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Technological gap in adoption of recommended cashew nut cultivation in Dakshina Kannada

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Abstract

The study analyzed the technological gap in adopting recommended cashew cultivation practices in Dakshina Kannada district of Karnataka. The results revealed that farmers exhibited high adoption of certain practices such as use of grafted plants (100%), pit size (100%), and proper planting time (96.67%), indicating awareness of basic agronomic practices. However, substantial technological gaps were observed in irrigation (87.77%), spacing (64.44%), fertilizer management—particularly split application (91.11%)—and processing techniques (87.77%). Moderate gaps were noted in pest and disease management, including tea mosquito bug (32.22%), stem borer (65.55%), and die-back disease (54.44%). Yield realization also showed variation, with lower gaps in mature plantations and higher gaps in younger ones. Overall, while farmers effectively adopted foundational practices, advanced management and processing technologies remain underutilized. The findings highlight the need for strengthened extension efforts, field demonstrations, and farmer training to improve adoption and enhance cashew productivity sustainably.

Keywords: Cashew cultivation, technological gap, adoption, recommended practices, Dakshina Kannada

1. Introduction

The cashew (*Anacardium occidentale* L.), often referred to as 'wonder nut', is one of the most valuable processed nuts traded on the global commodity markets. Beginning largely as a neglected crop, it ends up as a favourite snack food all over the world. The average global productivity of cashew is about 500 kg/ha while in India it is about 772 kg/ ha (DCCD 2014). The crop involves wider social and economic significance in India as cashew plantation engages around 0.3 million people and cashew processing provides employment to another 0.3 million people (NABARD, 2007).

The cashew cultivation in India mainly confines to peninsular region covering the states of Kerala, Karnataka, Maharashtra and Goa along the West Coast, whereas in Tamil Nadu, Andhra Pradesh, Odisha, West Bengal along the East Coast region. It is also grown in plains like Chhattisgarh, Jharkhand, Gujarat, Bihar and Northeast Hill Regions like Meghalaya, Manipur and Tripura and also in Andaman and Nicobar Islands (DCR, 2011). In India, it is cultivated in an area of 9.82 lakh ha with a production of 7.28 lakh tonnes and productivity of 772 kg/ha (DCCD, 2024). India has the maximum area (21.6%) under cashew nut and is the third largest producer (17.3%) of raw nuts in the world. After Vietnam, India is the second largest exporter, accounting for 34 per cent of the world's export of cashew kernels. India has a comparative advantage in the production and processing of cashew nuts on account of its cheap and skilled labour force (Jaffee, 1995).

Objectives

To assess the technology gap of cashew cultivation

2. Methodology

The present study was conducted using the "Ex-post facto design". The study was conducted in Dakshina Kannada (traditional area) and Chitradurga (Non-traditional area) districts of Karnataka. These districts were purposively selected because of traditional and non-traditional cashew growing areas. The climate and soil of these two districts are more suitable for this crop and the district have large area of waste lands.

Technological gap refers to the proportion of gap in adoption of recommended cultivation practices. It has been

conceived as the difference between the package of practices of Cashew cultivation practices recommended by University of Agricultural Sciences, GKVK Bangalore, the extent of adoption of these recommended practices at farmer's level in traditional and non-traditional growing areas. Scale developed by Ray (1995) was used. In the present study, technological gap was operationalized on the division of 18 recommended cashew cultivation practices by the farmers and expressed in percentage. The total deviation of adoption of recommended cultivation practices was calculated by using the following formula:

$$\text{Technlogical gap} = \frac{\text{Recommended score} - \text{Actual score}}{\text{Total score}} \text{X100}$$

$$\text{Mean technological gap} = \frac{\text{Total gap for all the practices considered}}{\text{Total score}} \text{X100}$$

Mean technological gap in critical farm operations of cashew cultivation was calculated.

Based on the total score, the respondents were classified into three categories namely, low, medium and high using mean ($\bar{X}$) and half standard deviation (SD) as a measure of the check.

Category	Criteria	Score
Low	<(Mean - ½ SD)	<13.60
Medium	(Mean ± ½ SD)	13.60 to 40.39
High	>(Mean + ½ SD)	>40.39

3. Results and Discussion

1. Technological gap among cashew growers

Overall technological gap in adoption of recommended practices of cashew cultivation

The results pertaining to the Table 14 indicated that half of the respondents (61.11%) had medium overall technological gap, followed by high technological gap with 22.22 per cent of the respondents and 16.67 per cent of the respondents belonged to low overall technological gap category whereas, 53.33 per cent had medium overall technological gap, followed by high technological gap with 26.67 per cent of the respondents and 20.00 per cent of the respondents belonged to low overall technological gap category.

