

Measuring the Level of Commercialization of Farmers: A Case in Kamrup District of Assam

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ABSTRACT

The study was carried out in Boko and Guwahati Agricultural sub-divisions of Kamrup and Kamrup (Metro) districts of Assam to determine the level of commercialization of the farmers with respect to cultivation of selected cole crops. The level of commercialization of the farmers was calculated on the basis of scores obtained by the farmers on different identified indicators of commercialization revealed that majority (49.73%) belonged to semi-commercial level followed by 40.33 per cent of respondents belonging to commercial level. Only 9.94 per cent of the respondents were found in non-commercial level. Distribution of respondents according to various indicators of commercialization revealed that majority of the respondents used fertilizers with recommended dose (54.14%), used insecticides with partial recommended dose (45.86%), used chemicals against diseases with partial recommended dose (40.88%), did not use any micronutrient (57.46%), had more than 50 per cent of the marketable surplus under cole crops (60.77%) and had more than 50 per cent of the area coverage to total feasible area (44.20%). It was found that educational level, family size, family type, size of operational land holding, sources of labour, sources of finance, annual family income, achievement motivation, level of knowledge and risk preference were significantly associated with level of commercialization of the farmers, while age and marketing orientation were not significantly associated with level of commercialization of the farmers.

Key words: Farmers; Cole crops; Commercialization;

India is the second largest producer of vegetables in the world, ranking next to China and accounts for about 15 per cent of global vegetable production. Presently, vegetable cultivation occupies 6.76 million hectare area with the annual production of 101.43 million tonnes. It is estimated that between 30 to 35 per cent of India's total vegetable production is lost owing to poor postharvest practices. Less than 2 per cent of the total vegetable production in the country is commercially processed as compared to 70 per cent in Brazil and 65 per cent in the USA. Approximately 1.5 lakh MT of vegetables is sold in the processed form (FAO, 2006). To ensure nutrition security of the growing population of the country, it is estimated that up to 2020, vegetable demand of the country would be around 135 million tonnes. To achieve this target, it is important to integrate the various technologies right from production to post-harvest. Incessant growth of urbanization, ceaseless fragmentation of land holdings, depleting natural resources

are the major challenges before the expansion of any agricultural commodity whether cereals or vegetables.

The term commercialization of agriculture is generally used to denote production of crops for market rather than for family use or subsistence. Surplus production with assured and reasonable market for either raw produce or processed produce are the two main requirements for commercialization of any agricultural produce. Both the requirements are obviously interdependent. Surplus production continues with the availability of reasonable, less risky and less complex market while, the market exists only with surplus production. Tipraqsa et. al (2009) defined agricultural commercialization as the process by which farm household are increasingly integrated with different markets.

The agro-climatic condition of Assam offers an immense potential for growing a number of spring, summer and winter vegetables. Among different winter vegetables, cabbage, cauliflower and knolkhol are getting

popularity among the farmers of Assam due to their high price in the market if grown as early and late season crops. No accurate data regarding area and production of cabbage, cauliflower and knolkhol separately in the State is available. But still it can be said that the production of these vegetables in Assam is not enough to meet the growing demand of the increasing population, which is supported by the fact that still Assam has to import cole crops and other vegetables from neighbouring States e.g. The markets at Jorhat, Dibrugarh, Tinsukia etc are full of vegetables coming from Meghalaya.

The farmers of Assam are characterized by low production, less cash inflow and poverty. With the little land holding of crops, the farmers cannot think of more cash flow if they cultivate only cereals. But, if they cultivate vegetables more specifically cole crops, their cash inflow will be more, which will lead to reduction in rural poverty and increase in capital for further investment. This is facilitated by commercialization of agriculture. Large-scale commercial farms are defined as private or family-owned holdings that are far above the national average in size and employ a waged labour force (Gibbon, 2011). One dimension used to differentiate large-scale from medium-scale commercial farming is size. Small farmers acts like a colonial force in commercial farming. (Ariyo & Mortimore, 2011). Keeping the above background of problems, prospects and levels of commercialization in view, the present study was done with the following specific objective: To determine the level of commercialization of the farmers with respect to cultivation of selected cole crops.

METHODOLOGY

The study was carried in purposively selected Kamrup and kamrup (Metro) districts of Assam. Boko and Guwahati sub-divisions were again selected purposively. From each selected Agricultural sub division, two AEO circles were selected purposively. From these selected AEO circles, eight VLEW elakas, two from each circle were selected randomly and further from each selected VLEW elaka, one village was selected randomly for final data collection. Thus the total numbers of villages selected for the investigation were eight. A multistage sampling design was followed from selection of a total of 181 respondents of the study for all the eight villages. The respondents were selected proportionately from each selected village.

The dependent variable selected for the present study was 'level of commercialization'. In the present study a farmer was identified as a commercial farmer when he produced vegetables for market. For measuring level of commercialization, the following indicators were taken into consideration after extensive discussion with experts and consultation of literature i.e. Use of fertilizers; Use of insecticides; Use of chemicals against diseases; Use of micronutrients; Marketable surplus percentage under cole crops to total produce and Areas coverage percentage under cole crops to total feasible areas.

