



International Journal of Research in Agronomy

E-ISSN: 2618-0618
P-ISSN: 2618-060X
© Agronomy
NAAS Rating (2026): 5.20
www.agronomyjournals.com
2026; SP-9(9): 163-167
Received: 24-07-2026
Accepted: 28-08-2026

Varun C
Research Scholar, Department of
Agricultural Extension, College of
Agriculture, KSNUAHS,
Shivamogga, Karnataka, India

Renuka AB
Research Scholar, Department of
Agricultural Extension, College of
Agriculture, KSNUAHS,
Shivamogga, Karnataka, India

Gulshan Ekram
Research Scholar, Department of
Agricultural Extension, College of
Agriculture, KSNUAHS,
Shivamogga, Karnataka, India

Pooja V
Research Scholar, Department of
Agricultural Extension, University
of Agricultural Sciences,
Bangalore, Karnataka, India

Varsha SC
Research Scholar, Department of
Agricultural Extension, University
of Agricultural Sciences,
Bangalore, Karnataka, India

Corresponding Author:
Varun C
Research Scholar, Department of
Agricultural Extension, College of
Agriculture, KSNUAHS,
Shivamogga, Karnataka, India

Knowledge level of farmers regarding production and marketing of onion in Chitradurga district of Karnataka

Varun C, Renuka AB, Gulshan Ekram, Pooja V and Varsha SC

DOI: <https://www.doi.org/10.33545/2618060X.2026.v9.i9Sb.6537>

Abstract

The present investigation has been carried out with a view to study the knowledge of onion growers regarding production and marketing of onion in Chitradurga district. The data about cultivation and marketing of Onion was obtained from onion cultivators. The total sample size was 120 farmers. The farmers were selected using simple random sampling method. The study aims to assess the overall knowledge level and knowledge about individual production and marketing practices. The results regarding individual onion production practices revealed that cent per cent of the respondents had knowledge regarding soil type and soil enrichment, time of sowing and method of sowing, followed by seed rate requirement per acre (96.67%) and varieties/ seed selection (93.33%). Majority (72.50%) of the respondents had knowledge regarding overall production practices. The result regarding individual marketing practices revealed that 97.50 per cent of them had knowledge of reasons for onion glut in the market, followed by selling of onion to pre-harvest contractors or local traders (92.50%), facilities provided by the APMCs to farmers (90.00%) and aware about APMCs pledge loan scheme (88.33%). Majority (70.84%) of the respondents had knowledge regarding overall marketing practices.

Keywords: Knowledge, production, marketing and onion growers

Introduction

Onion is an important commercial vegetable crop and was grown on 5.04 million hectares globally, accounting for 96.77 metric tonnes of production worldwide with a productivity of 19.20 quintals per hectare. India is the second-largest producer of onion next to China with a production of 26 million tonnes under an area of 1.43 million hectares with a productivity of 13.66 tonnes per hectare. In India, Maharashtra is the leading producer with a production of 7.105 million tonnes and contributed 43.31 per cent of total Indian production in 2019-20.

In Karnataka, Dharwad is the leading producer of onion; next to Dharwad stands Chitradurga with a production of 3,33,888 tonnes, 12,368 hectares of area under onion cultivation with a productivity of 19.89 tonnes per hectare. In recent years, the growing demand for onions driven by rising income and changing consumption habits, as well as falling agricultural income due to rising costs and static food grain production, has compelled diversification to high-value crops in Chitradurga district. Aside from increased income, this high-value crop has the potential to create more job opportunities in farming due to its labour-intensive character (Weinberger and Lumpkin, 2006) [8]. Diversification from grain crops to high-value crops like onion vegetables has evolved as an essential strategy for agricultural growth to boost revenue, create gainful employment, and protect natural resources from further deterioration (Sekhon and Kaur, 2004) [6]. Adequate knowledge of farmers is a prerequisite for better implementation and success to get the maximum yield per unit area.

