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Analysis of traditional agricultural tools used by the farm women in Southern district of Tamil Nadu

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Abstract

The rural farm women involve in all agricultural activities for their livelihood. Most of the activities from sowing, transplanting, weeding, harvesting, threshing, to winnowing and grading were performed by farm women. Both male and female farmers mostly prefer traditional farm tools to perform these agricultural activities such as harvesting, weeding, making ridges and furrows etc. They have more experience in handling of traditional tools than modern implements. Age of the farm women were ranged from less than 35 to more than 55 with the mean age of 43 ± 11 . With regard to the literacy level almost of $2/3^{\text{rd}}$ of the surveyed farm women were literate and $1/3^{\text{rd}}$ of them were illiterate. Analysis of the literacy level identified that majority of them were educated up to 8th standard (44%). They had a work experience of less than 10 years to more than 35 years with the mean experience of 22 years in agricultural activities. Traditional tools such as sickle (Aruval), bamboo basket (moongil thattu), Spade (Mannvetti), Hand hoe (Kalaikothi), Hand rake (Mannkilari) were commonly used by the farm women. According to farm women suggestions conventional tools have to be modified/improved for their convenience, to improve their productivity and to enhance the income from agricultural sector.

Keywords: Agriculture, farm women, traditional tools, awareness

Introduction

Women play a significant and crucial role in agricultural and allied fields including crop production, livestock, horticulture, post harvest operations, forestry, fisheries, etc. is a fact long taken for granted but also long ignored. Therefore, without the total intellectual and physical participation of women, it will not be possible to popularize alternative systems of land management to shifting cultivation, and soil erosion, and promote the care of the soil and the health of economic plants and farm animals. Rural Indian women are extensively involved in agricultural activities. Their roles range from managers to landless labourers. In over all farm production, women's average contribution is estimated at 55% to 66% of the total labour with percentages, much higher in certain regions. Women constituted 38% of the agricultural labour force in developing countries like India. It is also estimated that 45.3% of the agricultural labour force consists of women ^[1]. Most of the activities from sowing, transplanting, weeding, harvesting, threshing, to winnowing and grading were performed by farm women. Farm women and farmers used variety of traditional tools to carry out the activities for both agricultural and post-harvest operations. There is large number of agricultural tools such as sickle, plough, hoe, drills, etc. used by the farmers in various agricultural activities. This can make the process more productive and efficient.

There are number of modern tools and technologies that

have been designed and developed for easy operations in agricultural and allied sectors for both men and women, but the value of traditional tools is still undiminished among the rural farmers. The reasons include that no special skill is required to operate these tools. It can be easily operate (or) handle by illiterate people. At the same time both farm women and men were often skilled in using of traditional farm tools than the newly developed tools and implements, because they had more experience in handling of traditional farm tools and some techniques.

Traditional tools are made by local artisans by locally available wood, iron, stones. Tamil Nadu is also a treasure house for indigenous knowledge in agriculture and allied areas. This has been proved by innumerable indigenous knowledge available in the form of beliefs and proverbs which were also reported by literature. Present study details about tools used by the farm women in southern district of Tamil Nadu.

Kumar (2010), state that the custodians of indigenous knowledge have developed and acquired various methods in agriculture farming such as crop management, soil and land, natural pest control ^[2]. Traditional knowledge and indigenous practices of agriculture and animal husbandry has been followed by farmers. They reported that women possess boundless of indigenous knowledge in organic farming and livestock management ^[3].

Traditional tools are quickly and easily spread from one region to another. Even though traditional tools have low

the efficiency and increased tiredness of farmers, they were used commonly by the majority of the people. To improve the rural economy traditional implements, have to be standardized [4]. Cent percent of farm women used traditional tools for tillage, sowing and manuring, transplanting. In harvesting, 55% of people used improved tools and 39% people used both traditional and improved tools. 96.67% of farm women who participated in weeding were done with hands [5].

A study reported that cutting (99%), grading (99%), picking, shifting, threshing, winnowing and drying (97%), weeding (92%) and sowing (83%) activities were predominantly performed by the farm women. Ploughing and levelling of field activities which were scored least percentage 5% & 10% respectively [6].

Considering the above situations, it is imperative to understand the traditional practices and the same traditional tools need to be modified/refined with specific approach to benefit to the farm women.

Methodology

An exploratory research design was used to analyse various

traditional tools used by the farm women in agricultural activities. We have selected four districts namely Madurai, Theni, Trichy and Viruthunagar from Southern Tamil Nadu. Ten blocks from Madurai, eight blocks from Trichy, seven blocks from Theni and eight blocks from Viruthunagar were selected for survey. Two villages from each blocks was selected and totally sixty two villages were surveyed. Three hundred and sixty eight farm women were selected by random sampling method. Data on various tools used in agriculture activities were collected from farm women in the farm of standardized questionnaire and interview scheduled method.

Minimum of five farm women were surveyed from each selected village. Information such as major agriculture and horticulture crops cultivated, socio economic status of farm women, women exclusive farm activities, tools used by farm women in various activities in various cropping system. Appropriate statistical tools were used to analyse the results from the study.

