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An Overview of Knowledge Level of the Farmers about Recommended Cultural Practices for Vegetable Production in North India

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Vegetables are more valuable due to the presence of important mineral, vitamins, carbohydrates, iron protein and other important body nutrients in these. Vegetables play an important role in our daily diet. Vegetables promote our body growth and development and also protect our body from various disease and deficiencies. We all know about the importance of vegetable but knowledge levels of the farmers about vegetable production are still very low. During the surveying of literature on the knowledge level of the farmers about recommended cultural practices for vegetable production studied that majority of farmers had a medium level of knowledge followed by the low level of knowledge. Only a few farmers had a high level of knowledge about recommended cultural practices for vegetable production.

Keywords: Vegetable; knowledge; farmer; production.

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1. INTRODUCTION

Vegetables are more valuable due to the presence of important mineral, vitamin, carbohydrates, iron protein and other important body nutrients in these. Nowadays vegetables included in the menu in such a way that will satisfy our hunger, promote our body functioning, esthetic sense, and digestion. Vegetables provide not only nutrient but also change palatability and flavour which act as digestible fibre and appetizers present in the vegetable can be helpful in treating constipation. In Punjab, due to the predominance of the rice-wheat cropping system, the area and production of vegetable have less but from 2011 area under vegetable production increase day by day but at a slow rate. The total area under vegetable production was recorded 197.14 thousand hectares [1] and during 2011 area was 174 thousand hectares. Although the rice-wheat cropping system gives better profit to farmers, yet it has created several dangerous problems such as continuous depletion of groundwater and soil nutrients, deterioration of soil health and soil and water pollution *etc*. Due to continuous cultivation of major cereal crops in intensively cropped areas, uptake of plant nutrients such as Nitrogen (N), Phosphorous (P) and Potassium (K) is increased by 665 kg against the applied 406 kg/ha to yield 8.92 t/ha in rice-wheat rotation, and 438 kg against the applied 359.7 kg/ha to yield 6.35 t/ha in rice-rice rotation (Ali and Kumar, 2004). Unrestricted use of chemical like herbicide, insecticide, pesticide *etc.* has badly affected the soil microflora as well. Vegetables play a vital role in improving the soil health and conserve natural resources instead of Mono-cropping (rice-wheat) system.

Plate 1. The crops growing in fields of North India

Majority of the farmers comes under small and marginal farmer category in Punjab and their access to inputs is limited because of low purchasing capacity. Farmers' accessibility to markets to sell the vegetable is also low. Because of this situation, they give first priority to cereals and cash crops for granting inputs and the second priority gives to pulses or vegetables in Punjab. As it was found out that, pulses and vegetable continue to be grown on poor soils with low inputs in Punjab. In addition, there is a lack of government policy support related to vegetable crops. Vegetables are short duration crop; farmers can produce the number of vegetables per year and can get more profit as compared to cereals. Major problems in vegetable cultivation are also lack or insufficient knowledge about vegetable production. From literature studied it was observed that the knowledge level of the farmers about cultural production of vegetable, integrated insect-pest management, chemical treatments etc.

Aswathaiah et al (1972) during their study inferred that majority of the farmers did not follow any plant protection measures due to the low level of knowledge about seed treatment in chilli, 75.80 per cent of growers had no knowledge about recommended cultural practices in chilli. Chandrabhan Singh (1979) in his report on the knowledge level and adoption level of improved practices in chilli cultivation by farmers in Karnataka, stated that majority of small farmers had low overall knowledge and 15.00 per cent had a high level of knowledge about the recommended cultural practices in chilli production. Patil and Jadhav [2] stated that 53 per cent of the onion growers had not sufficient knowledge about chemical fertilizers. Sunil [3] conducted study on level of knowledge, adoption behavior and consultancy of potato growers of Dharwad taluk of Karnataka and stated that majority 37.50% of the respondents had found in medium level knowledge followed 35% of respondents had a high level of knowledge and 27.50% respondent had very low level of knowledge on recommended practices in potato cultivation. Jagadal [4] reported that comparatively 30.84 per cent of cabbage growers in district Belgaum came under the medium level of knowledge category, whereas 35.83 per cent of the growers came under low knowledge and 33.33 per cent under the high level of knowledge about recommended cultural practices for cabbage production. Ravishankar [5] stated that 43 per cent of growers had a medium level of knowledge about recommended

