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**Lipi Das**ICAR-Central Institute for  
Women in Agriculture,  
Bhubaneswar, Odisha, India**N Lugun**ICAR-Central Institute for  
Women in Agriculture,  
Bhubaneswar, Odisha, India**S Mahapatra**ICAR-Central Institute for  
Women in Agriculture,  
Bhubaneswar, Odisha, India**SK Srivastava**ICAR-Central Institute for  
Women in Agriculture,  
Bhubaneswar, Odisha, India**SK Mishra**ICAR- National Rice Research  
Institute, Cuttack, Odisha, India**AC Hemrom**ICAR-Central Institute for  
Women in Agriculture,  
Bhubaneswar, Odisha, India**S Pattanaik**ICAR-Central Institute for  
Women in Agriculture,  
Bhubaneswar, Odisha, India**Corresponding Author:****Lipi Das**ICAR-Central Institute for  
Women in Agriculture,  
Bhubaneswar, Odisha, India

## Role performance of farm women in mushroom farming and development of a gender sensitive entrepreneurship model for enhancing income

**Lipi Das, N Lugun, S Mahapatra, SK Srivastava, SK Mishra, AC Hemrom and S Pattanaik**

**Abstract**

A study was conducted in Demando and Baliapada villages from Cuttack district of Odisha for analyzing the gender role with respect to awareness level, role performance, perceived training needs according to their knowledge and skill gaps in mushroom farming and developing a gender sensitive entrepreneurship model for enhancing skill and income of women farmers. The results revealed that 100 per cent of women are fully engaged in compost preparation, production process, watering and harvesting of mushroom whereas, 66.5 percent of women were involved in managing the income and the same percent of men were engaged in marketing. The farm women were fully access to irrigation and spawn while, 62.5 per cent of women had control over irrigation and only 12.5 percent over spawn. The findings further revealed that the farm women had neither access to nor control over the most important financial resource that bank credit which is a matter of concern. Women are mostly involved in packaging (90%) followed by harvesting (62.5%). The awareness level of farm women was highest in case of identification of type of mushroom with a mean score of 1.8 followed by duration of crops and preparation of value-added products with a mean score of 1.73 and 1.38, respectively. The perceived training needs of farm women for up gradation of knowledge and skill revealed that they needed training in post-harvest management and marketing, harvesting and packaging practices and spawn production, respectively. Based on the findings a multi-stakeholder gender sensitive entrepreneurship model in mushroom farming was developed for enhancing skill and income of farm women and ultimately to make a farm woman a successful woman agripreneur.

**Keywords:** Role performance, awareness level, training needs, mushroom farming, gender sensitive entrepreneurship model

**Introduction**

For the growth and development of nation's economy ample employment opportunities not only in rural areas but also in urban areas should be increased. In this present situation, there is a fear of unemployment, poverty and hunger. To manage and initiate income of growing population, government and people are in search of new opportunities to stick on. Agri-preneurship plays a major role in boosting economic growth of the nation. It helps in inducing productivity gains by small holder farmers and farm women and integrating them into local, national, and international markets. It also helps in reducing food costs, supply uncertainties, increasing and diversifying income, providing entrepreneurial opportunities in both rural and urban areas. Likewise mushroom farming is one such profitable enterprise which ideally suited for farm women. Mushroom cultivation can play a major role in supporting the local economy by contributing to subsistence food security, nutrition and medicine generating additional employment and income through local, regional, and national trade and offering opportunities for processing enterprise such as pickling and drying.