Knowledge plays an important role in the adoption and effective implementation of improved agricultural technologies. In onion cultivation, farmers require knowledge regarding selection of suitable varieties, seed rate, sowing time and method, seed treatment, nutrient management, irrigation, weed management and plant protection measures. Knowledge of these practices enables farmers to make appropriate decisions regarding the use of production inputs and management practices. However, the level of knowledge may vary among farmers depending upon their education, farming experience, extension contact, exposure to information sources

and familiarity with improved technologies. Onion production also requires adequate knowledge beyond the production stage, particularly regarding harvesting, storage and marketing. Farmers need to understand the available marketing channels, functioning of Agricultural Produce Market Committees (APMCs), market information sources, storage practices, payment arrangements and alternative buyers. Inadequate knowledge about these aspects may affect the ability of farmers to select suitable marketing opportunities and may contribute to immediate disposal of produce after harvest.

The previous studies conducted among onion growers have reported considerable variation in knowledge levels. Vijayakumar Naik *et al.* (2015) ^[14] reported that a substantial proportion of onion growers in Karnataka possessed a medium level of knowledge regarding recommended cultivation practices. Similarly, Baraker *et al.* (2020) ^[10] observed that a majority of onion growers in Gadag district had a medium level of knowledge about improved onion production technologies. These findings indicate that knowledge gaps may exist even in areas where onion cultivation is an established agricultural activity.

Knowledge regarding post-harvest practices is also important because onion is a crop that is commonly stored for obtaining better prices. Sahu *et al.* (2021) ^[12] reported variation in farmers' knowledge and adoption of onion pre-harvest and post-harvest management practices and identified gaps in areas such as cultivar selection, nursery management, market intelligence and secondary processing. Therefore, assessment of both production and marketing knowledge is important for identifying specific areas where extension interventions and farmer training are required.

In Chitradurga district, onion is an important commercial crop and farmers are exposed to different production and marketing situations. However, systematic assessment of farmers' knowledge regarding both production and marketing practices is necessary to identify areas of adequate knowledge as well as areas requiring further extension support. Hence, the present study was undertaken to assess the knowledge level of onion growers regarding production and marketing practices in Chitradurga district of Karnataka.

Methodology

The study was conducted during the year 2020-21 in Chitradurga district of Karnataka state, 120 onion growers who growing onion for the last five years were selected randomly. Chitradurga, Challakere and Hiriyur taluks were selected for the study as they had the highest onion production in the district. From these taluks, four villages from each taluk with the highest area under onion cultivation were selected for the study. The data was collected by personal interview method with the help of interview schedule developed for this purpose. The collected data were scored, tabulated and analyzed by using suitable statistical tools like frequency, percentage, mean, standard deviation and correlation test.

The knowledge level of the respondents was assessed separately for production and marketing practices. Individual statements relating to important onion production and marketing practices were included in the interview schedule and the responses of the respondents were recorded. The responses were scored and classified to obtain the knowledge level of the respondents. Based on the obtained scores, respondents were categorized into low, medium and high knowledge groups. The individual practices were also examined using frequency and percentage to identify the practices about which farmers possessed relatively

higher or lower knowledge.

The assessment of individual knowledge items helped in identifying specific areas requiring attention rather than considering only the overall knowledge category. The production knowledge assessment included practices related to varieties and seed selection, soil and soil enrichment, sowing, seed rate, seed treatment, nutrient management, spacing, irrigation, weed management, pest and disease management, water use efficiency, crop yield estimation and use of organic manures. Marketing knowledge included awareness regarding APMCs, marketing procedures, marketing channels, storage, market information, payment arrangements, reasons for immediate disposal and other marketing-related aspects.

Results and Discussion

1. Knowledge level of the respondents about individual onion production practices

It can be observed from the Table 1 that cent per cent of the respondents had knowledge about soil type and soil enrichment the probable reason for this due to that, the soil testing prior to crop cultivation is most important aspect of crop cultivation. Therefore majority of the farmers were more interested to know about their soil type and soil nutrient status. Therefore respondents might had good knowledge about soil type and soil enrichment. followed by time of sowing and method of sowing as this was the basic practice with which farmer can cultivate onion and by knowing correct time of sowing farmers can obtain harvest at specified time and by knowing method of sowing farmers can produce better. Further, cent per cent of the respondents had knowledge regarding crop yield estimation as most of the farmers had high farming experience and it is obvious that they can estimate how much yield can be obtained in a given area with optimum usage of inputs, followed by method of irrigation adopted showed, cent percentage of knowledge owned by onion growers. As water is limited resource in crop production, where all the farmers are understood about judicious use of it even the same tendency is observed by the onion grower farmers also in terms efficient use of water and different methods of irrigation. Further, use of organic manures showed cent per cent knowledge by onion cultivars. As this was the best possible way to provide nutrients to the crops without deteriorating the quality of the soil. Further, 96.67 per cent of the onion growers had knowledge regarding seed rate requirement per acre as it was necessary to know how much seeds are required to apply to a given area to obtain maximum yields and 93.33 per cent of the respondents had knowledge about the varieties suited for cultivation the probable reason for this may be due to that the varieties will be having specifications which might not be suitable for certain soil types and climatic conditions, thus most of the respondents had knowledge regarding varieties suited for cultivation in their areas. Therefore, most of them might had knowledge about these practices.

