

International Journal of Agriculture Extension and Social Development

Volume 8; Issue 11; November 2025; Page No. 550-552

Received: 13-09-2025
Accepted: 17-10-2025

Indexed Journal
Peer Reviewed Journal

Assessment of constraints faced by onion growers in adoption of onion cultivation technologies and suggestions to overcome them

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DOI: <https://www.doi.org/10.33545/26180723.2025.v8.i11g.2695>

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Abstract

Onion is an essential crop for both food security and economic stability, they are grown all over the world. They contribute significantly to the human diet by offering vital nutrients and having medicinal qualities. Additionally, growing onions help farmers financially, particularly in areas like India where they are a significant cash crop. They have high nutritional value as they are rich source of vitamins and minerals, contain antioxidants such as quercetin, also useful in lowering blood sugar, beneficial for heart diseases. Hence, the present investigation was conducted with the objective to study the constraints faced by Onion growers in Cultivation technology adoption and to obtain suggestion to overcome the constraints. The present study was conducted in four tehsils of Nashik district namely Nashik, Sinnar, Niphad and Igatpuri. From each tehsil two villages were selected. From each selected village and 20 respondent from each village were randomly selected. 160 Onion growers were personally interviewed.

The study revealed that majority 91.25 per cent of the onion growers faced the major constraint of 'Lack of timely advisory services and market information' followed by 'Lack of labour and higher labour charges' 88.75 per cent, 'Fluctuation of prices', 85.00 per cent, 'Heavy rainfall and weather conditions' 82.50 per cent. The majority 91.25 per cent of the onion growers suggested that 'Facilitate various training programs for acquiring adoption of improved cultivation practices of onion cultivation' followed by 'Providing timely market information to farmers' 80.00 per cent, 'Providing information about new innovations and making it available for farmers in minimum price' 76.25 per cent, 'Accurate and timely weather advisory' 68.75 per cent.

Keywords: Onion cultivation, technology adoption, production constraints

1. Introduction

The Alliaceae family includes onions (*Allium cepa* L.), which are also known as *earulli*, *ullagaddi*, *piyaz*, *palandu*, *kanda*, etc. One of the most significant vegetable crops, onions are grown widespread over the nation in a variety of climates. Both the green and mature stages are used for salads and as a seasoning in a range of soups and flavoured foods. In cooking, it is crucial. As a result, Germans refer to it as the "Queen of the kitchen." All three seasons are suitable for growing onions. It is primarily a winter crop, though. Due to a lack of storage space and their own financial difficulties, onion farmers typically bring their produce to market for sale right after harvest. This might cause a glut in the market, which would lower the market price. The market prices can occasionally drop to a record low of less than one rupee per kilogramme. On the other hand, the market rate occasionally reaches its highest price ever, reaching 200 rupees per kilogramme.

The demand for onion bulbs is steady throughout the year, whereas the consumption of onions varies throughout the year. Onion production, however, varies from year to year. Customers become uncomfortable as a result of the price increase brought on by the limited production. Middlemen are abusing this circumstance and taking advantage of both producers and consumers.

Since onions are a necessary vegetable and condiment in every kitchen, they have a sizable internal market. Both the immature and mature bulbs, as well as the green leaves, are consumed

raw or used to season dishes to make soups and sauces. The bulb's crispiness, juiciness, pungency, and keeping quality are all considered. The shallots and tiny bulbs are pickled in brine or vinegar. Onion powder or dehydrated bulbs are in high demand because they cut down on storage losses and transportation expenses. It is possible to rehydrate dried onion flakes by boiling them in water.

Any kind of soil, including thick clay, silty, and sandy loams, can support onions. Compared to light soils, heavy soils limit bulb growth and cause crops to mature later. For healthy growth, soils should retain enough moisture and be high in humus. Deep, friable soils are ideal for growing onions successfully. The onion crop is susceptible to high levels of alkalinity and acidity. Although onions can be cultivated in a variety of climates with neither extremes of high nor low temperatures. Early on, the plant can tolerate cold temperatures. Lower temperatures and a shorter photoperiod are necessary for vegetative growth, whereas bulb development requires comparatively higher temperatures and a longer photoperiod. 13-21°C is needed for bulb growth. It does, however, adapt well to greater temperatures.

Farmers urgently need to be given access to updated production technologies in order to boost Onion yield and production. Extension organisations successfully assist farmers with production technologies. Despite numerous attempts by scientists and extension organisations to realise the potential of onion cultivation, the productivity of onions stagnated over time. Traditional farming methods, the prevalence of regional cultivars, a lack of infrastructure, and a significant price fluctuation in the onion market were the main causes.

The diet of the prehistoric people most likely consisted primarily of this humble vegetable. Onions have been cultivated for at least 5000 years, according to most scientists. Given that they grew wild in many locations, onions were probably cultivated and consumed simultaneously for thousands of years worldwide. Onions might have been one of the earliest crops planted since they

were portable, easy to grow, less perishable than other meals of the time, and could be grown in a variety of ways.

