

Technology and Training Needs Assessment of Farm Women in Andhra Pradesh

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Abstract

Women play a significant and crucial role in agricultural production and development processes. They perform a variety of agricultural operations physically, mostly drudgery filled and manage the livestock production activities. Kitchen gardening and poultry keeping are also the exclusive jobs of women, besides home making.

The role of farm women in agricultural development is substantial and their involvement in transfer of technologies is becoming more and more crucial due to the changing socio-economic environment. Therefore, it is imperative to understand the Technology and Training Needs of farm women in the transfer of farm technologies from the laboratories to the land.

Introduction

Women constitute about 48 per cent of the rural population in India. The historical perspective portrays that women were the first to initiate the cultivation of crops. From time immemorial, it was women who nurtured agricultural development by domesticating the crop plants and animals and initiated the art and science of farming. Women toil two-thirds of the world's working hours, receiving one-tenth of the world's income and owning less than one-hundredth of the world's property. It is a widely accepted but perhaps equally ignored fact that women provide major contributions to the agriculture sector in India and also bear the double burden of less paid work and unpaid domestic labour (GOI).

Women, who own land, face many problems, especially in dealing with the outside world, in buying agricultural inputs, engaging labour, meeting government officials, and in selling produce, because these are seen as falling within the male domain. The issue is not so much about their labour contribution; on the contrary, the issues that emerge from the increasing work participation of women pertain to the double load of work, access and control over resources, participation in decision-making not within the household only but in the public forum and enhancement of skills and information base and last but not the least, remuneration and valuation of their work. A big question is of the widening options for women. Else, what we seem

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to be arguing about is that, as women happen to be in agriculture let us do something for them.

Women play a significant and crucial role in agricultural production and development processes. Even today, they perform a variety of agricultural operations physically, mostly drudgery filled. In crop farming, operations such as sowing, transplanting, weeding, scaring birds, harvesting, threshing, winnowing, drying and storing of seeds and food grains are physically performed by women. In most places, the entire livestock production activities are managed by women. Tending animals, collecting, carrying and cutting of fodder and feed for animals, milking the animals and marketing, preparing milk products, cleaning the cattle shed as well as cattle, are attended to exclusively by the rural women. Kitchen gardening and poultry keeping are also the exclusive jobs of women, besides home making.

In the recent years, however, due to economic development in general and agricultural development in particular, the socio-economic scenario is fast changing especially in rural India. More and more women are educated and employed in monthly wage earning jobs in urban as well as rural sectors of the economy. They are also more exposed to the outside world due to media explosion. Therefore, there has been a general awakening the world-over among women folk, about their roles and rights in the society and hence there has been a general cry for the empowerment of women through economic independence, legal protection and organizational innovations. Moreover as more and more rural men get wage earning jobs, there arises the necessity for farm women to manage the farm operations. In this changing socio-economic scenario, the women have started playing a significant and crucial role not only in manual farm operations, but also in the farm supervisory as well as management activities.

Purpose of the Study

Andhra Pradesh* is basically an agricultural state and its overall development is intertwined with agricultural growth. The state of Andhra Pradesh has been taking innumerable steps towards boosting agricultural production through productivity increase. All the crop and livestock production activities launched by the state have been technology driven. Probably, the phenomenal growth of crop and livestock production in the state might be the end result of the past half-a-century of planned development. Ultimately, the state has made progress not only in the production increase of paddy, maize and cotton but also in production increase of milk and poultry products. Similarly tremendous progress has been realized in horticulture

* This study was conducted in undivided Andhra Pradesh

development particularly in mango, grapes and citrus. All these could be possible through effective transfer of agricultural technologies from various institutions like Agricultural University and its research stations, State Department of Agriculture, etc., to the lands of the farmers. Thus, effective transfer of technologies has no doubt, transformed traditional agriculture into modern agriculture, and tuned towards commercialization and export orientation.

