Biological Forum – An International Journal **15(10): 1724-1727(2023)**

ISSN No. (Print): 0975-1130
ISSN No. (Online): 2249-3239

Constraints Faced by Onion Farmers in Inceptisol of Western Odisha for Adopting the Improved Practices and Suggestions to Overcome

B.P. Gantayat[1], T. Majhi[1], R. Toppo[1], S. Swastika[1], S. Behera[2] and R.K. Rout[1]*
[1]College of Agriculture, OUAT, Bhawanipatna (Odisha), India.
[2]College of Agriculture, OUAT, Bhubaneswar (Odisha), India.

(Corresponding author: R.K. Rout)*
(Received: 22 July 2023; Revised: 03 September 2023; Accepted: 03 October 2023; Published: 15 October 2023)
(Published by Research Trend)

ABSTRACT: The goal of this work was to investigate the limitations associated with onion production, marketing, and storage in the western undulating agroclimatic zone of Odisha. The study employed a multi-stage purposive sampling approach. The state was separated into 10 zones according to Argo-climatic conditions, and two districts—Kalahandi and Nuapada—from the western undulating agroclimatic zone were chosen for 2021–2022. According to the survey, the top five biggest issues faced by onion producers were labour-related weeding issues, followed by ignorance about better varieties, high labour costs, expensive and ineffective weedicides, high seed costs, etc. Low prices during harvest, followed by sharp price fluctuations, high transportation costs, payment delays, a lack of market news and information, a lack of storage facilities, and other issues were the main obstacles faced by onion producers during the production process. By providing accurate market information and bolstering the market infrastructure at the taluk and district levels to provide an effective marketing system for the produce, the government, developmental departments, marketing boards, and NAFED may help minimise this. Farmers may be able to overcome the issue of price fluctuations if government authorities act quickly to renew or announce government support prices for onion crops.

Keywords: Constraints, Improved Practices, Marketing, Production, Storage, Suggestions.

INTRODUCTION

Vegetable cultivation in India is regaining popularity due to its contribution to food and nutritional security. Onion (*Allium cepa* L.), a major commercially grown vegetable, has been consumed globally since 4000 BC. Used in salads and cooking, onion is considered the "Queen of kitchen" by Germans. It also produces oil and pectin, rich in vitamins (B and C) and minerals, and can treat various diseases. India is the world's largest onion producer, accounting for 25.57% of global output. With 26.74 million tonnes and an average productivity of 18.65 t/ha, onion cultivation has nearly tripled between 1991-92 and 2017-18. The top five states, Maharashtra, Madhya Pradesh, Karnataka, Bihar, and Andhra Pradesh, contribute 90% of India's onion production. However, inadequate storage capacities and unscientific storage structures result in farmers unloading their entire stock, leading to low prices during harvest. After then, prices climb rather quickly, and occasionally there are significant swings, which makes both producers and customers unhappy. Furthermore, market intelligence could not foresee the information on production losses during selling and storage since crop conditions are not promptly forecasted. Climate-related factors like temperature and moisture, as well as storage management techniques like system type selection, product volume and quality, storage space, aeration conditions, stock maintenance, storage duration, and sale time, may be to blame for these losses (Berhanu and Berhanu 2014). To determine the amount to which post-harvest losses affect the net returns obtained by onion growers and the producer's net share in consumer rupees, it is necessary to measure the losses in both monetary and physical terms at various marketing phases and storage times. Farmers view growing onions as less profitable because of all these variables. Keeping in view above facts, this study was conducted with the following specific objective:

— To identify the constraints and to seek suggestions from onion growers to overcome

MATERIALS AND METHODS

The study was conducted in Odisha state, specifically in Kalahandi and Nuapada districts, to study constraints in onion production, marketing, and storage. 90 farmers were randomly selected and interviewed, using a multi-stage purposive sampling technique. The study aimed to understand the problems faced by onion growers and market intermediaries, assigning them a rank based on Garrett ranking technique. The technique measures attitudes directly, converting constraints and advantages into numerical scores. This technique's main benefit over a basic frequency distribution is that, from the respondents' perspective, the limitations are organised

according to their severity (Zalkuwi *et al.*, 2015). Therefore, it's possible that the same number of responders on two or more limitations received a different rank. Garrett's formula for converting ranks into percent is as below:

$$\text{Per cent position} = \frac{100\times(R_{ij}-0.5)}{N_J}, \text{where, } R_{ij} = \text{Ranking given for } i^{th} \text{ item by } j^{th} \text{ individual farmer}$$