Further, 56.66 per cent of the respondents had knowledge about seed treatment aspects, this was due to poor reach of extension efforts regarding treatment of seeds, and less knowledge about chemicals used for seed treatment and even the farmers might neglected taking seed treatment in crops production practices. about half of the 52.50 per cent of them had knowledge about use of recommended weedicides as most of the farmers had no knowledge of application of weedicides and also high cost of weedicides may be another reason for this result and 51.67 per cent had knowledge about spacing required in onion cultivation as most of the farmers followed broadcasting method sowing

and only a limited number of them practiced POP spacing for onion crop. Since the onion cultivation is taken in these areas in both broadcasting and transplanting methods where in both the methods farmers were taken expected yield. Because of this reason the respondents might had less knowledge about spacing of onion cultivation. The results are in line with the results reported by Budihal (2001) ^[1].

The pattern of knowledge observed across individual production practices indicates that farmers possessed relatively better knowledge of practices that were commonly performed and experienced repeatedly during onion cultivation. Knowledge was particularly high for soil type and soil enrichment, time of sowing, method of sowing, crop yield estimation, irrigation practices and use of organic manures. These practices are directly associated with routine farm operations and therefore farmers are likely to acquire knowledge through repeated field experience and interaction with other farmers. In contrast, comparatively lower levels of knowledge were observed for spacing, use of weedicides and seed treatment. These practices require more specific technical understanding and may depend upon access to extension advice and knowledge of recommended technologies. The relatively lower knowledge regarding seed treatment is particularly important because treatment of planting material is an important preventive measure in crop production. Similarly, inadequate knowledge regarding recommended spacing and weed management may affect the uniformity and management of the crop.

The findings are comparable with Baraker *et al.* (2020) ^[10], who reported that onion growers in Gadag district of Karnataka had medium overall knowledge and comparatively lower knowledge regarding certain improved production technologies. Vijayakumar Naik *et al.* (2015) ^[14] also reported variation in knowledge among onion growers with respect to recommended cultivation practices. The similarity of these findings suggests that repeated field experience may result in better knowledge of routine practices, whereas technically specific practices may require greater extension support.

Table 1: Knowledge level of the respondents about individual onion production practices

Sl. No.	Production practices	Knowledge level	
		Frequency	Percentage
1.	Varieties/ seed selection	112	93.33
2.	Soil type and soil enrichment	120	100.00
3.	Time of sowing	120	100.00
4.	Method of sowing	120	100.00
5.	Seed rate requirement per acre	116	96.67
6.	Seed treatment aspects	68	56.66
7.	Quantity of NPK used	101	84.16
8.	Spacing in onion cultivation	62	51.67
9.	Frequency of irrigation	97	80.83
10.	Use of weedicides	63	52.50
11.	Pest management	95	79.16
12.	Use of chemicals (Insecticides)	75	62.50
13.	Disease management	102	85.00
14.	Use of chemicals (Fungicides)	77	64.16
15.	Crop yield estimation	120	100.00
16.	Water use efficiency	85	70.83
17.	Adopted method of irrigation	120	100.00
18.	Total irrigations per season	120	100.00
19.	Use of organic manures	120	100.00

2. Overall knowledge level of the respondents about the production of onion

The data presented in Table 2 revealed that majority (72.50%) of

the respondents had a medium level of knowledge about production. Whereas, 16.67 and 10.83 per cent of respondents had low and high level of onion production knowledge, respectively. The probable reasons for the notable results may be due to majority of the respondents having high school and PUC education, and onion farming practice followed from more than one decade where the area selected was onion traditional farming belt which resulting majority of farmers had medium knowledge on onion production. Further, the study revealed that majority of the respondents had medium level of orientation towards different sources of information. The findings are in line with results of the studies conducted by Chavan (2005) ^[2], Dhakane (2005) ^[3], Sawnt (2006), Vijayakumar R. Naik (2012) ^[14].

