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## Impact of mole plough technology under RKVY programme on income of beneficiaries

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#### Abstract

Agriculture has a huge role in economy of India. National Development Council in its meeting held on 29th May, 2007 decided introduce central assistance scheme taking into account agro-climatic conditions, natural resources and technology for ensuring more inclusive and integrated development of agriculture and allied sectors. Hence, Department of Agriculture and Co-operation, Ministry of Agriculture, Government of India launched Rashtriya Krishi Vikas Yojana (RKVY) from 2007-08 to enhance the production, productivity and income through technology development. The project entitled Farmer FIRST under RKVY is an initiative of MPKV, Rahuri. Total nine technologies were conducted under project. The present study was conducted in the year 2022 on one of the technology named as mole plough technology for ill drained soil in Satara, Sangli and Kolhapur district. Ex-post-facto research design was used for the study. Total 60 respondents were selected for study purpose. From that 30 were beneficiaries and 30 were non-beneficiaries of the project. It was observed that average yield of beneficiary and non-beneficiary farmers were 52.02 t/acre and 48.38 t/acre, respectively. Similarly, average gross monetary returns of beneficiaries from sugarcane (major crop in that area) was 135225 Rs./acre and for non-beneficiaries 125788 Rs./acre. However, the cost of production of non-beneficiary farmers was Rs.3559/acre higher than beneficiary farmers (i.e. 35882 Rs./acre for beneficiaries and 39441 Rs./acre for non-beneficiaries). Average net returns per acre of beneficiaries was Rs.12971 more than the average net returns of the non-beneficiaries (i.e. 99318 Rs./acre for beneficiaries and 86347 Rs./acre for non-beneficiaries). Hence, it was clear that the mole plough technology under RKVY farmer FIRST project was able to increase the income of the beneficiaries of the project.

**Keywords:** RKVY farmer FIRST, mole plough technology

#### Introduction

National Development Council in its meeting held on 29<sup>th</sup> May, 2007 observed that a special additional central assistance scheme be introduced to incentivize the states to draw up comprehensive agricultural development plans taking into account agro-climatic conditions, natural resources and technology for ensuring more inclusive and integrated development of agriculture and allied sectors. In pursuance to aforesaid observation and in consultation with the Planning Commission, Department of Agriculture and Co-operation (DAC), Ministry of Agriculture, Government of India launched Rashtriya Krishi Vikas Yojana from 2007-08 which has been operational since then. The National Commission on farmers has drawn attention to the knowledge deficit, which constrains agricultural productivity. To overcome this, the farmers need effective linkages with universities and best practices. A good extension system is the means for achieving this linkage which for the present has virtually collapsed in most states, partly as a result of constraints on non-plan expenditure. As a result, farming practices in large parts of the country are sub-optimal. The project entitled Farmer FIRST is an initiative of MPKV, Rahuri to enhance the production, productivity and income through technology development. The period of the project was from 2015-2016 to 2019-2020. The operational areas of the project were all the ten districts of Western Maharashtra (Ahmednagar, Dhule, Jalgaon, Kolhapur, Nandurbar, Nasik, Pune, Sangli, Satara and Solapur) which comes under the jurisdiction of MPKV, Rahuri University. Implementing agency of the project Farmer FIRST was Directorate of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri. It was implemented through University Regional Extension Centres (RECs), District Extension Centres (DECs) and Krishi Vidyan Kendras (KVKs) in the coordination with the State Department of Agriculture.