To keep agricultural development, constantly evolving, new technologies and their applications, are the essential requisites. In recent years, agricultural extension activities like organizing Farmers Field School (Polambadi), advocating SRI-cultivation in paddy, implementing the Seed Village Programme, vermi-compost development programme are being carried out. These are technology intensive and require skilled manpower. Institutional support like organizing Farmers Groups, setting up of agricultural technology mission and strengthening research extension linkages initiated by the Andhra Pradesh government are quite impressive towards scientific and technology oriented farming. The role in farm development is rather substantial and their involvement in the transfer of technologies is becoming more and more crucial due to the changing socio-economic environment. Therefore, at this juncture it becomes imperative to understand the Technology and Training needs of farm women for Agricultural Development in the transfer of farm technologies from the laboratories to the land. It is with this perspective in view that the present study is on 'Technology and Training Needs Assessment of Farm women in Andhra Pradesh.

Objectives

The main objective of the study is to assess the technology and training needs of farm women in transfer of technologies. The specific objectives are:

- (i) to assess the extent of technological needs of farm women in their own farms and
- (ii) to identify the training needs of farm women in agricultural operations.

Methodology

The study was conducted during the year 2006. Andhra Pradesh forms the universe for the present study. A multi-stage, stratified random sampling technique was followed. All the three regions of the state (Rayalaseema, Telengana and Coastal) were considered and from each region two districts were selected by random sampling procedure. From each of the six sample districts, three sample mandals were selected using random sampling techniques. From each mandal three villages were randomly selected and from each village 17 farm women were randomly selected. Thus, the sample size was 918 farm women distributed in 54 sample villages of 18 sample mandals in six districts of the three regions of the state. The required

primary data were collected in a pre-tested schedule. In addition, the secondary data on rainfall, cropping pattern, technologies advocated etc were gathered from the publications like Season and Crop report of Andhra Pradesh and the state agricultural extension machinery.

The collected data were tabulated and analyzed applying both conventional and other methods.

Results

The technology and training needs of the sample farm women are presented below.

Technology Needs of Farm Women

In as much as women play a key role in farm development through work participation, supervision and managerial decision making, they have every opportunity to apply the latest agricultural technologies. All that they needed was technology information support. Therefore, the sample farm women were asked to express their technological needs in major areas of agriculture and the extent to which they needed these. The responses received were summarized and the results are portrayed in Table 1.

It is quite evident from the table that around 50 per cent of the sample farm women overall expressed that they 'much needed', the new agricultural technologies, marketing information, whereas more than 30 per cent of the respondents expressed technology needs on identification of good quality inputs, fertilizer application, diagnosis of pests and diseases and its management etc. As regards technology needs in horticulture, about 32 per cent expressed that they needed much on crop management. In Animal Husbandry also, over 25 per cent reported that they were much in need of technologies viz., artificial insemination, improved cattle breeds, high milk yielding breeds, animal rearing technologies, marketing of milk etc.

As regards regions, almost in all the three regions, more than 50 per cent of the sample farm women expressed that they needed the technologies much in agriculture, especially in crop production and marketing. With reference to horticulture, technology on high yielding varieties, crop management, storage, value addition, marketing is much needed by Coastal farm women. As regards strengthening of RMGs, 32 per cent of the farm women expressed that it was much needed in all three regions, as could be evidenced from Table 1.

