

Study on Cultivators Associating Post Harvest Losses of Onion Vegetable in Sindh's Mirpurkhas District

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Abstract: A study was carried out in Mirpurkhas District of Sindh Province during the year 2015-16, aiming to observe post-harvest losses of onions associated with the cultivators. Following the random sampling 60 respondents were selected from 12 villages of 06 Talukas in the District. Interviews were conducted for the collection of data. Problems expressed were as: high cost of fertilizers (93.33%), high cost of pesticides (93.33%), hand weeding is labour consuming and expensive (91.66%), labour problems during harvesting (85%), ineffective and costly weedicides (80%), lack of knowledge about recommended fertilizers doses for onion crop (80%) and lack of knowledge about improved varieties (68.33%). The problems in marketing of onion include lack of remunerative price (96.66%), fluctuation in market price (93.33%) and high charges of transportation (20%). The present study suggested that training/ awareness programs should be conducted for cultivators regarding establishing technical storage and handling onion problems.

Keywords: Onion cultivators, Mirpurkhas, Post-harvest losses, Suggestions.

1. INTRODUCTION

Onion has significant nutritional and medicinal properties which is primarily consumed for its unique taste enhancing the flavor of other foods. Among allium groups (shallot and garlic) the production and extent of onion is much higher [1]. Pakistan has been on the list of the leading onion producers of the world. China ranks first in the world with respect to onion production followed by India, USA, Turkey, Pakistan, Iran, Indonesia, Vietnam and Myanmar [2]. During 2014-15, the production of onions recorded an increase of 1.3 percent, comparing to production of same period last year. The reason for increase in production is increase in area cultivated. In Pakistan, onion is grown on an area of 135.1 thousand hectares with an annual production of 1,763.0 thousand tones, being also an important vegetable of the country [3]. The major onion growing districts in Sindh are Hyderabad, Mirpurkhas, Tando Allahyar, Matiari, Sanghar, Sukkur and Shaheed Benazirabad. The major areas with onion crop grown in the country is Sindh with 63.2 thousand hectares followed by Punjab, Balochistan and KPK with 44.7, 28.7 and 11.0 thousand hectares respectively [4].

The onion produced in summer season can be stored for 5-6 months, onions have low storage ability

and bulbs are usually stored until the harvest of next season. In result, a significant loss in quantity and quality of onion occurs during storage. The post-harvest losses, viz., sprouting, rotting, fungus and physiological loss in weight pose a great problem in storage [5]. The yield of Onion in Pakistan is mostly surplus and the grower temporarily store their produce in field, under shelters, shades and rooms under ambient conditions which increase post-harvest losses and decrease quality [6]. It has been reported that 94.16 percent respondents face the problem of lack of technical guidance [7]. High cost of good quality seeds and labours, water shortage, load shedding, weed infestation, lack of knowledge about fertilizers or chemicals and their dosage or time intervals, less or no storage facilities as well as scarcity of pest and disease management practices were reported to be major constraints for onion growers [8]. Curing methods, storage conditions and duration do significantly affect the quality of onion bulbs [9]. During storage of onion bulb a desired environment with raised platform is provided to get minimum weight loss and maximum revenue [10, 11].

Most farmers aim at increasing yield but may not pay sufficient attention to the quality of the produce, leading to low market value. Poor handling contributes to postharvest losses through the use of certain common practices or failure in using technological practices. Most of these improper practices and conditions cannot be labeled technical problems as

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they cannot be solved by initiating new research or simply by extending well-proven technical information [12]. Main factors which lead to deterioration of onion bulbs during storage are pre and post harvest conditions and biological factors like respiration, resumption of growth and pathogen attacks. Bulb with any scale of water and or under rots is considered unfit for marketing [13].

Appropriate production practices including careful harvesting, proper packaging, storage and transport all contribute to produce good quality [14]. Although, there is high production of onion vegetable in the selected district which growers do not obtain due to improper handling practices. Keeping in view these facts, this study was carried out to identify the post harvest problems experienced by the onion growers in the study area regarding onion production and marketing.

