FACTORS INFLUENCING THE SELECTION AND UTILIZATION OF VEGETABLE SEEDS IN MANMUNAI SOUTH AND ERUVIL PATTU D.S. DIVISION OF BATTICALOA

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ABSTRACT

Good quality seeds are important for successful vegetable cultivation in Sri Lanka. Proper identification of agronomic practices currently being adopted by the farmers in selection, utilization and storage of seeds would help to improve that practices. As such, a study was conducted to find the socio economic status, problems and agronomic practices adopted by the vegetable farmers in selection and utilization of seeds in Manmunai South and Eruvil Pattu D. S. division of Batticaloa district. This survey was carried out from April to May 2009 using structured questionnaire. Collected data were analyzed statistically. The results of the survey indicated that, most of the respondents (50%) were only completed primary and intermediate level of education and majority of respondents were (88 %) full time farmers. Higher percentage (96%) of farmers were having own land area for cultivation. Major problems faced by the vegetable farmers were heavy incidence of pests and diseases followed by low profit and low yield. More than 38.5 % of the respondents relied on their own experience to select seeds and 42% of the respondents were using their own seeds for cultivation. They select the crops for seed purpose based on the characteristics like pest and disease resistance (36%), vigour (32%) and high yield (26%). Very few percentage (7%) of farmers purchased seeds from private dealers. When purchasing seeds they gave priority for price (31%). Germination test was being done by 46% of the respondents. Most of the farmers (70%) performed seed treatments before planting such as soaking in water, fungicide treatment etc. Majority of the respondents (60%) stored their seeds at room temperature. In conclusion, most of the farmers in the study area were still using conventional practices in selection, utilization and storage of seeds. Education level of the farmers is also one of the factors, which contributes for this situation. As such, awareness of farmers in Manmunai South and Eruvil Pattu D. S. division of Batticaloa district regarding seeds should be improved to increase their production. Remedial actions should be taken to overcome the problems faced by the vegetable farmers in the study area.

Key words : Seeds, Vegitable Cultivation, Vegitable Farmers

INTRODUCTION

Vegetable cultivation is one of the major livelihood activities of the Sri Lankan farmers. Most of the vegetable crops grown in Sri Lanka are propagated by seeds. Seed constitutes the main propagule for plant growth and major input for crop production. Seeds are easy to handle and transport when compare with other planting materials under proper storage conditions. They can be stored for longer duration without losing their viability. Good quality seeds are important for successful cultivation. Their role in crop production is unavoidable. Quality seeds determine field establishment of a crop, crop vigour, degree of weed infestation, pest and disease resistance and quality and quantity of yield. As such seeds act as a basis of crop production.

Seed is the fundamental input in agricultural development and can be reproduced by the farmer himself unlike other inputs. Farmers are using varieties of seeds and obtain them from different sources. There are greater variations in the seed sources from own seeds to commercially produced hybrid seeds. But, the quality of seeds being used by the farmers is questionable. Farmers' awareness on seed quality plays significant role in this regard and farmers use several information sources to select seeds. The degree of usage of these sources may vary among farmers and it could be influenced by the education and socio economic status of farmers. Proper seed treatment is important to ensure better germination, good seedling vigour and uniform seedling establishment. Seed treatment methods may be different between farmers. Storage of seeds for next

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season is another important practice usually carried out by the farmers. Storage methods should conserve seed viability and vigour. There also greater deviation could arise between farmers in the methods of storage.

