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Production and marketing constraints of onion growers in Chitradurga district of Karnataka

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Abstract

The present investigation has been carried out with a view to identify the constraints in production and marketing of onion in Chitradurga district. The total sample size of 120 farmers cultivating onion were considered as sample for the study by using simple random sampling method. Various constraints regarding production and marketing has been identified. The results of the study revealed and as expressed by the respondents, among them unavailability of seed material at the right time with Mean Constraint Severity Score (MCSS) 1.94 was identified as the most severe constraint faced by onion growers in production of onion. Unavailability of genuine seed material and occurrence of natural calamities with MCSS 1.92 and 1.91 were identified as major constraints in production, respectively. In marketing of onion, Fluctuation in market price was identified as the most severe constraint faced by onion growers with MCSS of 1.95, followed by inefficient auction platform with MCSS 1.79 and intervention of commission agents with MCSS 1.78 were identified as the major constraints in marketing of onion.

Keywords: Constraints, marketing, production, severity, suggestions

Introduction

A global review of area and production of major vegetables shows that onion ranks second in area under cultivation and third in production of the total vegetables in the world. India ranks second in the area under onion (1.43 million hectares) and second in production (26 million tonnes) with the productivity of 13.66 tonnes per hectare, next only to China. 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. Karnataka occupies second place in the area (53 thousand hectares) and second in production (2.202 million tonnes) with the productivity of 7.45 tonnes per hectare, and its share is 8.47 per cent in the country.

In Karnataka, the Dharwad district is the largest onion producer and has about 22,010 hectares with a production of 3,84,207 tonnes and productivity of 17.46 tonnes per hectare. Chitradurga stands next to Dharwad and it has about 12,368 hectares with a production of 3,33,888 tons and productivity of 19.89 tonnes per hectare. In recent years, the growing demand for onions driven by rising income and changing consumption habits and 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) [5]. 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) [3]. Under the current circumstances, onion cultivating farmers are facing many constraints in both production and marketing aspects. Due to insufficient storage facilities and financial constraints, onion growers typically send their produce to market for sale shortly after harvest. As a result, there is an excessive supply of onions in the market, resulting in a drop in onion market prices (Asmatoddin *et al.*, 2009) [1]. The market prices might often drop to as low as one rupee per kilogramme. Farmers are losing returns from onion in various stages, including natural calamities, particularly during severe drought and floods. There is also massive wastage, deterioration in quality as well as frequent mismatch between demand and supply both spatially and over time (Singh *et al.*, 1985) [4]. Though farmers are able to grow onion at a surplus level, the production and marketing constraints are becoming complex. The production of onion is influenced by several biological, climatic, technological and economic factors. Farmers require timely availability of quality seed, fertilizers, plant protection chemicals, irrigation, labour and machinery to maintain the productivity of the crop. Any interruption in the supply of these inputs may increase the cost of cultivation or affect the yield obtained by farmers. In addition, weather variability and natural calamities can adversely affect onion production and may increase the uncertainty associated with onion cultivation.

Marketing constraints are equally important because onion is a highly price-sensitive agricultural commodity. The price received by farmers is influenced by market arrivals, demand

and supply conditions, transportation costs, storage facilities and the number of market functionaries involved in the marketing process. Farmers who are unable to store their produce may be compelled to sell soon after harvest, particularly when immediate cash requirements exist. Such circumstances can increase the possibility of distress sale when market prices are low.

Studies have reported that onion growers face constraints at different stages of production and marketing. Kumar *et al.* (2020) ^[8] reported high costs of pesticides and fertilizers, inadequate knowledge of recommended production practices and difficulties in pest and disease management among onion growers in Nuh district of Haryana. In marketing, high transportation costs, absence of minimum support price and price fluctuations were reported as important problems. Baraker *et al.* (2020) ^[6] also reported several production and marketing constraints among onion growers in Gadag district of Karnataka.

Studies conducted in other onion-growing regions have similarly highlighted price fluctuation, transportation costs, storage limitations and input-related problems. Shukla *et al.* (2019) ^[10] identified labour scarcity during peak periods and frequent price fluctuations as major constraints faced by onion growers in Nashik district. Palanisamy *et al.* (2022) ^[9] reported labour problems, price fluctuation, inadequate storage and lack of knowledge about pest and disease management among onion growers in Perambalur district. These findings indicate that the nature and intensity of constraints may differ according to the production environment, market infrastructure and institutional conditions prevailing in different regions.