Table 1. Extent of Technology Needs

S.No.	Areas and components	Coastal		Rayalaseema		Telangana		Overall	
		Much needed	Somewhat needed	Much needed	Some what needed	Much needed	Some what needed	Much needed	Some what needed
1	Agriculture								
	Identification of good quality inputs	186 (60.7)	22 (7.18)	72 (23.52)	39 (12.74)	143 (46.73)		401 (43.68)	61 (6.64)
	Crop management	136 (44.4)	2 (0.65)	40 (13.6)	38 (12.4)	237.5		199 (21.68)	40 (4.36)
	Cropping pattern	117.3 (8.2)	1 (0.3)					117 (12.75)	1 (0.11)
	Ground nut management			59 (19.28)	11 (3.59)			59 (6.43)	11 (1.20)
	Improved Farm Implements	134 (43.79)	2 (0.65)	26 (8.49)	9 (2.94)			160 (17.43)	11 (1.20)
	Irrigation management	87 (28.43)	21 (6.86)					87 (9.48)	21 (2.29)
	Fertilizer applications	139 (45.42)	4 (1.30)	158 (51.63)	8 (2.60)	98 (32.02)	10 (3.26)	395 (43.03)	22 (2.40)
	Market information and marketing of produce	192 (62.74)	42 (13.72)	152 (49.67)	25 (8.16)	173 (56.53)	12 (3.92)	517 (53.32)	79 (8.61)
	INM	13 (4.24)	0					13 (1.42)	
	IPM	28 (9.1)	2 (0.65)			14 (4.57)	1 (0.32)	42 (4.56)	3 (0.33)
	New varieties of seeds	104 (33.98)	21 (6.86)					104 (11.33)	21 (2.29)
	New agriculture technologies	179 (58.49)	14 (4.57)	157 (51.30)	5 (1.63)	124 (40.52)	31 (10.13)	460 (50.10)	50 (5.45)
	New seed varieties of different crops	172 (56.20)	41 (13.02)	136 (44.44)	28 (9.15)	65 (21.24)	20 (6.53)	373 (40.63)	89 (9.69)
	Organic farming	53 (17.32)	27 (8.82)			34 (11.11)	1 (0.32)	87 (9.48)	28 (3.05)
	Diagnosis of Pest and disease and its management	84 (20.91)	21 (6.86)	107 (34.96)	12 (3.02)	112 (36.60)	12 (3.92)	283 (30.83)	45 (4.90)
	Integrated Weed management			74 (24.18)		67 (21.89)	23 (7.51)	141 (15.36)	23 (2.51)
	Fodder varieties	28 (9.15)	12 (3.92)					28 (3.05)	12 (1.31)
	Seed development and treatment	86 (21.56)	18 (5.88)	86 (28.10)	2 (0.65)	86 (28.10)	35 (11.43)	238 (25.93)	55 (5.99)
	Soil fertility management	30 (9.80)	16 (5.22)					30 (3.28)	16 (1.74)

