

Research Article

Extent of knowledge and adoption level of farmers about improved technologies on cashew based dryland farming system

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SUMMARY : The present research was taken up to assess the extent of knowledge and adoption levels of recommended cashew cultivation technologies by cashew farmers. The study was conducted with three villages each from Sendurai and Jayamkondam blocks of Ariyalur district with a sample size of 120 respondents. Majority of respondents had medium level of knowledge and adoption of recommended cashew cultivation technologies. Majority of the respondents had knowledge about recommended variety, season, recommended intercropping, quality of good planting material and time of harvest. Most of the respondents had medium level of adoption about recommended cashew cultivation practices. Nearly half of the respondents adopted manuring, propagation, stem and root borer management, and tea mosquito bug management. It could be observed from the above findings that the low level adoption was found in the technologies viz., preparation of field, recommended pit size, shoot caterpillar management and pink disease management. Majority of the respondents (50-58%) had low level of overall knowledge and adoption of recommended practices of blackgram. In the case of gloriosa cultivation, majority of the farmers (60-62%) had medium level of knowledge and adoption of recommended cultivation practices.

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KEY WORDS:

Extent of adoption,
Cashew based dry
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BACKGROUND AND OBJECTIVES

Cashew (*Anacardium occidentale* L.) is popularly known as the 'Gold mine' of wasteland. It is presumed that cashew was originally introduced into India from Brazil in the sixteenth century mainly for checking soil erosion on the coast. Initially, it was considered as a suitable crop for soil conservation, afforestation and also for wasteland development but gradually gained commercial importance. In the earlier years of cashew production in India cashew apple was considered as valuable and it was only from the early part of the 20th century that the commercial value of cashew kernel for export and foreign exchange earnings was realized.

Cashew is grown in India, Brazil, Vietnam, Tanzania, Mozambique, and Indonesia, Sri Lanka and other Tropical Asian and African countries. India's share in the world raw nut production accounts to about 25 per cent. Raw nuts production

in South East Asian countries has registered approximately ten fold increase since 1980. Latin American countries have registered approximately three fold increase during the same period. In recent times, India is facing stiff competition from Vietnam and Brazil in international cashew trade. (Venkatesh and Hubballi, 2011).

At present India's share in global market is around 50 per cent. In India, cashew trade is the third highest foreign exchange earner among agricultural commodities. Now, India continues to be the premier exporter of cashew kernels. The cashew industry provides employment to more than 5 lakh people in farms and factories most of them are in rural areas. In cashew processing factories, over 95 per cent of the workers are women from the lowest strata of society, mainly belonging to socially and economically backward communities. Thus, apart from its economic significance, cashew industry has the potential to play a leading role in social and financial uplift of

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rural poor. For this reason, cashew is generally described as 'poor man's crop' and 'rich man's food' (Ray, 2011.)

Keeping in view of the changing global scenario and the need to produce cashew at an internationally competitive price by reducing the cost of production and increasing the production per unit area, research programmes are to be reoriented in the country. The technologies developed in the research centres have to be effectively transferred to the farmer's fields to achieve higher yields. Keeping the above needs in mind, it has been thought of to take up an in-depth study with the following specific objective to assess the extent of knowledge and adoption level of farmers about improved technologies on cashew based dry land farming system.

RESOURCES AND METHODS

The study was focused on cashew based dryland farming in an attempt to assess the extent of knowledge and adoption of farmers about improved technologies on cashew based dryland technologies. In Ariyalur district, cashew cultivation is a predominant one. Further, in the state, Ariyalur District stands first in the cashew cultivation. Considering the above facts, Ariyalur district was selected purposively for this study. There were 28 Panchayat villages in Sendurai block. Among these 28 villages, three villages were randomly selected following the random sampling procedure. The selected villages were Ponparappi, Sirukalathur and Maruvathur. There were 35 Panchayat villages in Jayamkondam block. Among these 35 villages, three villages were randomly selected following the random sampling procedure. The selected villages were Katchiperumal, Amanakanthondi and Suriyamanal. A preliminary investigation was made to identify the cashew based dryland farming. A sample of 20 cashew based dryland farm holdings were selected from each village by using simple random sampling technique. The total sample size was 120 for the study. In this study, knowledge denotes the farmers understanding of the cashew cultivation technologies.

To measure the knowledge level of cashew growers in respect to cashew cultivation technologies, a teacher made test was constructed covering all aspects of cultivation. The information on improved technologies regarding cultivation practices of cashew and intercrops (Blackgram+Gloriosa) were collected from the horticulture production guide. Further, technologies on cashew cultivation and intercrops cultivation

disseminated for farming community for adoption were collected from the State Government Department of Horticulture. The collected technologies relating to cashew cultivation and intercrops were ranked with the help of judges opinion received from the scientists. Thus, the critical technologies were selected for the research. Each item was dichotomized into "correct" and "incorrect" responses and assigned 2 and 1 scores, respectively as followed by Venkattakumar (1997).