cultural practices for potato cultivation. 34 per cent had low and 23 per cent had a high level of knowledge, respectively. Basavaprabhu [6] concluded that the majority of the vegetable growers had a medium level of knowledge with 44.44 per cent about recommended cultural practices in vegetables. Raghavendra (1997) conducted study on areca nut growers in South Canara district stated that, all the areca nut growers had complete knowledge about the suitability of season for cultural operation, fertilizer application harvesting and processing while majority of the growers had insufficient knowledge about recommended cultural practices in areca nut like the age of the mother palm considered for seed purpose, number of leaves considered for seed selection (56.00 per cent), fertilizer dose (63.67 per cent), size of pit (52.00 per cent), irrigation intervals (51.33 per cent), majority of them had medium knowledge about the improved varieties of areca nut (47.17 per cent) and plant protection (43.00 per cent). Ramamurthy et al. (1997 concluded that 56.67 per cent of the women had a medium knowledge level. 30.80 per cent farm women had a low level and 12.50 per cent farm women had a high level of knowledge about recommended technology and cultural practices about turmeric cultivation. Waman and Patil (1998) concluded that less than 50 per cent of Onion growers had correct knowledge about identification of pests and diseases (42.00 per cent) and control measures for insect-pests and pathogen (36.00 per cent) during storage of onion. Vijay Kumar and Narayana Gowda (1999) reported that 57 per cent the respondents had adoption scores ranging between 16 to 19 and 36 per cent of them had scores ranging from 10 to 13. The maximum score was indicating that the adoption level was higher than the average level of adoption. Karpagam (2000) found that 70.00 per cent of respondents had a medium level of knowledge about recommended turmeric cultivation practices 20.83 per cent had high and 9.17 per cent had a low level of knowledge. Atchuta Raju and Radha Krishnamurthy (2001) concluded that 66.67 per cent of the betel vine growers had medium knowledge level while 17.50 per cent had very low and 15.83 per cent had a high level of knowledge about the recommended technologies in betel vine. Venkatesh (2002) inferred that 36.67 per cent of the vegetable growers had high knowledge level on recommended cultural practices and technology in vegetable cultivation. Venkataramalu (2003) conducted a research on the knowledge level, adoption level and marketing behaviour of chilli growers in AP and found that 72.50% of the farmers had medium knowledge level, 14.17% had very low and 13.33% had high knowledge level about cultivation and marketing behaviour of chilli growers. Sunil Kumar (2004) concluded that 49.17 per cent of the tomato producers belonged to a medium level of knowledge on recommended cultural practices and post-harvest technology of tomato in Karnataka. Sangeetha et al [7] reported that the majority of the tomato producers possessed medium to a higher level of knowledge on practising precision farming technologies in tomato. 100 per cent of the producers had knowledge about the use of micro (drip) irrigation and fertigation (irrigation + fertilizer) system in tomato ,more than 90 per cent of the producers possessed knowledge about practice for staking, use of portrays in nursery preparation, proper spacing for growth and accurate seed rate in tomato. They also reported that the low knowledge in adopting trapping card (yellow sticky trap) and plant growth promoters. Mondal et al (2014) reported that 55 per cent growers had a low level of knowledge level and 45 per cent had medium knowledge with no high-level respondents at all. The response of the growers on organic vegetable cultivation, especially pertaining to use of organic pesticides, herbicides, weedicide and fertilizers, showed there was still need for improvement: their attitude was unsatisfactory in obtaining organic vegetables. Patil and Jadav [2] stated that the majority of farmers had no current knowledge about fertilizers requirement, pests and diseases and their control measures in onion crop. 54 per cent of the grower had correct knowledge about pest and diseases and their control measures in onion cultivation. Basavaraja [8] observed that majority of the respondents had possessed a medium level of knowledge about different aspects of improved farm-technology. Respondents had the knowledge about simple and low-cost practices like seed rate, time of sowing, row to row and plant to plant spacing and a few respondents had the knowledge about complex and costly practices like the use of chemical fertilizers, seed treatment before sowing and chemical for plant protection. Halakatti (1988) revealed that farmers had a high level of knowledge about simple practices, but had a low level of knowledge with reference to complex practices like method and duration of seed treatment before sowing to control seed-borne diseases, basal application of nitrogenous fertilizer and application of chemical for plant protection chemicals in potato. Hanchinal et al [9]