S.No.	Areas and components	Coastal		Rayalaseema		Telangana		Overall	
		Much needed	Somewhat needed	Much needed	Some what needed	Much needed	Some what needed	Much needed	Some what needed
	Soil testing	78 (25.49)	11 (3.59)	86 (28.10)	0	74 (24.18)	0	238 (25.93)	11 (1.20)
	SRI method	55 (17.97)	21 (6.86)	31 (10.13)	11 (3.59)	56 (18.30)	3 (0.98)	142 (15.47)	35 (3.81)
	Integrated water management			32 (10.45)	0	29 (9.47)	12 (3.92)	61 (6.44)	12 (1.31)
	Storage facility and pest management	103 (33.76)	12 (3.92)					103 (11.22)	12 (1.31)
	Watershed management			38 (12.12)	12 (3.92)	29 (9.47)	18 (5.88)	67 (7.30)	30 (3.27)
	Cotton management					73 (23.96)	8 (2.61)	73 (7.95)	8 (0.87)
2	Animal Husbandry								
	Artificial insemination	62 (20.26)	3 (0.98)	183 (59.80)	4 (1.30)	105 (34.31)	2 (0.65)	412 (44.88)	9 (0.98)
	Animal management	46 (15.03)	4 (1.30)	64 (20.91)	24 (7.84)	159 (51.96)	5 (1.63)	269 (29.30)	33 (3.59)
	Improved breeds	19 (6.20)	12 (3.92)	36 (11.76)	23 (7.51)			55 (5.99)	35 (3.81)
	Dairy units	88 (28.75)	64 (20.91)	47 (15.35)	12 (3.92)	102 (33.33)	0	237 (25.82)	76 (8.29)
	Feed management	15 (4.90)	6 (1.96)	20 (6.53)	21 (6.86)	86 (28.10)	23 (7.51)	121 (13.18)	50 (5.45)
	Fodder development	19 (6.20)	31 (10.13)	21 (6.86)	35 (11.43)			40 (4.36)	65 (7.08)
	High milk yielding breeds	106 (34.64)	25 (8.16)	118 (38.56)	47 (15.35)	68 (22.22)	8 (2.61)	292 (31.81)	80 (8.71)
	Marketing of milk	68 (22.22)	52 (16.99)	59 (19.28)	11 (3.59)	102 (33.33)	14 (4.57)	229 (24.95)	77 (8.38)
	Value addition of milk	23 (7.51)	12 (3.93)					23 (2.51)	12 (1.31)
3	Horticulture								
	Crop management	164 (20.91)	12 (3.92)	134 (11.11)	5 (1.63)			298 (32.46)	17 (1.85)
	High yielding varieties	104 (33.98)	39 (12.74)	26 (8.49)	14 (4.57)			130 (14.16)	53 (5.77)
	Value addition and Marketing	97 (31.69)	34 (11.11)					97 (10.56)	34 (3.70)
	Short duration varieties	58 (18.95)	15 (4.90)					58 (6.32)	15 (1.63)
	Papaya cultivation			19 (6.20)	2 (0.65)			19 (2.06)	2 (0.22)
	Sweet lemon cultivation practices			56 (18.30)	12 (3.92)			56 (6.1)	12 (1.30)

S.No.	Areas and components	Coastal		Rayalaseema		Telangana		Overall	
		Much needed	Somewhat needed	Much needed	Some what needed	Much needed	Some what needed	Much needed	Some what needed
	Drip irrigation			31 (10.13)	10 (3.26)			31 (3.41)	10 (1.09)
	Bio inputs	32 (10.45)	17 (5.55)			15 (4.90)	11 (3.59)	47 (5.12)	28 (3.05)
4.	Other activities								
	Strengthening of RMGs	106 (34.64)	25 (8.16)	118 (38.56)	47 (15.35)	68 (22.22)	8 (2.61)	292 (31.81)	80 (8.71)
	Village level organization	53 (17.32)	27 (8.82)			34 (11.11)	1 (0.32)	87 (9.48)	28 (3.05)
	Maize tiller			36 (11.76)	21 (6.80)	85 (27.77)	0	121 (13.18)	21 (2.28)
	Vermicomposting	64 (20.91)	14 (4.57)			12 (3.92)	8 (2.61)	76 (8.29)	22 (2.40)
	Value addition of Maize as poultry feed			22 (7.18)	17 (5.55)	90 (29.41)	0	112 (12.20)	17 (1.85)
	Exposure visits			22 (7.18)	17 (5.55)			22 (2.39)	17 (1.85)

(Figures in parentheses indicate percentages)

Training Needs of Farm Women

Having probably fully realized the importance of women's participation in farm development through technology transfer, the Andhra Pradesh government launched the Andhra Pradesh Training of Women in Agriculture Project (ANTWA) in as early as 1994-95 itself, and in the project thousands of farm women were exposed to the latest agricultural technologies through various training programmes like village based training, pre-seasonal training, specialized training etc. in addition to study tours and demonstrations. However, the ANTWA project was discontinued and hence there has arisen a wide knowledge vacuum among farm women in the recent years. Therefore, the study aimed at assessing the training needs of the sample farm women and the results are furnished in Table 2, below.