Therefore, identification and ranking of constraints at the farmer level is important for understanding the major bottlenecks affecting onion production and marketing. Assessment of the severity of individual constraints can help in identifying priority areas for extension intervention, input supply, market support, storage facilities and other institutional measures. In this context, the present study was undertaken to identify and rank the production and marketing constraints faced by onion growers in Chitradurga district of Karnataka. Keeping the above-stated facts in view, the present study was undertaken to ascertain the production and marketing constraints onion growers face.

Methodology

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

Constraints in production and marketing

In this study, the constraints are the aspects that an individual farmer faces during production, marketing and processing of onion. Every identified constraint with the farmers has been

measured on the three-point quantum according to the degree of severity i.e., most severe, moderately severe and not severe at all with a score of two, one and zero scores, respectively. Based on obtained severity score for each constraint, Mean Constraint Severity Score (MCSS) has been obtained with the following formula:

$$\text{MCSS} = \frac{\text{Obtained severity score of constraints}}{\text{Total number of respondents}}$$

The Mean Constraint Severity Score (MCSS) was used to obtain a comparative measure of the severity of individual constraints reported by the respondents. A higher MCSS indicated greater perceived severity of the particular constraint among the onion growers, whereas a lower MCSS indicated relatively lower severity. The constraints were subsequently ranked according to their MCSS values. This method enabled the major constraints to be identified separately for production and marketing and facilitated comparison of the relative importance of the problems reported by the respondents.

The constraints were assessed based on the perception of the selected onion growers during the study period. Therefore, the ranking represents the severity of constraints as perceived by the respondents in the selected study area. The analysis provides an indication of the priority areas requiring attention in onion production and marketing under the conditions prevailing in Chitradurga district.

Results and Discussion

1. Constraints in production of onion

The results from Table 1 represent different constraints faced by onion growers in the production aspects and they were ranked based on the Mean Constraint Severity Score (MCSS). The most severe constraint faced as per MCSS was the unavailability of seed material at right time 1.94, followed by unavailability of genuine seed material with MCSS 1.92 and occurrence of natural calamities with MCSS of 1.90 were identified as the most severe constraints faced by onion growers in the production of onion. In crop production aspects, the problem occurrence is evident, which are may be due to poor management practices and natural calamities. However, problems prevailing in all the aspects of crop production are may be manageable to a certain extent. It was observed that the critical factor in crop production is the availability of seed material at right time, including fertilizers and chemicals.

On the other hand, seldom occurrence of natural calamities during crop production is another major constraint. These constraints severely affect crop yield so that the returns are drastically reduced. Even the same tendency was observed in the present study, i.e. the most severe constraints as unavailability of seed materials at the right time, unavailability of genuine seed material, and occurrence of natural calamities will hamper the production. These are the reasons which resulted in the most severe production constraints.

Further, unavailability of suitable plant protection chemicals in nearby places with MCSS of 1.62 followed by unavailability of machinery/ equipments with MCSS of 1.52 and lack of knowledge about adoption of improved

cultivation practices with MCSS of 0.96 were identified as moderately severe constraints faced by onion growers in the production of onion. The probable reasons for the above-mentioned constraints may be the absence of plant protection chemical outlets in the locality, unavailability of right plant protection chemicals in the outlets, and very limited agencies functioning in rural areas that provide machinery/ equipments on hired bases onion cultivation. The limited reach of extension services in providing knowledge regarding improved cultivation practices might be hampered. Therefore, these issues were found to be moderate constraints in onion production.

However, the high cost of private advisory services/ input dealers/ companies with MCSS of 0.22 was identified as the least severe constraint. The probable reasons for this may be that private advisory organizations/ personnel provide services on a cost basis it is not affordable by most farmers.

By understanding this situation, the farmers depended on neighbours, friends, and impersonal sources of information in onion production. They felt these sources of information might solve onion cultivation problems. Lack of advisory service by horticulture extension personnel with MCSS of 0.20 was identified as the least severe constraint. The probable reason for this could be that there is a limited workforce in the department of horticulture, extension personnel may not visit the onion grower plots due to work pressure. However, farmers were perceived that the availability of horticulture extension personnel was not a severe constraint. Lack of availability of scientists to solve burning problems with MCSS of 0.19 was identified as the least severe constraint. The probable reason for this may be that the limited availability of scientists to provide solutions to farmers has resulted in above mentioned constraint being identified as least severe in onion production.