The knowledge index was calculated by using the following formula :

$$\text{Knowledge index} = \frac{\text{Scores obtained by the respondents}}{\text{Possible maximum scores}} \times 100$$

Low scores 16(cashew), 11 (blackgram) and 11(gloriosa) would indicate low level of knowledge on cashew cultivation and intercrops, respectively and high scores 32 (cashew), 11 (blackgram) and 11 (gloriosa) would indicate high level of knowledge on cashew cultivation and intercrops (blackgram and gloriosa), respectively.

Based on the scores, respondents were classified into low, medium and high by using cumulative frequency method.

The collected data were coded and tabulated for applying statistical tools. The analyzed data were interpreted to get meaningful findings.

OBSERVATIONS AND ANALYSIS

Knowledge and adoption level of farmers were studied under two dimensions viz overall and practice wise knowledge and adoption level. The distribution of respondents according to their overall knowledge and adoption level on cashew cultivation practices are given in Table 1.

It is observed from Table 1 that 72.50 per cent of the respondents had medium level of overall knowledge of recommended practices of cashew followed by 17.50 per cent and 10.00 per cent had low and high levels of knowledge.

With respect to overall adoption level of recommended cashew cultivation practices, majority of the cashew growers (71.70%) had medium level of adoption of recommended cashew cultivation practices followed by 18.30 per cent and 10.00 per cent had low and high levels of adoption, respectively (Fig. 1)

Table 1 : Distribution of respondents according to their overall knowledge and adoption level of farmers on cashew cultivation (n=120)

Sr. No.	Category	Knowledge level		Adoption level	
		Number	Per cent	Number	Per cent
1.	Low	21	17.50	22	18.30
2.	Medium	87	72.50	86	71.70
3.	High	12	10.00	12	10.00
	Total	120	100	120	100

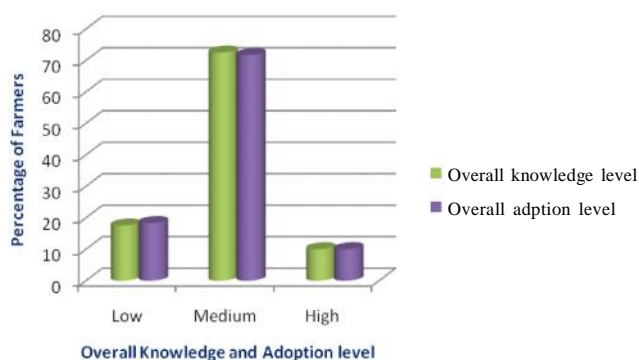


Fig. 1 : Overall knowledge and adoption level of farmers on cashew cultivation

Propagation and planting:

A vast majority of the respondents nearly cent per cent (99.99%) had better knowledge about planting material and cropping season (100%) (Table 2).

Most of the respondents had acquired knowledge about the cultural practices like preparation of field (25%) and spacing

(62.5%). Thus, it could be concluded that most of the farmers had better knowledge on technologies like cropping season, planting material, preparation of field and spacing. Only 25 per cent had possessed knowledge about pit size for planting.

With respect to extent of adoption of recommended practices, cent per cent of the respondents adopted the recommended cropping season of June-December and planting material. There were 33.33 per cent of respondents adopted the recommended improved varieties whereas 58.33 per cent of respondents adopted recommended spacing of 7m. Very low percentage of respondents 16.66 per cent were found to adopt the recommended pit size followed by 8.33 per cent were found to adopt the recommended field preparation practices (Fig. 2).

Intercultural practices:

It could be observed from Table 2 that more than three-fourth of respondents (95.82%) had knowledge on intercropping. Majority of respondents (58.33%) were found to possess knowledge on manures and fertilizers application where as 41.66 per cent of the respondents had knowledge

Table 2 : Practice-wise knowledge and adoption level of farmers on cashew cultivation (n=120)

Sr. No.	Items	Knowledge level		Adoption level	
		Number	Per cent	Number	Per cent
Propagation and planting					
1.	Varieties				
	Improved varieties	50	41.66	40	33.33
2.	Planting material				
	Grafted	50	41.66	50	41.66
	Ordinary	70	58.33	70	58.33
3.	Preparation of field	30	25.00	10	8.33
4.	Season	120	100	120	100
5.	Pit size	30	25.00	20	16.66
6.	Spacing	75	62.50	70	58.33
Intercultural operations					
7.	Manures and fertilizers	70	58.33	60	50.00
8.	Intercropping				
	Cashew +black gram	65	54.16	60	50.00
	Cashew +gloriosa	50	41.66	50	41.66
9.	Pruning	50	41.66	40	33.33
Plant protection technologies					
10.	Stem borer management	50	41.66	30	25.00
11.	Tea mosquito bug	70	58.33	50	41.66
12.	Shoot caterpillar management	15	12.50	10	8.33
13.	Root borer management	60	50.00	30	25.00
14.	Pink disease management	5	4.16	3	2.50
15.	Harvest	110	91.66	100	83.33
Post harvest technologies					
16.	Value added products preparation	50	41.66	-	-

