

ASSESSING KNOWLEDGE LEVEL OF POST-HARVEST MANAGEMENT PRACTICES AMONG ONION GROWERS

Ruchi Singh¹, Satyabrata Mohanty² and Vishal Vihan³

1 M.Sc. Scholar, Department of Agricultural Extension & Communication, Sam Higginbottom University of Agriculture, Technology & Sciences, Prayagraj (UP) - 211007

2. Research Scholar, Department of Agricultural Extension & Communication, Sam Higginbottom University of Agriculture, Technology & Sciences, Prayagraj (UP) - 211007

3. Subject Matter Specialist (SMS), Krishi Vigyan Kendra (ICAR-CITH), Baramulla - 191132

Email: ruchis255@gmail.com

ABSTRACT

According to reports, 40% to 50% of the perishables produced never reaches to the ultimate consumers due to post-harvest losses. These types of losses are specifically greater in the tropical and subtropical nations like India. Onion being one of the important vegetables also faces a large amount of post-harvest losses due to lack of proper knowledge of PHM practices. As a result the socioeconomic system is periodically impacted by fluctuations in the supply and cost of onions. This paper attempts to assess the knowledge of the 120 respondents in one of the major onion-growing districts of Uttar Pradesh, i.e., Ghazipur. It was found that majority of the growers had medium level of knowledge with regards to the various management practices taken up by the respondents. The relationships of majority of the socio-economic characteristics were positively significant with that of the knowledge level of the growers indicating the impact of these characters on knowledge level. The government line departments, NGOs and other agencies should also make more efforts to raise the level of expertise in order to reduce the post-harvest losses suffered, since this will assist to increase farmer income, lower poverty, and achieve food security in the long run.

Keywords: knowledge level, onion production, shelf-life, post-harvest losses, post-harvest management

INTRODUCTION

The agricultural sector's exceptional performance even during COVID-19 epidemic serves as the evidence of the importance of this industry to the Indian economy. Fruits and vegetables, milk, cereals, tea, sugarcane are among the various agricultural products in which India is the major producer in the world. Onion, while a prominent vegetable, has grown in prominence as a commercial commodity rather than a vegetable crop throughout the years due to its high export value (Sahu *et al.*, 2022). It is harvested in India during the kharif (October to November, 20%), late kharif (February to March, 20%), and rabi (April to May, 60%) seasons. Kharif and late kharif onion harvests don't need to be stored because they are quickly devoured within one or two months due to high demand (Mahajan *et al.*, 2022). Quality onion production is essential for boosting export potential (Tarde *et al.*, 2021). It is critical for customers to be aware that factors such as weather, storage facilities, governmental policies, and market dynamics may affect the Indian onion market because its demand is inelastic in nature (Singh *et al.*, 2020). The socioeconomic system is periodically impacted by fluctuations in the supply and cost of onions as a result. However, the April-May rabi harvest produces a glut in the market due to its large number, thus any surplus must be

preserved to be accessible when prices rise in the market in October and November. This crop requires careful planning to boost productivity and bulb quality in order to maintain demand and supply throughout the year (Mahajan *et al.*, 2022).

Post-harvest losses have been estimated to range from 40 to 50 per cent across the globe annually, with tropical and subtropical nations, like India, experiencing higher post-harvest losses, where it doesn't reach the ultimate user (Gorreapti *et al.*, 2017; Sule, 2019). As a result of their perishable nature, vegetable crops suffer significant post-production losses (Amit *et al.*, 2023). Post-harvest losses of vegetables, with tomato (12.44%), onion (8.2%), and potato (7.32%) having the highest rates in India (CIPHET, 2015 & Tiwari *et al.*, 2021), have been a major source of worry. These losses are caused by a number of things at different phases, including harvesting, handling, shipping, and storage.

Post-harvest decaying is a significant contributor to human food losses due to many sources. (Patel *et al.*, 2020). Huge volumes of vegetables, onion, tomato, are lost each year as a result of insufficient knowledge of pre- and post-harvest techniques, poor transport and storage facilities (Kumar 2014). Farmers' knowledge and skills are crucial for increasing productivity and improving their economic conditions (Rathod *et al.*, 2020).