2. MATERIALS AND METHODS

The present investigation was carried out in Mirpurkhas District of Sindh province during the Year 2015-16. The district was selected for the study for being well known for high onion vegetable being grown in the region. All Taluka's *i.e.* Mirpur Khas, Digri, Kot Ghulam Muhammad, Jhudo, Sindhri and Hassain Bux Muree were selected by employing the random sampling method. Two villages were selected randomly from each Taluka. The cultivation practices throughout the taluka are uniform. Hence, two villages were selected randomly from each taluka with low possibility of bias. Thus a total of 12 villages (*i.e.* Mirwah, Jhalori, Chan mori, Akber abad, Mehar bota, Haji shafi, Muhammad bota kambo, Haji Mhuammad Yousaf, Baloch abad, Sindhri, Khan and Old Mirpurkhas) were selected for the study. The respondents were also selected by adopting random sampling method. Each village was sub-divided into head, middle and tail sections. Five farmers were interviewed from each village, 2 respondents from head, 1 from middle and 2 from tail. Thus, a total of 60 respondents were selected from 12 villages. Information was collected using structured questionnaire (Table 1). The perception of respondents regarding different problems in production and post-harvest management were noted and analyzed. The questions asked were mainly about the following information:

- Pre-planting practices such as seed handling, land preparation activities, nursery bed preparation.

- Planting operations like sowing and transplanting.
- Post planting activities like weeding, fertilizer application, insect/disease prevention and control, irrigation as well as onion cultivator's knowledge and marketing problems.

Table 1: Questionnaire about Production and Post-Harvest Problems

S. No.	Production problems
1	Seed and seed treatment
	i. Lack of knowledge about improved varieties
	ii. Lack of knowledge about/ seed/seedling treatment
	iii. Non-availability of seed and planting material in time
2	Fertilizer application
	i. High cost of fertilizers
	ii. Non-availability to fertilizer in time
	iii. Lack of knowledge about recommended fertilizer doses for onion crop
3	Weed management
	i. Hand weeding is labour consuming and expensive
	ii. Labour problem for weeding
	iii. In-effective and costly weedicides
4	Disease and pest management
	i. Difficulty in identifying the pests and diseases
	ii. Lack of knowledge about the control measures for various pests and diseases
5	Harvesting
	i. Lack of knowledge about proper harvesting time
	ii. Labour problem during harvesting
6	Storage
	i. Lack of knowledge about curing
	ii. Lack of knowledge about grading
	iii. Lack of knowledge about improved storage structure
	iv. Costly storage facilities
v. Lack of knowledge about handling or care during storage	
7	Post-Harvest problems
	i. Lack of remunerative price
	ii. Fluctuation in market price
	iii. High charges on transportation
	iv. Inadequate transportation facilities
v. Non-availability of market information	

3. RESULTS

The production problems expressed by onion cultivators are shown in Figures 1-7. The data indicates that 68.33% of the respondents were having lack of knowledge about improved varieties, 56.66% of the respondents having lack of knowledge about seeds or seedlings treatment followed by non-availability of seeds in time, 10% and 21.66% of the high cost of seed (Figure 1). The majority 93.33% of the respondents reported the problem of high cost of fertilizers followed by non-availability of fertilizers in time, lack of knowledge about recommended fertilizer doses and difficulty in designing doses of fertilizers with different soil types were the problems expressed by 6.66%, 80% and 70% of respondents respectively (Figure 2). This might be due to the fact that there was hike in the prices of inputs every year. Therefore, a suitable policy is needed in agriculture to frame taking care of these problems.

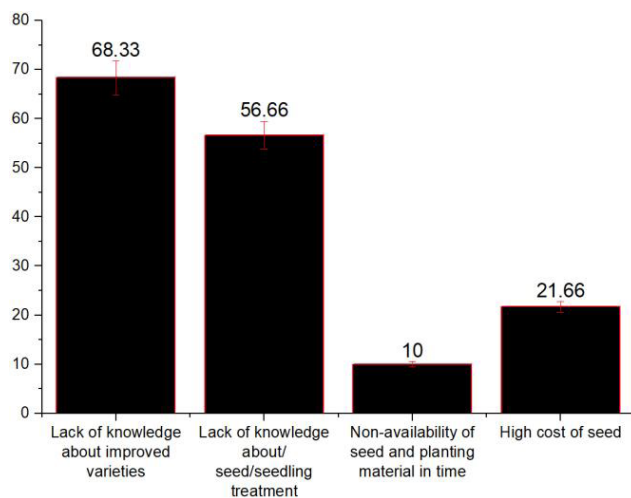


Figure 1: Respondents perception about seed and seed treatment problems.

