# TO MEASURE AND COMPARE THE KNOWLEDGE LEVEL AND ADOPTION GAP OF BENEFICIARY AND NON-BENEFICIARY FARMERS OF FRONT LINE DEMONSTRATIONS REGARDING IMPROVED MUNGBEAN PRODUCTION TECHNOLOGY IN CHHOTAUDEPUR DISTRICT OF GUJARAT

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***ABSTRACT***

*The main objective of the Front Line Demonstration is to demonstrate newly released crop production and protection technologies and management practices at the farmers' field under different agro-climatic regions and farming situations. While demonstrating the technologies at the farmer's field, the scientists are required to study, the factors contributing to higher crop production, field constraints of production and thereby generating production factor and feed-back information. Front Line Demonstrations are conducted in a block of two to four hectares of land in order to have better impact of the demonstrated technology on the farmers and field level extension functionaries with full package of practices.Presently, production of mungbean is slow down due to several factors while demand of pulses specially mungbean was increased and the price of mungbean is too high to purchase a person belongs to average income groups. The data reveals that majority of beneficiary farmers (60.00 per cent) had medium knowledge, whereas 25.33 per cent and 14.66 per cent beneficiary farmers were having high and low knowledge level respectively.The data also indicates that the majority of non-beneficiary farmers (56.00 per cent) had medium knowledge level, where as 22.66 and 21.33 per cent non-beneficiary farmers were having low and high knowledge level about improved mungbean production technology. The data depicts that the highest adoption gap (57.20 per cent) among beneficiary farmers was found about cultivation practices "Plant protection measures" of improved mungbean production technology, whereas the highest adoption gap (90.84 per cent) among non-beneficiary farmers was found about practice "High yielding varieties" of improved mungbean production technology.*

***Keywords:*** *farmer, beneficiary, non beneficiary, knowledge level, adoption gap, mungbean,front line demonstration*

## INTRODUCTION

Pulses are the main source of protein particularly for vegetarians. The per capita availability of pulses declining fast from 56 gm per day in 1968 to 47.2 gram per day as on 2014 against the minimum requirement of 70 g per day as prescribed by ICMR (Agricultural Statistics at a glance-2014).The total production of pulses in the world was 14.76 billion tonnes from the area of 14.25 billion hectares in the year 2014-15 while in India total pulses production was 19.82 million tonnes from the area of 26.57 million hectares in the year 2014-15(Agricultural Statistics at a Glance, 2015-16. Directorate of Economics and Statistics, Ministry of Agriculture, Govt. of India (Website http://www.dacnet.nic.in/eands). Whereas in Gujarat, the total pulses production was 6.27 Lakh tonnes from the area of 7.03 Lakh hectares with the productivity of 892 kg/ha. The mungbean production in Gujarat was 0.72 Lakh tonnes from the area of 1.41 Lakh hectares with the productivity of 511 kg/ha in the year 2014-15. In Vadodara-Chhotaudepur district Green gram mainly gown in summer season and it area is 1800 ha.The numbers of steps have been initiated by the central/state government to boost-up the production of oil seeds and pluses crop. There are several transfer of technology projects of the ICAR like the All India Coordinated Project on National Demonstration (AICPND), NFSM, Operation Research Project (ORP), Krishi Vigyan Kendra (KVK) and Lab to Land Programme (LLP), National Pulse Production Scheme (NPPS) in which are enhancing the production of mungbean at farmers field by providing latest technical know-how at farmers level.

The result of demonstrations had remained the effective medium of extension of technology in India since 1952 when the Community Development Programme was started, since then; the concept of result demonstrations had gone many changes including its theory, principles and objectives.

**OBJECTIVE**

To measure and compare the knowledge level and adoption gap of beneficiary and non-beneficiary farmers of front line demonstrations regarding improved mungbean production technology in Chhotaudepur district of Gujarat

**METHODOLOGY**

After bifurcation of Vadodara district KVK Vadodara located in Chhotaudepur district and FLDs were laid down in Chhotaudepur district area. Therefore Chhotaudepur district selected purposively for the present study in all six Taluka (*Sankheda, Bodeli, Naswadi, Kawant, PaviJetpur, and Chhotaudepur)* of district were selected, where KVK had conducted FLDs during last five years i.e. from 2012-13 to 2016-17. KVK conduct the FLD on mungbean in 35 villages during last five years, Out of these 12 villages were selected on the basis of number of beneficiary (equal &more than 7 FLD) where as twelve another villages from nearby area of FLD villages resembled similar socio economic status were selected randomly and named as non-beneficiaries so total 24 villages were included in the study. After that a list of beneficiary and non-beneficiary farmers was prepared from selected villages, out of these 75 beneficiary respondents from FLD villages and 75 from non FLD villages were selected by proposanately sampling techniques.