OBJECTIVES

- (1) To measure the knowledge level of the onion growers in the Ghazipur district.
- (2) To study the relationship between the selected profile of the onion growers and the knowledge level of the farmers.

METHODOLOGY

The present study was conducted in Ghazipur district

of Uttar Pradesh state which is purposively selected based on research objectivity and criteria of sampling concerning Knowledge level of post-harvest management practices of onion growers. 6 villages were randomly selected from Sadar block of Ghazipur, for the present study. Total 120 respondents were selected randomly from each selected village for the present study. The primary data was collected with the help of pre-tested- structured interview schedule, designed especially in the light of objectives, whereas secondary data was collected from sources like thesis, journals, literature etc.

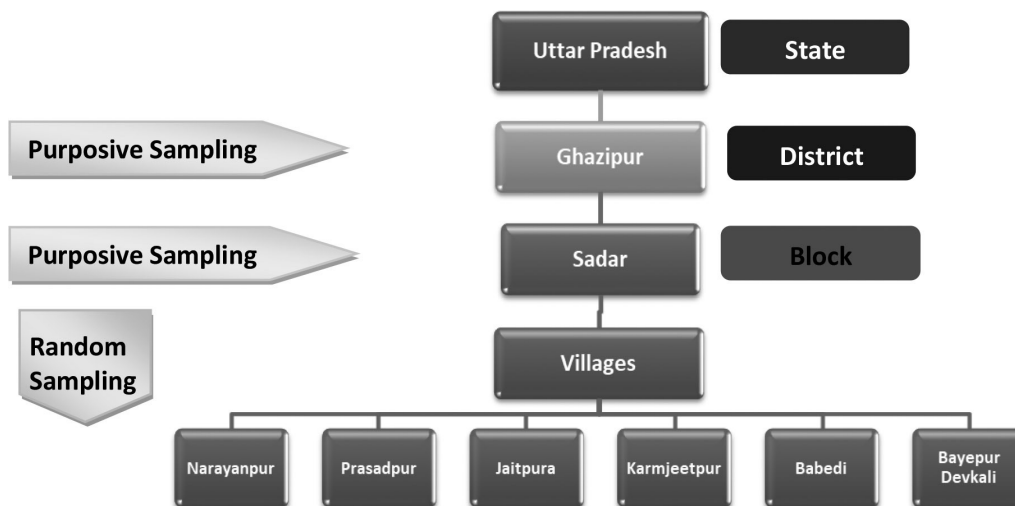


Fig. 1: Sampling frame of the study

RESULTS AND DISCUSSION

The farmer’s responses were recorded based on a three continuum scale i.e. fully correct, partially correct and incorrect based regarding their knowledge on PHM of onion.

The data was collected and compiled in Table 1 below, is about the farmers’ degree of knowledge about post-harvest management practices for growing onions.

Table 1: Distribution of respondents based on their level of knowledge

(n=120)

Sr. No	Statements	Responses							
		Fully Correct		Partially Correct		Incorrect		Total	
		F	%	F	%	F	%	F	%
1	Duration taken for maturity of Onions.	43	35.84	58	48.33	19	15.83	120	100
2	Curing is done for Onion	44	36.67	56	46.66	20	16.66	120	100
3	Chemicals used to reduce post-harvest losses of Onion 1.Mallic hydrazide 2. Thiram 3. Captan	47	39.16	55	45.83	18	15.00	120	100
4	Best method to remove field heat.	41	34.16	62	51.66	17	14.16	120	100
5	Proper time of harvesting of Onions	35	29.17	70	58.33	15	12.5	120	100
6	Requirement of Grading & Sorting in Onions	47	39.16	65	54.16	8	6.66	120	100
7	Method for increasing shelf-life of onions.	47	39.16	65	54.16	7	5.84	120	100
8	Optimum Temperature for storage.	52	43.33	60	50.00	8	6.66	120	100
9	Best material for packaging of onions.	28	23.33	59	49.16	33	27.5	120	100
10	Best varieties of onion with good shelf-life for longer storage.	38	31.66	65	54.16	17	14.16	120	100