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## Methodology

Total nine technologies were conducted under Farmer FIRST project Total nine demonstrations were implemented under RKVY Farmer FIRST project namely as; (1) Sugarcane + vegetable intercrop, (2) Cotton based production technology, (3) Groundnut based production technology, (4) Gram based production technology, (5) Bacterial blight disease management in pomegranate, (6) Cigatoka disease management of banana, (7) Onion set planting (*Chingali kanda*), (8) Mole plough technology for ill drained soil and (9) Animal components. The present study was conducted in the year 2022 on one of the technology named as mole plough technology for ill drained soil in Satara, Sangli and Kolhapur district. These three districts were facing the problem of ill drained soil so mole plough technology specially recommended for these three districts. The ex-post-facto research design was used for the study. This design was considered appropriate because the phenomenon that has already occurred. Total 60 respondents were selected for study purpose. From that 30 were beneficiaries and 30 were non-beneficiaries of the project. The interview schedule was drafted so as to collect the information in line with the objectives of the study. Data is acquired by personal interview. To assess the impact of "Mole plough technology implemented under RKVYFFP" following major indicators selected and detailed analysis of data presented. A t-test was used to check whether there are significant difference in selected parameters of impact (Average yield, average gross monetary return, average cost of production, average net return and average benefit-cost ratio) between beneficiaries and non-beneficiaries. Here, impact of project on selected

parameters was measured for sugarcane crop as sugarcane was the major crop in the study area.

## Measurement of selected parameters

Impact refers to the overall changes or profound effect on the lives of participant farmers in the terms of changes occurred in their social, economic status and working and living condition due to the project. Quantitative impact was measured with the help of following parameters:

- 1. Yield:** A standard measurement of the amount of agricultural production harvested per acre of land area.
- 2. Gross monetary returns:** Gross monetary returns is the total rate of return on an investment before the deduction of any fees, commissions, or expenses.
- 3. Cost of production:** It is operationally defined as cost required for the cultivation of the crop upto marketing of the produce.
- 4. Net returns:** Net returns is the amount of money received from an investment, or it can be defined as subtraction of cost of production from gross monetary returns.
- 5. Benefit-Cost ratio:** Benefit-Cost ratio is calculated as net returns dividing cost of production.

The data of indicators was collected from both beneficiaries and non-beneficiaries of the RKVY Farmer FIRST project from the one-acre area because project was implemented on one acre area of land of each beneficiary.

## Result and Discussion

**Table 1:** Indicators showing impact of the mole plough technology on beneficiaries comparing with non-beneficiaries

| Sr. No. | Particulars                          | Beneficiaries | Non-beneficiaries | Difference | t cal. |
|---------|--------------------------------------|---------------|-------------------|------------|--------|
| 1.      | Av. Yield (ton/acre)                 | 52.02         | 48.38             | 3.64       | 2.37*  |
| 2.      | Av. Gross Monetary Return (Rs./acre) | 135225        | 125788            | 9437       | 2.25*  |
| 3.      | Av. Cost of production (Rs./acre)    | 35882         | 39441             | -3559      | -2.27* |
| 4.      | Av. Net return (Rs./acre)            | 99318         | 86347             | 12971      | 1.98*  |
| 5.      | Av. B:C ratio                        | 2.77          | 2.18              | 0.59       | 3.91** |

\*= Significant at 0.05 level of probability;  $df = 29$ ; t critical value at  $\alpha 0.05 = \pm 1.69$  and at  $\alpha 0.01 = \pm 2.46$

It was observed from Table 1 that average yield of beneficiary farmers of the mole plough technology was 52.02 t/acre and that was 48.38 t/acre for non-beneficiaries. Average yield of beneficiary farmers was 3.64 t/acre higher than non-beneficiary farmers. Calculated 't' value for average yield of sugarcane ( $t = 2.37$ ) greater than t critical value i.e. 1.69 resulted that there was significant difference between beneficiaries and non-beneficiaries at 5 per cent level of probability.

Similarly, average gross monetary returns of beneficiary farmers of the mole plough technology was 13522 Rs./acre and 125788 Rs./acre for non-beneficiaries. It was observed from the Table 1 average gross monetary returns of beneficiaries from sugarcane was Rs.9437/acre higher than non-beneficiary farmers. The calculated 't' value 2.25 was found significant at 5 per cent level of probability indicating that there existed a significant difference in gross monetary returns of beneficiaries and non-beneficiaries.

However, average cost of production of beneficiary and non-beneficiary farmers of the mole plough technology was 35882 Rs./acre and 39441 Rs./acre, respectively. The average cost of production of non-beneficiary farmers was Rs.3559/acre

higher than beneficiary farmers with calculated 't' value -2.27 which was significant at 5 per cent level of probability indicating that there existed a significant difference in cost of production among beneficiary and non-beneficiary.