Result and discussion

Table 1: Major crops cultivated in selected districts of Tamil Nadu

District	Agricultural crops	Horticultural crops		
		Fruits	Vegetables	Flowers
Madurai	Paddy, sorghum, maize, green gram, cotton, sugarcane, groundnut	Mango, Banana, Guava	Chilli, Tomato, Onion and Brinjal	Mullai, Jasmine, Pichi, Marigold
Viruthunagar	Cotton, cumbu, Maize, black gram, Sesame and ground nut	Banana	Onion, Chilli, Brinjal	Jasmine, Neerium
Trichy	Paddy, cotton, cumbu, groundnut, maize, Redgram, Sunflower	Banana	Turmeric, Onion, Tapioca	Virichi, Mullai, Jasmine, Pichi, Neerium Marigold
Theni	Paddy, cotton, groundnut, maize, pulses	Mango, Banana, Grapes, Guava	Bhendi, Tomato, Brinjal, Onion, Cauliflower, Beetroot, Knol Khol	

Table 1 presents the details of the crops cultivated by the selected subjects in southern districts of Tamil Nadu. The crops are broadly classified into agriculture and horticulture crops. The most predominant crops in Madurai district was paddy, maize, sorghum. While jasmine, marigold and tomato, brinjal, chilli were the flower crops and vegetable crops respectively. Banana and mango was the common fruit crop which is grown in all selected districts. Grapes and guava was the major fruits crops and cauliflower, beetroot, knoll khol were the vegetable crops grown in Theni.

Table 2: Demographic profile of farm women

S. No	Particulars	Mean (n=368)	S.D
1.	Age	43 years	11.37
2.	Education		
	Illiterate	147	18.3
	Literate	25	29.1
3.	Work experience	22±3	13.54

The demographic profile of the selected farm women is presented in table 2. The age of the farm women were ranged from less than 35 to more than 55 with the mean age of 43±11. With regard to the literacy level almost of 2/3rd of the surveyed farm women were literate and 1/3rd of them were illiterate. Analysis of the literacy level identified that majority of them were educated up to 8th standard (44%).

They had a work experience of less than 10 years to more than 35 years with the mean experience of 22 years in agricultural activities. This clearly indicates that the selected subjects were well aware of the traditional tools used for various agricultural operations due to these vast experiences.

Women perform all un-mechanized agricultural tasks and perform multiple tasks. Women workers in agriculture suffer from high illiteracy rate among them and drop-out of Schools [7].

Table 3: Major activities performed by farm women in different crops

Crop	Activities
Cereals	Sowing, transplanting, weeding, gap filing and harvesting
Commercial crop	Sowing, weeding and harvesting, stripping of groundnut
Pulses	Sowing, Fertilizer application, weeding and harvesting
Millets	Sowing, gap filling, Weeding and harvesting
Flowers	Transplanting, weeding, harvesting
Vegetables	Transplanting, gap filling, Weeding, fertilizer application, harvesting

Analysis of the crop production activities indicate that women were involved in almost all varieties of agricultural cultivation from seed treatment to post harvest operations.

The extend of women involved in cereal crops included sowing, transplanting, weeding and harvesting. A similar trend was observed in the crops like groundnut, sesame, sugarcane and sunflower. Pulses had contribution of women in the areas of sowing fertilizer application, weeding and harvesting. Millets also exhibits a similar trend of participation of women in crop production. The horticulture crops namely flower; vegetables included women at higher ratio in areas of transplanting, weeding and harvesting

(Table 3).

Gender participation in various activities in farming

To gather information regarding the activities each of the crop production a standardized questionnaire which rated the level of participation of women as equal participation of men and women, women dominance and women exclusive were used to gather information and the details are presented in the following table and figure.