Along with the onion production technologies, the Mahatma Phule Krishi Vidyapeeth, Rahuri, has developed a number of onion varieties, including N-53, Baswant-780, N 2-4-1, Phule Samarth, and Phule Suvarna. Farmers are very interested in the university's Phule Seed. The institution is working to raise farmer's awareness of onion farming technologies. Nevertheless, there is a technological gap in the production of onions.

2. Materials and Methods

The present study was conducted in Nashik district which was selected on the basis of maximum area, production and productivity under the onion crop in Maharashtra state. Four tehsils were selected on the basis of maximum area, production and productivity and they were Nashik, Igatpuri, Niphad and Sinnar. Two villages from each tehsil were selected on the basis of maximum area under onion cultivation. From each village 20 respondents were selected randomly to comprise total 160 respondents for the study. Keeping in the view the objectives of the study a structured interview schedule was prepared. The schedule was pretested on sufficient number of non-sample respondents by them and there after suitably modified in the light of study. The collected data were processed and analyzed using frequency and percentage.

3. Results and Discussion

3.1. Constraints faced by the onion growers in adoption of improved Onion cultivation technology

Table 1: Constraints faced by the onion growers in adoption of improved Onion cultivation technology

Sl. No.	Constraints	Frequency	Percentage
1	Lack of timely advisory services and market information	146	91.25
2	Lack of labour and higher labour charges	142	88.75
3	Fluctuation of prices	136	85.00
4	Heavy rainfall and weather conditions	132	82.50
5	Dominance of middle men in marketing	112	70.00
6	Expensive farm inputs	100	62.50
7	Poor transportation and storage facilities	98	61.25
8	lack of knowledge about recommended dose of fertilizers	92	57.50

From the Table 1 it shows that the majority 91.25 per cent of the onion growers faced the constraint of 'Lack of timely advisory services and market information' 91.25 per cent, this may be due to there aren't enough sources of information in the study area, followed by 'Lack of labour and higher labour charges' 88.75 per cent, this may be due to the migration of labours to nearby industrial areas and therefore majority of the youth gets jobs opportunities in non-agricultural operations. Also the availability become more scarce when there is peak period of harvest as almost all onion growers require the labour at the same time for similar field operations. 'Fluctuation of prices', 85.00 per cent as the cost of onions is determined by a number of factors including consumer demand, production volume and monopolistic market dominance hence prices of onion may varies. 'Heavy rainfall and weather conditions' 82.50 per cent, 'Dominance of middle men in marketing', 70.00 per cent may be due to some of the commission fees, high

interest rates exploited by middlemen. 'Expensive farm inputs' 62.50 per cent may be due to high cost or lack of input subsidies for fertilizers and also fertilizer purchases are necessary on a time bound basis and because steep demand for it at one point in time, the market may not be able to react appropriately causing it to be scarce or unavailable. 'Poor transportation and storage facilities' 61.25 per cent this may be due to lack of good carriers and the market's long distance were the main transportation barriers and, 'Lack of knowledge about recommended dose of fertilizers' 57.50 per cent.

The findings are similar with Subhash (2020) ^[4], Mutteppa (2018) ^[3], Amogh (2017) ^[1].

3.2. Suggestions made by the Onion growers in minimizing the technological gap in production of onion crop

Table 2: Suggestions made by the Onion growers in minimizing the technological gap in production of onion crop

Sl. No.	Suggestions	Frequency	Percentage
1	Facilitate various training programmes for acquiring adoption of improved cultivation practices of Onion cultivation	146	91.25
2	Providing timely market information to farmers	128	80.00
3	Providing information about new innovations and making it available for farmers in minimum price	122	76.25
4	Accurate and timely weather advisory	110	68.75
5	Get proper information about pest and disease management	108	67.50
6	Timely information about new technologies	98	61.25
7	Storage facilities should be available	72	45.00

From the Table 2 it shows that the majority 91.25 per cent of the onion growers suggested that 'Facilitate various training programs for acquiring adoption of improved cultivation practices of onion cultivation' followed by 'Providing timely market information to farmers' 80.00 per cent, 'Providing information about new innovations and making it available for farmers in minimum price' 76.25 per cent, 'Accurate and timely weather advisory' 68.75 per cent, 'Get proper information about pest and disease management' 67.50 per cent, 'Timely information about new technologies' 62.25 per cent, 'Storage facilities should be available' 45.00 percent.

The findings are similar with Chavhan (2019) ^[2], Mutteppa (2018) ^[3].

4. Conclusion

Significant constraints faced by the respondent onion growers included the Lack of timely advisory services and market information, Lack of labour and higher labour charges, Fluctuation of prices, Heavy rainfall and weather conditions, Dominance of middle men in marketing, Expensive farm inputs, Poor transportation and storage facilities, Lack of knowledge about recommended dose of fertilizers, were the major problems faced by the respondent Onion growers.

The majority of the onion growers suggested that Facilitate various training programs for acquiring adoption of improved cultivation practices of onion cultivation followed by Providing timely market information to farmers, Providing information about new innovations and making it available for farmers in minimum, Accurate and timely weather advisory, Get proper information about pest and disease management, Timely information about new technologies, Storage facilities should be available, were the major suggestions of the respondent Onion growers.

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