Based on these factors, the farmers were further categorized as non-commercial, semi-commercial and commercial which are described below:

Non commercial farmer : No use of fertilizers, No use of chemicals against diseases, No use of insecticides, No use of micronutrients, Marketable surplus percentage under cole crops is below 25 per cent of the total cole crops produce, Area coverage under cole crops is below 25 per cent of the total feasible area.

Semi commercial farmer: Use of partial recommended dose of fertilizers, Use of partial recommended dose of chemicals against diseases, Use of partial recommended dose of insecticides, Use of partial recommended dose of micronutrients, Marketable surplus percentage under cole crops ranges from 25 to 50 per cent to the total cole crops produce, Area coverage under cole crops ranges from 25 to 50 per cent of the total feasible area.

Commercial farmer: Use of recommended dose of fertilizers, Use of recommended dose of chemicals against diseases, Use of recommended dose of insecticides, Use of recommended dose of micronutrients, Marketable surplus percentage under cole crops ranges from 50 to 100 per cent of the total cole crops produce, Area coverage under cole crops ranges from 50 to 100 per cent of the total feasible area.

Scoring Procedure : For no use of fertilizer, pesticide, insecticide and micronutrients, zero (0) score was assigned separately. Similarly, for use of partial dose of one (1) score and for use of recommended dose of fertilizers, insecticides, chemicals against diseases and micronutrients two (2) scores were assigned separately.

Again for area coverage and marketable surplus, one (1) score was assigned separately for every 10 per cent marketable surplus and every 10 per cent area coverage. Thus, the total possible score which a respondent could get ranged from 0-28.

Based on the scores obtained by the respondents, they were categorized into three categories as follows:

Categories	Score range
Non commercial	Below 5
Semi commercial	5 to 14
Commercial	Above 14

The individual score of each respondent was calculated and these scores were taken into consideration while categorizing the farmers.

To find out the factors affecting level of commercialization of the farmers, relationship of level of commercialization with the independent variables was tested by using Chi-square (χ^2) test at 5.00 per cent and 1.00 per cent level of probability.

RESULTS AND DISCUSSION

Positioning of respondents on different indicators of commercialization: Level of commercialization was measured on the basis of total scores obtained by summing up the individual scores on each indicator as received by the respondents and are given below.

Use of fertilizers : Table 1 reveals that 12.71 per cent of respondents did not use any fertilizer while, 33.45 per cent of respondents used fertilizer in parts of the recommended dose and 54.14 per cent of respondents used fertilizers with recommended dose.

Table 1. Distribution of respondents according to their use of fertilizers

Category	No.	%
No use of fertilizer	23	12.71
Use of partial recommended dose	60	33.15
Use of recommended dose	98	54.14
Total	181	100.00

Use of insecticides : Table 2 reveals that 25.41 per cent of respondents used no insecticides while, 45.86 per cent of respondents used insecticides but not at the full recommended dose and only 28.73 per cent of respondents used insecticides with recommended dose.

Use of chemicals against diseases: Table 3 reveals that 38.68 per cent of respondents used no chemicals against diseases while 40.88 per cent of respondents used chemicals with partial recommended dose and only 20.44 per cent of respondents used chemicals as per recommended dose.

Use of micro-nutrients : Table 4 reveals that 57.46

per cent of respondents did not use micro-nutrients while, 37.01 per cent of respondents used micro-nutrient at partial recommended dose and only 5.53 per cent of respondents used micro-nutrients at recommended dose.

Table 2. Distribution of respondents according to their use of insecticides

Category	No.	%
No use of insecticides	46	25.41
Use of partial recommended dose	83	45.86
Use of recommended dose	52	28.73
Total	181	100.00

Table 3. Distribution of respondents according to their use of chemicals against diseases (N = 181)

Category	No.	%
No use of chemical against diseases	70	38.68
Use of partial recommended dose	74	40.88
Use of recommended dose	37	20.44
Total	181	100.00

Table 4. Distribution of respondents according to their use of micro-nutrients (N = 181)

Category	No.	%
No use of micro-nutrient	104	57.46
Use of partial recommended dose	67	37.01
Use of recommended dose	10	5.53
Total	181	100.00

Marketable surplus percentage to total cole crops produce: Table 5 reveals that only 1.11 per cent of respondents had marketable surplus which was below 25.00 per cent of the total cole crops produce.

Table 5. Distribution of respondents according to their marketable surplus (N = 181)

Category	No.	%
Below 25 per cent	2	1.11
25-50 per cent	69	38.12
50-100 per cent	110	60.77
Total	181	100.00

On the other hand, 38.12 per cent of respondents had marketable surplus ranging from 25-50 per cent of the total cole crops produce while, 60.77 per cent of respondents had marketable surplus ranging from 50-100 per cent.

Area coverage percentage under cole crops to total feasible area : Table 6 reveals that only 22.10 per cent of respondents had area coverage which was below 25.00 per cent of the total feasible area.