The predominance of the medium knowledge category suggests that the respondents were familiar with the commonly followed onion production practices but did not possess uniformly high knowledge across all recommended technologies. The presence of 16.67 per cent respondents in the low knowledge category further indicates that a section of the farmers may require additional technical guidance regarding improved production practices. At the same time, the presence of 10.83 per cent respondents in the high knowledge category indicates that higher levels of knowledge are achievable among onion growers under the existing farming environment. The results also indicate the importance of strengthening farmer-oriented extension activities. Regular training programmes, method demonstrations, field visits and timely dissemination of technical information can help farmers improve their knowledge of practices that are less familiar to them. Greater emphasis may be given to seed treatment, recommended spacing, weed management, plant protection and other practices where the present study recorded comparatively lower knowledge levels.

A similar medium level of knowledge among onion growers has been reported in other studies. Baraker *et al.* (2020) ^[10] found that 42.50 per cent of onion growers in Gadag district belonged to the medium knowledge category. Kumari *et al.* (2019) ^[11] also reported that a majority of onion farmers in Nagaur district of Rajasthan had a medium level of knowledge regarding improved cultivation practices. These findings provide support for the present observation that onion growers may possess adequate knowledge of routine practices while requiring additional technical information for specific improved technologies.

Table 2: Overall knowledge level of the respondents about production practices of onion

Sl. No.	Category	Frequency	Percentage
1.	Low	20	16.67
2.	Medium	87	72.50
3.	High	13	10.83

3. Knowledge level of the respondents about individual onion marketing practices

The responses given by the individual farmers regarding marketing knowledge are presented in the Table 3. It is apparent from Table 4 that 97.50 per cent of respondents had knowledge on reasons for onion glut in the market. The reason for this may be that, perhaps it is known by all the farmers that excess production of any produce leads glut in the market. Even onion growers are also has same tendency about this aspect so the respondents may had good knowledge about glut of the onion in market areas, 92.50 per cent of respondents had knowledge about selling onion to pre-harvest contractors or local traders the reason for this may be that the most of the farmers had previous

agreements of selling their produce immediately after harvesting to pre-harvest contractors or local traders for various reasons like immediate financial requirement, to avoid risk of price fall and 90.00 per cent of respondents had knowledge about the facilities provided by the APMCs as farmers are frequently marketing in APMCs, most of them had knowledge about various facilities provided in APMCs. Even most of them aware about effective and efficient marketing conditions in the APMCs. This resulted in increase in knowledge level of above stated marketing knowledge statements.

However, 77.50 per cent of respondents had knowledge on different methods of onion storage as most of the farmers immediately sell their produce to avoid the risk of price fall, many of them had less knowledge regarding different methods of onion storage and different channels available for onion marketing. Further, 75.83 per cent of onion growers had knowledge about awareness on overseas markets as most of the farmers were marketing their produce in local markets and nearby markets, in spite many farmers were known other marketing opportunities particularly on-line marketing, overseas marketing, commodity.com. Forward linkage, contract farming etc., these marketing opportunities will boost the onion cultivation area by the farmers. Therefore they had good knowledge on this aspect and 7.50 per cent of respondents inferred that they get market information through farm magazines as most of the farmers were depended on interpersonal sources and getting market information directly by visiting markets and other reliable media sources, only a meagre number of them were dependent on farm magazines for market information. These results are supported with the study of Nagabushana (2001) and Yashodara (2011).

The relatively high knowledge regarding reasons for onion glut indicates that farmers were familiar with the market conditions affecting the disposal and price realization of onion. Similarly, the high proportion of respondents having knowledge about selling onion to pre-harvest contractors or local traders suggests

that these marketing arrangements were familiar to the growers. Knowledge regarding APMC facilities and the APMC pledge loan scheme was also comparatively high, indicating that a considerable proportion of farmers were aware of formal market-related facilities. However, knowledge regarding market information sources and storage practices showed considerable variation. Only 7.50 per cent of the respondents reported knowledge of obtaining market information through farm magazines. This indicates that farm magazines were not an important source of market information for most respondents. The findings also show that knowledge regarding different storage methods was lower than knowledge regarding several other marketing practices. Since immediate disposal of onion after harvest is common among farmers, strengthening knowledge about appropriate storage practices could provide farmers with additional options for deciding when and where to sell their produce.