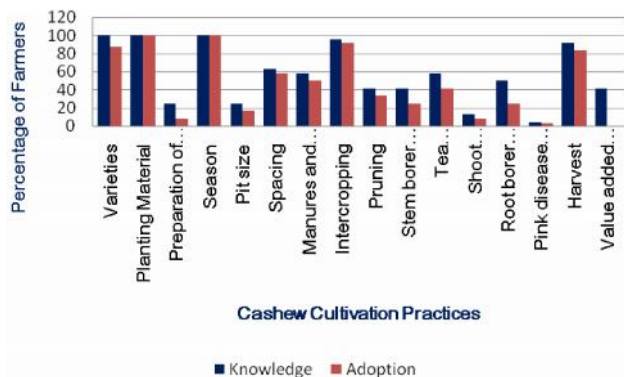


Fig. 2 : Practice wise knowledge and adoption level of farmers on cashew cultivation

on pruning.

More than three-fourth of the respondents (91.66%) adopted the recommended intercropping. Less than half of the respondents (50%) adopted the manures and fertilizer application. The adoption level was found to be low in pruning (33.33%). Lack of knowledge in these technologies might have been possible reason for low adoption.

Among the cashew farmers lesser percentage of them had knowledge about plant protection technologies than the production, harvesting and post harvest technologies.

While considering the extent of adoption of plant protection technologies, majority of the respondents (41.66%) adopted the recommended measures for tea mosquito bug management. This practice was known and adopted by majority of the farmers. Further, it could be found that tea mosquito bug affects the crop severely and caused economic loss to the crop to the tune of 30 percentage. This might be the reason for adoption of 41.66 per cent of the respondents.

Only 25 per cent of respondents fully adopted cashew stem and root borer management. Hence, it is suggested that extension personnel need to educate the farmers about the cultural control measures for controlling of cashew stem and

root borer.

Harvest:

A vast majority of the respondents (91.66 %) had knowledge about harvesting. They were well versed with optimum time of harvest and the tools for harvesting. Majority of the respondents (83.33%) harvested their produce at the right time of nut maturity.

Post harvest technologies:

More than one-third of the respondents (41.66%) had knowledge on preparation of value added products from cashew.

It could be concluded that the respondents had knowledge on recommended variety, season, planting material, intercropping and right time of harvesting. Low level of knowledge was found on pit size, shoot caterpillar management and pink disease management.

Cent per cent of the respondents not involved in preparation of value added products from produces of cashew cultivation. The reason might be due to unawareness about the technology and lack of knowledge in marketing information on value added products.

Overall knowledge and adoption level on intercrops (Blackgram+Gloriosa) cultivation practices:

Majority of the respondents had low level of overall knowledge of recommended practices of blackgram followed by 33.33 per cent and 8.34 per cent had medium and high levels of knowledge, respectively. In gloriosa 60.00 per cent of the respondents had medium level of overall knowledge of recommended practices followed by 24.00 per cent and 16.00 per cent had high and low levels of knowledge, respectively (Table 3).

With respect to overall adoption level of recommended blackgram cultivation practices, majority of the farmers (50.00%) had low level of adoption of recommended blackgram

Table 3 : Overall knowledge and adoption level of farmers on Intercrops cultivation

Sr. No.	Category	Blackgram (n=60)		Gloriosa (n=50)	
		Number	Per cent	Number	Per cent
Overall knowledge level					
1.	Low	35	58.33	8	16
2.	Medium	20	33.33	30	60
3.	High	5	8.34	12	24
	Total	60	100	50	100
Overall adoption level					
1.	Low	30	50.00	8	16
2.	Medium	20	33.33	31	62
3.	High	10	16.67	11	22
	Total	60	100	50	100

cultivation practices followed by 33.33 per cent and 16.67 per cent had medium and high levels of adoption, respectively. In gloriosa, overall adoption level of recommended cultivation practices, majority of the farmers (62.00%) had medium level of adoption of recommended gloriosa cultivation practices followed by 22.00 per cent and 16.00 per cent had high and low levels of adoption, respectively.

Conclusion:

Cashew is an important plantation crop of India. India was the first country to exploit the international trade of cashew kernels a century ago and now India occupies a supreme position in the world and annually India export more than 1.25 lakh tones of cashew kernels and earns over Rs.2700 crores as foreign exchange. Cashew research started in India only during 1950s. Large number of cashew varieties have been developed and released. Several useful agronomic and plant protection techniques have been developed. Improved package of practices are recommended. India has large number of cashew production technologies.

But there is a need to take sincere efforts for transferring these technologies to farmers' fields. Cashew is now fast spreading to non-traditional area and farmers are evincing keen interest in this crop. If cashew is produced at internationally competitive price we can easily face the challenges posed by the countries such as Vietnam and Brazil. There is great scope to expand area under cashew in north eastern hilly region. Cashew can organically be grown in this region which can fetch higher price in international market. By 2016 India can hopefully become self-sufficient in raw nut production which is anticipated at 18 lakh tons.

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