N_j = Number of items ranked by j^{th} individual farmer

Each rank's percentage position was translated into scores using Garrett and Woodworth's (1969) table as a guide. The total number of respondents for whose scores were added was divided by the sum of the individual respondents' scores for each component. In accordance with the ranking of the constraints, the mean scores for each constraint were organised from highest to lowest order.

RESULTS AND DISCUSSION

The Garrett ranking technique was used to analyse factors affecting onion production in Kalahandi & Nuapada districts of Odisha. The result from Table 1 shows the top five major challenges faced by onion growers include labour problems (75.47), lack of knowledge about improved varieties (74.59), high labour costs (73.73), less effective herbicides (71.45), and high seed costs (70.55). Other challenges include knowledge about seedling treatment, pesticides, recommended fertiliser doses, pest identification, non-availability of fertiliser, poor seed quality, and lack of knowledge about control measures. The above findings were in line with the findings of Shukla *et al.* (2019); Vaishnavi and Aski (2018). The above findings were also in line with the findings of Sunil Kumar (2004); Ashok (2015); Khating (2017).

The result from Table 2 showed the different obstacles and difficulties that the producers in Kalahandi & Nuapada districts of Odisha faced when marketing their onions. According to the study, the top six biggest issues faced by onion growers were low prices at harvest (80.11), high market price fluctuations (75.98), high transportation costs (74.83), payment delays (73.74), a lack of market news or information (70.48), a lack of storage facilities (70.24), and so on. In addition to these difficulties, growers faced several other obstacles when marketing onions in the study, including low prices for onion produce at open auction (68.93), inadequate credit facilities (65.40), inadequate infrastructure facilities (57.47), assembly issues (54.65), ignorance of grading (38.05), and a significant distance from the market (35.41). The above findings were in line with the findings of Shukla *et al.* (2019); Vaishnavi & Aski (2018). The above findings were also in line with the findings of Sunil Kumar (2004); Ashok (2015); Khating (2017).

The respondents in a study suggested several solutions to overcome constraints in adopting improved technologies in onion farming. The result from Table 3 showed that they emphasized the need for higher market prices (82.00), timely input availability (78.26), proper market access (76.61), efficient credit facilities (75.54), labour-saving implements (70.50), subsidized input supply (69.13), proper storage facilities (66.20), training programs (62.69), demonstration packages (61.07), and extra incentives for onion growers (60.77). They also highlighted the need for better storage facilities to protect the crop from damage, and the need for subsidized input supply to overcome resource poorness. Additionally, they suggested providing training programs, demonstration packages, and extra incentives to onion growers to help overcome labour scarcity and improve production practices. The above findings were in line with the findings of Roman (2015); Laxmi (2017); Vaishnavi Sangam & Aski (2018).

Table 1: Constraints faced by onion growers during production of onion farmers.