The results are comparable with the findings of Yashodhara *et al.* (2012) ^[9], who studied marketing knowledge and problems among onion growers in Chitradurga district and reported variation in the level of marketing knowledge among farmers. Sahu *et al.* (2021) ^[12] also reported knowledge gaps among onion farmers in relation to market intelligence and post-harvest management practices. These findings highlight the importance of providing farmers with timely and reliable information not only on production technologies but also on storage, markets and post-harvest management.

The comparatively lower knowledge regarding some marketing practices suggests that extension efforts should not be restricted to production technologies. Farmers may also benefit from training on market information, storage methods, alternative marketing channels, APMC procedures and available institutional facilities. Better access to such information can help farmers make more informed decisions regarding the timing and place of sale of their produce.

Table 3: Knowledge level of the respondents about individual marketing practices of onion

Sl. No.	Items of marketing knowledge	Knowledge level	
		Frequency	Percentage
1.	Aware about overseas market	91	75.83
2.	Aware about APMCs	103	85.83
3.	Facilities provided by the APMCs to farmers	108	90.00
4.	Procedure for marketing of onion in APMCs	104	86.66
5.	On the spot/ delayed payments	95	79.16
6.	Selection of appropriate marketing channel	102	85.00
7.	Reasons for onion glut in the market	117	97.50
8.	Different methods of onion storage	93	77.50
9.	Aware about APMCs pledge loan scheme	106	88.33
10.	Selling of onion to pre-harvest contractors or local traders	111	92.50
11.	Market information through farm magazines	9	7.50
12.	Timely market information from media sources	100	83.33
13.	Reasons for immediate disposal of produce	101	84.16
14.	Practices regarding extending the storage period	99	82.50
15.	Benefits of marketing of onion in APMCs	105	87.50

4. Overall knowledge level of the respondents about the marketing of onion

The results presented in Table 4, shows that majority (70.84%) of the onion growers belongs to medium level of marketing knowledge category. Whereas, 15.83 per cent and 13.33 per cent of the respondents belonged to low and high level marketing knowledge categories, respectively. The probable reasons for these results may be the medium level of exposure to different

sources of information and medium level of market orientation. These results are supported by the study conducted by Yashodara.

The predominance of the medium marketing knowledge category indicates that the respondents possessed a reasonable understanding of marketing practices but that their knowledge was not uniformly high across all aspects of onion marketing. The presence of 15.83 per cent respondents in the low

knowledge category indicates the need for greater extension support in marketing-related activities. In particular, greater attention may be given to market information, storage, alternative marketing channels and institutional marketing facilities.

The findings also suggest that production knowledge and marketing knowledge should be considered together while planning extension interventions for onion growers. Farmers may possess adequate knowledge about crop production but may still require additional information regarding storage, market intelligence and selection of suitable marketing opportunities. Therefore, extension programmes aimed at onion growers should provide integrated information covering production as well as post-harvest and marketing practices.

The findings of the present study are broadly comparable with previous research on onion growers. Vijayakumar Naik *et al.* (2015)^[14] and Baraker *et al.* (2020)^[10] reported variation in knowledge levels regarding onion production technologies, while Yashodhara *et al.* (2012)^[15] reported variation in marketing knowledge among onion growers of Chitradurga district. Thus, strengthening both production and marketing knowledge can be considered an important component of improving the overall capacity of onion growers.

Table 4: Overall knowledge level of the respondents about marketing practices of onion

Sl. No.	Category	Frequency	Percentage
1.	Low	19	15.83
2.	Medium	85	70.84
3.	High	16	13.33

Conclusion

It is concluded that the majority of the onion growers had a medium level of knowledge regarding both production and marketing practices. Regarding production, 72.50 per cent of the respondents belonged to the medium knowledge category, while 16.67 per cent and 10.83 per cent belonged to low and high knowledge categories, respectively. Among the individual production practices, knowledge was highest for soil type and soil enrichment, time of sowing, method of sowing, crop yield estimation, adopted method of irrigation, total irrigations per season and use of organic manures. Comparatively lower knowledge was observed regarding spacing, use of weedicides and seed treatment.