The data presented in Table 1 indicated that average net returns of beneficiary and non-beneficiary farmers of the mole plough technology was 99318 Rs./acre and 86347 Rs./acre, respectively. The average net returns per acre of beneficiaries were Rs.12971 more than the average net returns of the non-beneficiaries. The calculated 't' value 1.98 was significant at 5 percent level of probability indicating that there existed a positive and highly significant difference in net return of beneficiaries and non-beneficiaries.

Similarly, average benefit-cost ratio of beneficiaries of the mole plough technology was 2.77 and that was 2.18 for non-beneficiaries. Average benefit-cost ratio of beneficiary farmers was 0.59 points higher than non-beneficiary farmers. The calculated 'z' value 3.91 was found significant at 1 per cent level of probability indicating that there existed a significant difference in benefit-cost ratio of beneficiaries and non-beneficiaries.

It is clear from the above table that the beneficiaries of mole

plough technology had better yield, gross monetary return, net return and benefit-cost ratio and RKVY farmer FIRST project was able to reduce the cost of production of sugarcane grower. It was observed that there are significant difference in yield, gross monetary returns, cost of production, net returns and benefit-cost ratio of beneficiaries and non-beneficiaries. Hence, null hypothesis is rejected and alternate hypothesis accepted.

The present findings are in the line with the findings of Rahangdale *et al.* (2011) <sup>[1]</sup>, Patil (2019) <sup>[2]</sup>, Kale (2020) <sup>[3]</sup> and Kokate (2020) <sup>[4]</sup>.

### Conclusions

An average yield of beneficiary farmers was 3.64 t/acre higher than non-beneficiary farmers, average gross monetary returns of beneficiaries from sugarcane were Rs.9437/acre higher than non-beneficiary farmers, average cost of production of non-beneficiary farmers was Rs.3559/acre higher than beneficiary farmers, average net returns per acre of beneficiaries were Rs.12971 more than the average net returns of the non-beneficiaries, average benefit-cost ratio of beneficiary farmers was 0.59 points higher than non-beneficiary farmers. 4. The results found that the project under investigation had significant impact on beneficiaries in terms of increase in yield, B:C ratio and reduce cost of cultivation. These findings revealed that adoption of package of practices under RKVY Farmer FIRST project can result in enhancement in crop production, productivity, yield and reduction in the cost of cultivation. Thus, similar projects need to be implemented by State Department of Agriculture and State Agricultural Universities.

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### 7. References

1. Rahangdale D, Agrawal SK, Pyasi VK, Dubey MK. Impact of System of Rice Intensification (SRI) on production of paddy among practicing farmers. *Indian J Ext. Edu.* 2011;47(3 & 4):89-92.
2. Patil RL. Impact of Transfer of Integrated Crop Management Technologies developed by MPKV Rahuri. Ph.D. (Agri.) Thesis (Unpub.), Mahatma Phule Krishi Vidyapeeth, Rahuri; c2019.
3. Kale ND. Impact of National Agricultural Innovation Project on its beneficiaries in Marathwada region. Ph.D. (Agri.) Thesis (Unpub.), Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola (M.S.); c2020.
4. Kokate DS. Impact of sugarcane variety Phule 265 on sugarcane growers. Ph.D. (Agri.) Thesis (Unpub.), Mahatma Phule Krishi Vidyapeeth, Rahuri (M.S.); c2020.
5. [agricoop.nic.in](http://agricoop.nic.in).
6. [censusindia.gov.in](http://censusindia.gov.in).
7. Guidelines for Rashtriya Krishi Vikas Yojana; c2014-15. [horticulture.nic.in](http://horticulture.nic.in).
8. [india.gov.in](http://india.gov.in).
9. [maharashtra.gov.in](http://maharashtra.gov.in).
10. RKVY Guidelines. Operational guidelines for XII five-

year plan. Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India; c2014. [rkvy.nic.in](http://rkvy.nic.in).

11. RKVY Progress report; c2015. [mpkv.ac.in](http://mpkv.ac.in).
12. [rural.nic.in](http://rural.nic.in).