

## Impact of Technology Demonstration Component of NICRA Project on Socio-economic Aspects of Beneficiary and Non-beneficiary Respondents

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### ABSTRACT

The development in the field of agriculture was systematically started after independence. Government at central as well as state level started different agriculture programmes. The Indian Council of Agricultural Research (ICAR) has launched a major project entitled "National Innovations on Climate Resilient Agriculture (NICRA)" during 2010-11 (February, 2011) with an outlay of Rs. 350 crores for the XI Plan. The project aims to enhance resilience of Indian agriculture to climate change and climate vulnerability through strategic research and technology demonstration. Under this consideration, the study was undertaken in Ratnagiri district from Konkan region and Aurangabad (*Chattrapati Sambhajinagr*) district from Marathwada region of Maharashtra state to study impact of Technology Demonstration Component of NICRA project on socio-economic aspects of beneficiary and non-beneficiary respondents. The study was based on ex-post facto research design and data were collected through interview schedule. The results revealed that there was significant difference between beneficiary and non-beneficiary respondents with regard to their social participation and information seeking behavior in Konkan and Marathwada region. The highly significant difference in yield and returns from all the crops was due to medium to high level of adoption of technology intervention demonstrated on beneficiary respondents' field. This highly significant difference was due to good quality production with higher yield obtained by beneficiary respondents.

**Key Words :** Impact, Technology, Project, Socio-economic, Beneficiary, Respondents

### INTRODUCTION

The development in the field of agriculture was systematically started after independence. Government at central as well as state level started different agriculture programmes. The Indian Council of Agricultural Research (ICAR) has launched a major project entitled "National Innovations on Climate Resilient Agriculture (NICRA)"

during 2010-11 (February, 2011) with an outlay of Rs. 350 crores for the XI Plan. The project aims to enhance resilience of Indian agriculture to climate change and climate vulnerability through strategic research and technology demonstration. The technology demonstration component of the project metes out with demonstrating authentic technologies for adaptation of various production system to climatic variability. This

project was initially implemented in 100 districts of the country by way of location specific technology interventions. These districts were selected based on the drought, cyclone, actual occurrence of floods and droughts etc. criteria.

The crop demonstration module consists of introducing drought or flood tolerant varieties, advancement of planting dates of *rabi* season crops in areas with terminal heat stress, water saving paddy cultivation methods i.e. plantation techniques, seeding methods, fertilizer management etc., community seedling nurseries under delayed monsoon situation, custom hiring centers for in time operations, location specific inter-cropping systems with elevated sustainable yield index.

With this background of climatic situation, this investigation was studied to know impact of Technology Demonstration Component of NICRA project (NICRA-TDC) on socio-economic aspects of beneficiary and non-beneficiary respondents.

## MATERIALS AND METHODS

This investigation was conducted in the year 2021-22 in Ratnagiri district from Konkan region and Aurangabad (*Chatrapati Sambhajinagr*) districts from Marathwada region of Maharashtra state. All the ten operational villages of the NICRA Project that are Harale, Parule, Raipatan, Whel and Talawade from Ratangiri district and Shekta, Vajanapur, Gopalwadi, Shankarpur and Shiresaygaon from Aurangabad (*Chatrapati Sambhajinagar*) district were selected. From these villages 140 farmers (14 farmers from every village) were selected as beneficiary. For this study 140 farmers were taken from the nearby 10 villages (14 farmers from every

village) as non-beneficiary on random basis for comparison. Thus, a sample size was 280 respondents for the investigation. An interview schedule was developed taking into consideration the social aspects of respondents and yield and returns in paddy, horse gram, maize and Bengal gram crops under study. For this study, ex-post facto design of research was applied. The 'z' test was applied to know significant difference between beneficiary and non-beneficiary respondents with regard to their socio-economic aspects in both the region.

## RESULTS AND DISCUSSION

The impact or the effect of technology interventions was measured by comparing the responses of beneficiary and non-beneficiary respondents. In the present study impact was measured on two dimensions, viz. social impact and economic impact. The social dimensions comprised of social participation and information seeking behavior of respondents, whereas, economic dimensions comprised of yield and returns of different crops under study.

### A) Social Impact

#### Social Participation

It refers to the participation and involvement of respondents in various formal social organizations. Usually extension programme comprised of group activities like result demonstrations, method demonstrations, group meetings, trainings, field days, etc. This may lead to greater awareness and cohesiveness among respondents. As a result, respondents begin to take interest in the activities of formal social organizations. The NICRA project was also associated with such group activities.

