



SUITABILITY OF COTTON TECHNOLOGIES AS PERCEIVED BY FARM WOMEN IN SALEM DISTRICT OF TAMIL NADU

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Abstract

Cotton is the world's most popular textile raw material and referred to as the "King of fibers" or "White gold". Worldwide cotton is grown in over 100 countries. The cotton is grows well under (warm) tropical climate, with long dry season (over three months) followed by sufficient rains. Production wise it supplies 18.00 percent of the world cotton, about 4,59 million tons per year. Cotton crops stand for about 14 to 16.00 percent of the total crops in India and 4, 5 million farmers and 60 million people in total get their income from cotton (Agarwal 2007). Women referred as 'invisible farmers' are the backbone of agricultural work force in our country. Be it in crop farming, animal husbandry, fisheries, forestry or any allied agricultural activities, women do the most tedious and strenuous tasks. That women play a significant and crucial role in agricultural development and allied fields including in the main crop production, livestock production, horticulture, post harvest operations, agro/ social forestry, fisheries, etc. The study was conducted in Salem district of Tamil Nadu. A sample size of 120 small farm women was selected by using proportionate random sampling technique. Cent per cent of the farm women involved in the adoption of suitable cotton technologies were thinning the seedlings, gap filling and pinching of terminal buds.

Key words: farm women, cotton farming, technology.

Introduction

Cotton is an important cash crop and source of livelihood. Cotton is the world's most popular textile raw material and referred to as the "King of fibers" or "White gold". Worldwide cotton is grown in over 100 countries. The cotton is grows well under (warm) tropical climate, with long dry season (over three months) followed by sufficient rains. Cotton accounts for nearly half of the world's textile production and is a vital part of many economies (WWF 2013). Cotton production is the main source of income for approximately 100 million families in over 70 countries. However, developing countries are struggling on the cotton market. Cotton is also the first crop in India and it has 9 million hectares of land under cotton making it the country with the largest area under cotton in the world, accounting for about one fourth of the world cotton area. Production wise it supplies 18.00 per cent of the world cotton, about 4, 59 million tons per year. Cotton crops stand for about 14-16.00 percent of

the total crops in India and 4, 5 million farmers and 60 million people in total get their income from cotton (Agarwal 2007).

Women referred as 'invisible farmers' are the backbone of agricultural work force in our country. Be it in crop farming, animal husbandry, fisheries, forestry or any allied agricultural activities, women do the most tedious and strenuous tasks. Women have played and continue to play a key role in the conservation of basic life support systems such as land, water, flora and fauna. They have protected the health of the soil through organic recycling and promoted crop security through the maintenance of varietal diversity and genetic resistance. That women play a significant and crucial role in agricultural development and allied fields including in the main crop production, livestock production, horticulture and post-harvest operations. The present situation demands active participation of women along with men in all walks of life to have better life. Involvement of women in all development activities again demands a proper

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understanding to assess their needs and extent of fulfilment. With this background and in the absence of empirical evidence, the present study is designed as a pioneer attempt with the suitability of cotton technologies as perceived by farm women in Salem district of Tamil Nadu.

Materials and Methods

The study was conducted in Salem district of Tamil Nadu. A sample size of 120 small farm women was selected by using proportionate random sampling technique. The factors affecting experienced by the farm women in the adoption of suitability of cotton technologies was also identified and ranked. The required data were collected by personal interview utilising a well structured and pre-tested interview schedule. Besides that the group discussion and observations were also used for data collection. The collected data were tabulated and analysed using appropriate statistical tools *viz.*, percentage analysis.

Keeping the operational definition in mind, a list of statements related to cotton technologies were selected. Based on the experts opinion, finally 15 statements were selected for measuring the suitability of technologies on a three point continuum of 'Very suitable', 'Suitable' and 'Not suitable' by allotting a score of 3, 2 and 1 respectively. Thus, the total score of the respondents was the sum of the scores of all the statements and it ranged from 15 to 45. The "statements related to suitability were matched with the selected technologies for each of the cotton technologies. The resultant frequency obtained for the respondents were classified into high, medium and low category using cumulative frequency method.

From the categorised data, the respondents score for suitability of technologies was calculated by allotting score of 3, 2 and 1 for high, medium and low categories respectively and then summing the score of all the respondents. An index was developed to find out the suitability of technologies as expressed by the respondents. Technology suitability index was calculated by the actual score obtained divided by the maximum possible score ($120 \times 3 = 360$).

$$\text{Technology suitability index} = \frac{\text{Actual obtained score}}{\text{Maximum possible score}}$$

Based on the index obtained for each technology, further they were classified into highly suitable, moderately suitable and less suitable for the purpose of categorization of suitability of technologies. The scheme of classification of suitability of technologies used is given below. It was measured with the help of the scale developed by Vengatesan (2005) was used.

Results and Discussion

Overall suitability of cotton farming technologies as perceived by farm women.

Results on distribution of farm women according to their overall suitability of cotton farming technologies as perceived by small farm women are presented in the Table 1.

It could be observed from the data in Table 1, that 45.83 per cent of the farm women fell under moderate

Table 1: Distribution of farm women according to their overall suitability of cotton farming technologies.

(n=120)			
S. No.	Category	Number	Per cent
1.	Less suitable	42	35.00
2.	Moderate suitable	55	45.83
3.	Highly suitable	23	19.17
Total			100.00

level of suitability of cotton farming technologies. Whereas, little more than one-third of the farm women (35.00 percent) belonged to less suitable level and nearly one-fifth of the farm women (19.17 percent) belonged to high level of suitability of cotton technologies.