Mushroom can directly improve livelihoods through economic, nutritional and medicinal contributions. It is a popular food due to their special flavor, nutritive value and medicinal properties and a good source of vitamin B, C and D including niacin, riboflavin, thiamine and folate and various minerals including potassium, phosphorus, calcium, magnesium, iron and copper. They provide high quality fats and low in carbohydrates and cholesterol which is ideal for reducing body weight. Mushroom cultivation can help reduce vulnerability to poverty and strengthen livelihood through the generation of a fast yielding and nutritious source of food and reliable source of income. It is an indoor crop, grown independent without sunlight and do not require fertile lands and can be grown on small scales as it does not include any significant capital investment. Promotion of this enterprise could relieve pressure on land, increases food and nutritional security and uplift the status of women through earning additional income and

in household decision making as far as concerned. They can be cultivated on a part time basis and require little maintenance.

Even as the mushroom production and consumption are on the rise in rest of the world, India witnesses a lukewarm response in its growth. White button mushroom is focused overwhelming in India and is highly sophisticated and capital intensive activity. Initially, white button mushroom production was confined to temperate hilly regions of India. However, with the development of short method of composting and optimization of fruiting condition using the chilling system, there has been a remarkable change in its production scenario and spread to all the corners of the country. There has been significant increase in production of mushroom in the last few years, especially of the oyster and paddy straw mushrooms in India. The country's production in 2010 was 1 lakh metric tons of which button mushroom accounted for 89% of total production followed by oyster 6%, milky 1% and others 4%. Punjab, Uttarakhand, Haryana, Uttar Pradesh and Tamil Nadu were the leading producers of the mushroom in the country at the time of 2010. The present production status revealed that Maharashtra and Odisha are the emerging as the leading states in mushroom production. Average annual growth of mushroom industry was recorded at 4.3%. During this period the productivity has raised from 20% to 24.5% by releasing improved strains in commercial edible mushroom.

Mushroom farming has changed fortunes of numerous women in India. In general mushroom production is seen as a small venture but can boost the rural economy. Proper suggestions, relevant information, pros and cons of this venture should be highlighted among the farm women to grow mushroom in their houses with virtually no investment to begin with. For women looking to earn an income, growing mushrooms is a simple, viable and profitable venture. Mushroom farming as an agricultural activity is a women friendly profession which has the potential to improve the women economically and make her socially independent in other hand rural women can play a significant role without sacrificing their household responsibilities as it is simple, low cost, less labour intensive and ideally work as a mode of employment in both semi urban and rural areas. This venture can be the best to empower rural women and can magnify and improve the status of women in male dominated society. To change the status from poverty stricken to prosperous ample support such as vocational training, entrepreneurship development programmes, financial linkages and skill up gradation programmes should be provided to make the women self-reliant and self-employed to earn for a proper living. Mushroom farming will not only empower but also ensures a steady income for their families.

### Material and Methods

The farm women of Demando and Baliapada village of Nischintakoili block of Cuttack district of Odisha were

considered for the investigation. The sample included 40 women mushroom farmers from 2 SHG groups. The objectives of the present evaluative study were to know the role performance of women farmers in mushroom farming, and to assess their awareness level and training needs involved in mushroom farming in order to implement future interventions in right direction to maximize their effects. The role performance variables including various activities such as procurement of spawn, production process, post-harvest management, marketing etc. and their access and control over resources, credit and physical assets were also taken into consideration. Awareness level was analyzed with three point rating scale that is Fully Aware with 2 score, Partially Aware with 1 score and Not Aware with 0 score. Similarly perceived training needs of farm women was analyzed with three point rating scale i.e., Essential Needed, Moderately Needed and Not Needed with 2, 1 and 0 score, respectively. Based on the findings a multi-stakeholder gender sensitive entrepreneurship model in mushroom farming was developed for enhancing skill and income of farm women and ultimately to make a farm woman a successful woman agripreneur.

### Result and Discussion

Data recorded by the participating women in mushroom farming on their involvement, awareness level, access and control over farm resources, credit and physical resources and perceived training needs were analyzed and presented in the following tables.

