Impact of trainings on bio-inoculants production on trained SC/ST women SHG members in Vellore district of Tamil Nadu

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ABSTRACT

The study was conducted in Vellore district of Tamil Nadu. Five blocks (Gudiyatham, Katpadi, KV Kuppam, Kaniyambadi and Madhanur) in the district were selected based on the population under SC/ST category. Three villages from each block and three women self-help group (SHG) members from each village were selected. Fifteen trainings on bio-inoculants production (*Pseudomonas florescence* and *Trichoderma viride*) for each group of 20 SHG members were organized under DST project thus benefiting 300 members. Knowledge test and impact study were conducted involving all the trained members. The impact of the trainings was analyzed on three dimensions viz outcome, output and impact (personal and social). The results revealed that majority of the women gained knowledge on bio-inoculants production technology. They reported that the trainings gave them self-confidence to start bio-inoculant units in their villages. Majority of the respondents expressed that the agro-based trainings were more useful for them and they required loan facilities to start a new enterprise in their village/block.

Keywords: SHG; *Trichoderma viride*; *Pseudomonas florescence*; trainings; bio-inoculants

INTRODUCTION

A self-help group (SHG) is a voluntary association of persons with common interests formed and managed democratically without any political affiliation (Kumar and Kalva 2014). Women cannot be ignored while devising various policies for rural and socio-economic development. So women's emancipation, development and empowerment are the need of the hour everywhere in the modern time. In most of the cases in male dominated society, women have no money or source of income for their personal expenditures or to spend as per their own choice.

'Self-help through mutual help', the logical concept was initially developed by women (Pangannavar 2014). An SHG is a group of about 10 to 20 people usually women from a similar class and region who come together to form savings and credit organization. They pool financial resources to make small interest bearing loans to their members. This process creates an ethic that focuses on savings first. The setting of terms and conditions and accounting of the loan are done in the group by designated members (Reddy and Manak 2005).

Treating the women with equality of opportunities is very much required. SHG has emerged as one of the major strategies for women's empowerment and various schemes of the Government of India have shown that strong women groups could contribute substantially to the development and convergence of services and activities. Experience with various programmes has highlighted the benefits of formation of women groups for building confidence and focusing on development tasks.

The various types of training programmes offered to the SHGs have great impact on their members. Training and development function plays a significant role in energizing and empowering group members by increasing their skills through innovative and productive programmes. These programmes enable women to have more exposure in social, economical,

political, educational and technical aspects (Banerjee and Borhade 2016).

In Vellore district of northeastern region of Tamil Nadu, agriculture is practiced mostly in small farm holdings and is generally rainfed in nature due to frequent monsoon failures and low levels of precipitation. Women in Vellore district are mostly agricultural labourers and in order to enhance their socio-economic status it is possible to empower them by means of capacity building on appropriate economic activities for instance starting bio-inoculant production units on a commercial basis. By this a double benefit is achieved by way of not only empowering rural young women but also increasing the availability of bio-inoculants for pest and disease control. Empowering women needs a holistic approach to participate in decision making in the household, community and local democratic sector and prepare them to take up leadership position in agricultural activities. In order to increase the role of farm woman in decision making for agricultural production it is necessary to equip them with latest information so that they can play a vital role in decision making in the family (Puri 1971, Sethi 1991, Wasnik 2006, Kaur 2008).

SHGs in rural India are causing a silent revolution not only in terms of providing micro-credit but also by contributing in other forms to make the agriculture sustainable (Savitha et al 2009). Keeping this in view the study was conducted to train rural young women SHG members (SC/ST) on setting up of bio-inoculant production units for bio-inoculants viz *Pseudomonas fluorescence* and *Trichoderma viride* and to assess their knowledge and impact of the trainings on trained women SHG members.

METHODOLOGY

The study was conducted in Vellore district of Tamil Nadu. Five blocks (Gudiyatham, Katpadi, KV Kuppam, Kaniyambadi and Madhanur) in the district were selected based on the population under SC/ST category. Three villages from each block and three women self-help group (SHG) members from each village were selected. Fifteen trainings of two days each on bio-inoculants production (*P florescence* and *T viride*) for each group of 20 SHG members were organized under DST project thus benefiting 300 members in total. The services of TNAU scientists and officials of the department of agri-business and marketing were utilized to impart the technical trainings to the respondents.

The knowledge test thus developed was used to measure the knowledge level of the subjects at two stages namely pre- and post-exposure. The responses were obtained from the respondents on dichotomous correct or incorrect answers with the scoring of 1 and 0 respectively. Data on impact of the trainings on bio-inoculants production on varied dimensions such as outcome, output, personal impact and social impact were collected by using questionnaires. The human development index was also worked out for the study area. The data were analyzed by using the statistical tools.