It was noticed that farming and suitability of technologies were the two sides of the same coin and were inseparable among small farm women. This may be due to the reason that most of the technologies are traditionally followed practices by farm women. These technologies were difficult to understand and practice by farm women. Further, these technologies did not improve production efficiency and involved more drudgery in their day to day work. The result is in the agreement with the results of Vengetasan and Santha Govind (2018). Who also reported that majority of the farm women belonged to moderate level of suitability of cotton farming technologies.

Practicewise suitability of cotton farming technologies as perceived by farm women

The suitability of technologies may vary from individual to individual and from region to region. Hence, an attempt was made to analyse the suitability of cotton technologies as perceived by farm women are given in Table 2.

It could be seen from Table 2, that farm women were involved in twenty eight technologies in cotton cultivation. Out of twenty eight technologies, only fourteen technologies were expressed as highly suitable among farm women in cotton cultivation and they were thinning the seedlings (1.00), gap filling (1.00), pinching of terminal

Table 2: Suitability of cotton farming technologies as perceived by farm women.

S. No.	Technologies	Index score	Suitability Index
1.	Field preparation		
	(I) Stubble collection	190	0.52
	(II) Cleaning the field boundaries by using spade	180	0.50
	(III) Digging the corners of field by using spade	160	0.44
	(IV) Application of FYM	198	0.55
2.	Planting		
	(I) Removal of fuzz from seeds by using hands	280	0.77
	(II) Removal of fuzz from seeds by using chemicals	236	0.65
	(III) Seed treatment with fungicides	260	0.72
	(IV) Seed treatment with bio-fertilizer	240	0.66
	(V) Seed hardening by using Pungam leaf extract	228	0.63
	(VI) Dibbling the seeds in the furrow by using hand hoe	340	0.94
3.	Inter –cultivation		
	(I) Mixing sand with pre-emergence herbicide	192	0.53
	(II) Mixing herbicide with water in high volume sprayer	105	0.29
	(III) Application of pre-emergence herbicide by using sprayer	108	0.33
	(IV) Hand weeding by using hand hoe	350	0.97
	(V) Thinning	360	1.00
	(VI) Gap filling	360	1.00
	(VII) Band application of inorganic Fertilizers	210	0.58
	(VIII) Top dressing the inorganic fertilizers by broadcasting	160	0.44
	(IX) Earthing-up by using hand hoe	280	0.77
	(X) Application of NAA mixed with water by using sprayer	111	0.30
	(XI) Application of pesticides /fungicides by using sprayer	116	0.32
	(XII) Spot application of pesticides/Fungicides	160	0.44
	(XIII) Pinching of terminal buds	360	1.00
	(XIV) Removal of affected plants	320	0.88
4.	Harvest		
	(I) Picking kapas at frequent intervals	340	0.94

S. No.	Technologies	Index score	Suitability Index
	(II) Cleaning the kapas	310	0.86
	(III) Grading the kapas	300	0.83
	(IV) Bagging the produce into gunny Bag	280	0.77
	Mean suitability index		0.54

buds (1.00), hand weeding (0.97), dibbling the seeds (0.94), picking the kapas (0.94), removal of affected plants (0.88), cleaning the kapas (0.86), grading the kapas (0.83), removal of fuzz by using hand (0.77), earthing-up (0.77), bagging (0.77), seed treatment with fungicide (0.72) and seed treatment with bio-fertilizer (0.66).

As reported by farm women, the possible reasons for the expressed high suitability of the above technologies is that most of these technologies were done manually with easiness without the use of operating tools and machines. Another possible reason is that these technologies involved less physical strain and were less complex in nature, wherein most of the decisions were taken by themselves.

This finding agrees with the findings of Arulraj (2013) who reported that most of the respondents were expressed high suitability of the above cotton technologies in his study of technological needs of banana growers of Cuddalore district.

Ten technologies were indicated as moderately suitable by the farm women and they were removal of fuzz by using chemical (0.65), seed hardening by using pungam leaf extract (0.63), band application of inorganic fertilizer (0.58), application of FYM (0.55), mixing sand with pre-emergence of herbicide (0.53), stubble collection (0.52), cleaning the field boundaries (0.50), digging the corners by using spade (0.44), top dressing (0.44) and spot application of pesticides/fungicides (0.44).

The remaining four technologies which were perceived as less suitable among the farm women in cotton cultivation and they were application of pre-emergence herbicide by using sprayer (0.33), application of pesticides/fungicides by using sprayer (0.32), application of Naphthaline Acidic Acid (NAA) mixed with water by using sprayer (0.30) and mixing herbicides with water in high volume sprayer (0.29). Hence, it may be inferred that most of the technologies were not technically feasible and were not suitable for involvement by females because of its features of high time consumption, high cost and less energy saving technologies. Further, the technologies are not consistent, very difficult to practice and are not in harmony with the overall farming system

as expressed by the farm women.

This finding corroborates with the findings of Sumitra Sundhresha *et al.*, (2018) who also reported that majority of the farm women were expressed low level of suitability of drudgery prone activities.

Conclusion

From the findings, it was noticed that, most of the technologies were perceived as moderately suitable by farm women. Low cost women orientated cotton farming technologies should be developed to put them into immediate use in rural farming settings. Research effort should be channelized in order to fabricate necessary tools implements especially for the small farm women to carry out the farm operations effectively and it may be inferred that some of the technologies were not technically feasible and were not suitable for involvement by females because of its features of high time consumption, high cost and less energy saving technologies. Further, the technologies are not consistent, very difficult to practice and are not in harmony with the overall farming system as expressed by the farm women.

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