Regarding marketing, 70.84 per cent of the respondents belonged to the medium knowledge category, while 15.83 per cent and 13.33 per cent belonged to low and high knowledge categories, respectively. Farmers had relatively higher knowledge regarding reasons for onion glut, selling to pre-harvest contractors or local traders, facilities provided by APMCs and the APMC pledge loan scheme. Comparatively lower knowledge was observed regarding market information through farm magazines and different methods of onion storage. The findings indicate that onion growers were familiar with many routine production and marketing practices, while specific technical and market-oriented areas require greater attention. Therefore, extension interventions should place greater emphasis on seed treatment, recommended spacing, weed management, plant protection, storage practices, market information and alternative marketing opportunities. Regular training programmes, demonstrations and timely dissemination of technical information can help strengthen the knowledge base of onion growers and support better management of production and marketing activities.

References

1. Budihal RA. Utilization pattern of cotton production technology by farmers of northern Karnataka [PhD thesis]. Dharwad, Karnataka: University of Agricultural Sciences; 2001.
2. Chavan SS. A study on adoption of recommended package of practices in grape cultivation by the growers in Sangli district of Maharashtra. Akola, Maharashtra: Dr. Panjabrao Deshmukh Krishi Vidyapeeth; 2005.
3. Dhakane SS. A study of knowledge and adoption of recommended grape production technology in Barshi tahsil of Solapur. Rahuri, Maharashtra: Mahatma Phule Krishi Vidyapeeth; 2005.
4. Naghabushana M. Marketing practices and problems of vegetable growers in Kolar district, Karnataka. Bangalore, Karnataka: University of Agricultural Sciences; 2001.
5. Sawant MS. A study of adoption of turmeric production technology in Satara district. Rahuri, Maharashtra: Mahatma Phule Krishi Vidyapeeth; 2006.
6. Sekhon MK, Kaur M. Role of small farmers in diversification of Punjab agriculture with vegetables. *Indian Journal of Agricultural Marketing*. 2004;18(1):80-88.
7. Vijaykumar R Naik. A study on knowledge and adoption of recommended cultivation practices of onion by farmers. Dharwad, Karnataka: University of Agricultural Sciences; 2012.
8. Weinberger K, Lumpkin TA. High value agricultural products in Asia and the Pacific for the small holder farmers: trend, opportunities and research priorities. In: *Proceedings of the workshop "How can the poor benefit from the growing markets for high value agricultural products?"* Cali, Colombia: International Center for Tropical Agriculture; 2006.
9. Yashodhara B. A study on marketing behaviour of onion growers in Chitradurga district of Karnataka. Bengaluru, Karnataka: University of Agricultural Sciences, GKVK; 2011.
10. Baraker SK, Lalitha KC, Manjunath KV, Reddy DA. Knowledge level of onion growers on improved onion production technologies in Gadag district of Karnataka. *Current Journal of Applied Science and Technology*. 2020;39(31):1-6.
11. Kumari A, Singh G, Choudhary MD. Knowledge level of farmers about improved cultivation practices of onion farmers in Nagaur district of Rajasthan. *Journal of Community Mobilization and Sustainable Development*. 2019;14(3):609-613.
12. Sahu S, Sharma JP, Burman RR, Varghese E, Sharma RR, Kumar P. Assessment of knowledge and adoption pattern of post-harvest management practices by Maharashtrian onion farmers. *The Indian Journal of Agricultural Sciences*. 2021;91(12).
13. Verma J, Bose DK. The knowledge of improved onion production practices of farmers in Gaya district in Bihar. *Journal of Experimental Agriculture International*. 2023;45(8):59-65.
14. Vijayakumar Naik R, Naveen Kumar P, Gopal YM, Elalli RC, Dhananjaya Swamy PS. Knowledge and adoption behavior of recommended cultivation practices by the onion growers. *Trends in Biosciences*. 2015;8(13):3318-3325.
15. Yashodhara B, Narasimha N, Gopala YM. Marketing knowledge and problems faced by onion growers of Chitradurga district of Karnataka. *Research Journal of Agricultural Sciences*. 2012;3(6):1192-1194.