**Table 1:** Role performance of farm women in mushroom cultivation (N=40)

Sl. No.	Activities	Women	Men	Both
1.	Procurement of paddy straw	0(0.0)	40(100.0)	0(0.0)
2.	Procurement of spawn	3(7.5)	37(92.5)	0(0.0)
3.	Cutting of straw	15(37.5)	35(87.5)	1(2.5)
4.	Compost preparation	40(100.0)	0(0.0)	0(0.0)
5.	Production preparation	40(100.0)	0(0.0)	0(0.0)
6.	Watering	40(100.0)	0(0.0)	0(0.0)
7.	Harvesting	40(100.0)	0(0.0)	0(0.0)
8.	Marketing	12(30.00)	27(67.5)	1(2.5)
9.	Managing income	27(67.5)	9(22.5)	4(10.0)

(The number in the parentheses indicate percentage)

The findings in Table-1 indicated that 100 per cent of women are fully engaged in compost preparation, production process, watering and harvesting of mushroom whereas, 100 and 93.33 percent of men are engaged in procurement of paddy straw and spawn, respectively. It was also observed that 66.5 percent of women were involved in managing the income and the same percent of men were engaged in marketing. From the above findings it can be inferred that farm women were mainly engaged in those activities being carried out at household level and male farmers were mainly engaged in the outside activities.

**Table 2:** Access and control over farm resources, credit and physical resources (N=40)

S. No.	Resources	Access			Control		
		Men	Women	Both	Men	Women	Both
1.	<b>Farm Resources</b>						
	Area	9(22.5)	3(7.5)	28(70.00)	35(87.5)	0(0.00)	5(12.5)
	FYM/Compost	3(7.5)	12(30.00)	25(62.5)	25(62.5)	0(0.00)	15(37.5)
	Spawn	0(0.00)	40(100.00)	0(0.00)	19(47.5)	5(12.5)	16(40.00)
	Irrigation	0(0.00)	40(100.00)	0(0.00)	4(10.00)	25(62.5)	11(27.5)
	Labourer	0(0.00)	0(0.00)	40(100.00)	8(20.00)	12(30.00)	20(50.00)

2.	Credit						
	Bank Credit	40(100.00)	0(0.00)	0(0.00)	36(90.00)	0(0.00)	4(10.00)
Investment/Capital	26(65.0)	3(7.5)	11(27.5)	33(82.5)	0(0.00)	7(17.5)	
Income	7(17.5)	11(27.5)	22(55.0)	7(17.5)	25(62.5)	8(20.00)	
Savings	7(17.5)	26(65.0)	7(17.5)	5(12.5)	29(72.5)	6(15.0)	
Reinvestment on critical inputs	24(60.00)	7(17.5)	9(22.5)	21(52.5)	3(7.5)	16(40.00)	
3.	Physical Resources						
	Preparation of production unit	24(60.00)	3(7.5)	13(32.5)	36(90.00)	0(0.00)	4(10.00)
Transportation	40(100.00)	0(0.00)	0(0.00)	40(100.00)	0(0.00)	0(0.00)	
Grading/Sorting	0(0.00)	40(100.00)	0(0.00)	4(10.00)	25(62.5)	11(27.5)	
Packaging	0(0.00)	36(90.00)	4(10.00)	3(7.5)	21(52.5)	16(40.00)	
Harvesting	4(10.00)	25(62.5)	11(27.5)	0(0.00)	21(52.5)	19(47.5)	
Marketing	19(47.5)	5(12.5)	16(40.00)	19(47.5)	9(22.5)	12(30.00)	

(The number in the parentheses indicate percentage)

From Table-2, it was observed that 100 percent of farm women have access to irrigation and spawn while, 100 percent of the respondents said that there was a joint access to labourer and 70 percent have joint access to area under cultivation of mushroom. With regard to control over resources 86.5 percent of men have control over area under cultivation followed by 62.5 percent over FYM/compost while, 62.5 percent of women have control over irrigation and only 12.5 percent over spawn.