Identification of agronomic practices currently being adopted by the farmers in seed selection, utilization and storage would help to improve their practices in future and open new research paths in the field of crop science with special reference to Batticaloa district. In a survey, one collects data from a sample of a population to determine the relative incidence, distribution and interrelations of variables for the purpose of description or prediction as a guide to action (Kerlinger, 1986). Manmunai South and Eruvil Pattu divisional secretariat (D. S.) division in Batticaloa district was selected as a study area because, prominent agricultural villages such as Kaluthavalai, Kaluwanchikudy, Cheddipalayam etc. located in this D. S. division and majority of the farmers are vegetable growers. This survey was carried out in the Manmunai South and Eruvil Pattu D. S. division of Batticaloa district with the objectives of,

1. To find out socio-economic status of the farming community
2. To identify the major problems faced by the farmers in vegetable cultivation
3. To find out current practices adopted by the farmers in selection, utilization and storage of seeds

METHODOLOGY

This survey was done from April to May 2009 in the Manmunai South and Eruvil Pattu D.S. division, which is the major vegetable producing area of Batticaloa district from April to May 2009. This D. S. division is located in the coastal side of Batticaloa district and it includes the tsunami-affected areas also. Agricultural villages in this D. S. division viz. Kaluthavalai, Kaluwanchikudy and Cheddipalayam were selected as survey areas. The respondents were randomly selected among vegetable farmers in the selected villages. In the study area, 52 farmers were randomly selected as respondents. The survey was carried out by one-to-one interviews using the structured questionnaires. The prepared questionnaire was pre-tested and necessary changes were made to enable easy recording of responses. Questionnaires were filled at the doorstep of the respondent. Collected data were analyzed statistically.

RESULTS AND DISCUSSION

1. Characteristics of the respondents

In this survey most of the farmers (88%) were males. It shows that, feminization of agriculture is not yet started in the study area. Majority of the farmers were middle aged (31-50) (Table 1). However, some young farmers were involved in vegetable cultivation.

Table 1 : Age distribution of the respondents

Age class	Respondents (%)
Less than 20	0.0
20-30	15.4
31-40	34.6
41-50	11.5
51-60	30.8
More than 60	7.7

It appears that, the agriculture sector is still less attractive to the younger generation in the study areas. No farmer was less than 20 years old (Table 1). Attraction of youngsters towards agriculture is decreasing due to many reasons. This is a major problem faced in several developing countries. However, the percentage of respondents older than 60 years of age was 7.7%. This indicates that the agriculture sector, especially vegetable cultivation, is still being followed in the traditional way. Around 50% of the farmers in the selected villages had only completed primary and intermediate levels of education and there were a few farmers who had never attended formal education (Table 2). Some farmers had higher levels of educational background, even upto university level.

Table 2 : Education level of the respondents

Level of Education	Respondents (%)
Never attend school	11.5
Primary (1-5 years)	23.3
Intermediate (6 –10 years)	26.9
G. C. E. (O/L)	19.2
G. C. E. (A/L)	11.5
Diploma	3.8
University	3.8

Due to the low education level of farmer respondents, it appears that the farmers relied mainly on their own experiences in vegetable cultivation and sometimes they were reluctant to accept new technology. Level of literacy influences the degree of incorporation of new technologies in agriculture. Majority of the respondents were full time farmers (Figure 1). It also influences the absorption of new technologies in their cultivation practices. Thus, they were reluctant to take risk in their primary livelihood activity.

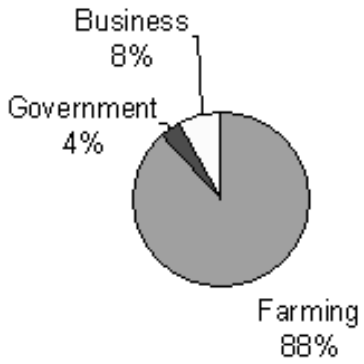

Figure 1 : Primary occupation of the respondents

Greater number of the farmers (96%) had own land area for their cultivation. However, the extent of their land area used for vegetable cultivation was varied greatly among farmers (Table 3).

Table 3 : Distribution of size of vegetable farms owned by farmer respondents

Land area (ac)	Respondents (%)
Less than 1.0	38.5
1.0 – 2.0	57.7
More than 2.0	3.8

Farmer respondents generally owned small vegetable farms. Most farmers managed farms with area of 1 – 2 ac (57.7%) and some owned less than 1 ac vegetable land (Table 3). Very few number farmers had more than 2 ac vegetable farm in the study area. Due to the limited agricultural land area, utilization of land was generally very intensive.

