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# Farmer's Knowledge Level towards Value Addition in Horticulture and Vegetable Crops

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**ABSTRACT**

*The present study was conducted in Haryana state and two districts Hisar from southwest and Sonipat from northeast were selected, purposively. From each district, three blocks were selected randomly. Further, three villages were selected from each block making a total of 18 villages. From each village, ten farmers were selected randomly, making a total sample of 180 farmers. Hence, one hundred eighty farmers were interviewed for the study. It was found that majority of respondents 66.11 per cent had high level, 31.66 per cent had medium level and only 2.22 per cent had low level of knowledge about primary level includes cleaning, grading, packaging of fruits and vegetables products. The study reveals that majority of the farmers 62.22 per cent possessed high level while only 37.78 per cent medium level of knowledge about of harvesting at proper stage and was found that majority of the farmer's 62.22 per cent had high level 37.78 per cent had medium level of knowledge regarding cleaning and sorting, not even a single respondent was found to have low level of knowledge of it. To reach the results aggregates total was calculated for each statement separately and on the basis of calculated scores, mean scores and mean score percentage were obtained which were ranked according to their maximum to minimum mean score percentage for assessing the knowledge level of the farmers.*

***Key words:*** *Knowledge, Cleaning, Grading, Fruits, Vegetable*

## INTRODUCTION

Adding value is the process of changing or transforming a product from its original state to a more valuable state. Many raw commodities have intrinsic value in their original state. For example, field corn grown, harvested and stored on a farm and then fed to livestock on that farm has value. In fact, value usually is added by feeding it to an animal, which transforms the corn into animal protein or meat. The value of a changed product is added value, such as processing wheat into flour. It is important to identify the value-added activities that will support the necessary investment in research, processing and marketing. The application of biotechnology, the engineering of food from raw products to the consumers and the restructuring of the distribution system to and from the producer all provides opportunities for adding value[2].

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Study found that value addition in vegetables production, processing and export from Bangladesh and revealed that the export of fresh vegetables is more profitable due to high value addition. Bangladeshi vegetables were still not well known to the foreign consumers. To familiarize Bangladeshi vegetables to the foreigners and foreign super markets, quality of those vegetables has to be improved by different value addition activities like upgrading the packaging, Processing, handling, grading and transportation system[1].

Today fruits and vegetable farming as a diversified farming is important to generate employment round the year, supplement farm economy and to earn foreign exchange also by enhancing the export. As well as fruits play an important role in human nutrition offer diversity indirect, ecological sustainability and fight against hunger. They are sources of essential minerals, vitamins, dietary fibre, supply complex carbohydrates and proteins. They are good sources of calcium, phosphorus, iron, magnesium and contribute over 90 per cent of vitamin C. It is generally stated that the living standard of people can be judged by the production as well as consumption of fruits.

## MATERIAL AND METHODS

**Locale of the Study: -** The present study was conducted in Haryana state and two districts Hisar from southwest and Sonipat from northeast were selected, purposively. From each district, three blocks were selected randomly. Further, three villages were selected from each block making a total of 18 villages. From each village, ten farmers were selected randomly, making a total sample of 180 farmers. Hence, one hundred eighty farmers were interviewed for the study. Three blocks from each district i.e. Hisar and Sonipat were selected, purposively. From Hisar, three blocks namely, Hisar I, Hisar II, Adampur and from Sonipat, blocks Ganaur, Gohana, Sonipat were selected, randomly. Thus, six blocks were selected for the study. Out of the six selected blocks, two villages from each block were selected, randomly. Thus a total number of eighteen villages namely, Dobhi, Dhiranwas, Ladwa from block Hisar I, Saharwa, Chiraud, Talwandi Rukka from block Hisar II and Kherampur, Kohli, Siswal from block Adampur while Bain, Chirsmi, Mohamadpur Majra from Ganaur , Jagsi, Riwara, Baroda Thuthan from Gohana block and Makimpur, Dipalpur, Moi from Sonipat block were selected, randomly also.

