Training Needs of Women Smallholder Farmer of Upper Siang District of Arunachal Pradesh

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Abstract

Capacity building and gender mainstreaming are considered as important aspects for the development of farming community. The United Nations Food and Agriculture Organization (FAO) estimate that at least 80% of rural smallholder farmers worldwide are women. Women are playing crucial role in conserving the basic life support system such as land, water, flora and fauna since time immemorial. Women involve largely in farm activities, yet need and interest of women farmers are seldom considering while planning and designing any agricultural developmental programme. The present study examines the training needs of women smallholder farmers in Upper Siang District of Arunachal Pradesh. A multi-stage purposive cum random sampling design was followed to select the 150 women smallholder farmers from six villages of two development blocks under Upper Siang district for the study. On the basis of calculated weighted score and thereby rank were used to consider training item subject wise as very important (VI), important (I) and not important (NI). The study shows that training is equally important for women smallholder farmer too for their technological empowerment and socio-economic development. The results reveal that majority of women smallholder farmers opined integrated farming systems, integrated pest and disease management and soil and water conservation technologies as very important subjects. Nursery Management and rearing of pig were found priority areas of training programme under horticulture and animal science subject respectively. Majority of the women smallholder farmers also prefer income generating activities for empowerment of rural women, formation and management of SHGs and small scale processing and value addition as very important topic of the Training programme. This research finding may be useful while planning and designing training programme for capacity building of women farmers by any development organization, department, NGOs etc.

Keywords: Capacity Building. Women smallholder farmer, Training Needs, Upper Siang

Introduction

Capacity building and gender mainstreaming are considered as important aspects for the development of farming community. The United Nations Food and Agriculture Organization (FAO) estimate that at least 80% of rural smallholder farmers worldwide are women. Women are playing crucial role in conserving the basic life support system such as land, water, flora and fauna since time immemorial. Research indicates that women are not recognized as farmers by their own families, or communities, and definitely not by governments or donors. Patriarchy, stereotypes about men and women's rights and roles, traditional values and cultures, as well as the current global economic model all come together to generate and reinforce why women are not recognized as equal human beings in society, never mind as farmers. This is compounded

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by actual policies, legislation and practices on the ground. Women are desperately short of secure and adequate land, basic tools and inputs, credit, extension services and technical advice, relevant research, and appropriate infrastructure and technology. In short, women farmers have not received the support they need in order to thrive (Action Aid, 2011).

In farming community women folk are generally engaged in three main activities such as households' works, family care and farming. But it is observed that needs and interest of women is not considered from all strata of the society while formulating any developmental programme or programme meant for women empowerment. Many research studies indicates that majority Indian farmer are marginal and small, illiterate and/or poor in education level, economic motivation and scientific orientation having low income, exposure to mass media and very poor access to Information Communication Technologies. The case is worse in case of women farmer. A research study by Saito *et al*. (1994) has shown that with equal access to land and inputs, African women farmers produce 20% more than men. But most women farmers are not getting this support. Women play very important role in farming activities from production, processing, storing to the marketing of agricultural produce. Yet women are ignored or not considered while designing any agricultural development programme. It is need of hour to design most appropriate women friendly capacity development programme. With the above back drop an attempt has been made to identify the training needs of women smallholder farmer in Upper Siang district of Arunachal Pradesh

Methodology

The present study examines the training needs of women smallholder farmers in Upper Siang District of Arunachal Pradesh. A Multi-Stage Purposive cum Random Sampling design was followed to select the 150 women smallholder farmers from six villages of two development blocks which were purposively selected from Upper Siang district. From each selected Block, namely Geku and Yingkiong three villages based on production potential of the different farming system were considered in the study. On consultation with the extension personnel of Agriculture and allied department, local leaders, panchayat members as well as KVK scientist, a list of women smallholder farmer

was prepared for each village. From the individual list of farmers from selected village, twenty five women smallholder farmer respondents were randomly selected which made seventy five women smallholder farmer from each block. Thus, a total of 150 women smallholder farmer respondents were finally selected for data collection from two blocks of the district. Data collection was done by using 'structured schedule' through personal interview method from randomly selected respondents with slight modification of interview schedule prepared by *Sajeev M.V. et al* (2012) used for analysing the training needs of farmers was used in the present study. The schedule was administered to women smallholder farmer for data collection. In this regard the farmers were requested

to give a tick $(\sqrt{})$ in one of the three response categories (viz. Very Important, Important and Not Important) provided against the identified specific items under each major theme based on their perceived needs. The major training needs thematic area used for the study were Crop Production, Horticulture (vegetables, fruits, ornamental plants, plantation crops, tubers, spices, medicinal and aromatic plants), Plant Protection, Soil Health and Fertility Management, Animal Husbandry, Fisheries, Home Science/Women Empowerment, Agricultural Engineering, Capacity building and Group dynamics and Agro forestry, The farmer's responses were collected in 3-point continuum such as Very Important (VI), Important (I) and Not Important (NI) by assigning scores 3, 2 and 1, respectively against each training item. The results were calculated out as weighted score for each of the items/topics under each thematic area identified for the study. Weighted Scores were calculated out as follows

