

Original Research Article

Technological Gap in Recommended Cultivation Practices of Cauliflower in Bokaro District of Jharkhand

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ABSTRACT

Keywords

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A study on technology gap in recommended cultivation practices of cauliflower in bokaro district of Jharkhand with 120 samples was conducted through purposive cum random sampling plan. The study revealed that majority of the respondents had medium level of technology gap in practicing recommended cultivation practices of cauliflower. There were 3% and 44.4% respondents who had low and high level of technological gap in adopting recommended practices. The Overall technology gap against recommended cultivation practices accounted for 30.06 %. Maximum technological gap is against practice of intercropping with mustard *i.e.*, 77 % and least gap in FYM application and seed variety. Yield accounts for 35 % technology gap.

Introduction

Small holding of farm is the result of either having unfavourable ratio between land available and the current population of the landmass or due to lack of farmers financial or technical means to expand their farming. Although being a small holding farmer maximum output can be harnessed by making efficient use of available resources in method of cultivation, inputs and other resources. As far as the state of Jharkhand is considered 90 percent of the land holding belongs to marginal and small farmers, further spilling the data, roughly 80 percent of the farmers belong to marginal land holding, 10 percent belong to small land holding and the rest 10 percent belong to medium and big land holding (Statistical Survey of Jharkhand, 2011-12). Owing to this characteristic of the farming parameter,

the farmers of jharkhand state are motivated to practice more of horticultural crops viz., vegetables for their subsistence as well as livelihood, which consequently ranks jharkhand as the 6th largest producer of Cauliflower in India.

Tarde and Thorat (2000) revealed that the technological gap in adoption of pomegranate cultivation practices viz., recommended spacing and proper water management was 100 percent each followed by pit filling (40.90%) and inter culturing operations (40.10%). Goswami, K.K. *et al.*, (2003) revealed that high technological gap in potato cultivation was observed in case of application of manure and fertilizers and use of pesticides. Sharma, A. and Sharma, A.K. (2003) reported that overall technological

gap was found to be 82.4% in recommended gram production technologies. Jahagirdar *et al.*, (2012) revealed that highest technological gap was observed with respect to the practice ‘sowing time’ (3%). Majority of the respondents (94%) expressed ‘inadequate knowledge was the main reason for technological gap in Chemical weed control’ practice and ‘high cost of herbicide. Against these backdrops this study was conducted with the following objectives:

1. To study the technological gap in recommended cultivation practices in cauliflower.
2. To study the mean technology gap in each practise and each respondent.

Materials and Methods

Study and population: The present study was conducted in two tehsils of Jharkhand, namely Bokaro and Nawadih. From both the tehsils together 12 villages were selected, 6 village from each. The area was purposively selected as this was one of the highest production belt of cauliflower in Jharkhand. Then 10 cauliflower growers were randomly selected from each village which constituted the sample size of 120.

Technology Gap: Gap analysis indicates the extent to which technologies have not been adopted. This feedback information is essential to identify the weakness of technology transfer programme, to remove bottlenecks and accelerate adoption.

The general formula for measuring technology gap, which can be applied irrespective of the nature of technology, is

Formula - 1

Where, TG = Technology gap
 R = Recommended package score
 A = Adopted package score

Total seven packages of practices were finalized to find out the technology gap. These practices were Seed, basal fertilizer, irrigation, plant protection measures, crop rotation, top dressing and yield. In this situation, gap analysis was done by using the formula Dubey *et al.*, (1981).

The following formula was used to ascertain the technological gap in adoption of each of the above practices.

Formula - 2

$$T.G.I = \frac{R-A}{R} \times 100$$

Where, TGI = Technology Gap Index
 R = Recommended package score
 A = Adopted package score

Mean technological gap (for each respondent)

The mean technological gap for each respondent was calculated as follows
 Formula - 3

$$MTG = \frac{\sum_{i=1}^P GI_j}{P}$$

GJ_j = Gap index of Jth respondent
 P = Total number of major practices
 ∑ = Summation of gap index at each practice of Jth respondent

Mean technological gap (for each practice)
 The mean technological gap for each practice was calculated as follows

Formula - 4

$$TG = \frac{R-A^2}{A} \times 100$$

$$MTG = \frac{\sum_{i=1}^r GI_p}{R}$$

GI_p = Gap index of pth major practice
 r = Total number of respondents
 $\sum_{i=1}^r GI_p$ = Summation of gap index of each respondent for pth practice

Overall technological gap

The overall technological gap was found using the formula as follows
 Formula - 5

$$OTG = \frac{P \sum_{i=1}^r \sum_{j=1}^p GI_{jp}}{Rp}$$

Where, GI_{jp} = Gap index of Jth respondent for pth Practice.

