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# Study on performance of okra variety Phule Vimukta at Vidarbha Region of Maharashtra, India through on farm trials

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**Abstract**

This paper analyses on-farm trial data comparing three different varieties of Okra i.e. Local ($T_1$), Phule Vimukta ($T_2$) and Arka Anamika ($T_3$) and documents respondent yield, technology/extension gaps and economics. Descriptive means are used to explain each table. The study finds higher mean yield and benefit:cost (B:C) for Okra variety Phule Vimukta ($T_2$) and a substantial technology gap between research potential and on-farm yield. Policy implications for extension and technology dissemination are discussed with recent references. Performance of Okra variety Phule Vimukta ($T_2$) found significantly better in yield, extension as well as in economic parameters over other treatments of on-farm trials.

**Keywords:** OFT's, Okra, Phule Vimukta

## Introduction

I Okra (*Abelmoschus esculentus*) and it belongs to the Malvaceae family. It is a high-value vegetable crop in India serving the food, pharmaceutical, paper and oil industry. On-farm comparisons and frontline demonstrations are important to quantify yield gains, technology gaps and economic returns under farmers conditions and inform extension priorities. Recent literature emphasizes measuring technology gap, extension gap and economic indicators (yield increase percentages, B:C ratios) to evaluate on-farm impact.

## Materials and Methods

The study carried out during 2018-19 and 2019-20 for two years through On Farm Trials, 13 farmers each year with 5.2 ha. areas for every year were selected for study. Key variables include respondent socio-demographics, knowledge/adoption scores, yield (q/ha), extension & technology gap metrics and economic parameters (gross cost, gross return, net return, B:C ratio).

Regular monitoring was conducting on the exhibited trials and all relevant data pertaining to the required qualities were gathered. The parameters i.e. technology gap, extension gap and technology index were calculated by using formula suggested by Samui *et al.*, (2000) [5] also used by Taru, et. al. (2025) [8]

$$\text{Extension gap (q ha}^{-1}) = \text{Demonstration yield - Farmers yield}$$

$$\text{Technology gap (q ha}^{-1}) = \text{Potential yield - Demonstration yield}$$

$$\text{Technology Index (\%)} = \frac{\text{Potential yield - Demonstration yield}}{\text{Demonstration yield - Farmers yield}} \text{ X } 100$$

Table 1 showing the technologies demonstrated in the study okra variety Phule Vimukta is developed by Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra and Arka Anamika developed by Indian Institute of Horticulture Research, Bangalore both varieties are known for their high yielding performance.

**Table 1:** Details of Technology Demonstrated under On Farm Testing (OFT's) on Performance of okra variety Phule Vimukta recommended by MPKV, Rahuri at Buldhana district

| Technology No. | Details of Technology (T) | Potential Yield (q/ha) |
|---|---|---|
| $T_1$ | Farmers practice: Planting of locally available variety of Okra | 220 |
| $T_2$ | Recommended practice: Planting of Phule Vimukta Developed by MPKV, Rahuri | 220 |
| $T_3$ | Recommended practice: Planting of Arka Anamika developed by IIHR, Bangalore | 220 |

## Results and Discussion

Yield performance of okra variety Phule Vimukta under the study of on-farm trials consistently conquered farmers' traditional practices during two years (Table 2). The average yield of OFT's plots of Phule Vimukta ($T_2$) was 212.5 q ha$^{-1}$, compared with 190.8 qha$^{-1}$ in Arka Anamika ($T_3$) and 176.6 qha$^{-1}$ in local checks ($T_1$), resulting in an average yield over the local variety of 34.1 qha$^{-1}$ (18.69%). Similarly, yield enhancement in different crops in OFT's were noted by Taru *et.al.* (2025) [9]. The decreasing trend in per cent increasing over control is indicating the suitability and adoptability of improved variety and technology by Garud *et al.* 2023.

The technology gap means the difference between potential yield and yield of demonstration plot. The mean differences between potential yield and yield of demonstration plots was 7.6 q ha$^{-1}$ during both the year of study(Table 2). The technology gap reflects farmer's cooperation in carrying out such demonstration with encouraging results from 2018-19 to 2019-20 and location specific recommendations are necessary to bridge this gap, These findings corroborate the reports of Sing *et al*. and Sing.