### Impact of NICRA-TDC on Social Participation of Respondents

The data presented in Table 1 depicts that mean score of social participation of beneficiary and non-beneficiary respondents which were 9.68 and 5.17, respectively in case of Konkan region respondents. The calculated 'z' value of social participation is 9.80 which found significant. In case of

Marathwada region respondents, mean score of social participation of beneficiary and non-beneficiary respondents were 9.05 and 4.85, respectively and calculated 'z' value of social participation is 12.69 which found highly significant. This indicates that there was significant difference between beneficiary and non-beneficiary respondents with regard to their social participation in both the region.

**Table 1 : Impact of -NICRA-TDC on social participation and information seeking behaviour of respondents**

| Sr. No. | Character                     | Konkan region               |                |           | Marathwada region           |                |           |
|---------|-------------------------------|-----------------------------|----------------|-----------|-----------------------------|----------------|-----------|
|         |                               | Mean score<br>Bs<br>(n =70) | NBs<br>(n =70) | 'z' value | Mean score<br>Bs<br>(n =70) | NBs<br>(n =70) | 'z' value |
| 1.      | Social participation          | 9.68                        | 5.17           | 9.80**    | 9.05                        | 4.85           | 12.69**   |
| 2.      | Information seeking behaviour | 18.17                       | 8.05           | 17.33**   | 31.9                        | 19.57          | 20.57**   |

\*\* Significant at 0.01 level, Bs= Beneficiaries, NBs= Non-beneficiaries

Thus, it was inferred that there is significant impact of NICRA-TDC in improving the social participation of beneficiary respondents.

### Information Seeking Behaviour

It refers to the sources and channels utilized by respondents for seeking information on improved agricultural practices. Extension activities associated with the programme in a particular area often develops the unfelt needs of respondents into felt needs. As a results respondents starts to take interest in developmental efforts and seek information from various sources and channels for latest know-how on improved agricultural practices.

### Impact of NICRA-TDC on Information Seeking Behaviour of Respondents

The data presented in Table 1 indicates that,

in Konkan region the mean score pertaining to information seeking behaviour of beneficiary and non-beneficiary respondents were 18.17 and 8.05, respectively. The calculated 'z' value is 17.33 which is highly significant. In case of Marathwada region respondents, mean score of information seeking behaviour of beneficiary and non-beneficiary respondents were 31.9 and 19.57, respectively and the calculated 'z' value is 20.57 which is also highly significant.

This indicates that, in both the regions there was significant difference between beneficiary and non-beneficiary respondents with regard to their information seeking behaviour. Thus, it was inferred that there was significant impact of NICRA-TDC which led comparatively high level of information seeking behaviour of beneficiary respondents.

**A) Economic impact****Impact of NICRA-TDC on Yield of Different Crops**

Yield refers to the production of a crop per unit area. The ultimate aim of any agricultural extension programme is to increase the yield of crops at respondents' fields, thereby improving their income and socio-economic condition. It is evident from Table 2 that,

mean yield pertaining to the yield of paddy was 42.28 q/ha and 28.30 q/ha for beneficiary and non-beneficiary respondents, respectively. The calculated 'z' value is 111.57 which indicates highly significant difference at 0.01 level of probability. It denotes that beneficiary respondents obtained significantly higher yield of paddy than those of non-beneficiary respondents.

**Table 2 : Impact of NICRA-TDC on yield of different crops**

| Sr. No. | Crops       | Mean yield (q/ha)      |                            | 'z' value |
|---------|-------------|------------------------|----------------------------|-----------|
|         |             | Beneficiary<br>(n =70) | Non-beneficiary<br>(n =70) |           |
| 1.      | Paddy       | 42.28                  | 28.30                      | 111.57**  |
| 2.      | Horse gram  | 06.81                  | 04.52                      | 51.09**   |
| 3.      | Maize       | 57.87                  | 47.00                      | 53.31**   |
| 4.      | Bengal gram | 22.93                  | 17.59                      | 49.79**   |

\*\* Significant at 0.01 level

In case of horse gram, mean yield of beneficiary and non-beneficiary respondents were 6.81 q/ha and 4.52 q/ha, respectively. The calculated 'z' value of mean difference is 51.09 which is highly significant at 0.01 level of probability. This shows that beneficiary respondents obtained significantly higher yield of horse gram than those of non-beneficiary respondents.