**Collection of Data:-** For assessing the knowledge, constraints, prospects, training need and perception impact data was collected by conducting personal interview with the respondent at their home/working center. The interview of every individual was taken separately so that the others did not influence the answers. To find out the knowledge level of the farmers about value addition of horticulture and vegetable crops, an inventory of knowledge level was prepared on the basis of available literature, personal experience, discussion with experts and farmers growing fruits and vegetable. A list of knowledge level was prepared and the farmers were asked to speak out their responses against each statement. Whether it was ‘high’, ‘medium’, and ‘low’ weight age given to these response categories were 3, 2, and 1 respectively. Aggregate total was calculated for each statement separately and on the basis of calculated scores, mean scores and mean score percentage were obtained which were ranked according to their maximum to minimum mean score percentage for assessing the knowledge level of the farmers.

**Analysis of Data: -** The information collected through the responses of the respondents, were suitably coded, tabulated and analyzed to draw meaningful inferences by using statistical tools such as frequency distribution, percentages,

weighted mean scores, rank order, correlation and regression.

## RESULTS AND DISCUSSION

### Farmer's knowledge towards value addition of fruits and vegetables crops

The existing knowledge of farmer's has been presented in Table 2 and practice wise knowledge level of the respondents was worked out for interpretation.

It was found that majority of the farmer's 82.22 per cent had medium level but a few of them 17.22 per cent had high level of knowledge regarding do you know about the value addition of horticultural and vegetables produce?, not even a single respondent was found to have low level of knowledge of it. It was observed that 80.55 per cent of the respondents possessed medium level of knowledge, 16.66 per cent had low level and only 2.77 per cent of the respondents had high level of knowledge about do you know types of value addition?. The study reveals that maximum number of farmers 80.55 per cent possessed medium level while only 16.66 per cent low level and only 2.77 per cent of the respondents had high level of knowledge about of useful form.

In case of right place, only 78.88 per cent of respondents had medium, 18.33 per cent had low and 2.77 per cent had high level of knowledge. It was revealed from the table that majority of the respondents 78.33 per cent had medium level whereas 18.88 per cent of the respondents had low and 2.77 per cent of the respondents had high level of knowledge about right time. Utility, most of the respondents 61.11 per cent had low level, 34.44 per cent had medium level and only 4.44 per cent had high level of knowledge.

It is also observed from the Table that 90 per cent of the respondents had medium level of knowledge while 10 per cent had high level and of knowledge regarding do you know the three ways of value addition?, not even a single respondent was found to have low level of knowledge of it, It was found that majority of respondents 66.11 per cent had high level, 31.66 per cent had medium level and only 2.22 per cent had low level of knowledge about primary level includes cleaning, grading, packaging of fruits and vegetables products. Secondary level includes basic processing, packaging and branding. Eg. Packed items, it was observed that 53.88 per cent of the respondents had low level, 43.33 per cent each had medium and 2.77 per cent had low level of knowledge. As regard with Tertiary level includes high end processing which requires supply chain management, processing technology, packaging, branding, marketing etc. eg. Potato chips, it was observed that 83.88 per cent of the respondents had low level, 13.33 per cent had medium and 2.77 per cent had high level of knowledge. It was found that 53.33 per cent of the respondents had high level, 43.88 per cent had medium and 2.77 per cent had low level of knowledge regarding do you know the value added product price is higher than the fresh produce?. Joshi *et al.*[7] this paper results clearly reveal that vegetable production is more profitable and labour-intensive, therefore it fits well in the small farm production systems. The smallholders are relatively more efficient in production and own more family labour in contrast to large farmers. Vegetable production is the emerging sector in agricultural diversification that would augment income of smallholders and generate employment opportunities in rural areas. Women are also benefited as the vegetable production engages relatively higher women labour in various operations.