Weighted Score (WS)

$$= \frac{(\text{No. of VI} \times 3) + (\text{No. of I} \times 2) + (\text{No. of NI} \times 1)}{\text{Total No. of (VI + I + NI)} \times 100} \times 100$$

On the basis of calculated weighted score, ranks were assigned to each individual training item under each thematic area and the first five rankings were identified as training needs of the women smallholder farmer of the district.

Results and Discussion

The study shows that training is equally important for women smallholder farmer too for their technological empowerment and socio-economic development. The Block-wise training needs of the

women smallholder farmer are presented in the form of weighted scores in the Tables. Based on weighted scores ranks were assigned to training item under each theme subject and the first five rankings were identified as training needs of the women smallholder farmers of the district. Following are the discussions under the thematic areas of training needs of women smallholder farmer.

Crop Production

A Perusal of Table 1 reveals that training item integrated farming system is considered as rank I with weighted score of 2.42 followed by seed production and water management as ranked II and III with weighted score of 2.40 and 2.24 respectively as preferred by the women smallholder farmer. A sizeable (48%) number of respondents consider the integrated farming system, as a most important topic and 46 per cent considered it as important topic for the training programme. It is reflected in the Table 1 that integrated farming system, seed production, water management, nursery management and fertility management are the priorities areas of training programme for field crop as perceived by the women smallholder farmer of Upper Siang district. Similar findings were reported in the studies of Sanjeev *et al* (2012)

Horticulture Section

Amongst the various training topics or items under vegetable crops Table 2 reveals that training item nursery raising as rank I by respondent farmers with weighted score of 2.76 followed by production of low volume and high value crops and exotic vegetables production as II and III with weighted score of 2.69 and 2.67 respectively . It is also observed from the Table that plant propagation techniques, layout and management of orchards and management of young

plants/orchards are ranked as I, II, and III with weighted score of 2.01, 1.97 and 1.96 respectively for selecting them as training item or topic by the women smallholder farmer under pomlogy branch of Horticulture section. Further it was also found that training item production and management technology is prioritized as rank I under sub section of plantation crops (weighted score 2.24) , spices(weighted score 2.07) and tuber crops(weighted score 2.20) of Horticulture section by the respondent farmer. It is observed in the study village that soil and climate offer a conducive environment for growing number of horticultural crops but due to lack of scientific knowledge farmers are realizing low yield and farm income. It is suggested that the department concerned and stakeholder can design capacity building programme considering above ranked training items.

Plant Protection

Under Plant protection theme it was observed that integrated pest management(IPM) is considered as most sought training items with weighted score of 2.32 followed by, disease management and bio-control of pests and diseases with weighted score of 2.10 and 1.90 respectively by the women smallholder farmer of the study area. It is seen in the village area many times farmers faces pest and disease problems in their crops and plant but their knowledge on improved pest and disease management are negligible or very poor . So to reduce the losses due to pests and disease farmers can be sensitized with IPM and disease management practices.

Soil Health and Fertility Management

The Table 4 reveals that training item soil and water testing is ranked as I with weighted score of 2.68 followed by soil and water conservation and soil

Table 1: Weighted Score (1-3 Scale) and Rank of the training needs of women smallholder farmers of Upper Siang District of Arunachal Pradesh under the theme of Crop Production

Thematic area/training items	Upper Siang (n=150)					Yingkiong WS	Geku WS
Crop Production	VI	I	NI	WS	Rank		
Weed Management	40	73	11	1.84	IX	1.85	1.83
Nutrient Management	36	78	36	2.0	V	1.96	2.04
Resource Conservation Technologies	19	96	35	1.89	VIII	1.95	1.83
Cropping Systems	12	108	30	1.88	VII	1.89	1.87
Crop Diversification	26	94	30	1.97	VI	1.94	2.00
Seed production	74	62	14	2.40	II	2.43	2.37
Water management	53	80	17	2.24	III	2.18	2.30
Integrated Farming systems	72	69	09	2.42	I	2.43	2.41
Nursery management	52	80	18	2.22	IV	2.17	2.27