The findings related to access to credit reflects that 100 percent of men had access to bank credit while 65 percent had access to of investment and capital. In case of farm women majority (65%) had access to family savings. It is noteworthy to mention that in majority cases (55%) income was access by jointly. With regard to control over credit, farm women had a fair access to savings (72.5%) and income (62.5%) while, male farmers had access to bank credit (90%) followed by investment/capital (82.5%) and reinvestment on critical inputs (52.5%), respectively. In case of joint access majority (40%) were accessed to reinvestment on critical inputs. The table

further revealed that the farm women had neither access to nor control over the most important financial resource that bank credit which is a matter of concern. As credit is required for sustainable mushroom cultivation, appropriate policy measures should be taken to provide institutional credit to the farm women through simplified procedures.

It was seen that 100 percent of men and women are involved in transportation and grading and sorting activities. Women are mostly involved in packaging 90 percent followed by harvesting 62.5%. Similarly male farmers are mainly involved in preparation of production unit (60%) and marketing (47.5%). Jointly were involved in marketing (40%) followed by preparation of production unit (32.5%). With regards to control over physical resources, male farmers had a control over transportation by 100 percent, 90 percent on preparation of production unit and 47.5 percent on marketing, while majority of women had control over grading/sorting (62.5%), harvesting and packaging of 52.5 percent each. Similar findings are also observed in case of joint access.

**Table 3:** Awareness level of women farmers involved in mushroom farming (N=40)

S. No.	Awareness level*	Fully Aware	Partially Aware	Not Aware	Mean Score	Rank
1.	Identification of type of mushroom	32(80.0)	8(20.0)	0(0.0)	1.8	I
2.	Diseases management	20(50.0)	11(27.5)	9(22.5)	1.28	IV
3.	Duration of crop	29(72.5)	11(27.5)	0(0.0)	1.73	II
4.	Pest management	19(47.5)	12(30.0)	9(22.5)	1.25	V
5.	Spawn production	9(22.5)	11(27.5)	20(50.0)	0.73	VIII
6.	Market availability	16(40.0)	13(32.5)	11(27.5)	1.13	VI
7.	Governmental schemes	15(37.5)	13(32.5)	12(30.0)	1.08	VII
8.	Preparation of value added products	24 (60.0)	7 (17.5)	9 (22.5)	1.38	III

(The number in the parentheses indicate percentage)

The awareness level (Table-3) of farm women indicates that majority were fully aware about identification of type of mushroom (80%) with a mean score of 1.8 followed by duration of crops with (72.5%) with a mean score of 1.73, preparation of value-added products (60%), disease management (50%) and pest management (47.5%),

respectively. Similarly they were partially aware about in most of the activities required for mushroom farming. In contrast, majority were not aware about spawn production (50%) which requires technical up gradation of knowledge and skill of farm women.

**Table 4:** Perceived Training Needs of women farmers in mushroom farming according to their skill gaps (N=40)

Sl. No.	Training Needs	Essentially Needed	Moderately Needed	Not Needed	Mean Score	Rank
1.	Post-harvest management and marketing	36(90.0)	4(10.0)	0 (0.0)	1.90	I
2.	Harvesting and packaging practices	33(82.5)	7(17.5)	0 (0.0)	1.83	II
3.	Spawn production	27(67.5)	13(32.5)	0 (0.0)	1.68	III
4.	Disease management	25(62.5)	15(37.5)	0 (0.0)	1.63	IV
5.	Storage	23(57.5)	17(42.5)	0 (0.0)	1.58	V

(The number in parentheses indicate percentage)

The finding in Table-4 signifies the perceived training needs of farm women in mushroom farming. According to mean

score it was highest in case of post-harvest management and marketing with a mean score of 1.9 followed by harvesting

and packaging practices with mean score 1.83 and spawn production with mean score 1.68 which ranked first, second and third, respectively. Training on sources of market information and marketing channels for mushroom and various mushroom based value-added products should be provided by using different electronic systems especially to women leaders.