Table 1: Production constraints faced by onion growers

Sl. No.	Constraints in production	Mean Constraints Severity Score (MCSS)	Ranking of constraints
1.	Unavailability of seed material at the right time	1.94	I
2.	Unavailability of genuine seed material	1.92	II
3.	Occurrence of natural calamities	1.91	III
4.	High cost of machinery/ equipments	1.90	IV
5.	Irregularity of input supply	1.89	V
6.	Sudden weather changes during crop cultivation	1.85	VI
7.	Irregular supply of electricity	1.81	VII
8.	High cost of plant protection chemicals	1.80	VIII
9.	Complex procedures to avail credit facilities from financial institutions	1.72	IX
10.	Limited knowledge in identification of pest and disease	1.68	X
11.	Unavailability of suitable plant protection chemicals in nearby places	1.62	XI
12.	Unavailability of machinery/ equipments	1.52	XII
13.	Lack of knowledge about adoption of improved cultivation practices	0.96	XIII
14.	Limited knowledge on water use efficiency practices	0.92	XIV
15.	Lack of knowledge about use of appropriate chemicals for seed treatment	0.62	XV
16.	Less availability of organic fertilisers	.061	XVI
17.	High charges for machinery to hire machinery at custom hiring centre	0.51	XVII
18.	Lack of knowledge about fertigation	0.45	XVIII
19.	Inappropriate method of soil sample collection	0.38	XIX
20.	Lack of knowledge about the initiation of Farmer Producer Organisations	0.34	XX
21.	High cost of private advisory services/ input dealers/ companies	0.22	XXI
22.	Lack of advisory service by horticulture extension personnel	0.20	XXII
23.	Lack of availability of scientists to solve burning problems	0.19	XXIII

2. Constraints in the marketing of onion

The data presented in the Table 2 depicts the constraints faced by onion farmers regarding marketing aspects which are ranked on the basis of Mean Constraint Severity Score (MCSS). It is evident from the results that fluctuations in market price have been identified as the most severe constraint faced by onion growers with MCSS of 1.95 followed by inefficient auction platform with MCSS of 1.79 and intervention of commission agents with MCSS of 1.78 were identified as most severe constraints faced by onion growers with respect to the marketing of onion. The probable reasons for the above mentioned results may be that the main aim of the farmers was to increase production and income from onion marketing. But unfortunately, as the supply increases, demand and prices will decrease and vice versa, resulting in high price fluctuation in the market. Hence, the fluctuation in the market prices has been found to be a major constraint in the marketing of onion by onion growers. The

hidden auction process, malpractices, heavy market cess, and exploitation of farmers by incurring heavy cess and tax adversely affected farmers' produce. It was perceived as a severe problem among the farmers. Even the onion growers were also suffered from the existing auction platform. Further, the intervention of commission agents fetched farmers less price for their produce, and the commission agent exploitation was stated as another major constraint in the marketing of onion. These are the most severe marketing problems as perceived by the onion grower farmers.

Further, high cost of transportation with MCSS of 1.33 followed by illegal deductions while selling with MCSS of 1.19 and prolonged transactions with MCSS of 0.95 was identified as moderately severe constraints faced by onion growers in the marketing of onion. The probable reasons for the above mentioned results may be that due to long distance from their locality and market has resulted in high cost of transportation, masking of regulations in market yards during

the selling of the produce resulted in illegal deductions. Further, the absence of on the spot payments and lack of understanding between farmers and market functionaries has resulted in prolonged transactions. There are the reasons which resulted in the moderate severity of above-mentioned constraints.

On the other hand, constraints like inadequate physical facilities in the market yard with MCSS of 0.66, unaware about online marketing with MCSS of 0.63 and no information about overseas market with MCSS of 0.36 were

identified as the least severe constraints in marketing. The majority of the farmers were marketing their produce either at farm gates or in the market yard. During the farmer's visit to markets, there will not be adequate physical facilities in the market yard. Most of the farmers marketed their produce directly in the market and had sufficient knowledge about online marketing. The respondents preferred to sell their produce in local and nearby markets. These are the probable reasons for the least severity of above mentioned constraints

