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Technological gap in production of cauliflower and cabbage among farmers of Patna District

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Abstract
The study was carried out in Patana district of Bihar. There are twenty three blocks in Patana district. Out of twenty three blocks, two blocks namely Khusrupur and Bakhitiyarpur were selected purposively. The study revealed that, majority of Cauliflower and Cabbage growers were of middle age group (42.5 percent), secondary & higher secondary level education (45.00 percent), backward classes (45.00 percent), medium size of family (446.25 percent),marginal land holding (45.00percent), medium economic motivation (62.50 percent), medium level of market orientation (52.50percent), medium level of farm mechanization (56.25 percent), medium level of income (78.75 percent) and medium level of contact with extension agency (58.75 percent). The study shows that, maximum 56.25 percent of respondents were having medium level of technology adoption and 25.00 percent were having high level of technology adoption. The study also reveals that, maximum of 61.25 percent respondents were having medium level of technological gap and only 15.00 percent were having high level of technological gap. The findings indicate that, variable age, contact with extension agency and castes were negatively and significantly associated with technological gap. The other variables like annual income, farm mechanisation and size of land holding were negatively and highly significantly associated with technological gap among the Cauliflower and Cabbage growers. The finding also indicated that, variables education, family size and market orientation were positively but non- significantly associated with technological gap. However variable economic motivation were negatively and non- significantly associated with technological gap among the Cauliflower and Cabbage growers.

Keywords: Technological gap, production, Cauliflower and Cabbage

Introduction
Vegetables are excellent source of vitamins, particularly niacin, riboflavin, thiamine and vitamins A and C. They also supply minerals such as calcium and besides proteins and carbohydrates. Vegetables come under nourishment and are known to be cheapest source of natural protective tools. India ranks second in vegetables production in the world. India produces 184394 thousand metric tons of vegetables from area of 10,259 thousand hectares with productivity of 17.97 MT/ha. Cauliflower and cabbage comes under Cole crops. The word Cole seems to have been abbreviated from the word “Caulis” meaning stem. Cauliflower (*Brassica oleracea* L. var. botrytis) is cool season vegetable grown for its white and tender curd. It belong to the family Brassicaceae (Cruciferae) and grown mainly in winter season. Its basic chromosome number is 2n = 18. Cauliflower is grown for its white tender head or curd, which is used as a vegetable, soup and for pickle. It is having a good nutritive value. It contains good amount of vitamins like vitamin A, vitamin C and fair amount of proteins and fibers. The cauliflower is also a good source of minerals like Ca, Mg, P, Fe, Na, and S. The area of cultivation of cauliflower in India is 4553 thousand hectare and production is 8668

thousand metric tones (NHB 2017-18). The area and production of cauliflower in Patna district is 4480 hectare and 1532 metric tones (DAO, Patna 2017-18). The production of Cauliflower and Cabbage in Khusrupur and Bakhtiyarpur block of Patna district is satisfactory but there are more opportunities of increasing production level of cauliflower. Most of the farmers of both blocks are ignorant about improved production technology of cauliflower. Few young and progressive farmers have knowledge about improved production technology but they refrain from adopting these practices due to one or more constraints faced by them. If these constraints are reduced, the farmers will adopt the improved production technology of cauliflower and cabbage.

Material and Method

The study was carried out in Patana district of Bihar. There are twenty three district blocks in Patana district. Out of twenty three blocks, two blocks namely Khusrupur and Bakhitiyarpur were selected purposively which covered major area of Cauliflower and Cabbage production. Further, two villages from each block were chosen following the same criteria. 20 Cauliflower and Cabbage growers from each of the four selected villages constituted a sample of total 80 respondents for the study purposes. The interview technique was used for collection of data with the help of structured interview schedule. The data were analyzed with the help of frequency distribution, mean standard deviation and Pearson's coefficient correlation.

Results and Discussion

Technological gap in adoption of Cauliflower and Cabbage production technology

Technological gap has been operationalised as the gap between the recommended scientific cultivation practices of Cauliflower and Cabbage and their actual adoption by the growers. On the basis of data gathered, the respondents were classified into three groups' viz.; low, medium and high level of technological gap. The divisions of respondent into the three categories were done by using a statistical device as given under.

Table 1: Distribution of respondents according to their technological gap (N=80)

Category	Frequency	Percentage
Low (< mean - S.D)	19	23.75
Medium (In between mean ± S.D)	49	61.25
High (> mean + S.D)	12	15.00

Mean = 39.08, S.D = 8.680

Table 1 indicates that majority of the respondents (66.25 percent) had medium level of technological gap followed by 23.75 percent and 15.00 percent respondents had low and high level of technological gap respectively. Distribution of more respondents in medium technological gap might be due to lack of knowledge about improved Cauliflower and Cabbage production technology.

Similar study was conducted by Hassan (2016) [1], A study on technological gap in Banana cultivation technologies in southern district of Tamil Nadu, and revealed that majority of the respondents had medium level of technology gap in practicing recommended cultivation practices of cauliflower.

Components wise technological gap of Cauliflower and Cabbage production technology.

The gap in the technology of respondents in relation to the various components of Cauliflower and Cabbage production technology is presented in table 2.

Table 2: The extent of technological gap in adoption of various components of Cauliflower and Cabbage production technology

Components	Frequency	Percentage	Rank
Pre sowing technology	30	37.50	VI
Seed and seed treatment	38	47.50	III
Fertilizer management	33	41.25	V
Irrigation management	25	31.25	VII
Weed management	35	43.75	IV
Plant protection management	55	68.75	I
Post –harvest technology	50	62.50	II

It is observed from the table 2, the extent of technological gap among the respondents in different components of Cauliflower and Cabbage production technology was observed highest (68.75) in the area of plant protection management followed by 62.50 and 47.50 percent of technological gap were observed in the area of post-harvest technology and seed and seed treatment respectively. The lowest technological gap was observed in the area of irrigation management.