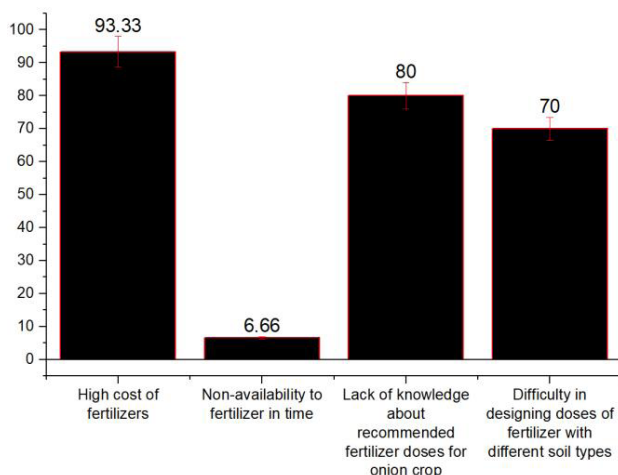


Figure 2: Respondents perception about fertilizer application problems.

With regards to weed management, 91.66% of the respondents were of the opinion that hand weeding is labour consuming and expensive followed by labour problem for weeding, ineffective and costly weedicides which were expressed by 55% and 80% of respondents respectively (Figure 3). Shortage of labour and high wage rate was the problems associated with weed management and harvesting operation of crop. It might be due to the fact that majority of cultivators are holding small and medium land in the study area.

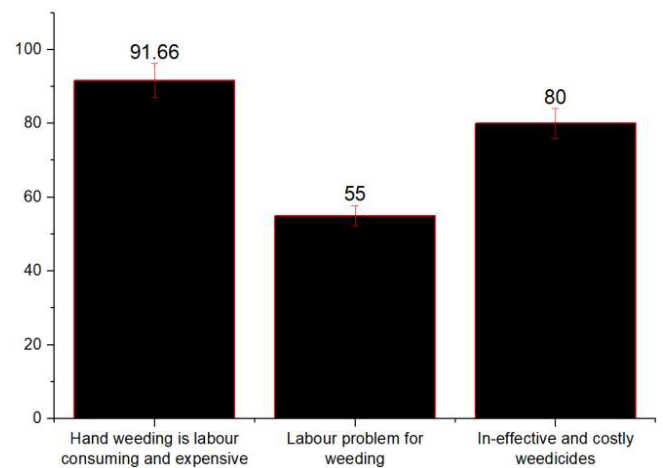


Figure 3: Respondents perception about weed management problems.

In case of diseases and pest management, 65% of the respondents expressed about difficulty in identifying the pests and diseases, 75% of the respondents having lack of knowledge about the control measures for various pest and diseases and 93.33% of the respondents having a problem of high cost of pesticides (Figure 4). In case of harvesting, 16.66% of the respondents had lack of knowledge about proper

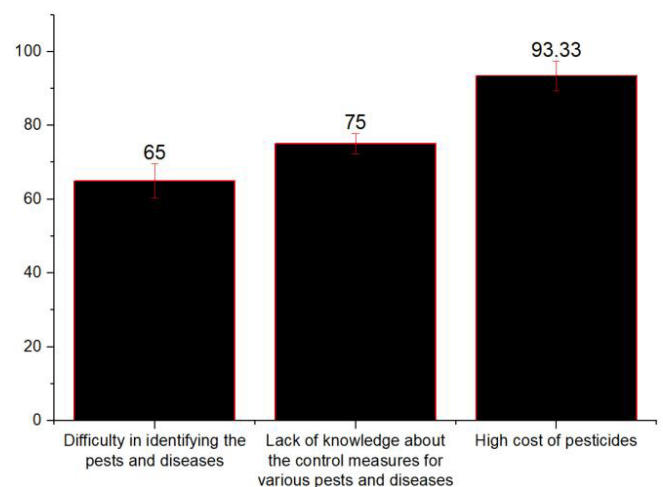


Figure 4: Respondents perception about disease and pest management problems.

harvesting time followed by labor problem during harvesting and lack of knowledge about improved method of harvesting were the problems expressed by the 85% and 80% of respondents respectively (Figure 5). The data confirmed that in the study area technical knowledge rate was very poor hence; state should arrange technical education in farming sector as they identify their problems in crops.

