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### Status of organic vegetable cultivation in Palghar district

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#### Abstract

Organic agriculture is a whole system of approach based upon a set of processes resulting in a sustainable ecosystem, safe food, good nutrition, animal welfare and social justice. The present study was conducted in Palghar district of Konkan region of Maharashtra to know the socio-economic characteristics of the organic vegetable growers. The study employed an ex-post facto research design. The study was conducted by taking total sample of 90 respondents. The data was collected with the help of pre tested interview schedule through personal interview. Study concluded that the about two-third of the respondents (66.67 percent) purchased their seeds from agro service centre, majority of respondents (42.22 percent) adopted bed/ridge planting techniques in their vegetable cultivation. majority, 75.56 percent of the respondents, utilized labor for harvesting that fell within the category of 2 to 4 man-days, nearly all respondents (75.56 percent) sold their agricultural produce through wholesalers, Moreover, 95.56 percent of the respondents sold their produce in the local market (within 10-20 km distance), more than half (78.89 percent) of the respondents do not paid commission to middle man, nearly 77.77 percent of the respondents conducted pre marketing operations such as cleaning of vegetable after the harvest. majority (62.22 percent) of organic vegetable growers had 'medium' level of use of on-farm inputs, majority (48.89 percent) of organic vegetable growers had 'medium' level of use of off-farm inputs, majority (52.22 percent) of organic vegetable growers had 'medium' level of impact of organic inputs on agro-ecological health.

**Keywords:** Status, organic vegetables, organic input

#### 1. Introduction

Agriculture is widely recognized as the backbone of the Indian economy and a fundamental source of national prosperity. The practice of agriculture has deep historical roots, having been integral to human activity since time immemorial. Until the mid of 20<sup>th</sup> century, traditional agricultural practices globally adhered to the principles of eco-friendly organic farming systems. These systems not only ensured sustainable crop and animal production but also promoted environmental safety.

According to Agriculture and processed food products export development authority (APEDA) India ranks seventh in the world in terms of total land under organic cultivation, the cultivated land under organic certification is around 1 million hectares. India also ranks second in the world in terms of number of producers involved in organic farming. India produces 9,76,000 MT of certified organic products, which include all varieties of food products and certain non-food products. India exported over 80 items in 2007-08 with the total volume exceeding 37,500 MT which is just 4 percent of the total organic production in India. Currently, India constitutes around 0.25 percent of the world organic market (Seufert *et al.*, 2012) <sup>[5]</sup>.

Maharashtra is one of the leading states in India in the

adoption of organic farming. The state has implemented several initiatives to promote organic farming, supported by the Department of Agriculture, NGOs, and groups of progressive farmers. In 2013-14, the Maharashtra government announced its organic policy, which aimed to allocate 10% of the total cultivable area for organic farming and 25% for organic input over the next five years. Additionally, the policy emphasized certification through the Participatory guarantee system (PGS) and the active participation of women farmers in organic farming. Special efforts were also made to establish independent departments of organic farming in agricultural universities.

The Konkan region, in case of organic vegetable in each organic farm more or less 0.20 ha areas were found to be under green chilli, tomatoes, cucumber, lady's finger, cabbage, cauliflower, gawar (cluster bean), capsicum, brinjal, and leafy vegetables. Similarly, under pulses and cereals only wal, cow pea and rice were undertaken by organic farmer constituted like 0.80 ha of area under wal, 0.40 ha area under cow pea and 1.2 ha area under rice per farm, respectively.

#### 2. Methodology

In this study, a multistage sampling technique was used to

select the district, tahsils, and villages. At the first stage, Palghar district from the north konkan was selected, In the second stage, Palghar and Dahanu tehsils were selected from the district. The final stage consisted of selecting villages from each selected tehsils. Thus, in all 90 respondent from 6 villages was selected for collection of

required information. The selection of Palghar district was purposive on the basis of the survey of the farms related to the process of organic cultivation with PGS cultivation agency and Department of Agril. Economics, Dr. DBSKKV, Dapoli and another criteria was maximum potential vegetable cultivation area, which was found in some district.