### Gender Sensitive Entrepreneurship Model in Mushroom Farming for Enhancing Skill and Income of Women Farmers

The role of input providers *viz.*, Research Organizations (Central Govt., State Govt. and Private Parties) are to produce and provide quality inputs to the next stakeholder *i.e.*, Government and Private based input suppliers. The role of

input Suppliers is to collect inputs like spawn from Research organization and supply it to different input users *i.e.*, individual Women farmers, Women SHG groups and Women FPOs. The role of Women farmers or input users is to produce mushrooms using seeds received from input suppliers. Further for the efficient production, critical needs *viz.*, skill based capacity building programme, access to credit, and market linkages are of utmost important. Once the product is ready it is then supplied by the input users to various market channels such as wholesalers/traders and retailers. Input users can also directly supply the produce or products to the retailers with a profitable income. The role of retailers such as Reliance, Restaurants is to provide the product to the end users *i.e.*, the consumers. In this way the whole value chain will become a profitable enterprise for each stakeholder.

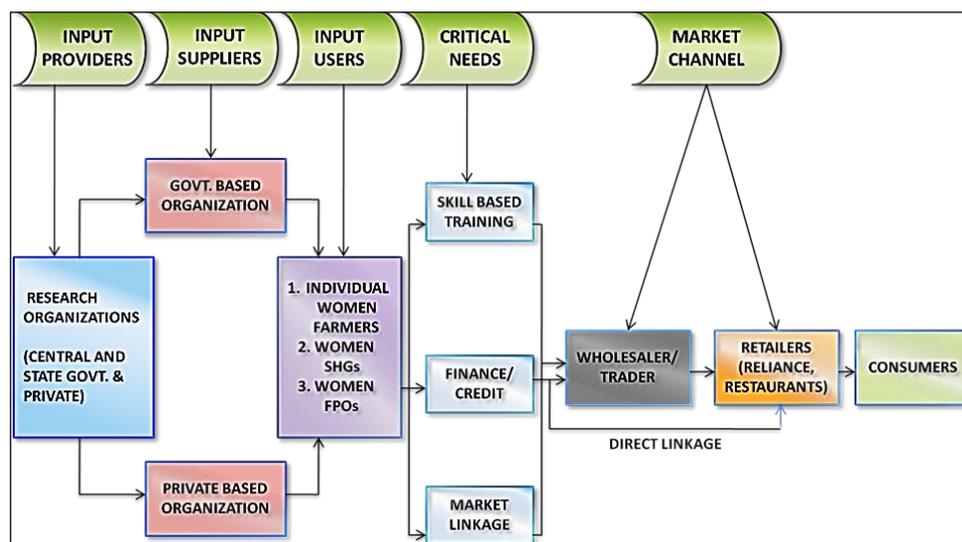


Fig 1: Gender Sensitive Entrepreneurship Model in Mushroom Farming

### Conclusion

Mushroom farming in the coming years is going to be a profitable enterprise to improve the socio-economic conditions of farm families and solve employment problems of both literate and illiterate of rural areas and semi-urban, especially women as it is women friendly profession. It ensures a steady income for rural families. The farm women can take up this farming as an entrepreneurship mode through self-help groups and in close linkage with Krishi Vigyan Kendras, Research Organizations and State Agricultural Department. Women's involvement in packaging, grading, sorting and harvesting was found to be highest in mushroom farming. The awareness level regarding varieties of mushroom mostly cultivated in the area was highest and women farmers felt the need of training for post-harvest management and marketing was of utmost priority. The mushroom cultivation has a great potential for empowerment of farm women and not only enhance the income of their family but also helps in boosting rural economy as well as nation's economy by exporting to countries having demand for mushroom. The high demand for mushroom in international market can encourage and boost the morale of women to take up mushroom as a primary crop for cultivation. The fortune of women farmers will certainly be changed by taking up this enterprise.

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