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RESEARCH ARTICLE

Preferences of vegetables in Jorhat district according to profitability

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Manuscript Info Abstract

..... Manuscript History: A study was conducted to assess the profitability of four major vegetables viz. cabbage, brinjal, tomato and chilli in Jorhat district of Received: 15 May 2015 Assam. Data were collected from randomly selected sixty vegetable Final Accepted: 29 June 2015 Published Online: July 2015 growers by interview method by the researcher. To find out the relative importance of vegetables according to profitability the Key words: Method of Paired Comparisons was followed. The four vegetables were presented to the vegetable growers in six possible pairs and the Profitability, Paired Comparisons growers were requested to select one vegetable over the other in each pair which was more profitable. After analysis of data it was found *Corresponding Author that chilli had the highest scale value and was the most profitable vegetable as perceived by the farmers followed by brinjal, cabbage Hridayananda Das and tomato.

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INTRODUCTION

Assam is traditionally rich in horticultural production due to its diverse and unique agro-climatic conditions which is conducive for growing wide range of horticultural crops like fruits, vegetables, flowers, spices, nuts, and tuber crops, medicinal and aromatic plants. Horticultural crops occupy 15 percent of the gross cultivated area of Assam and annually produces more than 46.20 lakh MT of vegetables from an area of 3.28 lakh ha, 17.14 lakh MT of fruits, 2.48 lakh MT of spices besides nut crops, flowers and medicinal & aromatic plants. Assam has a productivity of 13.6 MT/ha in case of vegetables (Economic survey, Assam, 2011- 2012).Thus contributing significantly towards food nutritional security of the state. Vegetable farming is the major attraction for the farmers of the state since it is comparatively more remunerative than field crops. The different vegetable crops cultivated in the state are Ash Gourd, Bitter gourd, Bottle gourd, Brinjal, Broccoli, Cabbage, Capsicum, Carrot, Tomato, Cauliflower, Chilli, Chow-chow, Cow pea, Cucumber, cucurbits, French Bean, Garlic, Knolkhol, Ladies Finger/Okra, Lettuce, Musk melon, Pea, Pointed gourd, Pumpkin etc.

In Jorhat district of Assam important vegetables like cabbage, brinjal, cauliflower, tomato, chilli sweet potato, potato, okra etc. are being cultivated for home consumption as well as for marketing. Out of these vegetables cabbage, brinjal, tomato and chilli are being cultivated by most of the farmers for marketing.

MATERIAL & METHODS

The study was conducted in Dhekorgorah block of Jorhat district which has been selected purposively since the vegetables cabbage, brinjal, tomato and chilli were being commercially cultivated by the farmers. Two villages namely Khutiapota and Khangia have been selected purposively from this block. Total sixty vegetable growers thirty from each village have been selected randomly as sample for the present investigation. Data were collected by the researcher with the help of interview schedule in the months of November, 2013 and May, 2014. For analysis of data the Method of Paired Comparisons (Edward, 1969) was followed.

The Method of Paired Comparisons

Thurstone developed the law of comparative judgement, which provides rationale for ordering of stimuli along a psychological continuum. It is a psychological scaling method, and makes the quantitative investigation of all kinds of values and subjective experiences (Edwards, 1969). In this method, the stimuli (items, statements or variables) are presented in pairs, in all possible combinations and the respondents are asked to select one stimulus over the other from each pair separately which is judged as more favorable. This method of psychological scaling also provides an estimate of the distances between each of the stimuli, in comparison to the stimulus with least preference, whose scale value is (arbitrarily) brought down to the level of 'zero'. If there are 'n' stimuli, the numbers of pairs which may be obtained are n(n-1)/2. The stimuli or items for judgement should be distinct from each other and easily understandable. To eliminate response bias, both the stimuli in each pair and their pairs themselves, are randomly arranged. The stimuli are then presented to the respondents, who are asked to select one stimulus over the other from each pair and their pairs themselves, are randomly arranged. The stimuli are then presented to the respondents, who are asked to select one stimulus over the other from each pair, which they considered as more favorable.

The F-matrix

The first table shall consist of frequencies corresponding to the number of times that each stimulus is judged more favorable than the other. The cell entries correspond to the frequency with which the column stimulus is judged more favorable than the row stimulus.

The P-matrix

The P-matrix gives the proportion of times the column stimulus is judged more favorable than the row stimulus. This is obtained by dividing each of the cell entries in the F-matrix by N i.e. total number of respondents or this may be obtained conveniently by multiplying the cell entries of F-matrix by the reciprocal of N i.e. 1/N. A rearranged P-matrix is then made with the stimulus having the smallest column sum at left and that with the highest at the right.

The Z-matrix

The Z-matrix gives the normal deviates corresponding to the proportions in the table of P-matrix. These are obtained from the table of Normal deviates (Edward, 1969).

In the analysis of paired comparisons the method of 'complete data' was used.