Technological gap in adoption of individual recommended practices of cashew cultivation in Dakshina Kannada

The data with respect to the technological gap for different practices of cashew cultivation is presented in the Table 15

It was observed that very low technological gap was found in cultivation of recommended varieties of cashew. There was 8.88 per cent technological gap in adopting cultivation of Ullal variety, A gap of 72.22 per cent was found in cultivation of Vengurla series variety whereas with respect to other improved varieties (Bhaskara, Netra Jumbo, Priyanka, VRI), 73.33 per cent of technological gap was found. Low technological gap of 3.33 per cent was found in May- June planting time. There was no technological gap found in use of grafted plants (6 leaves stage).

In case of spacing, 64.44 per cent of technological gap was found in 7x7m recommended spacing. There was no gap in size of the pits for planting cashew. It was observed that there was 64.44 per cent technological gap in adopting 81 plants per hectare as per the recommended number of plant population. Higher technological gap of 87.77 per cent was found in adopting drip irrigation. Further, less technological gap was found in application of FYM (24.44%) and 71.11 per cent gap was found in application of recommended NPK fertilizers. Greater technological gap of 91.11 per cent was found in split dose of fertilizers application. While, there was no gap found in recommended time of application of NPK fertilizers

It was found that there was 32.22 per cent of technological gap in tea mosquito bug and in stem borer there was 65.55 per cent gap in pest control measures. In case of disease control measures, 54.44 per cent of technological gap was found for die-back disease management. Lesser gap of 17.77 per cent was found in obtaining 18 kg yield of cashew per plant in more than 10 year old plant. But 85.55 per cent was found in obtaining 10 kg yield of cashew per plant in less than 10 old plants was found. A gap of 87.77 per cent was found in the various processing techniques (steam boiling, shelling, drying, moisturing, peeling, grading and packing) of cashew and no technological gap was found at the time of harvest.

On the other hand, in adoption 91.11 per cent of the respondents had adopted recommended variety Ullal series whereas, 27.78 per cent of the respondents cultivated Vengurla series varieties and 26.67 per cent of them adopted other improved varieties (Bhaskara, Netra Jumbo, Priyanka and VRI). Also, 96.67 per cent of the respondents had adopted planting time during May-June. Cent per cent of the respondents used grafted plants (6 leaves stage) as a planting material. In case of spacing, 35.56 per cent of respondents followed 7x7m. Further, cent per cent of the respondents adopted recommended size of the pits for the planting cashew, whereas, 35.56 per cent of the respondents adopted 81 plants per hectare respectively as per the recommended number of plant population. Whereas, 12.22 per cent respondents adopted drip irrigation.

75.56 per cent of the respondents adopted recommended dose of FYM. Cent per cent of the respondents followed recommended time of fertilizer application and single dose application of fertilizer. 28.89 per cent of the respondent followed recommended dosage of NPK fertilizer while only 8.89 per cent split dose application of fertilizer.

It can be observed from the Table 4.14 that 67.78 per cent of the respondents adopted control measure to tea mosquito bug, followed by 34.44 per cent of respondents adopted recommended control measures for stem borer pest management. While 45.46 per cent of the respondents followed recommended control measures to die back diseases.

Majority of the respondents (82.22%) harvested nearly 10 kg of yield per plant in less than 10 year old plant and 14.44 per cent respondents used to harvest 18 kg of cashew per plant in more than 10 year old plant.Cent per cent of the respondents followed suitable harvesting method. Only 12.22 per cent of the respondents adopted various processing techniques (steam boiling, shelling, drying, moisturing, peeling, grading and packing) of cashew

Table 1: Overall technological gap in recommended cultivation practices of cashewnut n=180

Sl No.	Category	Dakshina Kannada n_1= 90		Chitradurga n_2= 90	
		Frequency	Percentage	Frequency	Percentage
Technological gap	Low	15	16.67	18	20.00
	Medium	55	61.11	48	53.33
	High	20	22.22	24	26.67
		Mean = 34, SD = 8.79		Mean =36, SD = 8.25	

Table 2: Technological gap in adoption of recommended practices of Cashew cultivation in Dakshina Kannada (n=90)