**RESULTS AND DISCUSSION**

Measurement and comparison of knowledge level of beneficiary and non-beneficiary farmers of front line demonstrations regarding improved mungbean production technology.

**(A) Knowledge level of beneficiary farmers about improved mungbean production technology**

**Table 1 : Knowledge level of beneficiary farmers about improved mungbean production technology**

**n= 75**

| Sr. No. | Knowledge Level | No. of respondent | Per cent |
|---|---|---|---|
| 1 | Low (Scores below 47.17) | 11 | 14.66 |
| 2 | Medium (Scores between 47.17 to 59.65) | 45 | 60.00 |
| 3 | High (Scores above 59.65) | 19 | 25.33 |
| X= 53.41 (Scores), σ = 6.24 (Scores) | | | |

The data in Table 1 reveals that majority of beneficiary farmers (60.00 per cent) had medium knowledge, whereas 25.33 per cent and 14.66 per cent beneficiary farmers were having high and low knowledge level about improved mungbean production technology, respectively.

**(B) knowledge level of non-beneficiary farmersabout improved mungbean production technology**

**Table 2 : Knowledge level of non-beneficiary farmers about improved mungbean production technology**

**n=75**

| Sr. No. | Knowledge Level | No. of respondent | Per cent |
|---|---|---|---|
| 1 | Low (Scores below 37.1) | 17 | 22.66 |
| 2 | Medium (Scores between 37.1 to 43.44) | 42 | 56.00 |
| 3 | High (Scores above 43.44) | 16 | 21.33 |
| | Total | 75 | 100 |
| $\bar{x}$= 40.27 (Scores), σ = 3.17 (Scores) | | | |

The data in Table 2 indicates that the majority of non-beneficiary farmers (56.00 per cent) had medium knowledge level, where as 22.66 and 21.33 per cent non-beneficiary farmers were having low and high knowledge level about improved mungbean production technology.

**(C) Practice wise knowledge level of beneficiary and non-beneficiary farmers about improved mungbean production technology**

The knowledge level of beneficiary and non-beneficiary farmers with regards to improved mungbean production technology was measured in terms of MPS. The total numbers of 10 practices were included to assess the knowledge level of respondents as given in Table 3.

The data in table 3 indicates that knowledge of beneficiary farmers like “High yielding varieties”, “Field preparation”, “Time of sowing”, “Seed rate & Recommended spacing”, “Fertilizer application”, “Seed treatment”, “Weed management”, “Irrigation Management”, “Plant protection measures” Harvesting/threshing & Storage were found to be 83.41, 76.23, 70.37,64.13, 55.96, 54.94, 52.34,40.68, 35.12 and 35.00 MPS, and ranks were assigned I to X, respectively.

In case of non-beneficiary farmers 67.00, 58.66, 51.27, 44.26, 39.75, 39.46, 28.85,27.78 25.18 and 24.13 MPS of knowledge were reported with regard to “Field preparation”, “Time of sowing”, “Seed rate & Recommended spacing”, Irrigation Management”, “Fertilizer application”, Seed treatment”, “Weed management”, “Plant protection measures” Harvesting/threshing & Storage and “High yielding varieties, and ranks were assigned in descending order from I to X, respectively.

**Table 3. Practice wise knowledge level of beneficiary and non- beneficiary farmers about improved mungbean production technology n=150**

| Sr. No. | Package of Practice | Beneficiary (n=75) | | Non-beneficiary (n=75) | |
|---|---|---|---|---|---|
| | | MPS | Rank | MPS | Rank |
| 1 | High yielding varieties | 83.41 | I | 24.13 | X |
| 2 | Field preparation | 76.23 | II | 67.00 | I |
| 3 | Time of sowing | 70.37 | III | 58.66 | II |
| 4 | Seed rate & Recommended spacing | 64.13 | IV | 51.27 | III |
| 5 | Fertilizer application | 55.96 | V | 39.75 | V |
| 6 | Seed treatment | 54.94 | VI | 39.46 | VI |
| 7 | Weed management | 52.34 | VII | 28.85 | VII |
| 8 | Irrigation Management | 40.68 | VIII | 44.26 | IV |
| 9 | Plant protection measures | 35.12 | IX | 27.78 | VIII |
| 10 | Harvesting/threshing & Storage | 35.00 | X | 25.18 | IX |
| | **Overall** | **56.82** | | **40.63** | |

**(D) Comparison of knowledge level between beneficiary and non-beneficiary farmers regarding improved mungbean production technology**

