Adhikary's	60		
	S Humagain's	80		
Kavre	R karki's at Panityanki	90	yes	Dalits Dalits
	Subhadra K .C'	50		
	Faskot	50		
	Kavre Bhanjyang	50		
	Dhokre	50		
	Darimbot			

Total no. of Seed distributed (Pluerotus) -----960 bottles

Shiitake-----130 Packets.

Training on White button mushroom (Agaricus) :-

The preliminary training was organized in the first week of Paush 13, 2065. About 35 participants have attended the training course. The training program was organized at Ete. The participants attended theory classes as well as practical demonstration. All the participants took part in compost preparation followed by other processes. The practical class in compost making started from the next day. There were 8 steps to be followed before the compost is matured and ready for bed making. The bed preparation and spawning was taught by the mushroom expert, who visited the site for all the steps in the process at different dates. The groups were provided with the straw; chemical fertilizers, required Plastic sheets and shed for the mushroom growth. This training was conducted for all the 3 VDC. of project sites. The process of cultivation has been continued by spawning the compost bed and covered by paper as well as spray with water in the month of Magh. The further process of cultivation continued by preparing casing soil and casing the bed in the month of Falgun and the further process has continued in the month of Chaitra.

Training on Shiitake Mushroom cultivation

The training on Shiitake Mushroom cultivation was started in the month of Paush. The wood log cutting was done in 2 VDC in time. There were 20 participants from Sankhu and only 10 from Sardabata. They were given Theory classes as well as Practical training and demonstration. The practical process of cultivation started in the month of Magh. The Inoculation or seeding of wood logs were started in first week of magh and continued till falgun. The incubation period for shiitake mushroom is long and takes 8 months. The wood logs will produce only during the month of Aswin. Necessary inputs like seeds, paraffin wax, drilling machine, and drill bits and other raw materials were provided for each participants. The total wood logs in each VDC is more than 180 each. They have incubated in their appropriate places. It was monitored by the mushroom experts. The details of report will be included in the third quarter of this project.

Follow up in Organic vegetable production:-

Frequent monitoring of Cauliflower and Asparagus distributed were done during this period. Due to cold winter observations on Asparagus will start only after the rainy season. Harvesting of the cauliflower was done and the results are tabulated below.

VDC	Groups	No.of participants*	Date	Amount harvested (Kg)
Sarada Batase	Jai tole	14	2065/6/7	800
	Ward 9 and 3	14	2065/6/8	800
	Ward 1 and 2	13	2065/6/15	800
	Ward 4	10	2065/6/12	200
Kavre	Ward 5	10	2065/6/13	250
	Ward 9	12	2065/6/13	200
	Ward 4 and 7	14	2065/6/14	150
	Ward 1 and 2	12	2065/6/16	300
	Faskot	10	2065/6/14	300
Sankhu	Ward 5	12	2065/6/14	
	Kalidevi	14	2065/6/18	300
	Dhankali coop	14	2065/6/20	550
	Kavre salsa coop	14	2065/6/22	800
	Gaurishanker coop	15	2065/6/23	550
	Narichetana coop	14	2065/6/23	500
Dalit community		11	2065/6/17	