Adoption of Cauliflower and Cabbage Production technology

The data of table indicates that distribution of respondents according to their knowledge about Cauliflower and Cabbage production technology.

Table 3: Distribution of respondents according to their technology adoption (N=80)

Category	Frequency	Percentage
Low (< mean - S.D)	15	18.75
Medium (In between mean ± S.D)	45	56.25
High (>mean + S.D)	20	25.00

Mean = 20.71, S.D = 2.95

The data presented in the table shows that 56.25 percent Cauliflower and Cabbage growers were reported medium level of adoption followed by 25.00 and 18.75 per cent respondents possess high and low level of technology adoption. Therefore, it is evident that most of the respondents have medium level of adoption of technology.

Similar finding was observed by Tayade *et al* (2017) [7] that the majority of the respondents were having medium level of adoption of recommended technology followed by high and low level.

Components wise technology adoption of Cauliflower and Cabbage production

Table 4: Components wise technology adoption of Cauliflower and Cabbage production

Components	Frequency	Percentage	Rank
Pre sowing technology.	50	62.50	II
Seed and seed treatment.	42	52.50	V
Fertilizer management.	45	56.25	III
Irrigation management.	52	65.00	I
Weed management.	44	55.00	IV
Plant protection management.	20	25.00	VII
Post –harvest technology.	25	31.25	VI

It is observed from the table 4, the adoption of technology among the respondents in different components of Cauliflower and Cabbage production technology were highest in the area of irrigation management (65.00 percent) followed by 62.50 and 56.25 percent adoption of technology were observed in the area of pre sowing technology and fertilizer management respectively. The lowest adoption of technology was observed in the area of plant protection management.

Association between selected socio-economic variables with the level of technological gap

An attempt has been made to elucidate the association of some selected characteristics of Cauliflower and Cabbage growers along with their level of technological gap. The coefficient of correlation between the selected characteristics of the respondents and their technological gap are depicted in table below:-

Table 5: Correlation coefficient of independent variables with their technological gap

Socio - economic variables	Technological gap
Age	-.263*
Education	.083NS
Caste	-.348**
Family size	.166NS
Size of land holding	-.730**
Economic motivation	-.021NS
Market orientation	.077NS
Farm mechanization	-.632**
Annual income	-.498**
Contact with extension agency	-.321**

**Significant at 0.01level of probability
*Significant at0.05 level of probability
NS – Non –significant

It is apparent from the table 5 that caste, size of land holding, farm mechanization, annual income and contact with extension agency of the respondents had negative and significant relationship with their technological gap of Cauliflower and Cabbage production technology at 1 percent level of probability. However, age of the respondents had negative and significant relationship with the technological gap of Cauliflower and Cabbage production technology at 5 percent level of probability. This implied that above variables played important role in reducing technological gap in adoption of Cauliflower and Cabbage production technology.

The variables education, family size and market orientation of the respondents had positive and non-significant relationship with their technological gap of Cauliflower and Cabbage production technology. This indicates that the variables education, family size and market orientation have no significant influence on technological gap. But, the positive relation with their technological gap shows that it has some influence on the respondents to minimize the technological gap of Cauliflower and Cabbage production technology. Whereas, the variable economic motivation of the respondents had negative and non-significant relationship with their technological gap of Cauliflower and Cabbage production technology.

These findings are in agreement with results obtained by swami *et al*. (2013) and Iliger (2017) [6, 2] by whom it was found that these variables have non - significant relationship with technological gap.

Conclusion

The maximum technological gap was found in the area of lack of disease resistant varieties followed by seed and seed treatment, high cost of HYV seeds and insecticides, lack of storage facilities and so on. The high technological gap in observed in the above main components' areas of Cauliflower and Cabbage production technology depicts not so much extension effort being made to transfer the technologies among the farmers. Hence, effort should be made for wide spread diffusion of the Cauliflower and Cabbage production technology. It is being done to optimize the productivity but also to earn more profit by way of using the latest production technology. In order to minimize technological gap the study demands technological backstopping for boosting its production and productivity. Further the study reveals the constraints responsible for the technological gap in Cauliflower and Cabbage production were lack of disease resistant varieties high cost of insecticides and pesticides, high cost of HYV seeds and lack of storage facilities. The findings display the role of various components influencing the technological gap in forms of magnitude. It suggests therefore, while preparing strategy for reducing the technological gap that the influence of these variables are to be considered separately when we wish to minimize the gap in specific categories of variables.

References

1. Hassan. A study on technological gap in Banana cultivation technologies in southern district of Tamil Nadu, International Journal of Scientific and Research Publications, 2016, 6(7).
2. Iliger P, Narasima, N. Technological Gap of BT *(Bacillus thuringiensis)* Cotton Growers in Northern Dry Zone of Karnataka. Mysore Journal Agricultural Sciences. 2017; 51(2):321-325.
3. Jadhav. Technological gap in adoption of recommended practice of mango cultivation. Agriculture update. 2011; 6(2): 38-41
4. .Khuspe SB, Kadam RP. Adoption gap in recommended production practices of chickpea. Agriculture Update. 2012; 7(3-4):301-303.
5. Rajput. Technological gap in red gram cultivation. Agriculture update. 2016; 11(3):255-257
6. Swami. Analysis of technological gap and constraints of Bidi tobacco growers in cultivation. Agriculture update. 2013; 8(1-2):227-230.
7. Tayade, Mane, Kadam. Extent of adoption of potato production technology by the Potato growers in Sabarkantha district of Gujarat. Agriculture Update. 2017; 12(1):75-83