S. No.	Level of Knowledge	Frequency	Percentage
1	Low (up to 6 score)	16	13.33
2	Medium (6-12)	73	60.83
3	High (above 12)	31	25.84
Total		120	100

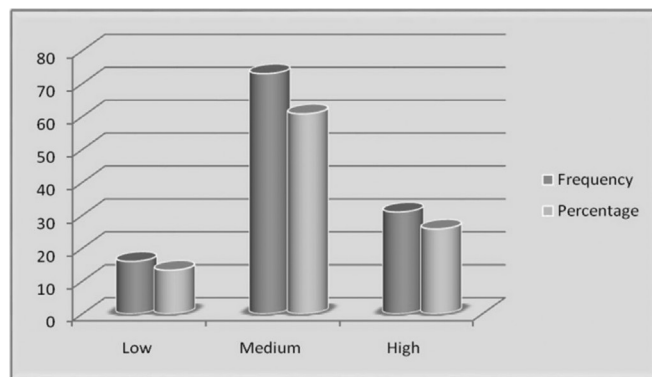


Fig. 2: Distribution of respondents with respect to level of Knowledge

The post-harvest management practices like best method to remove field heat, proper time of harvesting of onions, requirement of grading & sorting in onions, method for increasing shelf-life of onions, optimum temperature for storage, best varieties of onion with good shelf-life for longer storage majority of the farmers had partial knowledge. In the above table, the data clearly indicates that 60.83 per cent of the growers had medium level of knowledge, followed by 25.84 per cent who had high level of knowledge followed by 13.33 per cent who had low level. Thus, it can be concluded that the knowledge level of majority of the onion growers was medium. The medium knowledge level of the onion growers might be due to the fact that the farmers are more exposed to the different information sources. Majority of the practices are generally known to most of the farmers. Moreover, as the onion crop is taken as the cash crop, they might be interested to get more onion production. This might be probable reason for a majority of respondents having medium level of knowledge. These findings are in line with those of the studies conducted by Gour (2013), Azad *et al.*, (2014), Dhayal (2015), Babu *et al.*, (2017), Chaudhary *et al.*, (2019) & Amit *et al.*, (2023), Mallappa *et al.*, (2023).

Results presented in Table 2 related to correlation analysis revealed that characteristics namely Age (0.500*), Education (0.308**), Annual income (0.749*), Innovativeness (0.823*), Extension contact (0.334*), Source of information (0.172*), Social contact (0.169*), Risk orientation (0.834*), Scientific orientation (0.714*) &

progressiveness (0.859*) were positively and significantly at 0.005 per cent level related to knowledge level about onion growers respectively. Thus, it can be concluded that all above characteristics of the respondents were found to be positively and significantly correlated with knowledge level of onion growers. The socio-economic characteristics namely Occupation (0.113NS), Material possession (0.082NS) were found to be positive but non-significant related to knowledge level of the respondents respectively. These findings were found in line with Patel *et al.* (2020), Bhat *et al.* (2022), Kalasariya *et al.* (2022), Paradva *et al.* (2022), Rathwa *et al.* (2022), Raval *et al.* (2023), Patel *et al.* (2023), Chaudhary *et al.* (2024). Thus, it can be concluded that all above mentioned characteristics of the respondents were found to positively but non-significantly with knowledge of the farmers.