Table 2: Marketing constraints faced by onion growers

Sl. No.	Constraints in marketing	Mean Constraints Severity Score(MCSS)	Ranking of constraints
1.	Fluctuation in market price	1.95	I
2.	Inefficient auction platform	1.79	II
3.	Intervention of commission agents	1.78	III
4.	Faulty system of weighment	1.77	IV
5.	Less procurement from the government	1.74	V
6.	Markets are far away	1.71	VI
7.	No grading facilities	1.60	VII
8.	Malpractices adopted in the market	1.44	VIII
9.	Lack of market information	1.34	IX
10.	High cost of transportation	1.33	X
11.	Illegal deductions while selling	1.19	XI
12.	Prolonged transactions	0.95	XII
13.	Unscientific way of packaging and storage	0.91	XIII
14.	Hamali charges are more	0.88	XIV
15.	Delayed cash payment	0.87	XV
16.	Absence of storage facilities	0.80	XVI
17.	High commission charges	0.77	XVII
18.	Inadequate physical facilities in the market yard	0.66	XVIII
19.	Unaware about online marketing	0.63	XIX
20.	No information about overseas market	0.36	XX

3. Suggestions by onion growers to overcome production and marketing constraints

The suggestions provided by the respondents correspond closely with the major constraints identified in production and marketing. The highest proportion of respondents, 95.00 per cent, suggested timely supply of quality seeds, which is consistent with the finding that unavailability of seed material at the right time and unavailability of genuine seed material were the two most severe production constraints. This indicates that farmers' suggestions were closely related to the practical problems experienced during cultivation. The suggestion for providing support price during natural calamities was reported by 91.67 per cent of the respondents. This is relevant in view of the high severity assigned to natural calamities and price fluctuation. Farmers may face greater economic risk when adverse production conditions coincide with unfavourable market prices. The high proportion of respondents seeking timely market information also corresponds with the identified marketing constraints related to price fluctuation and lack of market information. About 86.66 per cent of respondents suggested a remedy to reduce the involvement of middlemen, while 84.17 per cent suggested appropriate transportation facilities. These suggestions correspond with the reported severity of

commission agent intervention and distance of markets. Similarly, 80.83 per cent of respondents suggested training in production, marketing and processing, indicating the need for integrated capacity building rather than focusing exclusively on production technologies.

The suggestion made by 77.50 per cent of respondents regarding information on low-cost storage techniques is particularly relevant because storage can provide farmers with an alternative to immediate disposal of produce after harvest. The importance of storage and market-related interventions has also been highlighted in previous studies on onion growers. Yashodhara *et al.* (2012) ^[11] reported storage facilities and transportation among important marketing concerns of onion growers in Chitradurga district. Kumar *et al.* (2020) ^[8] also reported transportation and price-related problems among onion farmers.

Overall, the suggestions indicate that the respondents preferred interventions addressing both production-side and marketing-side constraints. Timely availability of quality seed, better market information, improved transportation, appropriate storage knowledge, training and measures addressing price-related risks were among the major areas identified by the farmers. (Table 3)

Table 3: Suggestions by onion growers to overcome production and marketing constraints

Sl. No.	Suggestions	Frequency	Percentage
1.	Timely supply of quality seeds	114	95.00
2.	Training on various aspects of production, marketing and processing of onion	97	80.83
3.	Information on low-cost storage techniques	93	77.50
4.	Appropriate transportation facility need to provide	101	84.17
5.	Support price for the produce during natural calamities.	110	91.67
6.	Remedy to reduce the involvement of middlemen in the market	104	86.66
7.	Need timely availability of market information	107	89.17

Conclusion

The study revealed that onion growers in Chitradurga district faced several production and marketing constraints of varying severity. Among the production constraints, unavailability of seed material at the right time was ranked first with an MCSS of 1.94, followed by unavailability of genuine seed material with an MCSS of 1.92 and occurrence of natural calamities with an MCSS of 1.91. High cost of machinery, irregularity of input supply, sudden weather changes, irregular supply of electricity and high cost of plant protection chemicals were also important production constraints. Among the marketing constraints, fluctuation in market price was the most severe constraint with an MCSS of 1.95, followed by inefficient auction platform with an MCSS of 1.79 and intervention of commission agents with an MCSS of 1.78. Faulty system of weightment, less procurement from the government, distance of markets, lack of grading facilities and malpractices in the market were other important constraints reported by the respondents.

The suggestions provided by the farmers were consistent with the constraints identified in the study. The majority of the respondents suggested timely supply of quality seeds, support during adverse production and market conditions, timely market information, measures to reduce problems associated with intermediaries, appropriate transportation facilities, training on production and marketing practices and information on low-cost storage techniques. The findings indicate that improvement in onion production and marketing requires attention at multiple stages. Timely availability of quality inputs, improved access to technical information, better market infrastructure, reliable market information, transportation and storage facilities can help address several of the constraints identified by the farmers. Extension agencies and other concerned institutions may give priority to the constraints perceived as most severe by the growers while planning interventions for onion production and marketing in the study area.

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