Sr. No.	Constraints factors	Rank												Sampled size	Total score	Avg. Score	Rank
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII				
1.	Lack of knowledge about improved varieties	55	11	10	9	5	4	2	0	0	0	0	0	96	7161	74.59	II
2.	Lack of knowledge about seedling treatment	39	17	11	5	5	4	4	4	3	2	2	0	96	6604	68.79	VI
3.	High cost of seed	43	15	11	6	6	2	5	5	3	0	0	0	96	6773	70.55	V
4.	Poor quality of seed	0	0	0	1	1	3	4	7	11	15	21	33	96	2840	29.58	XI
5.	Non-availability of fertilizer in time	0	0	0	3	4	4	5	5	11	12	23	29	96	3026	31.52	X
6.	Lack of knowledge of recommended fertilizer doses	0	0	1	5	6	7	9	9	9	10	13	27	96	3400	35.42	VIII
7.	Labour problem for weeding	59	10	9	8	5	4	1	0	0	0	0	0	96	7245	75.47	I
8.	Less effective and costly weedicides	49	12	10	7	4	3	3	3	2	2	1	0	96	6859	71.45	IV
9.	High cost of labour	47	23	14	1	0	4	3	2	1	1	0	0	96	7078	73.73	III
10.	Difficulty in identifying the pest and diseases	1	1	1	1	1	2	8	8	10	11	22	30	98	3047	31.74	IX
11.	Lack of knowledge about control measures	0	1	1	1	1	2	2	3	4	15	27	39	96	2646	27.56	XII
12.	High cost of pesticides	19	10	8	7	6	6	9	9	9	8	3	2	96	5476	57.04	VII

Table 2: Constraints faced by onion growers during marketing of onion farmers.

Sr. No.		Rank												Sampled size	Total score	Avg. Score	Rank
	Constraints factors	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII				
1.	Low price at time of harvesting	70	15	9	2	0	0	0	0	0	0	0	0	96	7691	80.11	I
2.	Open auction sale fetches low price for onion produce	29	19	16	10	8	6	4	4	0	0	0	0	96	6617	68.93	VII
3.	Lack of infrastructure facility	17	11	13	6	9	7	5	7	7	5	5	4	96	5517	57.47	IX
4.	Large distance from market	5	2	2	2	1	3	5	7	9	14	21	25	96	3399	35.41	XII
5.	High transportation cost	52	18	8	6	5	0	5	2	0	0	0	0	96	7184	74.83	III
6.	High fluctuation in market prices	51	25	8	5	2	2	1	2	0	0	0	0	96	7294	75.98	II
7.	Lack of appropriate credit facilities	27	12	10	10	9	11	10	7	0	0	0	0	96	6278	65.40	VIII
8.	Lack of market information/news	30	22	15	14	9	2	3	1	0	0	0	0	96	6766	70.48	V
9.	Lack of storage facilities	51	6	8	1	0	4	20	6	0	0	0	0	96	6743	70.24	VI
10.	Lack of knowledge about grading	3	2	5	5	3	8	8	2	10	10	12	30	98	3653	38.05	XI
11.	Assembling problem	6	5	9	9	11	15	21	13	4	3	0	0	96	5246	54.65	X
12.	Delay in payments	44	21	12	6	5	7	1	0	0	0	0	0	96	7079	73.74	IV

Table 3: Distribution of respondents according to suggestions given to overcome constraints.

Sr. No.	Constraints factors	Rank										Sampled size	Total score	Avg. Score	Rank
		I	II	III	IV	V	VI	VII	VIII	IX	X				
1.	Availability of sufficient and timely credit facilities	58	22	10	3	2	1	0	0	0	0	96	7252	75.54	IV
2.	Demonstration of package of practices needs to be done	19	18	15	13	9	8	6	4	2	2	96	5863	61.07	IX
3.	Facilities for proper storage	31	18	14	12	8	6	4	2	1	0	96	6355	66.20	VII
4.	High market price for produce	96	0	0	0	0	0	0	0	0	0	96	7872	82.00	I
5.	More subsidized supply of inputs	40	20	10	8	7	6	5	0	0	0	96	6636	69.13	VI
6.	Proper marketing facilities	63	24	4	2	2	0	0	1	0	0	96	7355	76.61	III
7.	Provision of extra incentives to Onion growers	27	18	12	7	6	4	4	6	8	4	96	5834	60.77	X
8.	Provision of training programmes	24	19	16	10	8	6	4	4	2	3	96	6018	62.69	VIII
9.	Timely input availability at cheaper rate	70	20	5	1	0	0	0	0	0	0	96	7513	78.26	II
10.	Usage of labour-saving improved implements	43	18	14	8	6	5	2	0	0	0	96	6768	70.50	V