**Table 1: Farmer's knowledge level towards value added horticulture and vegetable crop**

**(n=180)**

| S. No. | Statements | Knowledge level | | | Total Weighted Score | Weighted Mean Score |
|---|---|---|---|---|---|---|
| | | High | Medium | Low | | |
| 1. | Do you know about the value addition of horticultural and vegetables produce? | 32 (17.22) | 148 (82.22) | 0 (0.00) | 392 | 2.17 |
| 2. | Do you know types of value addition | 5 (2.77) | 145 (80.55) | 30 (16.66) | 335 | 1.86 |
| | a. Useful form | 5 (2.77) | 145 (80.55) | 30 (16.66) | 335 | 1.86 |
| | b. Right place | 5 (2.77) | 142 (78.88) | 33 (18.33) | 332 | 1.84. |
| | c. Right time | 5 (2.77) | 141 (78.33) | 34 (18.88) | 331 | 1.84 |
| | d. Utility | 8 (4.44) | 62 (34.44) | 110 (61.11) | 258 | 1.43 |
| 3. | Do you know the three ways of value addition | 18 (10) | 162 (90) | 0 (0.00) | 378 | 2.10 |
| | a. Primary level includes cleaning, grading, packaging of fruits and vegetables products | 119 (66.11) | 57 (31.66) | 4 (2.22) | 475 | 2.63 |
| | b. Secondary level includes basic processing, packaging and branding. Eg. Packed items | 5 (2.77) | 78 (43.33) | 97 (53.88) | 268 | 1.48 |
| | c. Tertiary level includes high end processing which requires supply chain management, processing technology, packaging, branding, marketing etc. eg. Potato chips | 5 (2.77) | 24 (13.33) | 151 (83.88) | 214 | 1.18 |
| 4. | Do you know the value added product price is higher than the fresh produce? | 96 (53.33) | 79 (43.88) | 5 (2.77) | 451 | 2.50 |

**Table 2: Steps in value addition process**

**(n=180)**

| S. No. | Statements | Fully Aware | Aware | Not Aware | Total Weighted Score | Weighted Mean Score |
|---|---|---|---|---|---|---|
| 1. | Harvesting at proper stage | 112 (62.22) | 68 (37.78) | 0 (0.00) | 472 | 2.62 |
| 2. | Cleaning, grading, packing & packaging | 94 (52.22) | 86 (47.78) | 0 (0.00) | 454 | 2.52 |
| 3. | Processing of fruits | 12 (6.67) | 141 (78.33) | 27 (15.00) | 345 | 1.91 |
| 4. | Prolonging shelf life | 5 (2.77) | 151 (83.89) | 24 (13.33) | 341 | 1.89 |
| 5. | Processing waste | 5 (2.77) | 136 (75.56) | 39 (21.67) | 326 | 1.81 |

The study reveals that majority of the farmers 62.22 per cent possessed high level while only 37.78 per cent medium level of knowledge about of harvesting at proper stage, not even a single respondent was found to have low level of knowledge of it. In case of cleaning, grading, packing & packaging, only 52.22 per cent of respondents had high, 47.78 per cent had medium level of knowledge, not even a single respondent was found to have low level of knowledge of it. Manvar *et al.*[4] reported that majority of the mango growers had medium knowledge and adoption level. It is also revealed that 97.33 per cent of mango growers have knowledge about storage of fruits under shade, grading and packing, irrigation management, selection of soil and use of recommended varieties.

It was revealed from the table that majority of the respondents 78.33 per cent had medium level whereas 15.00 per cent of the respondents low high level and 6.67 per cent had high level of knowledge about Processing of fruits. Prolonging shelf life, most of the respondents 83.89 per cent had medium level, 13.33 per cent had low and 2.77 per cent had high level of knowledge. It is also observed from the Table that 75.56 per cent of the respondents had medium level of knowledge while 21.67 per cent had low level and 2.77 per cent had high level of knowledge regarding processing waste. Arah *et al.*[6] it was

revealed that the postharvest quality and shelf life of the fruit in part will depend on some postharvest handling practices and treatments carried out after harvest. Handling practices like harvesting, precooling, cleaning and disinfecting, sorting and grading, packaging, storing, and transportation played an important role in maintaining quality and extending shelf life.