Table 2: Relationship between socio-economic Characteristics and Knowledge level of onion growers (n=120)

Sr. No.	Characteristics	“r” value
X ₁	Age	0.500*
X ₂	Education	0.308**
X ₃	Occupation	0.113NS
X ₄	Annual Income	0.749*
X ₅	Material Possession	0.082NS
X ₆	Extension contact	0.334*
X ₇	Source of Information	0.172*
X ₈	Social Contact	0.169*
X ₉	Innovativeness	0.823*
X ₁₀	Risk orientation	0.834*
X ₁₁	Scientific orientation	0.714*
X ₁₂	Progressiveness	0.859*

* = Significant at p = 0.05 ** Significant at p= 0.01
NS= Non significant

CONCLUSION

The study revealed that most respondents (60.83%) had a medium degree of knowledge about onion post-harvest management practices. There were some areas where there is strong requirement of increasing the knowledge level of the farmers as the increased knowledge will lead to better adoption. The relationship between knowledge level and socioeconomic profile demonstrated that age, Education, annual income, innovativeness, extension contact, source of information, social contact, risk orientation, scientific orientation, and progressiveness were all positive and statistically significant at the 0.05 percent level. The variables found positively significant require attention to increase the knowledge. This study is limited to the Ghazipur district and can be undertaken at other places to solve the major problem of post-harvest losses.

POLICY IMPLICATIONS

The study's findings suggested that farmers had a medium degree of knowledge regarding post-harvest onion management. There are a lot of opportunities for improvement in the knowledge levels of the respondents. The government line departments, KVKs, NGOs, and other organizations should conduct more awareness, trainings, and hands-on workshops to help farmers understand various post-harvest management measures, which will reduce post-harvest losses. In addition, public storage facilities at the block level can be set up to help mitigate the problem.

CONFLICT OF INTEREST

This is to declare that there is "No conflict of interest" among researchers

REFERENCES

- Amit, Ghanghas, B.L., Yadav, V.P.S., & Chahal, P.K (2023). Knowledge Status of Onion Growers Regarding Pre and Post-Harvest Management Practices, *Indian Res. J. Ext. Edu.* 23 (1), January-March, 2023, 59-63. https://doi.org/10.54986/irjee/2023/jan_mar/59-63
- Azad, M. J. Ali, M. S. and Islam, M. R. (2014). Farmers' knowledge on postharvest practices of vegetables. *International J. Expt. Agric.* 4(3): 7-11.
- Babu, S. N. (2017). A study on adoption of tomato recommended technology by tomato growers in Anand district of Gujarat state. M.Sc. (Ag) thesis, Anand Agricultural university, Anand, 112p
- Bhat, S. H.; Tomar, A. and Farhana (2022). Knowledge level of recommended package of practices by paddy growers. *Gujarat Journal of Extension Education.* 34(2): 135-139
- Chaudhary, M.; Asiwal, B. L. and Dular, R. K. (2019). Knowledge level of farmers about improved production technology of onion crops in Sikar district of Rajasthan. *J. Krishi Vigyan.* 8 (1): 191-196
- Chaudhary, K. V., Pandya, S. P. and Raval, K. N. (2024) Relationship between selected profile of the potato growers and the knowledge level of beneficiary farmers about potato production technology. *Gujarat Journal of Extension Education.* Vol. 37(1): 157-162
- CIPHET (2015), Assessment of Quantitative Harvest and Post-Harvest Losses of Major Crops/ Commodities in India, New Delhi
- Dhayal, B.L. & Mehta, B.M. (2015). Study on knowledge and adoption of green gram production technology by farmers in Chhota Udaipur district of Gujarat. *Agriculture Update*, 10(4),318-322. DOI: 10.15740/has/au/10.4/318-322
- Gorreapti, K., Thangasamy, A., Bhagat, Y., & Murkute, A.A. (2017). Curing of onion: A review. *Indian Horticulture Journal*, 7, 8–14.
- Gour,C.L., Dwivedi, D., Badodiya, S.K. & Gurjar, R.S. (2013). Entrepreneurial behavior of potato growers and constraints faced by farmers in production and marketing of potato and their suggestion. *Plant Archives*, 17(1), 427-432. [http://plantarchives.org/PDF%2017-1/427-432\(3461\).pdf](http://plantarchives.org/PDF%2017-1/427-432(3461).pdf)
- Kalasariya, N.; Naik, R. M. and Karravula, R. (2022). Knowledge of tribal farmers towards organic farming practices. *Gujarat Journal of Extension Education.* 33(2): 16-18.
- Kumar, R.D. (2014). A study on awareness and adoption of post-harvest management practices in tomato cultivation among the farmers in Sehore district of M.P. Unpublished M.Sc. Thesis, R.A.K. College of Agriculture, Sehore, M.P., India.
- Mahajan, V., Thangasamy, A., Gupta, A. J., Khade, Y. P. and Kale, R.B. (2022). Onion bulb production technology. (In R. B. Kale, S. S. Gadge, B. V. Rao, V. M. M.Singh eds.) Good Agricultural Practices in Onion and Garlic Production. pp- 9-18. National Institute of Agricultural Extension Management (MANAGE), Hyderabad.
- Mallappa, V.K.H., Panigrahy, S.R., Nayak, A.K.; Pundir, R. S.; Kumari, P. (2023) Factors Influencing the Knowledge Level of Fish Consumers: An Explanatory Analysis. *Sustainability* 2023, 15, 10183. <https://doi.org/10.3390/su151310183>
- Patel, M. L., Parmar, V. S. and hadiya, N. J. (2023) Relationship between profiles of farmers with their knowledge about management practices of white grub. *Gujarat Journal of Extension Education*, 35(2):92-96. <https://doi.org/10.56572/gjoee.2023.35.2.0019>.
- Patel, R. I., Kalsariya, B. N., & Sharma, D. (2020). Management efficiency of farm women in post-harvest management of fruits and vegetables. *Gujarat Journal of Extension Education*, Volume 31(1).