As mean extension gap is 35.9 q/ha$^{-1}$ It show the positive trends as impact of adoption of technology by farmers with the need to educate the farmers through various extension means i.e. on farm trials for assessment of new technology in the productive area, technology to reverse this trend of wide extension gap, Technology Index it is shows the feasibility of the assessment of new technology at the farmer's field. Lower the value of technology index, higher is the feasibility of the improved technology average 20.5 per cent from both the year of study (Table 2) which shows the effectiveness of technical interventions given to farmers by KVK. Similarly result noted by Dwivedi *et al*. (2018) [3] and Saikia *et al*. (2018) [4].

Economic analysis showed in table 3 that variety Phule Vimukta ($T_2$) tested under on farm trials were more profitable than local checks ($T_1$) as well as Arka Anamika ($T_3$) (Table 3). The average mean net return from demonstration plots ($T_2$) was ₹ 199782 ha$^{-1}$, compared with ₹ 156763 ha$^{-1}$ in local checks ($T_1$) as well as with Arka Anamika ($T_3$) ₹ 168562 ha$^{-1}$. The mean B:C ratio was 3.29 for OFT's ($T_2$), higher than 2.81 in local practices ($T_1$) and Arka Anamika ($T_3$) 2.92. These findings corroborate the reports of Bodakhe *et al*. (2023) [2]. who observed higher profitability with improved pigeonpea technologies in Maharashtra. Similarly, Taru et. al. (2025) [9] in tomato varieties by IIHR through on farm trials (OFT'S) for Vidarbha region of Maharashtra and by Verma *et al*. (2023) [10] highlighted that adoption of high-yielding varieties coupled with IPM practices significantly enhances farmers' income.

**Table 2:** Yield and percent yield increase in technology demonstrated over farmers practice under OFT's on Assessment of performance of okra variety Phule Vimukta at Buldhana district during 2018-19 to 2019-20.

| Year | Area (Ha.) | No. of Demos | Potential Yield (q/ha) | Yield (q/ha) | | | Extension Gap (q/ha) | Yield Increase over FP (%) | Technology Gap (q/ha) | Technology Index (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $TO_1$ | $TO_2$ | $TO_3$ | | | | |
| 2018-19 | 5.2 | 13 | 220 | 182.4 | 216.5 | 198.3 | 34.1 | 18.69 | 3.5 | 10.26 |
| 2019-20 | 5.2 | 13 | 220 | 170.7 | 208.4 | 183.2 | 37.7 | 22.08 | 11.6 | 30.76 |
| Mean | 5.2 | 13 | 220 | 176.6 | 212.5 | 190.8 | 35.9 | 20.4 | 7.6 | 20.5 |

**Table 3:** Detail of Economics under OFT's on Assessment of performance of okra variety Phule Vimukta at Buldhana district during 2018-19 to 2019-20.

| Year | Gross Cost (Rs./ha) | | | Gross Return (Rs./ha) | | | Net Return (Rs./ha) | | | BCR | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $TO_1$ | $TO_3$ | $TO_3$ | $TO_1$ | $TO_3$ | $TO_3$ | $TO_1$ | $TO_3$ | $TO_3$ | $TO_1$ | $TO_3$ | $TO_3$ |
| 2018-19 | 98750 | 99250 | 99740 | 204750 | 227325 | 208215 | 106000 | 128075 | 108475 | 2.07 | 2.29 | 2.08 |
| 2019-20 | 81560 | 82663 | 82790 | 290190 | 354280 | 311440 | 207527 | 271490 | 228650 | 3.55 | 4.28 | 3.76 |
| Mean | 90155 | 90956.5 | 91265 | 247470 | 290802 | 259827 | 156763 | 199782 | 168562 | 2.81 | 3.29 | 2.92 |

## Conclusion

Focused interventions are needed in areas with high technology gaps — such as nutrient management, spacing, and pest/disease control — to maximize adoption and minimize yield losses. On Farm Trials on Okra var. Phule Vimukta under farmer management, coupled with nutrient-management training and timely management can bridge existing yield gaps. High adoption potential exists among moderate adopters already showing good knowledge and risk orientation; extension agencies can leverage this group to drive diffusion. Okra grower should be encouraged to adopt high-yielding varieties ($T_2$), proper spacing, fertigation, and pest management practices to reduce the technology gap and enhance returns. On Farm Trials (OFT's) is most effective tools in extension to test a recommended technologies in the district and to check local performance.

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