Sl No	Recommended package of practices		Mean Technological Gap (%)	Adoption (%)
1	**Varieties**			
a.	Vengurla Series		72.22	27.78
b.	Ullal series		8.88	91.11
c.	Other improved varieties (Bhaskara, Netra jumbo, Priyanka, VRI)		73.33	26.67
2.	**Planting time**			
a.	May-June		3.33	96.67
3.	**Planting Material**			
a.	Grafted plants (6 Leaves Stage)		0.00	100
4.	**Spacing**			
i.	7m*7m		64.44	35.56
5.	**Size of the pits for planting cashew**			
a.	0.5m *0.5m *0.5m		0.00	100
6.	**Plant population/ha**			
i.	81 plants/ha		64.44	35.56
7.	**Irrigation methods**			
i.	Drip irrigation		87.77	12.23
8.	**FYM (**10 Kg **per plant)**		24.44	75.56
9.	**Application of Fertilizers (per plant)**			
a.	Dosage (200:140:200 g)		71.11	28.89
b.	Time of application (May-June, August-September)		0.00	100
c.	Single dosage		0.00	100
d.	Split dosage		91.11	8.89
10.	**Measures to control the major pests**			
Sl. No	**Name of pest**	**Chemicals/Bio agents used for control**		
a.	Tea mosquito bug	Lambdacyhalothrin 10% EC @ 0.5 ml/l	32.22	67.78
b.	Stem borer	Quinalphos 25 EC @ 2 ml/l Chlorpyriphos 20 EC @ 1.5-2.5 ml/l	65.55	34.45
11.	**Measures to control the major disease**			
a.	Die-back	Neem cake application + Phorate 10 G	54.44	45.46
12.	**Yield obtained per plant**			
a.	Less than 10-year plant (10 kg)		85.55	14.45
b.	More than 10-year plant (18 kg)		17.77	82.23
13.	**Harvesting and processing of cashew**			
i.	When the colour of good nuts are brown in colour.		0.00	100
ii.	1.Steam boiling 2.Shelling 3.Drying 4.Moisturing 5.Peeling 6.Grading 7.Drying 8.Packing		87.77	12.23

4. Conclusion

The following conclusions were emerged from the present study. The study revealed contrasting adoption trends between Dakshina Kannada and Chitradurga. Dakshina Kannada showed high adoption of Ullal varieties and traditional practices but large gaps in irrigation, spacing and processing technologies. Chitradurga farmers adopted Vengurla varieties, drip irrigation and closer spacing more effectively. However, both districts exhibited major gaps in split fertilizer application and post-harvest processing. Overall, Dakshina Kannada excelled in varietal adoption, while Chitradurga performed better in input and irrigation management.

5. Future scope

Future studies can be extended to other major cashew-growing districts for wider applicability of findings. Action research and large-scale field demonstrations should be undertaken to enhance farmer awareness and technology adoption. Social aspects like gender participation and marketing behavior of growers need deeper exploration. Additionally, studies on value addition, processing, and cropping systems offer significant future research potential.

References

1. Ajeet KP, Mohanty AK, Devarani L. Gap analysis in adoption of scientific Mentha (*Mentha arvensis*) cultivation in Uttar Pradesh. Indian Res J Ext Educ. 2015;15(2).
2. Anonymous. Annual Report 2013-2014. Directorate of Cashewnut and Cocoa Development, Kochi, Kerala; 2014.
3. Anonymous. Cashew Statistics. Cashew Export Promotion Council of India, Kollam, Kerala; 2015.

4. Basanayak RT, Kale SM, Sunil C. Technological gap in adoption of recommended practices in papaya cultivation. Agric Update. 2014;9(2):197-200.
5. Khandave S, Prajapati MR, Prajapati RR. Study on technological gap and knowledge of cotton growers. Gujarat J Ext Educ. 2017;28(1):146-151.
6. Kulkarni NP, Jahagirdar KA. Technological gap in recommended rose cultivation practices in Dharwad district, Karnataka. Karnataka J Agric Sci. 2015;28(3):381-384.
7. Markana JG. Technological gap in groundnut crop in South Saurashtra agro-climatic zone of Gujarat state. Doctoral dissertation. Junagadh Agricultural University, Junagadh; 2016.
8. Sabi S, Natikar KV, Patil SL. Knowledge and technological gap in adoption of recommended cultivation practices in wheat. Karnataka J Agric Sci. 2014;27(4):485-488.
9. Uikey G. A study on knowledge and technological gap in adoption of recommended cultivation practices of potato in Gwalior district of Madhya Pradesh. MSc thesis. Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior; 2016.
10. Vijaylakshmi P. A critical study on technological gap in onion cultivation practices in Raichur district of Karnataka. MSc thesis. University of Agricultural Sciences, Raichur; 2013.