CONCLUSIONS AND RECOMMENDATIONS

The research study reveals major challenges faced by onion growers during production and marketing, including labour issues, lack of knowledge about improved varieties, high labour costs, and high seed costs. The study also highlights low prices at harvesting, market fluctuations, high transportation costs, delayed payments, lack of market information, and lack of storage facilities. The study suggests that government intervention, developmental departments, marketing boards, and NAFED should provide timely market information and strengthen market infrastructure to ensure efficient marketing. Establishing a wholesale or terminal market at the tehsil level can provide a closer outlet for onion growers and lower marketing costs. The agriculture department should provide knowledge about improved varieties and production technologies to farmers, ensuring better prices and storage. Farmers should be trained on new storage technology to reduce losses. Subsidies can help reduce input costs for small and medium farmers. Extension agents should maintain close contact with farmers during production seasons.

FUTURE SCOPE

The region's farmers, primarily small and marginal, rely on onion as a cash crop due to its high market demand and profitability. Indigenous traditional knowledge (ITK) practices, such as seed treatment, intercultural operations, and storage techniques (e.g., using cassia leaves, ash, or mesh bags), are widely adopted, enhancing sustainability and reducing costs. Onion's high demand in local and regional markets ensures profitability. The crop's short duration (3-4 months) allows farmers to integrate it into crop rotations, enhancing income. Improved nutrient management and ITK practices have increased monetary returns by up to 46.4% compared to conventional methods, making onion a lucrative crop. Government schemes like the Odisha Millet Mission

and organic farming policies support natural farming practices, which can be extended to onion cultivation to reduce input costs.

Acknowledgement. I extend my sincere thanks to Dr. Rajendra Kumar Rout and to my other others for giving support and proper guidance throughout the course of study and manuscript preparation.
Conflict of Interest. None.

REFERENCES

Ashok, K. B. (2015). A study on knowledge and adoption of recommended cultivation practices of Blackgram growers in North-eastern region of Karnataka. M.Sc. (Ag.) Thesis, University of Agricultural Sciences, Raichur, Karnataka (India).

Berhanu, M. A. and Berhanu, G. A. (2014). Constraints of onion (*Alluim cepa.* var. cepa) yield production and food preference to Shallot (*Alluim cepa* var. aggregatum) in the case of Bibugn Woreda, Amhara Regional State, Ethiopia. *Food Sci. Quality Man., 32,* 41-45.

Khating, S. M. (2017). Knowledge and adoption of recommended cultivation practices of onion by the growers. M.Sc. (Ag.) Thesis, Vsantraonaik Marathwada Krishi Vidyapeeth, Parbhani (M.S.) India.

Laxmi, T. (2017). A study on adoption behavior of improved onion production technology of onion growers in Alirajpur District in Madhya Pradesh. M.Sc. (Ag.) Thesis, Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior, M.P. (India).

Shukla, K., Singh, N., Kumari, M. V. and Ramchandra (2019). Constraints experienced by onion growers of Nashik district of Maharashtra. *Int. J. Farm Sci., 9,* 57-60.

Sunil Kumar, G. M. (2004). A study on farmer's knowledge and adoption of production and post-harvest technology in Tomato crop of Belgaum district in Karnataka. M.Sc. (Ag.) Thesis, University of Agricultural Sciences, Dharwad (Karnataka) India.

Vaishnavi Sangam, V. S. and Aski, S. G. (2018). Constraints faced by onion growers in adopting improved practices and suggestions from onion growers to overcome constraints, 355-358.

Zalkuwi, J., Singh, R., Bhattarai, M., Singh, O. P. and Rao, D. (2015). Analysis of constraints influencing sorghum farmers using Garrett's Ranking Technique; A comparative study of India and Nigeria. *International Journal of scientific research and management (IJSRM), 3*(3), 2435-2440.

How to cite this article: B.P. Gantayat, T. Majhi, R. Toppo, S. Swastika, S. Behera and R.K. Rout (2023). Constraints Faced by Onion Farmers in Inceptisol of Western Odisha for Adopting the Improved Practices and Suggestions to Overcome. *Biological Forum – An International Journal*, *15*(10): 1724-1727.