**Table 1:** List of selected Tahsils and villages

| District (Area in ha) | Tehsils (Area in ha) | Villages (Are in ha) | Number of organic vegetable growers | Selected respondents |
|-----------------------|----------------------|----------------------|-------------------------------------|----------------------|
| Palghar<br>(342 ha)   | Palghar<br>(125 ha)  | Mahim (18)           | 21                                  | 13                   |
|                       |                      | Chahade (20)         | 18                                  | 11                   |
|                       |                      | Kelwa (22)           | 19                                  | 12                   |
|                       | Dahanu<br>(100 ha)   | Veti (30)            | 35                                  | 20                   |
|                       |                      | Narpad (29)          | 33                                  | 19                   |
|                       |                      | Kosbad (25)          | 25                                  | 15                   |
| Total                 | 02                   | 06                   | 151                                 | 90                   |

## 2.1 Research design

The ex-post-facto research design was adopted for this study, since the phenomenon has already started and is continuing.

Ex-post-facto research is the most systematic empirical enquiry, in which the researcher does not have direct control over the independent variables as their manifestation has already occurred or as they are inherent and not manipulatable. Thus, inferences about relations among variables were made without direct intervention from concomitant variation of independent and dependent variables.

## 3. Results and Discussion

The findings of the study as well as relevant discussion given below.

### 3.1 To study the status of organic vegetable cultivation by the vegetable growers

The prevailing position of organic vegetable cultivation was assessed with respect to various aspects, including sources of seed and nursery, different vegetable cultivation techniques, labour used for vegetable harvesting, different marketing aspects, pre-marketing operations, use of in-farm inputs, off-farm inputs, agro-ecological health.

#### 3.1.1 Source of seed and nursery

The data presented in Table no. 2 revealed that the about two-third of the respondents (66.67 percent) purchased their seeds from agro service centre. Additionally, 20.00 percent of the respondents purchased seeds from government approved nurseries. Only 6.67 percent and 6.66 percent of the respondents purchased their seeds from State department of agriculture and agricultural university, respectively. The high cost of vegetable seeds has led private seed companies to develop a strong extension network in the area. Production of good quality vegetable seedlings ensures high yield and quality. The seedlings /seeds raised in unscientific manner have par germination. This often results in increased mortality of seedlings when they are planted in the main field and subsequently farmers realise low yield.

Result shows that, very few responds are having their own nursery as well as origin of seeds. Many of the growers depended upon the Agro service centres. Now this area is advance for agriculture division of nation. The advent of scientific nursery growing techniques has opened new vistas for growing healthy vegetable seedlings with less effect from biotic and abiotic stresses. Such windows or innovative and techniques are facilitating the growers in producing good quality seed and raise their own nursery and finally latching remunerative returns.

**Table 2:** Distribution of respondents according to source of seed and nursery for vegetable cultivation

| Sl. No. | Source                                                   | Frequency | Percentage |
|---------|----------------------------------------------------------|-----------|------------|
| 1       | Agro service centre                                      | 60        | 66.67      |
| 2       | State department of agriculture/ Agricultural university | 06        | 06.66      |
| 3       | Government approved nursery                              | 18        | 20.00      |
| 4       | Use own seed / nursery                                   | 06        | 06.66      |
| Total   |                                                          | 90        | 100.00     |

#### 3.1.2 Different vegetable cultivation techniques

The data in Table 3. shows that the majority of respondents (42.22 percent) adopted bed/ridge planting techniques in their vegetable cultivation. Additionally, 26.68 percent of the respondents followed inter-cropping in entire cultivation practices. About 24.44 percent of the respondents specifically adopted relay cropping, about 4.44 percent and 2.22 percent respondents used shed net house and green

house respectively while cultivating their vegetables. In study area, organic vegetable cultivation techniques systems are characterized by adopting natural inputs, bed as well as ridge planting, inter and relay cropping, shade net and green house for control climate. It shows that overall organic vegetable cultivation techniques offers a viable and sustainable option for growers in specific.

**Table 3:** Distribution of respondents according to adoption of different vegetable cultivation techniques at their field

| SI. No. | Different cultivation techniques | Frequency | Percentage |
|---------|----------------------------------|-----------|------------|
| 1       | Bed/Ridge planting               | 38        | 42.22      |
| 2       | Inter-cropping                   | 24        | 26.68      |
| 3       | Relay-cropping                   | 22        | 24.44      |
| 4       | Green house                      | 02        | 02.22      |
| 5       | Net house                        | 04        | 04.44      |
|         | Total                            | 90        | 100        |

### 3.1.3 Labour used for harvesting

From Table 4, it is evident that the majority, 75.56 percent of the respondents, utilized labor for harvesting that fell within the category of 2 to 4 man-days. Conversely, 24.44 percent of the respondents used labor categorized as 5-8 man-days.