Table 2a: Perceptions of the respondents on Training Needs in Telangana region

(Multiple responses)

S.No.	Area of training	No. of respondents	Percentage
Agriculture			
1.	Seed selection	87	28.43
2.	Cropping pattern	17	5.56
3.	IPM	17	5.56
4	Pest and disease control in Maize and vegetables	17	5.56

S.No.	Area of training	No. of respondents	Percentage
5	Organic farming, good quality seeds, weed management	41	13.40
6	Marketing and value addition of produce	178	58.17
7	Market information	158	51.63
8	Identification of good quality seeds	36	11.76
9	Usage of chemicals and bio fertilizers	65	21.24
10	Fertilizer and pesticide management	24	7.84
11	High yielding varieties	30	9.80
12	Bio pesticides and bio fertilizers	24	7.84
13	INM	6	1.96
14	Hybrid seeds and its treatment – maize	6	1.96
15	Maize as poultry feed and maize tiller	103	33.66
16	New agriculture practices, selection of good quality seeds and fertilizers	17	5.56
17	Latest advances in cultivation practices	34	11.11
18	Orientation of ID crops	22	7.19
19	Soil testing and fertility management	29	9.48
20	Vegetable cultivation	17	5.56
21	IPM	40	13.07
22	SRI method of cultivation of paddy	48	15.69
Animal Husbandry			
23	Importance of Artificial Insemination	57	18.63
24	Dairy unit	12	3.92
25	Training on AI	45	14.71
26	Animal care and animal feeding	59	19.28
27	Cattle disease management	29	9.48
28	Care taking during pregnancy of cattle	40	13.07
29	Feed and disease management	40	13.07
30	Identification of good quality cattle	12	3.92
31	Health care of small ruminants	27	8.82
32	High milk yielding breeds	87	28.43
33	Preventive measures for cattle diseases	23	7.52
34	Training on poultry	16	5.23
35	Processing of milk and marketing	25	8.17
Horticulture			
36	New varieties in horticulture	188	61.44
37	Preservation of fruits	12	3.92
38	Medicinal and aromatic plants	18	5.88
39	IPM and bio-fertilizers and pesticides	98	32.03
Others			
40	Vermi composting	46	15.03
41	New agriculture technology	102	33.33

It is evident from the table above that an exhaustive list of training needs has been given by the respondents from Telangana. More than 50 per cent of the respondents expressed that they needed training in agriculture especially in market information, marketing and value addition of produce, of major crops. Similarly, about 60 per cent of the sample farm women expressed the need for training in Horticulture management and new varieties. The sample also expressed the need for training on new agricultural technologies.

Table- 2b: Perceptions of the respondents on Training Needs in Coastal region
(Multiple responses)

S.No.	Area of training	No. of respondents	Percentage
Agriculture			
1.	Seed treatment	103	33.66
2.	Soil testing	89	29.08
3.	Seed selection	40	13.07
4.	Seed development	35	11.44
5.	Training on crop management	60	19.61
6.	Inter cropping	23	7.52
7.	New dimensions in agriculture	28	9.15
8.	Fertilizer management	121	39.54
9.	IPM	44	14.38
10.	ICM	8	2.61
11.	Diagnosis of Pest and diseases and its management	23	7.52
12.	SRI paddy	36	11.76
Animal Husbandry			
13.	Training on AI and its Importance	80	26.14
14.	Animal care and animal feeding	59	19.28
15.	Cattle disease management	59	19.28
16.	Feed management	40	13.07
17.	Identification of good quality cattle	12	3.92
18.	Health care of small ruminants	27	8.82
19.	High milk yielding breeds	81	26.47
20.	Preventive measures for cattle diseases	23	7.52
21.	Selection of new breed	46	15.03
22.	Dairy unit	10	3.27
23.	Processing of milk and marketing	65	21.24
Horticulture			
24.	New varieties in horticulture	202	66.01
25.	IPM and bio-fertilizers and pesticides	98	32.03
26.	Short term varieties	54	17.65
27.	Nursery raising and grafting	112	36.60
28.	Training on NPV	92	30.07
29.	Organic farming	84	27.45
30.	Grading and processing	71	23.20
31.	Training on sericulture	76	24.84
Others			
32.	Vermicomposting	118	38.56
33.	Exposure visits	56	18.30
34.	ICT	12	3.92