The four vegetables namely (A) Cabbage, (B) Brinjal, (C) Tomato and (D) Chilli were presented to the vegetable growers in pairs in six possible combinations. The vegetables growers were requested to mark one vegetable over the other from each pair separately which they considered more profitable. The six pairs are presented below:

| 1. | A. Cabbage D. Chilli | 4. | C. Tomato D. Chilli |
|----|--------------------------|----|-------------------------|
| 2. | B. Brinjal C. Tomato | 5. | A. Cabbage C. Tomato |
| 3. | A. Cabbage B. Brinial | 6. | B. Brinjal D. Chilli |

RESULTS & DISCUSSION

From the observed frequency of vegetable growers' preferences relating to vegetable crops, Fmatrix or the frequency with which each column stimulus was judged more favorable than the row stimulus was obtained. The cell entries of F-matrix were divided by N (the total number of respondents), to get the P-matrix. The cell entries of P- matrix gave the proportion of times that the column stimulus was judged more favorable than the row stimulus. The P-matrix was then rearranged with the stimulus having the smallest column sum at the left and that with the highest at the right. The method of 'complete data' was used as there was no Pij value equal to or greater than 0.99 or equal to or less than 0.01.

The F-matrix, P-matrix, rearranged P-matrix and the Z-matrix of the four vegetable crops are given in table-1, 2, 3 and 4 respectively.

| Table 1: F-matrix f | n=60 | | | |
|---------------------|-------------|-------------|------------|------------|
| Vegetables | Cabbage (A) | Brinjal (B) | Tomato (C) | Chilli (D) |
| Cabbage (A) | | 52 | 17 | 39 |
| Brinjal (B) | 8 | | 17 | 38 |
| Tomato (C) | 43* | 43 | | 46 |
| Chilli (D) | 21 | 22 | 14 | |

*To be understood as 43 growers preferred cabbage to tomato and so on

Table 2: P-matrix corresponding to F-matrix

| Vegetables | Cabbage (A) | Brinjal (B) | Tomato (C) | Chilli (D) |
|-------------|-------------|-------------|------------|------------|
| Cabbage (A) | 0.500 | 0.867 | 0.283 | 0.650 |
| Brinjal (B) | 0.133 | 0.500 | 0.283 | 0.633 |
| Tomato (C) | 0.716 | 0.716 | 0.500 | 0.767 |
| Chilli (D) | 0.350 | 0.366 | 0.233 | 0.500 |
| Sums | 1.349 | 2.449 | 1.299 | 2.55 |

Table 3: Rearranged P-matrix – smallest to highest column sum

| Vegetables | Tomato (C) | Cabbage (A) | Brinjal (B) | Chilli (D) |
|-------------|------------|-------------|-------------|------------|
| Tomato (C) | 0.500 | 0.716 | 0.867 | 0.767 |
| Cabbage (A) | 0.283 | 0.500 | 0.716 | 0.650 |
| Brinjal (B) | 0.283 | 0.350 | 0.500 | 0.633 |
| Chilli(D) | 0.233 | 0.133 | 0.366 | 0.500 |
| Sums | 1.299 | 1.349 | 2.449 | 2.550 |

Table 4: Z-matrix - hierarchy of vegetable crop preferences of vegetable growers

| Vegetables | Tomato (C) | Cabbage (A) | Brinjal (B) | Chilli (D) |
|-------------|------------|-------------|-------------|------------|
| Tomato (C) | 0.000 | 0.571 | 1.112 | 0.729 |
| Cabbage (A) | -0.574 | 0.000 | 0.571 | 0.385 |
| Brinjal (B) | -0.574 | -0.385 | 0.000 | 0.340 |

| Chilli(D) | -0.729 | -1.112 | -0.342 | 0.000 |
|-----------------|-----------------|-----------------|----------|----------|
| Sum Z | -1.877 | -0.926 | 1.341 | 1.454 |
| Mean Z dividing | -0.469 | -0.235 | 0.335 | 0.363 |
| by 4 | | | | |
| Add largest | | | | |
| negative | +0.469 | +0.469 | +0.469 | +0.469 |
| deviation | | | | |
| Rank | 0.000 | 0.234 | 0.804 | 0.832 |
| (scale value) R | 4^{th} | 3 rd | 2^{nd} | 1^{st} |

The present findings were based on the responses of 60 vegetable growers of Dhekorgorah block of Jorhat district. The results of the study are as follows:

Chilli had the highest scale value (0.832) and was considered as the most profitable crop by the vegetable growers of the study area followed by Brinjal with the second highest scale value (0.804). The difference of scale value between chilli and brinjal is very narrow. So both the crops are profitable as perceived by the vegetable growers. Cabbage was the third preference of the growers and its scale value is very low (0.234) in comparison to chilli and brinjal. The scale value of tomato has been brought down to arbitrary zero according to The Method of Paired Comparisons and it does not mean that it is not a profitable crop. It is also a profitable enterprise but it has been ranked fourth by the farmers.

The reasons for which chilli was considered most preferable crop according to the growers were:

- i. Easy procurability of seeds
- ii. The varieties used by the farmers were locally available
- iii. Harvesting is easy and can be done for a number of times
- iv. Easy marketability
- v. High market price

CONCLUSION

It was found from the study that chilli and brinjal were the most profitable crops as perceived by the vegetable growers since there is a narrow difference of scale value between these two crops. So, Department of Horticulture may take necessary steps for the cultivation of these two vegetables by providing improved varieties, package of practices, training etc. so that the farmers can earn money from these two enterprises. The Directorate of Horticulture and Food Processing and Assam Agricultural University, Jorhat (2010) prepared a Package of Practices for Horticultural crops of Assam which may be made available in local language to the vegetable growers for large scale cultivation of chilli and brinjal as a commercial enterprise.

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