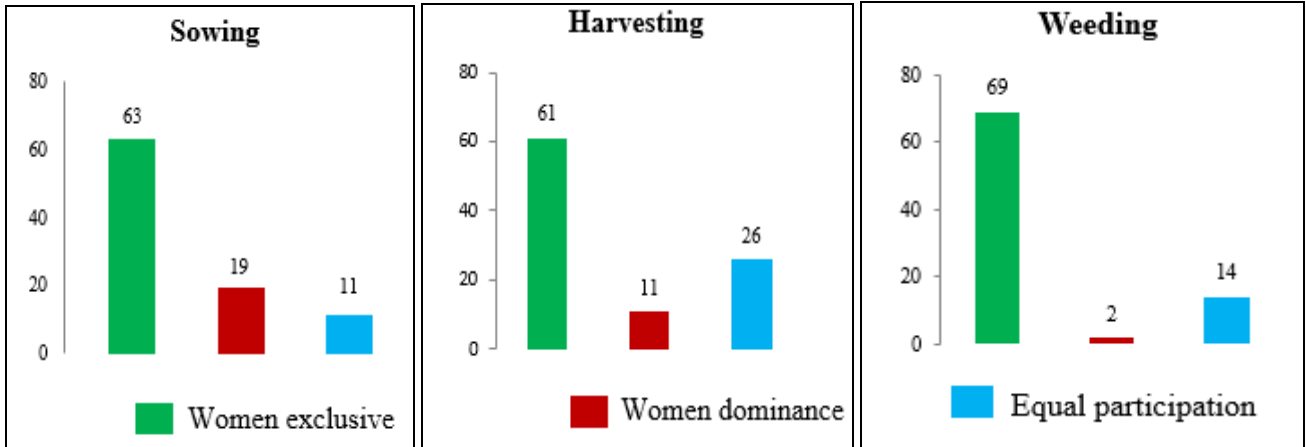


Fig 1: Gender participation in different agricultural activities

Women performed most of the activities in agriculture starting from land preparation, sowing, transplanting, weeding, harvesting, intercultural operations and post harvest activities. In that sowing, weeding and harvesting is takes the major part as women work. Study revealed that most of the male and female conventional farmers had medium participation in farming activities ^[8].

Study conducted among fifty farm women revealed that activities in farming such as weeding, cutting, picking, greying of grains, cleaning of grains were performed 100% by farm women, cleaning of field, thinning and shifting of produces were done by 96% of farm women, while gap filing (92%), grading (90%), raising of nursery (86%) respectively ^[9].



Sickle – Paddy (Kathir aruval)



Sickle – Maize (Kathir aruval)



Sickle – Sorghum (Aruval)



Sickle – Mango (Aruval)



Harvesting-Moringa



Sickle-Banana



Cotton Sickle & Hoe



Sesame Teeth type land leveler/mann kilari



Spade – Sugarcane Mannvetti



Hand hoe – Groundnut (Kalaikottu)



Brinjal – Spade (Mannvetti)



long handle hoe – Onion (Tharangu)



Fig 2: Tools used by farm women in various agricultural activities in different crops

Figure 2 shows that tools used by farm women in various agricultural activities such as weeding, harvesting, carrying. Hand hoe is the small manually operated hand tool which is mainly operated by farm women. Handle is made up of wood and working area is made up of iron.

Mannvetti/mammatty is a tool used for formation of ridges and furrows in many agricultural and horticultural crops. And also used for irrigation channel practices for all crops. It can be operated by both male and female farmers. Handle is made up of wood and working area is made up of iron. Handle is about 40-55 cm length and working area has the length of 18-22 cm, breadth of 18-20cm.

Sickle/ Aruval manually operated hand tool used for harvesting of paddy, fruits, vegetables, flowers and fodder crops. Can be handled by both men and women farmers.

Carrier basket/ Moongil thattu is made up of bamboo sticks.

This is mainly used for carrying materials such as harvested fruits, vegetables, seeds. And also used to carry manure/ fertilizer. Moongil thattu is mainly used by female farmers.

Teeth type land leveler/mannkilari is a hand tool used for removing deep rooted weeds and used for levelling the soil after ploughing by breaking big sized soil clumps. Working area of mannkilari looks like teeth made up of iron, which is used to break the soil clumps.

Tharangu is the used onion cultivation for weeding and harvesting purpose. This is the two in one tool. Handle area is used during harvesting of onion and working area is used when weeding in onion field. This tool is mainly used by farm women only.

Moring harvester made of iron and wooden handle. Handle made of wood. Hook type blade is used to harvest moringa.

Table 4: Tools used and Suggestions by the farm women

Activities	Tools used	Suggestion
Sowing	Conventional method/ hand sowing	- Design tool for sowing seeds
Transplanting	Conventional method/ hand transplanting	- Design tool for transplanting of seedlings
Weeding	Hand hoe, spade	- Spade: tool is too heavy to carry - The blade gets bent sooner - The blade makes injury due to heavy weight
Harvesting	Sickle, hand picking	- Rose harvesting knife is small and picking of thorns in flowers and plants - Damage of buds - Injury, skin irritation - Carrying of harvested produces without damage – Design a bag or weight less carrier

Based on the findings of the study it is informed that manual sowing was observed among all the subjects included in different crop protection activities (sowing and transplanting). However, analysis of the weeding activity indicated that hand hoe was the tool used by farm women and was varied in their blade length, blade width and the angle of the blade. Spade was also used by farm women. But their extend of use was very limited, the reason cited by the farm women were that it was different to handle and was not convenient to be used between the plants. For harvesting of crops farm women used a variety of harvesting tools starting from sickles to serated balde harvesting tool (Table.4).

Conclusion

The rural farm women involve in all agricultural activities for their livelihood. Women in rural area were mostly belongs to farming activity. From their initial stage of entering into agriculture they were adopted to the conventional tools and practices. So prolonged training of conventional practices makes their work easier. According to farm women suggestions conventional tools have to be modified/ improved for their convenience, to improve their productivity and to enhance the income from agricultural sector. Thus, there is need to increase the awareness level of farm women and widen the knowledge on gender friendly tools for women involved in agricultural activities. This can be done through improved dissemination of information to the farm women through extension programme.

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