- Paradva, V. B.; Patel, V. B. and Patel, P. C. (2022). Relationship between profile of the green gram growers and their level of knowledge about recommended green gram production technology. *Gujarat Journal of Extension Education*. 33(2): 77-80.
- Rathod, D. M., Damor, C. B., & Patel, K. H. (2020). Knowledge of trained maize farmers about recommended maize production technology. *Gujarat Journal of Extension Education*, Volume 31(2).
- Rathwa, Y. H.; Bochalya, B. C. and Reddy, S. Y. (2022). Relationship between selected characteristics of cotton growers and their knowledge about integrated pest management. *Gujarat Journal of Extension Education*. 33(1): 66-68.
- Raval, K. N., Patel, J. K. and Chaudhary, K. V. (2023) Crisis management practices adopted by cumin growers. *Gujarat Journal of Extension Education*, 36(2):115-119. <https://doi.org/10.56572/gjoe.2023.36.2.0021>.
- Sahu, S., Sharma, J. P., Burman, R. R., Varghese, E., Sharma, R. R., & Kumar, P. (2022). Assessment of knowledge and adoption pattern of post-harvest management practices by Maharashtrian onion farmers. *The Indian Journal of Agricultural Sciences*, 91(12), 1763–1767. <https://doi.org/10.56093/ijas.v91i12.120802>
- Singh, R., Ahmed, J., Mohanty S. (2020). Adoption of post-harvest management practices among onion growers in Ghazipur district of Uttar Pradesh. *International Journal of Advances in Agricultural Science and Technology*, 7(7), July-2020, pg. 69-73.
- Singh, Surinder and Hansra, B.S. (2018). Knowledge and adoption level of improved vegetable farming practices of SHG members and non-members in Himachal Pradesh, India. *Indian Res. J. Ext. Edu.* 18 (4): 61-64
- Sule, B.A. (2019). Curbing post-harvest losses: The plight of onion farmers in Nigeria. Food Security Policy Research Brief 89, East Lansing: Michigan State University.
- Tarde, V. J., Walke, J., & Sonawane, H. P. (2021). Awareness about MPKV recommended rabi onion practices by the onion growers. *Gujarat Journal of Extension Education*, Volume 32(1).
- Tiwari, A., Afroz, S.B., Kumar, B. (2021). Market vulnerabilities and potential of horticulture crops in india:with special reference to top crops. *Ind. Jour. Agril. Mktg.*, 35(3), 2021, 1-20.

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