New agricultural technology has had a significant impact on

the overall labour used and for harvesting in specific. But for such expensive agric. technology requires large capital investments which is not feasible for the majority of small and marginal growers. So demand or absorption of agricultural labour has always been as higher side for in time operation or time specific operation of vegetable harvesting.

**Table 4:** Distribution of respondents according to labour used for vegetable harvesting

| SI. No. | Aspects                               | Categories | Frequency | Percentage |
|---------|---------------------------------------|------------|-----------|------------|
| 1       | Labour used for harvesting (man/days) | 2-4        | 68        | 75.56      |
|         |                                       | 5-8        | 22        | 24.44      |

### 3.1.4 Different marketing aspects

The data from Table 5, indicates that nearly all respondents (75.56 percent) sold their agricultural produce through wholesalers, followed by 20.00 percent sell through retailer, Only 04.44 percent of the respondents preferred self marketing channels. Moreover, 95.56 percent of the respondents sold their produce in the local market (within 10-20 km distance). The remaining 4.44 percent of respondents preferred marketing their produce beyond 20 km distances. In terms of market fees, more than half (78.89 percent) of the respondents do not paid commission to middle man, while 21.11 percent paid. In context to the

marketing channels, any 4.44 percent growers selling their organic vegetables directly to consumer. But the best thing is that majority of the growers don't paid commission to middle men in the market. That means with by-passing traditional wholesales markets in the market if these growers sell directly to consumers then can help them to get better prices and build brand loyalty. As well as they can have chance to sell their produce directly on online grocery platforms like Big baskets, grofers, Paper Tap etc. these platforms have programmes that allow farmers to list and sell their organic vegetables directly to consumers.

**Table 5:** Distribution of respondents according to different marketing aspects.

| SI. No. | Marketing Aspects               | Categories                     | Frequency | Percentage |
|---------|---------------------------------|--------------------------------|-----------|------------|
| 1       | Marketing channels              | Wholesalers                    | 68        | 75.56      |
|         |                                 | Retailers                      | 18        | 20.00      |
|         |                                 | Self                           | 04        | 04.44      |
| 2       | Selling Places                  | Local market                   | 84        | 93.33      |
|         |                                 | Outside the local market       | 06        | 6.67       |
| 3       | Distance of selling places (km) | Local(10-20km)                 | 86        | 95.56      |
|         |                                 | Outside of local market(>20km) | 04        | 04.44      |
| 4       | Commission paid to middle man   | Yes                            | 19        | 21.11      |
|         |                                 | No                             | 71        | 78.89      |

### 3.1.5 Pre-marketing operations

The data from the table 6. Indicates that nearly 77.77 percent of the respondents conducted pre marketing operations such as cleaning of vegetable after the harvest. Additionally, 73.33 percent performed drying of vegetables, and 47.77 percent engaged in grading of vegetables independently to enhance the marketability of their produce.

This respondents percentile shows that maximum organic vegetable growers emphasized on all these cleaning, drying and grading operations that real time monitoring on supply chain for quality produce, extending shelf size, lowering microbial contamination and balancing environment friendly ways to maintain freshness.

**Table 6:** Distribution of respondents according to pre marketing operations

| SI. No. | Pre marketing operation | Frequency | Percentage |
|---------|-------------------------|-----------|------------|
| 1       | Cleaning of vegetable   | 70        | 77.77      |
| 2       | Drying of vegetable     | 67        | 73.33      |
| 3       | Grading of vegetable    | 43        | 47.77      |

### 3.1.6 Use of on-farm inputs

From the data Table 7. it was observed that, majority (62.22 percent) of organic vegetable growers had 'medium' level of use of on-farm inputs, followed by 21.11 percent of 'high' level of use of on-farm inputs and 16.67 percent with 'low' level of use of on-farm inputs.