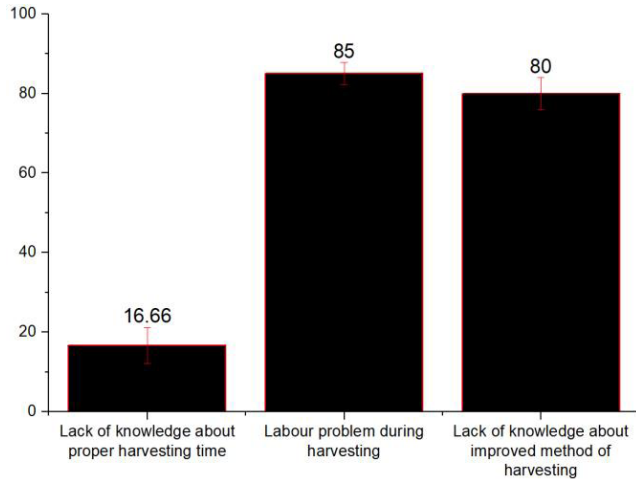


Figure 5: Respondents perception about harvesting problems.

With regards to storage, 26.66% of the respondents had lack of knowledge about curing/ drying, 10% of them had lack of knowledge about grading, 51.66% of them had lack of knowledge about improved storage structure, 38.33% of the respondents had a problem of costly storage facilities while 11.66% of the respondents had a lack of knowledge about handling during storage of onion (Figure 6). As very few cultivators established temporary structures for onion bulb storage, this might be due to lack of technical

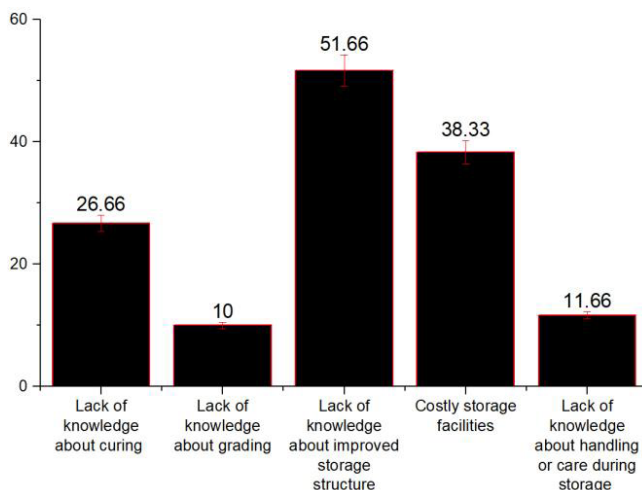


Figure 6: Respondents perception about storage problems.

knowledge and poor economic condition. The subsidy scheme for construction of economical onion storage structures needs to extend to cover all onion cultivators as to protect and provide a desired environment to onion bulb during storage.

The marketing problems expressed by onion cultivators are shown in Figure 7. The data indicates that lack of remunerative price (96.66%), non-availability of market information (15%), fluctuation in market price (93.33%), inadequate transportation facilities (16.66%) and high charges on transportation (20%) were the problems expressed in agriculture marketing. It might be due to the fact that majority of cultivators were selling their produce through third party, who do determine the price of onion. Moreover, prices are dependent on arrival in the market at a time and demand from consumers. A suitable marketing method is also needed to be developed bringing cultivators to be in direct contact with consumers to determine the price.

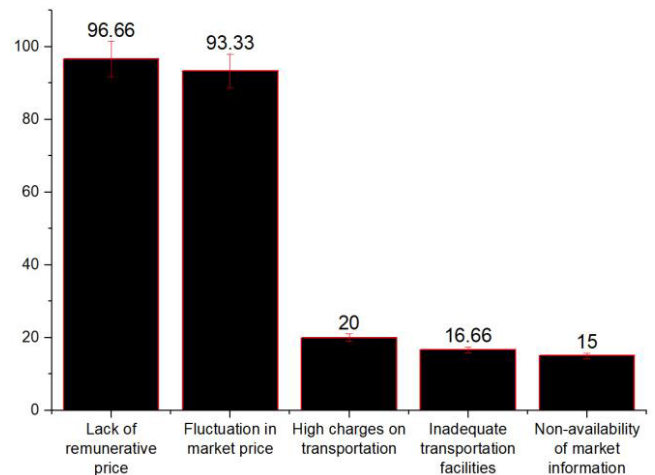


Figure 7: Respondents perception about post-harvest problems.

4. CONCLUSION

It is concluded from present study that lack of technical knowledge, lack of storage facilities, high cost of inputs and labour shortage were the major production problems, while fluctuation in market price and lack of remunerative price were the main marketing problems. The present study suggests that establishment of wholesale market at Taluka level should be developed. This will provide the onion cultivators a closer outlet for their produce and lowering marketing costs. The study further suggests that training/ awareness programs should be conducted for cultivators regarding establishing technical storage and

handling onion problems. This measure will provide cultivators permanent facility which will lead to increase benefits in terms of better market links and possibilities of storage within the production area.

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