**Table 4 : Comparison of knowledge level between beneficiary and non-beneficiary farmers regarding improved mungbean production technology n=150**

| Sr. No. | Package of Practice | Beneficiary (n=75) | | Non-beneficiary (n=75) | | 'Z' Value |
|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | |
| 1 | High yielding varieties | 7.04 | 1.48 | 5.09 | 0.92 | 9.58** |
| 2 | Field preparation | 10.01 | 0.87 | 8.09 | 1.02 | 12.30** |
| 3 | Seed treatment | 5.42 | 1.29 | 3.92 | 0.77 | 8.42** |
| 4 | Time of sowing | 2.93 | 0.91 | 1.91 | 0.88 | 6.47** |
| 5 | Seed rate & Recommended spacing | 7.92 | 1.62 | 5.61 | 1.19 | 9.84** |
| 6 | Fertilizer application | 5.88 | 1.77 | 4.03 | 1.01 | 7.71** |
| 7 | Irrigation Management | 9.11 | 1.66 | 7.02 | 1.52 | 7.88** |
| 8 | Weed management | 2.80 | 0.83 | 2.23 | 0.37 | 5.74** |
| 9 | Plant protection measures | 3.34 | 1.22 | 2.26 | 0.89 | 5.93** |
| 10 | Harvesting/threshing & Storage | 3.29 | 1.19 | 2.01 | 0.83 | 5.89** |
| | **Overall** | **5.77** | **1.16** | **4.22** | **0.94** | **7.98**** |

** Significant at 0.01 level of probability

Conclusion that there is a significant difference in knowledge level of beneficiary and non-beneficiary respondents regarding to all ten practices of mungbean cultivation. In other words, there is no similarity between the level of knowledge of beneficiary and non-beneficiary farmers regarding mungbean production technology.

The higher knowledge level of improved mungbean production technology among the beneficiary in comparison of non-beneficiary respondents, might be due to the reason that the FLDs were conducted on the fields of beneficiary farmers only by the KVK, Vadodara and they have also been provided necessary guidance, literature and training by the KVK scientists and SMS. Whereas, the FLDs were not conducted on the field of non-beneficiary farmers might have not been provided any type of guidance and training by the SMSs. This might have resulted in higher level of knowledge of beneficiary farmers in comparison to non-beneficiary farmers.

It might be concluded that the beneficiary farmers were having higheroverall and practice wise knowledge about improved mungbean production technology. Whereas non-beneficiary were having less knowledge about it. This might be due to the fact that beneficiary farmers were might have learned about improved mungbean production technology through on-off trainings, group meeting,field

days, farmers fairs, exposure tours andliterature provided by KVK scientists under FLD. Whereas non-beneficiary farmers were dependent on private or other sources for the same.

**2 Adoption gap of improved mungbean production technology among beneficiary and non-beneficiary farmers of front line demonstrations**

The data in table 5 depicts that the highest adoption gap (57.20 per cent) among beneficiary farmers was found about cultivation practices "Plant protection measures" of improved mungbean production technology, whereas the highest adoption gap (90.84 per cent) among non-beneficiary farmers was found about practice "High yielding varieties" of improved mungbean production technology.

**Table 5 : Practice wise adoption gap of improved mungbean Production technology among beneficiary and non -beneficiary farmers n=150**

| Sr. No. | Package of Practices | Beneficiary (n-75) | | | Non-beneficiary(n,-75) | | |
|---|---|---|---|---|---|---|---|
| | | Adoption (MPS) | Adoption Gap | Rank | Adoption (MPS) | Adoption Gap | Rank |
| 1 | Plant protection measures | 42.80 | 57.20 | I | 9.46 | 90.54 | II |
| 2 | Organic manure and Fertilizer Management | 44.00 | 56.00 | II | 28.66 | 71.34 | VIII |
| 3 | Weed management | 45.88 | 54.12 | III | 11.33 | 88.67 | III |
| 4 | Time of sowing | 50.22 | 49.78 | V | 17.55 | 82.45 | V |
| 5 | Field preparation | 56.66 | 43.34 | VI | 16.22 | 83.78 | IV |
| 6 | Harvesting/threshing & Storage | 60.00 | 40.00 | VII | 23.33 | 76.67 | VII |
| 7 | High yielding varieties | 60.66 | 39.34 | VIII | 9.16 | 90.84 | I |
| 8 | Seed rate & Recommended spacing | 64.00 | 36.00 | IX | 29.11 | 70.89 | IX |
| 9 | Seed treatment | 48.95 | 51.05 | IV | 18.66 | 81.94 | VI |
| 10 | Irrigation Management | 65.00 | 35.00 | X | 30.00 | 70.00 | X |
| | **Overall** | **53.82** | **46.18** | | **18.16** | **81.90** | |

MPS=Mean per cent score

The second highest adoption gap (56.00 per cent) among beneficiary farmers was found about cultivation practices "organic manure and fertilizer management" while, among non- beneficiary farmers, the second highest adoption gap (90.54 per cent) was observed in practice "plant production measures" of improved mungbean production technology. The third ranked was awarded to the adoption gap among beneficiary and non- beneficiary farmers about cultivation practices "Weed management " of improved mungbean production technology with 54.12 and 88.67 per cent, respectively.

