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Adoption gap of improved production technology of chickpea among beneficiary and non-beneficiary farmers of front line demonstrations of Bhavnagar district

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Abstract
Pulses serve as a crucial protein source, especially for vegetarians, with the Bhavnagar district in the Saurashtra region playing a significant role in chickpea production. Scientists from the Krishi Vigyan Kendra in this area are actively encouraging farmers to embrace improved production technology for chickpea crops through various extension activities, including Front Line Demonstrations (FLDs). A study conducted in four tehsils of Bhavnagar district aimed to assess the impact of these efforts on 160 respondents, (comprising 80 FLD beneficiaries and 80 non-beneficiary farmers). The analysis focused on identifying the adoption gap for improved chickpea cultivation technology. The findings revealed that beneficiary farmers exhibited the highest adoption gap in the aspect of "Plant protection (including weed)" (80.16), while the least adoption gap was observed in the category of "Market" practices (68.13) related to improved chickpea production technology. On the other hand, non-beneficiary farmers showed the maximum adoption gap concerning "Crop Nutrient" (88.19), with the least adoption gap identified in the category of "Market" (78.13) of improved chickpea production technology.

Keywords: Adoption gap, beneficiary and non- beneficiary, chickpea, production, technology

Introduction
Yearly, there is a notable increase in the cultivation of chickpeas, making it a pivotal pulse crop in India recognized for both its qualitative and quantitative significance. In the state of Gujarat, particularly in the Saurashtra region, chickpea cultivation is highly prominent, with Junagadh district standing out as a significant producer. The yield of chickpea production in this region is largely influenced by the level of knowledge among chickpea growers and their adherence to recommended production technology. Consequently, the adoption gap of chickpea growers in relation to the recommended production technology needs to be assessed, considering that knowledge plays a crucial role in the adoption of such technology.
This study's primary goal is to compare the adoption gap of improved chickpea production technologies among beneficiary and non- beneficiary farmers of front-line demonstrations.

Methodology
A random sampling method was utilized to select respondents for the study, with 40 chickpea growers chosen from each village, total 160 participants for study purpose. The objective was to assess the Adoption gap of improved production technology of chickpea among both beneficiary and non-beneficiary farmers of front line demonstrations.
The list of recommended chickpea production practices from Junagadh Agricultural University was obtained from the Pulse Research Station and the Office of the Director of Research. These practices were used to gauge the adoption gap of improved production technology among the two groups of farmers. A set of 36 questions, derived from the recommended practices, were posed to chickpea growers, who indicated whether they had adopted or not adopted the technology. Correct responses were marked with ticks and assigned a score. The collected data underwent coding, classification, tabulation, and were subjected to various statistical tests, including Mean, Standard Deviation (S.D.), Mean Percent Score (MPS), and ranking analysis.
Based on their adoption gap score, the chickpea growers were arbitrarily classified into three levels of adoption gap: low, medium, and high level.

Results and Discussion

According to Table 3 data, the improved chickpea production technology's cultivation practices related to "plant protection (including weed)" had the largest adoption gap (80.16%) among beneficiary farmers, while the improved "crop nutrients" practice had the largest adoption gap (88.19%) among non-beneficiary farmers.

The second-highest adoption gap (78.06%) among beneficiary farmers who received assistance was discovered in relation to cultivation practices involving "crop nutrients." Conversely, among farmers who did not receive assistance, the second-highest adoption gap (87.34%) was noted in relation to practices involving "plant production (including weed)" of enhanced chickpea production technology. The adoption gap of enhanced chickpea production technology's "soil preparation" cultivation techniques between beneficiary and non-beneficiary farmers received the third position, with 77.50 and 84.17 percent, respectively.

The cultivation practice of "seed and sowing," which is associated with a 74.25 percent adoption gap among beneficiary farmers, was ranked fourth, whereas the practice of "seed and sowing" which is associated with an 83.38 percent adoption gap among non-beneficiary farmers was associated with an improved chickpea production technology. The adoption gap between farmers who were beneficiary and non-beneficiary those who were noted (73.75 and 82.25%, respectively) on the cultivation practice of "storage" of improved chickpea production technology was given the fifth rank.

The adoption gap regarding "harvesting" cultivation practices (71.25 percent) among beneficiary farmers received the sixth rank, whereas the adoption gap regarding the "harvesting" of enhanced chickpea production technology (80.00 percent) among non-beneficiary farmers was identified. The adoption gap between beneficiary farmers and non-beneficiary farmers (68.13 and 78.13 percent, respectively) on the practices of the "market" for enhanced chickpea production technology was found to have the lowest ranking. These results support those of Badhala *et al*. (2012), Dwivedi *et al*. (2011), and S. Choudhary and J.P. Yadav (2017).

When it came to all chickpea production technology, beneficiary farmers adopted them more quickly than non-beneficiary farmers. This could be because the farmers who benefited from these training sessions, field trips, and demonstrations received greater exposure and developed their knowledge and skills, which in turn led to a smaller adoption gap. The greatest adoption gap for plant protection (including weed control) was observed between farmers who were beneficiary and non- beneficiary farmers those who were noted. This finding may have to do with the complexity of plant protection techniques, which widened the adoption gap, and the simplicity of cultivation techniques, which lowered it.

Adoption gap of beneficiary farmers about recommended cultivation practices of chickpea.

N-80

S. No	Knowledge level	No. of respondent	Percent
1	Low (score blow 5.76)	11	13.75
2	Medium (score between 5.76 to 10.14)	51	63.75
3	High (score above 10.14)	18	22.50
	Total	80	100.00

Mean -7.95, SD- 2.19

Adoption gap of non- beneficiary farmers about recommended cultivation practices of chickpea.

N-80

S. No	Knowledge level	No. of respondent	Percent
1	Low (score blow 3.32)	15	18.75
2	Medium (score between 3.32 to 6.70)	53	66.25
3	High (score above 6.70)	12	15.00
	Total	80	100.00

Mean -7.13, SD- 2.08

Practice wise adoption gap of beneficiary and non- beneficiary farmers about recommended cultivation practices of chickpea

S. No	Improved practices	Beneficiary (N-80)		RANK	Non- Beneficiary (N-80)		RANK
		Adoption (MPS)	Adoption gap		Adoption (MPS)	Adoption gap	
1	Soil preparation	22.50	77.50	III	15.83	84.17	III
2	Seed and Sowing	25.75	74.25	IV	16.63	83.38	IV
3	Crop Nutrient	21.95	78.06	II	11.81	88.19	I
4	Plant protection (including weed)	19.84	80.16	I	12.66	87.34	II
5	Harvesting	28.75	71.25	VI	20.00	80.00	VI
6	Storage	26.25	73.75	V	17.50	82.25	V
7	Market	31.88	68.13	VIII	21.88	78.13	VIII

Conclusion

The study revealed that the farmers who received beneficiary farmers had the greatest adoption gap when it came to "Plant protection (including weed)", but the practices related to "Market" of enhanced chickpea production technology had the least adoption gap. In contrast, the non-beneficiary farmers had the greatest adoption gap with regard to "Crop nutrients," whereas the least adoption gap was discovered with relation to the "Market" for improved chickpeas production technology.

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