The table above shows that, the respondents in Coastal region expressed that they needed training in agriculture especially in production technologies, soil testing (29%), seed treatment (33%), fertilizer management of major crops. Similarly, about 26 per cent of the sample farm women expressed the need for training in animal husbandry particularly on artificial insemination, high milk yielding breeds. The expressions were more pronounced (66%), in case of new varieties in horticulture. The sample farm women stressed upon training on bio inputs, organic farming, NPV, nursery raising, grading and processing of horticulture produce, training on sericulture. About 39 per cent of the respondents expressed training needs on vermi-composting.

Table- 2c: Perceptions of the respondents on Training Needs in Rayalaseema region

(Multiple responses)

S.No.	Area of training	No. of respondents	Percentage
Agriculture			
1.	Seed selection on ground nut	77	25.16
2.	Cropping cultivation practices	93	30.39
3.	Disease management on ground nut	67	21.90
4	Credit linkages and its management	47	15.36
5	Organic farming	41	13.40
6	Marketing of produce	128	41.83
7	Market information	168	54.90
8	Inter cropping	47	15.36
9	High yielding varieties	38	12.42
10	Hybrid varieties	30	9.80
11	High yielding varieties	30	9.80
12	Bio inputs	65	21.24
13	INM	22	7.19
14	Management of groundnut	66	21.57
15	Soil testing	32	10.46
16	SRI paddy	14	4.58
Animal Husbandry			
23	Importance of Artificial insemination	57	18.63
24	Cattle management	63	20.59
25	Animal feeding and health management	154	50.33
26	Selection of breeds	31	10.13
35	Processing of milk and marketing	25	8.17
Horticulture			
36	New methods and varieties of sweet lime	87	28.43
37	Preservation of fruits	57	18.63
38	Floriculture	54	17.65
39	IPM and bio-fertilizers and pesticides	98	32.03
Others			
40	Vermi composting	46	15.03

The above table reveals that, more than 40 per cent of all the respondents in Rayalaseema expressed that they needed training in agriculture especially in marketing of produce, market information of major crops. Similarly, about 50 per cent of the sample farm women expressed the need for training on animal feeding, health in animal husbandry. Regarding training in horticulture, about 28 per cent expressed the need for training on new methods and varieties of sweet lime, and 32 per cent on IPM and bio-fertilizers and pesticides.

Conclusion

A very high percentage of sample farm women expressed that they were in need of appropriate and latest production technologies and training on marketing information and marketing of produce.

It is quite evident that an exhaustive list of training needs has been given by the sample farm women from all regions and they expressed that they needed training in agriculture especially in production technologies, market information, marketing and value addition of produce, etc. They also expressed the need for training in animal husbandry particularly on artificial insemination, high milk yielding breeds, dairy units, animal health, animal feeding, etc. The sample farm women stressed upon training on bio inputs, organic farming, NPV, nursery raising, grading and processing of horticulture produce, vermi composting, etc.

In general, even among those (one-fourth) sample farm women who were aware of and adopted agricultural technologies, they were comparatively aware about technologies relating to seeds and fertilizers, but the awareness about pesticides and IPM was very poor. Therefore the thrust of extension education must be more on plant protection aspects. In this regard specific training programmes may be thought of especially for extending the concept of IPM and more method demonstrations may be conducted at the village level for farm women.

A sizable number of respondents indicated that they participated in agricultural development programmes like Polambadi, ANTWA etc. ANTWA was an exclusively massive programme to train farm women in agricultural technologies but it was discontinued. Therefore, from the point of view of mainstreaming farm women in developmental programmes for their empowerment and for capacity building, many sample farm women expressed the immense need of technologies and related training to enrich their knowledge and skills.

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