Table 2: Weighted Score (1-3 Scale) and Rank of the training needs of women smallholder farmers of Upper Siang District of Arunachal Pradesh under the theme of Horticulture

Thematic area/training items	Upper Siang (n=150)					Yingkiong WS	Geku WS
Horticulture	VI	I	NI	WS	Rank		
a) Vegetable Crops							
Production of low volume and high value crops	104	46	0	2.69	II	2.65	2.74
Off-season vegetables	74	67	09	1.94	VI	1.91	1.97
Nursery raising	114	36	0	2.76	I	2.77	2.75
Exotic vegetables production	103	45	02	2.67	III	2.74	2.61
Production of export potential vegetables	92	25	33	2.39	IV	2.35	2.43
Grading and standardization	41	97	12	2.19	V	2.20	2.21
Protective cultivation (Green Houses, Shade Net etc.)	52	70	28	2.16	VI	2.16	2.16
b) Fruits							
Training and Pruning	30	86	34	1.97	II	1.97	1.97
Layout and Management of Orchards	22	102	26	1.97	II	1.94	2.00
Cultivation of Fruit crops	10	123	17	1.95	III	1.96	1.94
Management of young plants/orchards	08	130	12	1.97	II	1.91	2.03
Rejuvenation of old orchards	11	38	101	1.40	V	1.36	1.44
Cultivation of export potential fruits	11	111	28	1.88	IV	1.86	1.90
Micro irrigation systems of orchards	08	30	112	1.30	VI	1.31	1.29
Plant propagation techniques	40	72	38	2.01	I	2.04	1.98
c) Ornamental Plants							
Nursery Management	12	70	68	1.62	III	1.59	1.65
Management of potted plants	21	47	82	1.59	IV	1.60	1.58
Production of export potential ornamental plants	17	101	32	1.90	II	1.92	1.88
Propagation techniques of Ornamental Plants	46	83	21	2.16	I	2.21	2.11
d) Plantation crops							
Production and Management technology	58	71	21	2.24	I	2.25	2.23
Processing and value addition	43	42	65	1.85	II	1.89	1.81
e) Tuber crops							
Production and Management technology	49	82	19	2.20	I	2.17	2.23
Processing and value addition	37	52	61	1.84	II	1.85	1.83
f) Spices							
Production and Management technology	42	77	31	2.07	I	2.04	2.10
Processing and value addition	32	86	32	2.0	II	1.95	2.05
g) Medicinal and Aromatic Plants							
Nursery management	32	69	42	1.84	III	1.83	1.87
Production and management technology	35	71	44	1.94	II	1.95	1.93
Post harvest technology and value addition	40	78	32	2.05	I	2.02	2.08

Table 3: Weighted Score (1-3 Scale) and Rank of the training needs of women smallholder farmers of Upper Siang District of Arunachal Pradesh under the theme of Plant Protection

Thematic area/training items	Upper Siang (n=150)					Yingkiong WS	Geku WS
Plant Protection	VI	I	NI	WS	Rank		
Integrated Pest Management	52	95	03	2.32	I	2.26	2.38
Disease Management	32	102	16	2.10	II	2.11	2.09
Bio-control of pests and diseases	06	124	20	1.90	III	1.88	1.92
Production of bio control agents and bio pesticides	04	42	104	1.33	IV	1.32	1.34

fertility management are ranked as II and III with weighted score of 2.33 and 2.10 respectively as training need area or item by the women smallholder farmer. It was also found that majority (71.33 %) of the total respondents considered soil and water training item as very important and 26 per cent respondent considered it as important. Similarly 31.33 per cent women farmer considered soil and water conservation as very important training need item and majority (57.33%) respondent opined as important training items. In relation to soil fertility and management majority (74.66 %) of the respondents considered it as important training item while organizing training programme for women small holder farmer. It is the area where farmer must be trained to sustain the crop yield and increasing the cropping intensity as seldom one and /or two farmers apply fertilizers in their field. Further it was found that no farmers got their soil tested in the study area.

Livestock production and Management

Under the disciplines of livestock production and management it was found that disease management, piggery management, and poultry management are ranked as I, II and III with weighted score of 2.32, 2.26 and 2.16 respectively as most sought training topics or items prioritized by the women smallholder farmer. Further the Table 4 reveals that 32.66 per cent of total respondents emphasised the disease management topic as very important and majority (67.33%) considered it as important. Piggery management item was considered as important by majority (71.33%) of the respondent while 27 per cent considered it as very important training item for organizing training programme for empowerment of women smallholder farmer. It was observed in the study area that every year a sizeable number of birds are died and health's of pig are very poor. Since these are remote area and Govt extension service seldom reach these tribal villages, so knowledge on above ranked topics of women farmer can be increased by organizing training programme.