**Table 7:** Distribution of respondents according to their overall use of on-farm inputs

| SI. No. | Overall use of on-farm inputs (score) | Respondents(N=90) |            |
|---------|---------------------------------------|-------------------|------------|
|         |                                       | Frequency         | Percentage |
| 1       | Low (Up to 24)                        | 15                | 16.67      |
| 2       | Medium (25 to 29)                     | 56                | 62.22      |
| 3       | High (30 and above)                   | 19                | 21.11      |
|         | Total                                 | 90                | 100.00     |
|         | Mean=27.06                            | SD= 3.17          |            |

The findings suggest that the majority of farmers rely on their own organic inputs, likely due to the general availability of farm yard manure (FYM) and organic inputs in particular. It shows that maximum organic producers usually use the on-farm inputs for successful commercial organic vegetable cultivation.

### 3.1.7 Use of off-farm inputs

The Table 8. it was observed that, majority (48.89 percent) of organic vegetable growers had 'medium' level of use of

off-farm inputs, followed by 40.00 percent of 'Low' level of use of off-farm inputs and 11.11 percent with 'High' level of use of off-farm inputs.

**Table 8:** Distribution of respondents according to their overall used of off-farm inputs

| SI. No. | Overall use of off-farm inputs (score) | Respondents(N=90) |            |
|---------|----------------------------------------|-------------------|------------|
|         |                                        | Frequency         | Percentage |
| 1       | Low (Up to 6)                          | 36                | 40.00      |
| 2       | Medium (7 to 9)                        | 44                | 48.89      |
| 3       | High (10 and above)                    | 10                | 11.11      |
|         | Total                                  | 90                | 100.00     |
|         | Mean=8.15                              | SD= 1.82          |            |

This result suggests that off-farm inputs are considered essential for achieving desired agricultural productivity in organic vegetable cultivation.

### 3.1.8 Agro-ecological health impact

Improvement in ecological health is typically indicated by a considerable enhancement in soil fertility, increased activity of soil microbial flora and fauna, efficient utilization of farm wastes, reduction in soil, water, air, and environmental pollution, decreased use of chemical inputs in agriculture, and the maintenance of ecological balance within village agro-ecosystems.

**Table 9:** Distribution of respondents according to their overall agro-ecological health impact

| SI. No. | Agro-ecological health (score) | Respondents(N=90) |            |
|---------|--------------------------------|-------------------|------------|
|         |                                | Frequency         | Percentage |
| 1       | Low (Up to 11)                 | 13                | 14.45      |
| 2       | Medium (12 to 14)              | 47                | 52.22      |
| 3       | High (15 and above)            | 30                | 33.33      |
|         | Total                          | 90                | 100.00     |
|         | Mean=13.28                     | SD= 1.88          |            |

From above data, it was observed that, majority (52.22 percent) of organic vegetable growers had 'medium' level of impact of organic inputs on agro-ecological health, followed by 33.33 percent of 'High' level of impact of organic inputs on agro-ecological health, and 14.45 percent with 'Low' level of organic inputs on agro-ecological health.

As observed from the results, the impact on ecological health was high in terms of improvements in soil fertility status and improvement in soil health. The impact was moderate regarding the adequate utilization of farm wastes, while found in parameters like reduction in soil, water, air, and environmental pollution, and the reduction in the use of chemical inputs in agriculture. Soil health was found to be improving, with an increase in humus and organic matter content. Farmers reported that they could distinguish healthy soil by its smell, attributed to the presence of humus and high soil microbial activity.

## 4. Conclusion

The findings indicate that the status of vegetable cultivation in Palghar district, majority of respondents (66.67 percent) purchased their seeds from agro service centre, majority of respondents (42.22 percent) adopted bed/ridge planting, majority (75.56 percent) of the respondents, utilized labor for harvesting that fell within the category of 2 to 4 man-

days, nearly all respondents (75.56 percent) sell their agricultural produce through wholesalers, (77.77 percent) of the respondents conducted pre interval operations such as cleaning on their own. (62.22 percent) of organic vegetable growers had 'medium' level of use of on-farm inputs and majority (48.89 percent) of organic vegetable growers had 'medium' level of use of off-farm inputs, majority (52.22 percent) of organic vegetable growers had 'medium' level of impact of organic inputs on agro-ecological health.

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