**Table 3: Post harvest operation in value addition**

**(n=180)**

| S. No. | Statements | Fully Aware | Aware | Not Aware | Total Weighted Score | Weighted Mean Score |
|---|---|---|---|---|---|---|
| 1. | Cleaning and sorting | 112 (62.22) | 68 (37.78) | 0 (0.00) | 484 | 2.68 |
| 2. | Transportation | 112 (62.22) | 58 (32.22) | 10 (5.56) | 462 | 2.56 |
| 3. | Packaging | 5 (2.77) | 136 (75.56) | 39 (21.67) | 452 | 2.51 |
| 4. | Storage | 93 (51.67) | 83 (46.11) | 4 (2.22) | 449 | 2.49 |
| 5. | Grading | 12 (6.66) | 141 (78.33) | 27 (15.00) | 428 | 2.37 |
| 6. | Ripening | 64 (35.56) | 95 (52.78) | 21 (11.67) | 403 | 2.23 |
| 7. | Washing and air drying | 94 (52.22) | 86 (47.78) | 0 (0.00) | 389 | 2.16 |
| 8. | Market distribution | 60 (33.33) | 87 (48.33) | 33 (18.33) | 387 | 2.15 |
| 9. | Pre-cooling | 5 (2.77) | 151 (83.89) | 24 (13.33) | 292 | 1.62 |

It was found that majority of the farmer's 62.22 per cent had high level 37.78 per cent had medium level of knowledge regarding cleaning and sorting, not even a single respondent was found to have low level of knowledge of it. It was observed that 62.22 per cent of the respondents possessed high level of knowledge, 32.22 per cent had medium level and 5.56 per cent had low level of knowledge about transportation. Awagu *et al.*[3] information were obtained on the farmers storage potential of fruits and vegetables such as stages and time of harvest, harvesting and processing methods, transportation, storage conditions, packaging and storage. The bulk of farmers were made up of fairly young people. Most of the farming operations were done manually with tomato and onions produced majorly. Products were majorly sold immediately after harvest with poor processing, packaging, transporting and storage systems. Conclusively, the farmers lack general knowledge in storage technology, properly due lack of farming experience, therefore these could be responsible for the huge losses of fruits and vegetables in Kano state and the country at large.

The study reveals that majority of the farmers 75.56 per cent possessed medium level while only 21.27 per cent low level and only 2.77 per cent of the respondents had high level of knowledge about packaging. In case of available storage, only 51.67 per cent of respondents had high, 46.11 per cent had medium and 2.22 per cent had low level of knowledge.

It was revealed from the table that majority of the respondents 78.33 per cent had medium level whereas 15.55 per cent of the respondents had low level and 6.66 per cent had high level of knowledge about grading. Ripening, most of the respondents 52.78 per cent had medium level, 35.56 per cent had high level and only 11.67 per cent had low level of knowledge.

It is also observed from the Table that 52.22 per cent of the respondents had high level of knowledge while 47.78 per cent had medium level of knowledge regarding washing and air drying, not even a single respondent was found to have low level of knowledge of it. It was found that majority of respondents 48.33 per cent had medium level, 33.33 per cent had high level and only 18.33 per cent

had low level of knowledge about market distribution. Pre-cooling, it was observed that 83.89 per cent of the respondents had medium level, 13.33 per cent each had low and 2.77 per cent had high level of knowledge. Njaya[5] the study revealed that poor infrastructure for storage, processing and marketing of fruits and vegetables contributed to losses to the farmers. Smallholder farmers generally focused on production activities and showed relatively little interest in postharvest and marketing activities. The presence of informal middlemen at Mbare and Machipisa Vegetable Markets had led to considerable reduction of the farmers' profit margins.

## CONCLUSION

It was concluded from the observation that most of the respondents had medium to high level of knowledge towards value addition horticulture and vegetable crops in Hisar and Sonipat districts. The study revealed that majority of respondents 66.11 per cent had high level, 31.66 per cent had medium level and only 2.22 per cent had low level of knowledge about primary level includes cleaning, grading, packaging of fruits and vegetables products. It was found that 53.33 per cent of the respondents had high level, 43.88 per cent had medium and 2.77 per cent had low level of knowledge regarding do you know the value added product price is higher than the fresh produce?. The study reveals that majority of the farmers 62.22 per cent possessed high level while only 37.78 per cent medium level of knowledge about of harvesting at proper stage, in case of cleaning, grading, packing & packaging, only 52.22 per cent of respondents had high, 47.78 per cent had medium level of knowledge and majority of the farmer's 62.22 per cent had high level 37.78 per cent had medium level of knowledge regarding cleaning and sorting, not even a single respondent was found to have low level of knowledge of it. It was observed that 62.22 per cent of the respondents possessed high level of knowledge, 32.22 per cent had medium level and 5.56 per cent had low level of knowledge about transportation. It was found that farmers were interested to know about the value addition in horticulture and vegetable crops to raise their income.

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