Fisheries

Table 6 shows composite fish culture is the most needed training items with weighted score of 1.77

Table 4: Weighted Score (1-3 Scale) and Rank of the training needs of women smallholder farmers of Upper Siang District of Arunachal Pradesh under theme of Soil Health and Fertility Management

Thematic area/training items		Upper Siang (n=150)				Yingkiong WS	Geku WS
Soil Health and Fertility Management	VI	I	NI	WS	Rank		
Soil fertility management	27	112	11	2.10	III	2.07	2.13
Soil and Water Conservation	47	86	17	2.33	II	2.26	2.40
Integrated Nutrient Management	11	118	21	1.93	IV	1.90	1.96
Production and use of organic inputs	12	94	44	1.78	VI	1.79	1.77
Management of Problematic soils	21	42	87	1.56	VII	1.51	1.61
Micro nutrient deficiency in crops	04	32	114	1.26	VIII	1.27	1.25
Nutrient Use Efficiency	32	74	44	1.92	V	1.95	1.89
Soil and Water Testing	107	39	04	2.68	I	2.69	2.67

Table 5: Weighted Score (1-3 Scale) and Rank of the training needs of women smallholder farmers of Upper Siang District of Arunachal Pradesh under the theme of livestock production and Management

Thematic area/training items		Upper Siang (n=150)				Yingkiong WS	Geku WS
Livestock Production and Management	VI	I	NI	WS	Rank		
Dairy Management	0	08	142	1.05	VII	1.08	1.02
Poultry Management	26	123	01	2.16	III	2.14	2.18
Piggery Management	41	107	02	2.26	II	2.27	2.25
Rabbit Management	09	118	23	1.90	V	1.86	1.94
Disease Management	49	101	0	2.32	I	2.36	2.28
Feed management	11	122	17	1.96	IV	1.96	1.96
Production of quality animal products	04	102	44	1.73	VI	1.70	1.76

followed by carp fry and fingerling rearing and integrated fish farming with weighted score of 1.73 and 1.69 respectively as sought   by the women smallholder farmer . Though fish rearing farmer are less as compare to agri-horticulture based farmer yet they are very interested in the modern or improved fish rearing or fishery activities with the above training items. Govt. or other developmental department or NGOs can take fishery training intervention in the study area to increase their capacity in the fishery activities for more production and income or livelihood

Home Science /Women Empowerment

A perusal of Table 7 reveals that women smallholder farmer ranked income generation activities for empowerment of rural women as I with weighted

score of 2.71 followed by location specific drudgery reduction technologies and women and child care as the II and III with weighted score of 2.56 and 2.54 respectively as preferred training items or topics under the Home Science /women empowerment section. It is observed that women folk in tribal societies are more dynamic and involve in various household activities including faming and caring child. Further the Table reveal that all the training items taken for the study are considered as very important to important with high weighted score as perceived by respondents.

Agricultural Engineering

It is another important area of agricultural activities which reduces human labour, save time and minimize the post harvest losses of agricultural produces. It is vivid from the Table 8 that training item

Table 6: Weighted Score (1-3 Scale) and Rank of the training needs of women smallholder farmers of Upper Siang District of Arunachal Pradesh under the theme of Fisheries

Thematic area/training items	Upper Siang (n=150)					Yingkiong WS	Geku WS
Fisheries	VI	I	NI	WS	Rank		
Integrated fish farming	29	46	75	1.69	III	1.69	1.69
Carp breeding and hatchery management	0	08	142	1.05	VIII	1.01	1.09
Carp fry and fingerling rearing	21	68	61	1.73	II	1.70	1.76
Composite fish culture	25	66	59	1.77	I	1.74	1.80
Hatchery management and culture of freshwater prawn	0	08	142	1.05	IX	1.03	1.07
Breeding and culture of ornamental fishes	05	50	95	1.40	IV	1.42	1.38
Portable plastic carp hatchery	0	12	138	1.08	VII	1.07	1.09
Pen culture of fish and prawn	0	15	135	1.10	V	1.10	1.10
Shrimp farming	0	08	142	1.05	IX	1.04	1.05
Fish processing and value addition	01	10	139	1.09	VI	1.03	1.15