R = Total number of respondent
 P = Total number of major practices.
 $\sum_{i=1}^r$ = Summation of gap index of each respondent for pth practice
 $\sum_{j=1}^p$ = Summation of gap index of each respondent for Jth practice.

Perceived attributes of Technology gap: The nine cultivation practices were taken to consideration which was measured by a scale developed by *Dubey et al.*, (1981). The nine attributes are viz. Hybrid and seed resistance variety, Recommended seed rate, Recommended seed treatment, basal fertiliser, FYM, Pest control measures, Disease control measures, Intercropping with mustard and yield. Respondents were categorized on these attributes basing on mean (X) and standard deviation (SD). The categories were:

Category	Range of score
Low	Upto X- S.D
Medium	X-S.D to X+S.D
High	Above X+S.D

Data was collected using a pre-tested, structured research schedule, using the personal interview method.

Results and Discussions

The mean technology gap and overall gap against recommended cultivation practices of cauliflower growers taking into consideration Hybrid and disease resistant variety, seed treatment, seed rate, basal fertilizer, FYM, pest control, disease resistance, Intercropping with mustard and yield. A total of nine practices were finalized to calculate the gap analysis and each practice was given a score of 1. This way a total of 9 score was given for a respondent who fully adopted the recommended practice.

Mean technological gap (for each respondent) was calculated by using the formula (3). It was found that the mean technology gap for each respondent varies from 0 % to 88.8%. Accordingly the respondents were split into three categories and the particulars are presented in table.

Mean technology gap (for each practice)

The mean technology gap for each practice was calculated using the formula (4). It was found that the technology gap varied from 20 % to 95.83 %. Accordingly the practice was categorized into low, medium and high technology gap in the table 1 and 2.

Overall technology gap

The overall technology gap was calculated according to the formula (5). It was found that there was a technology gap of 1.4 %.

The Table 1 indicates that majority of the respondents had medium level of technology gap in practicing recommended cultivation

practices of cauliflower. There were 3% and 44.4% respondents who had low and high level of technological gap in adopting recommended practices. It can be concluded

that the overall technology gap against recommended cultivation practices accounted for 30.06 %.

Table.1 Technology gap for each respondent

SL.No	Category	Frequency	percentage	Mean	S.D
1	Low (below 4.55)	3	3.6	33.88	29.32
2	Medium (4.55 to 63.21)	80	96		
3	High (above 63.21)	37	44.4		

Table.2 Technology gap for each selected practice (crop variety, seed rate, seed treatment, basal fertilizer, FYM, pest control measures, disease control measures, inter cropping, yield)

S.No	Category	Frequency	Percentage	Mean	S D
1	Low (below 20.96)	1	11.11	3.81	24.77
2	Medium (20.96 to 28.98)	0	0		
3	High (above 28.98)	8	8.888		

Table.3 Percentage of technology gap in recommended practices

SL.No	Name of the recommended practice	TGI (%)
1	Hybrid and seed resistant variety	30
2	Recommended seed rate	37.5
3	Recommended seed treatment	40
4	Basal fertilizer	30
5	FYM	20
6	Pest control measures	44
7	Disease control measures	42
8	Intercropping with mustard	77
9	Yield	10

The Table 3 reveals that maximum technological gap is against practice of intercropping with mustard *i.e.*, 77 %. The reason given for this as per the respondents is because by practicing their main crop will be attenuated. The next practice is disease control which accounts for 42 % of gap. The

possible reason for this is not much disease is witnessed on the standing crop in the field and the other reason might be respondents being unaware of the disease which affect the field in no time and for that the only solution is to uproot the whole crop. Pest control measures for 44% of gap which is

due to the reason not identifying the pest appropriately and subsequently its control measures. Seed treatment is another practice for which the technology gap is high i.e. 40% which is due to the reason because they usually do not use proper chemical in proper recommended dose. Seed rate is another practice with technology gap accounting for 37.5 % as because maximum respondents use private or local varieties and so they give practice seed rate according to their own convenience. Basal fertilizer gap accounts for 30 % as because even though they know the appropriate fertilizer to incorporate they do not many of them do not know the correct dosage. FYM accounts for 20% gap, from my view point, though the farmers are willing to incorporate their field with FYM they do not get enough supply of the material available which yields to the gap. Yield accounts for 35 % technology gap which is obvious as the respondents do not use recommended variety, or proper seed treatment.

In conclusion, there was medium level of technology gap in practicing recommended cultivation practices of cauliflower. Majority of the respondents were in medium level of technology gap. It can also be concluded that the overall technology gap against recommended cultivation practices accounted for 30.06%. Among the perceived

attributes of technology gap maximum gap is found against practice of intercropping with mustard and least gap in FYM application and seed variety. Hence, the extension workers can give the farmers and other way out of Bio pesticide and also suggest them to use varieties which can be grown throughout the year so that they become market compatible and get remunerative prices for their produce.

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