concluded that majority of the potato growers had a high level of knowledge about cultural practices like variety (99.00%), seed rate (87.00%) and time of sowing (84.00%) in potato. Puranik and Verma [10] reported that sweet potato growers had a high level of knowledge in disease and pest control by chemicals in Wardha district of Maharashtra. Ravishankar [5] inferred that 40 per cent of the potato farmers had a medium level of knowledge about cultivation practices. 34 per cent had high and 28 per cent had a low level of knowledge with regard to recommended cultivation practices and technology.

Plate 2. The major crops

Basavaprabhu [6] stated that a majority of the vegetable (cabbage and tomato) growers possessed medium to high knowledge level (20 to 40 per cent) with respect to recommended technology and cultivation practices. Kubde et al [11] reported that majority of the potato growers had high level of knowledge on recommended varieties, sowing time (95.50%), soil type recommended for potato cultivation (79.00%), seed rate (67.50%), identification of pests and their control measures (54.00%) in potato. Ramachandra [12] revealed that 37 per cent of farmers had possessed a high knowledge level about nutrient management practices in the cabbage-potato cropping system. 63 per cent of the farmers had a medium and low level of knowledge in the cabbage-potato cropping system.

Verma et al [13] reported that 26 per cent of farmers had high knowledge level of the farmers about recommended chilli production technology (Table 1). 38.33 per cent and 35.00 per cent had a medium and low level of knowledge about recommended chilli production technology. 34.17 per cent had a high level of knowledge about recommended cultivation practices on ginger cultivation (Table 2). Majority of the farmers had a medium level of knowledge about ginger cultivation [14]. Data in represent Table 3 that majority (61.66%) of the growers had a medium level of knowledge and 15.84 per cent of the growers had a high level of knowledge about recommended cultivation practices in cauliflower and similar study was carried out in other crops like pulse crops [15,16].

Table 1. Distribution of respondents according to the overall level of knowledge about recommended chilli production technology

S. no	Level of knowledge	Frequency (f)	Percentage (%)
1.	Low	42	35.00
2.	Medium	46	38.33
3.	High	32	26.67
Total		120	100

Table 2. Overall knowledge level of ginger growers about recommended cultivation practices

S. no	Level of knowledge	Frequency (f)	Percentage (%)
1.	Low	24	20.00
2.	Medium	55	45.83
3.	High	41	34.17
Total		120	100

Table 3. Overall knowledge level of cauliflower growers about recommended cultivation practices

S. no	Level of knowledge	Frequency (f)	Percentage (%)
1.	Low	27	22.50
2.	Medium	74	61.66
3.	High	19	15.84
Total		120	100

2. CONCLUSION

Results from this survey indicate that fruit and vegetable growers also seem receptive and interested in learning more about many of the topics included in the survey such as learning how to provide habitat for beneficial crops. An important aspect of this survey is the comparisons made between the concerns, practices, and interests of organic versus conventional producers. Findings will help extension personnel understand the critical management concerns of a diverse group of small-scale producers and identify opportunities to address pest management concerns through education and training. It is necessary to expand the study to determine farmer's knowledge regarding sustainable agriculture experiences

and practices in other provinces or cities, and fulfilment an extension activity to increase farmer's knowledge regarding sustainable agriculture experiences and practices.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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