Table 7: Weighted Score (1-3 Scale) and Rank of the training needs of women smallholder farmers of Upper Siang District of Arunachal Pradesh under the theme of Home Science /women empowerment

Thematic area/training items	Upper Siang (n=150)					Yingkiong WS	Geku WS
Home Science/Women empowerment	VI	I	NI	WS	Rank		
Household food security by nutrition gardening	52	87	11	2.27	V	2.28	2.26
Design and development of low/minimum cost diet	10	104	36	1.82	X	1.80	1.84
Designing and development for high nutrient efficiency diet	19	99	32	1.91	IX	1.91	1.91
Minimization of nutrient loss in processing	25	124	01	2.16	VII	2.10	2.20
Gender mainstreaming through SHGs	65	82	03	2.41	IV	2.42	2.40
Storage loss minimization techniques	28	122	0	2.18	VI	2.24	2.12
Value addition	45	101	04	2.27	V	2.25	2.29
Income generation activities for empowerment of rural Women	107	43	0	2.71	I	2.71	2.71
Location specific drudgery reduction technologies	84	66	0	2.56	II	2.58	2.54
Rural Crafts	22	104	24	1.98	VIII	1.96	2.00
Women and child care	81	69	0	2.54	III	2.51	2.57

post harvest technologies, ranked as I with weighted score 2.28 followed by use of plastics in farming practices and small scale processing and value addition as II and III with weighted score of 2.22 and 2.19 respectively as preferred training topics by the women smallholder farmer. The knowledge and skill of agricultural engineering is equally important for increasing agricultural production and income.

Capacity building and Group dynamics

The Table 9 reveals that formation and management of SHGs, entrepreneurial development and leadership development in villages are ranked I,II, and III with weighted score of 2.67, 2.46 and 2.32 respectively as most sought training topics by the women smallholder farmer. It is observed in the study villages that a very few SHG are there but their management are very poor and some SHG are being closed. Since SHG is being considered as a method or strategy for empowering the women so, capacity building of women smallholder farmer can be enhanced, if any developmental organization take initiative of conducting any kind with training programme with above mentioned prioritized topics.

Agro-forestry

Agro-forestry plays major role in food and livelihood security in hilly areas. Under the discipline of Agro-forestry nursery management topped the list of training item as the most needed with weighted score

Table 8: Weighted Score (1-3 Scale) and Rank of the training needs of women smallholder farmers of Upper Siang District of Arunachal Pradesh under the theme of Agricultural Engineering

Thematic area/training items		Upper Siang (n=150)				YingkiongWS	GekuWS
Agricultural Engineering	VI	I	NI	WS	Rank		
Use of Plastics in farming practices	38	108	04	2.22	II	2.25	2.19
Production of small tools and implements	17	101	32	1.90	IV	1.89	1.91
Repair and maintenance of farm machinery and implements	02	24	124	1.18	V	1.16	2.20
Small scale processing and value addition	47	85	18	2.19	III	2.20	2.18
Post Harvest Technologies	47	98	05	2.28	I	2.26	2.30

Table 9: Weighted Score (1-3 Scale) and Rank of the training needs of women smallholder farmers of Upper Siang District of Arunachal Pradesh under the theme of Capacity building and Group dynamics

Thematic area/training items		Upper Siang (n=150)				Yingkiong WS	Geku WS
Capacity Building and Group Dynamics	VI	I	NI	WS	Rank		
Leadership development in villages	48	102	00	2.32	III	2.33	2.31
Managing Group dynamics	34	85	29	2.00	V	2.00	2.00
Formation and Management of SHGs	101	49	00	2.67	I	2.66	2.68
Mobilization of social capital in villages	41	102	07	2.22	IV	2.15	2.29
Entrepreneurial development	70	80	00	2.46	II	2.47	2.45
WTO and IPR issues	00	40	110	1.26		1.24	1.30

Table 10: Weighted Score (1-3 Scale) and Rank of the training needs of women smallholder farmers of Upper Siang District of Arunachal Pradesh under the theme of Agro-forestry

Thematic area/training items		Upper Siang (n=150)				Yingkiong WS	Geku WS
Agro-forestry	VI	I	NI	WS	Rank		
Production technologies	40	108	02	2.25	II	2.26	2.24
Nursery management	52	88	20	2.34	I	2.32	2.36
Integrated Farming Systems	43	71	32	2.02	III	2.00	2.04

of 2.34 followed by production technologies and integrated farming systems as II and III rank with weighted score of 2.25 and 2.02 respectively by the women smallholder farmer of the study area.

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