As far as the yield of maize is concerned, mean yield of beneficiary and non-beneficiary respondents were 57.87 q/ha and 47.00 q/ha, respectively. The calculated 'z' value is 53.31 which is highly significant at 0.01 level of probability. This implies that beneficiary respondents obtained significantly higher yield of maize than those of non-beneficiary respondents.

As regards the yield of Bengal gram, mean yield of beneficiary and non-beneficiary respondents were 22.93 q/ha and 17.59 q/ha, respectively. The calculated 'z' value of mean difference is 49.79 which is highly

significant at 0.01 level of probability. This shows that beneficiary respondents obtained significantly higher yield of Bengal gram than those of non-beneficiary respondents.

This highly significant difference in yield of all the crops was due to medium to high level of adoption of technology intervention demonstrated on respondents' field by beneficiary respondents.

Similar results were recorded by Jasna and Berman (2015), Mahesh babu (2016), Nagaraj *et al.* (2017), Sonune and Mane (2018) and Tajpara *et al.* (2018), while results are somewhat in line with Abirami *et al.* (2014).

**Impact of NICRA-TDC on Returns of Different Crops**

Crop returns refers to the price incurred by sale of the total production produced in the field. The socio-economic conditions of respondents will improve when he gets remunerative price to the produce.

**Table 2 : Impact of NICRA-TDC on yield of different crops**

| Sr. No. | Crops       | Mean yield (q/ha)      |                            | 'z' value |
|---------|-------------|------------------------|----------------------------|-----------|
|         |             | Beneficiary<br>(n =70) | Non-beneficiary<br>(n =70) |           |
| 1.      | Paddy       | 0.80                   | 0.54                       | 74.02**   |
| 2.      | Horse gram  | 0.52                   | 0.34                       | 44.03**   |
| 3.      | Maize       | 1.03                   | 0.86                       | 40.45**   |
| 4.      | Bengal gram | 1.04                   | 0.81                       | 33.86**   |

\*\* Significant at 0.01 level

Results presented in Table 3 indicates that, mean returns pertaining to paddy by beneficiary and non-beneficiary respondents were Rs.0.80 lakh and Rs.0.54 lakh, respectively. The calculated 'z' value is 74.02 which is highly significant at 0.01 level of probability. It shows that beneficiary respondents obtained significantly higher returns than non-beneficiary respondents of paddy.

As regards returns from horse gram, mean returns of beneficiary and non-beneficiary respondents were Rs.0.52 lakh and Rs.0.34 lakh, respectively. The calculated 'z' value is 44.03 which is significantly high at 0.01 level of probability. It reveals that beneficiary respondents obtained significantly higher returns than non-beneficiary respondents of horse gram.

As far as returns of maize is concerned, mean returns of beneficiary and non-beneficiary respondents were Rs.1.03 lakh and Rs.0.86 lakh, respectively. The calculated 'z' value is 40.45 which is highly significant at 0.01 level of probability. This implies that beneficiary respondents obtained significantly higher returns from maize than non-beneficiary respondents.

With respect to returns from Bengal gram, mean returns of beneficiary and non-beneficiary respondents were Rs.1.04 lakh and Rs.0.81 lakh, respectively. The calculated 'z' value is 33.86 which is highly significant at

0.01 level of probability. This shows that beneficiary respondents obtained significantly higher returns from Bengal gram than non-beneficiary respondents.

This highly significant difference was due to good quality production with higher yield obtained by beneficiary respondents. Therefore, it can be inferred that NICRA-TDC resulted in comparatively higher returns than non-beneficiary fields.

The identical results were reported by Balasubramaniam *et al.* (2009) and Malik *et al.* (2019) and results are somewhat in line with Medhi *et al.* (2018).

## CONCLUSION

It was concluded that there was significant difference between beneficiary and non-beneficiary respondents with regard to their social participation and information seeking behavior in Konkan and Marathwada region. The highly significant difference in yield and returns from of all the crops was due to medium to high level of adoption of technology intervention demonstrated on beneficiary respondents' field. This highly significant difference might be due to good quality production with higher yield obtained by beneficiary respondents. Therefore, it can be inferred that NICRA-TDC resulted in comparatively higher social participation and information seeking behavior of beneficiary

respondents as well as high yield and returns than those of non-beneficiary fields.

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