RESULTS and DISCUSSION

Human development index

Human development index (HDI) was worked out for the study area (Anon 2016). The HDI is a summary measure of achievements in three key dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions. The data given in Table 1 show that more than half of the respondents (51.67%) belonged to low followed by nearly one-fourth of the respondents (23.00%) to the medium development category. This emphasized the need to introduce some interventions to develop the HDI status of the study area. The intervention might positively influence the respondents and further enhance the human development status of the respondents over a period of time. Having earned some income by engaging in enterprises women might spend more money for improving the nutritional and educational status of the family. This emphasized the need to motivate them to take up self-employment through income generating activities. Having this in concern training programmes on bio-inoculants production were conducted in the study area.

Before starting the trainings on bio-inoculants the role of the women being played in the villages was studied. Table 2 depicts that all the respondents worked in MANREGA programme in their villages for 100 days. This could be due to the reason that MANREGA gave them assured employment of 100 days. This was followed by 88.00 per cent being engaged as agricultural labourers as agriculture was the main occupation in the villages.

Table 1. Distribution of respondents based on level of HDI (n= 300)

Category	Respondents	
	Number	%
Very high human development (0.800 and above)	33	11.00
High human development (0.700-0.799)	43	14.33
Medium human development (0.550-0.699)	69	23.00
Low human development (Below 0.550)	155	51.67
Total	300	100.00

Table 2. Roles performed by the women SC/ST SHGs in their villages (n= 300)

Role	Respondents*	
	Number	%
MANREGA (100 days' work)	300	100.00
Agricultural labourers	264	88.00
Beedi making	89	29.66
Matchbox making	91	30.33
Othupathi making	31	10.33
Coconut leaf thatching	45	15.00
Tailoring	28	9.33
Household work	16	5.00
Candle making	12	4.00
Education institution labour work (schools and colleges)	35	11.66
Shoe factory labour work	32	10.66
Panchayat office labour work	12	4.00

*Multiple responses

Knowledge level of women in bio-inoculants production

To assess the knowledge gain of the women SHG members on bio-inoculants production pre- and post-training tests were conducted using the questionnaire. In the pre-test the respondents had no knowledge and awareness on bio-inoculants production. It can be inferred from Table 3 that after the training majority of the respondents were found to have knowledge on bio-inoculants production (Table 3).

Trichoderma viride

Maximum (71.00 to 92.00%) women had knowledge on all the aspects of *T viridi* production. Majority (92.00%) of the respondents had knowledge on materials required followed by usage in crops (89.00%), control of pests and diseases (88.00%), growth period of colonies (87.00%) and medium used (86.66%).

Psudomonas florescence

Maximum (75.33 to 93.66%) women had knowledge on all the aspects of *P florescence* production. Majority (93.66%) of them had knowledge on materials required followed by recommended dose (86.66%), usage in crops (84.33%), moisture content (82.66%) and medium used (80.33%).

Feedback/suggestions given by the participants on training on bio-inoculants production

The data given in Fig 1 show that all the respondents expressed that agro-based trainings were more useful followed by 95.66 who reported that there should be arrangement of loan facilities to start up a new enterprise and 88.00 per cent who said that units on bio-inoculants were required at village/block level.

Impact of trainings on bio-inoculants production on varied dimensions

Table 4 explains that under outcome of trainings 96.66 per cent gained awareness on bio-inoculants production technology followed by enabled knowledge and skill of trainees (88.33%). The major output of the study was that 92.00 per cent participants became entrepreneurs followed by 80.33 per cent who acted as consultants after the training. The main personal impact was increase in self-confidence of the trainees (95.66%) followed by 81.00 per cent who were consulted by other SHGs for technical purpose. The prominent social impact was that the participants participated in the social organizations (75.66%) and attended many trainings on enterprises (71.00%).

CONCLUSION

The study showed that after the training majority of the respondent women were found to have knowledge on bio-inoculants production. Maximum (71.00 to 92.00%) women had knowledge on all the aspects of *T viridi* and 75.33 to 93.66 per cent on *P florescence* production.

There was improvement in the knowledge, skill and attitude of the trainees on bio-inoculants production technology. They reported that the trainings had given