Fourth rank was assigned to the adoption gap (51.05 per cent) among beneficiary farmers was found about cultivation practice "Seed treatment" whereas, the adoption gap (83.78 per cent) in non-beneficiary farmers was found about practice "Field Preparation" of improved mungbean production technology. The fifth rank was awarded to the adoption gap (49.78 and 82.45 per cent) among the beneficiary and non-beneficiary farmers, respectively were found about cultivation practice "Time of sowing" of improved mungbean production technology.

The sixth rank was awarded to the adoption gap (43.34 per cent) among beneficiary farmers was found about cultivation practices "Field preparation" while the adoption gap (81.94 per cent) in non-beneficiary farmers was found about "Seed treatment" of improved mungbean production technology.

The seventh rank was assigned to the adoption gap 40.00 and 76.67 per cent) among beneficiary farmers and non-beneficiary farmers, respectively were found about practices "Harvesting/threshing & Storage" of improved mungbean production technology. The eighth rank was awarded to the adoption gap (39.34 per cent) among beneficiary farmers were observed in practice "High yielding varieties" of improved mungbean production technology while in non beneficiary farmers have gap in "Organic manure and fertilizer management(71.34 per cent).

The lowest rank was assigned to the adoption gap (35.00 and 70.00 per cent) among beneficiary farmers and non-beneficiary farmers respectively were observed in practice "Irrigation Management" of improved mungbean production technology.

**CONCLUSION**

The beneficiary farmers were having lesser adoption gap in comparison to non- beneficiary farmers about all the cultivation practices of mungbean. This might be due to the facts that the beneficiary farmers might have gained the more exposure and improved their knowledge and skill through these training, demonstrations, field days which encouraged for lowering down of adoption gap.

It might also be concluded that highest adoption gap was found about plant protection measures among beneficiary farmers which might be due to the facts that plant protection practices are complex practices and complexes practices increased the adoption gap and simple cultivation practices reduced the adoption gap. The above study showed that majority of beneficiary (85.00 per cent) of mungbean growers had medium to high knowledge level and non-beneficiary (78.66 per cent) mungbean growers had low to medium level of knowledge about recommended mungbean production technology. In case of adoption gap beneficiary (46.18 percent) of mungbean growers had minimize the adoption gap of mungbean production technology, whereas, in non-beneficiary (81.90 per cent) mungbean growers had maximize the mungbean production technology. It was found that significant difference in knowledge and adoption gap in beneficiary and non-beneficiary mungbean growers. It can be interpreted that there was positive impact of FLDs conducted by KVK, Vadodara on mungbean production technology. FLDs is the most important tools of extension for newly released crop production ,protection and management technologies in the farmers field in different agro climatic conditions of country. FLDs is playing the most important role in minimize the adoption gap of improved technology resulting in increasing their yield and profit with social status.

**REFERENCES**

Badhala, B.S. (2008). "Impact of Front Line Demonstration in adoption of mothbean production technology by the farmers of arid region of Rajasthan. M.Sc. (Ag.) Thesis, (Unpub.), S.K.R.A.U Bikaner -Campus

Bhimawat, B.S. and Gupta, A. (2005) "Adoption of improved soybean cultivation technology by farmers of Chittorgarh district". *Indn. Res. J. Extn. Edu.* 5 (1) : 4-6.

Gupta, A.K. and Srivastava, J.P. (2002). "Technological gap in soybean cultivation". *Bioed,* 13 (1/2) : 145-146.

Khan, P.M. and Chauhan, J. (2005). "Adoption pattern of farmers towards new farm technology". *Indn. Res. J. Extn. Edu.,* 5 (1) : 1-3.

Kirar, B.S., Mahajan, S.K., Nashine, R., Awasthi, H.K. and Shukla, R.K. (2005). "Impact of technological practices on the productivity of soybean in FLD". *Indn. Res. J. Extn. Edu.,* 5 (1) : 15-17.

Kirar, K.S. (2005). "Impact of technological practices on the productivity of soybean in front line demonstration. *Indn. J.Extn. Edu.* 5 : 11.

Sharma, B.L. and Sharma, R.N. (2007). "Adoption and impact of recommended technology of kharif pulse crops in Agro-climatic zone II-A of Rajasthan". *Raj. J. Extn. Edu.* 15:122-128.