Table 6. Distribution of respondents according to their area coverage percentage under cole crops to total feasible area (N = 181)

Category	No.	%
Below 25 per cent	40	22.10
25-50 per cent	61	33.70
50-100 per cent	80	44.20
Total	181	100.00

On the other hand, 33.70 per cent of respondents had area coverage ranging from 25-50 per cent of total feasible area and 44.20 per cent of respondents had area coverage under cole crops ranging from 50-100 per cent of the total feasible area.

Level of commercialization of farmers: Based on scores obtained on different indicators, the farmers were further categorized as non-commercial, semi-commercial and commercial and these were treated as levels of commercialization of the farmers. The sum of scores obtained by the respondents on each of the identified indicators of commercialization was taken into consideration.

A perusal of data presented in Table 7 reveals that a majority of respondents (49.73%) were in the category of semi commercial level followed by 40.33 per cent of respondents in the commercial level. Only 9.94 per cent of respondents were found in non-commercial level.

Table 7. Distribution of respondents according to level of commercialization (N = 181)

Category	Range of scores	No.	%
Non commercial	Below 5	18	9.94
Semi commercial	5-14	90	49.73
Commercial	Above 14	73	40.33
Total		181	100.00

Factors affecting level of commercialization: To find out the factors affecting level of commercialization of the farmers, relationship of level of commercialization with personal, socio-economic and psychological characteristics of the farmers was tested by using χ^2 test at 5.00 per cent level of probability. The results of the tests are presented in table-8. It also reveals that educational level ($\chi^2=11.24^*$), family size ($\chi^2=17.97^{**}$), size of operational land holding ($\chi^2=21.52^{**}$), sources of labour ($\chi^2=20.55^{**}$), sources of finance ($\chi^2=17.16^{**}$), annual family income ($\chi^2=12.56^{**}$), achievement motivation ($\chi^2=25.67^{**}$), credit orientation ($\chi^2=15.23^{**}$), risk preference (χ^2

$=12.07^{**}$) and level of knowledge ($\chi^2=15.63^{**}$) were significantly associated with level of commercialization of the farmers. Similar findings were reported by *Simonyan et. al (2009)* in case of education.

Table 8. Relationship of level of commercialization with personal, socio-economic and psychological characteristics of the farmers

Characteristics	χ^2
Age	5.14 NS
Educational level	11.24*
Family size	17.97**
Family type	7.68**
Size of operational land holding	21.52**
Sources of labour	20.55**
Sources of finance	15.90**
Annual family income	12.56**
Achievement motivation	25.67**
Marketing orientation	4.18 NS
Credit orientation	15.23**
Risk preference	12.07**
Level of knowledge on recommended vegetable cultivation practices	15.63**

* Significant at 5.00 per cent level of probability

** Significant at 1.00 per cent level of probability

NS= Non significant

A perusal of Table 8 reveals that the difference in level of education, family size, family type, size of operational land holding, sources of labour, sources of finance, annual family income, achievement motivation, credit orientation, knowledge level and risk preference brings about difference in level of commercialization. Similar findings were reported by *Singha and Baruah, 2011*. The association of age and marketing orientation with commercialization was found to be non-significant.

Implication of the study: The findings of the present study have a number of implications for planners, government, concerned organizations like State Department of Agriculture, NGOs and extension professionals. The study revealed that a good majority of respondents did not use fertilizers, pesticides, chemicals against diseases, micronutrients and a good majority of respondents had area coverage below 50 percent of the total feasible area and had marketable surplus below 50 percent of the total cole crops produce. Thus, government should take relevant measures for strengthening the extension system along with an effective need based input delivery system for the

farmers. The farmers should be motivated to bring more area under cole crops cultivation making them to realize the economic benefit. There is always a social distance between the extension workers and the farmers and this distance can be reduced through adequate training plan for the extension workers so that they can read and understand the farmers' social condition and also develop a desire to work with them. Hence, the extension workers need hand-on experience before they are assigned to work for the farmers. Otherwise, the information the extension workers give to the farmers will have no impact at all.

In addition, improving infrastructure (e.g., access roads) would facilitate faster delivery of farm produce especially perishable commodities such as vegetables to urban consumers. It is also imperative to enhance farmers' business skills, for instance by training and encouraging them to produce and sell vegetable in organized groups. This would provide them with economies of scale for better market search and bargain, as well as enable them to reduce operational costs. Internal coordination amongst departments and banks needs to strengthen in providing credit schemes like KCC to small and marginal farmers (Binota et.al, 2010).

CONCLUSION

Commercialization of vegetable cultivation requires establishing markets and trading centers with adequate storage facilities close to production centers. Without commerce value addition will not take place and low-incomes, poverty and unemployment would be the end result. It is high time that the government and development planners recognize the markets, trading centres and storage facilities are complementary 'commercial' infrastructure to irrigation facilities, which is a 'technical' infrastructure and should be developed along with irrigation facilities.

There is a need to create awareness and make the farmers receptive to the new technology through farmers participating demonstrations and training. Training facilities with respect to growing of horticultural crops and raising nursery has to be made available as per requirements. Therefore, there is a need for establishing a sound marketing system with forward and backward linkage so that vast potential of horticulture crops can be exploited through adoption of improved production technology.

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