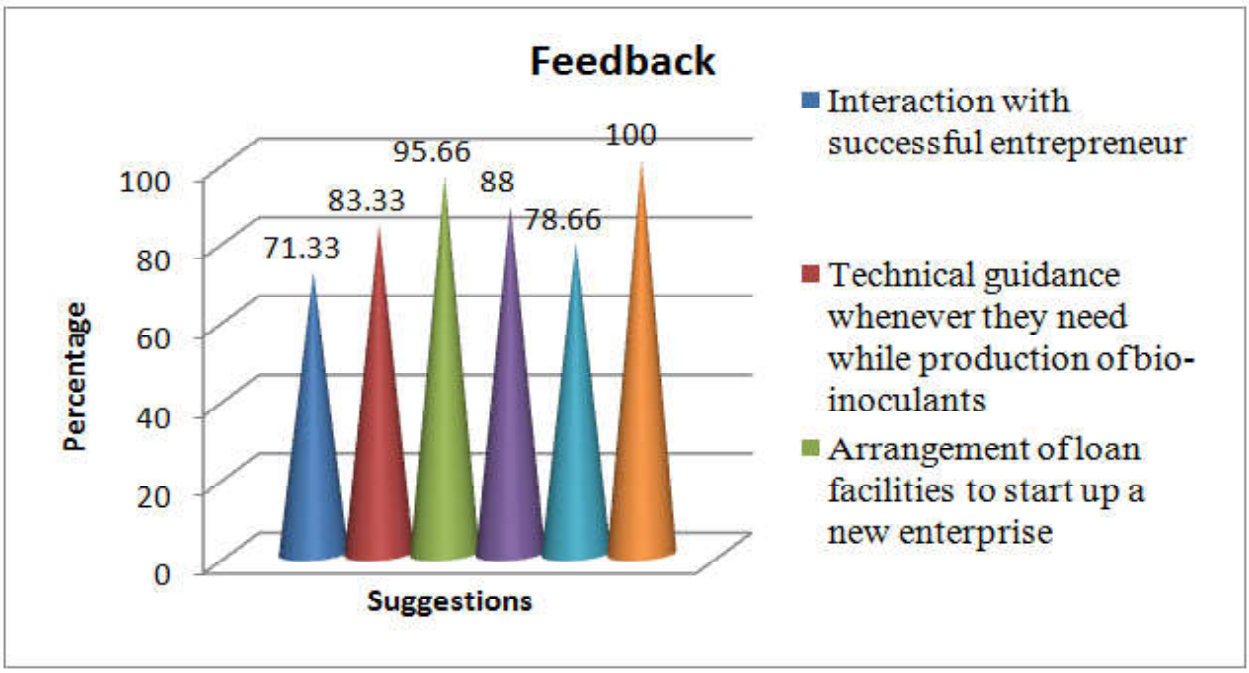

Fig 1. Feedback from participants on training on bio-inoculants production

Table 3. Distribution of respondents according to their knowledge on bio-inoculants production technology (n= 300)

Bio-inoculants production technology	Respondents	
	Number	%
***Trichoderma viride* (fungus)**		
Materials required: molasses, yeast, CMC, talk powder and distilled water	276	92.00
Medium used: molasses yeast medium	260	86.66
Growth period of colonies: 5-7 days	261	87.00
Colour: brown	253	84.33
Recommended dose of *T viride*: 4 g/kg seed; 2.5 kg/ha for soil	235	78.33
Moisture content of the bio-inoculant: 12%	213	71.00
Packing material: white polypropylene bags	258	86.00
Shelf-life: 4 months	216	72.00
Usage in crops: cotton, groundnut, green gram, sunflower, tomato and chilies	267	89.00
Control of pests and diseases	264	88.00
***Pseudomonas florescence* (bacterium)**		
Materials required: peptone, magnesium sulphate, dipotassium hydrogen phosphate, CMC, glycerol, distilled water	281	93.66
Medium used: King's B medium	243	81.00
Growth period of colonies: 2-3 days	241	80.33
Colour: fluorescent	237	79.00
Moisture contentof the bio-inoculant: <20%	248	82.66
Recommended dose of *P florescence*: 10 g/kg seeds; 2.5 kg/ha for soil	260	86.66
Packing material: white polypropylene bags	226	75.33
Usage in crops: horticultural crops, vegetables, paddy, banana, coconut, pulses	253	84.33

Table 4. Distribution of respondents according to impact of training (n= 300)

Statement	Respondents	
	Number	%
Outcome		
Awareness on bio-inoculants production technology	290	96.66
Enabled knowledge and skill of trainees on bio-inoculants production	265	88.33
Increased confidence level	220	73.33
Improved self-empowerment of participants	250	83.33
Output		
The participants acted as consultants after completing the training	241	80.33
The participants became innovators	191	63.66
Increased employment opportunities	208	69.33
The participants became entrepreneurs	276	92.00
Personal impact		
Increased self-confidence	287	95.66
Consulted by other SHGs for technical purpose	243	81.00
Consulted by other SHG members for personal problems	233	77.66
Recognized by others	219	73.00
Increased exposure to media sources	188	62.66
Improved decision making capacity on the technology	180	60.00
Social impact		
Increased contact with scientists	146	48.66
The participants participated in the social organizations	227	75.66
Increased media participation	119	39.66
Attended many trainings on enterprises	213	71.00

them self-confidence to start bio-inoculant units in their villages. However they expressed that they required financial assistance from the banks to establish a unit. Thus technical and economical support from the government was needed to establish bio-inoculant units.

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