2. Problems faced by the farmers in vegetable cultivation

Major problems faced by the vegetable farmers were heavy incidence of pests and diseases followed by low profit and low yield (Table 4).

Table 4 : Problems faced by the farmers in vegetable cultivation

Problems	Respondents (%)
Heavy pest and disease infection	27
Low profit	21
Low yield	14
High cost of production	12
Difficulties in marketing	11
Problems in obtaining quality seeds	08
Difficulties in storage	01
Other problems:	05

Majority of the farmer respondents were greatly affected by devastating insect pest and diseases. It may be due to heavy usage of chemical pesticides by the farmers. Farmers in the studyarea practiced intensive agriculture. For example, they planted a new crop before the existing crop was completely harvested. Ultimately pest control became a difficult task in the study area. As a result, crop yield would be reduced. Due to high cost of production, profit gained by the farmers would also be reduced. Other problems faced by farmers were lack of irrigation water, damages caused by animals like wild boar and lack of organic manure.

3. Information sources utilized for the selection of seeds

Most of the farmer respondents relied on their own experience for selection of seeds (Table 5). Around 27% of the farmers received advices from experienced fellow farmers. Very few farmers received advices from agricultural extension officers for seed selection.

Table 5 : Information sources utilized by the respondents for the selection of seeds

Information sources	Respondents (%)
Own experience	38.5
Fellow farmer	26.9
Agricultural officer	13.5
Commercial advertisements	09.6
Radio	03.8
TV	03.8
Educated person in the village	01.9
Sales representatives	01.9
News paper	0.0
Newsletters	0.0
Private dealers	0.0

Information sources play a major role in agricultural extension. From which, farmers get required knowledge for their cultivation. Information sources utilized by the farmers are greatly influenced by their literacy level. In the study area, most of the farmers completed primary and intermediate level of education and most of them were experienced aged farmers. As such they depended on their own experience for selection of seeds. Due to the low education level, farmers relied mainly on their own experiences in vegetable cultivation and sometimes they were reluctant to accept new technologies (Rauf *et al.*, 2004).

4. Sources of seeds

In the study area, respondent farmers obtained seeds from variety of sources. Most of the farmers used their own seeds for cultivation (Figure 2). It is due to high-level trustiness in own seeds. Very few of them obtained seeds from private dealers.

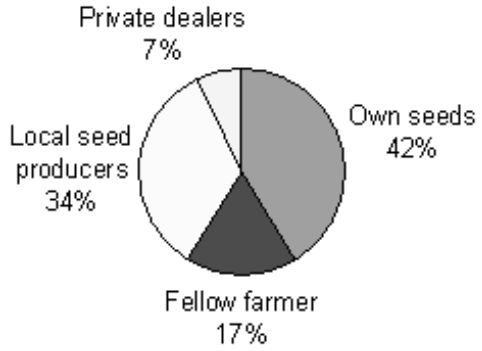

Figure 2 : Sources of seeds

Good quality seeds are essential to grow a strong and healthy crop. Good quality seeds can be obtained from trusted sources or farmers can produce their own seeds. Farmers who used own seeds, carefully select plants for seed purpose. They selected the crops based on several characters (Table 6). Priority characters varied considerably among respondent farmers.

Table 6 : Characters considered for selection of crops for seeds

Characters	Respondents (%)
Resistance to pest and disease	36
Crop vigour	32
Yield	26
Drought tolerance	02
Quick maturity	04

Serious problem faced by the vegetable farmers in the study area is the heavy pest and disease infestation. Therefore they paid more attention to select seeds from the plants that suffered less attacks by insects or diseases. Farmers also gave priority for vigour and yield during crop selection for seed purpose. Respondent farmers gave more awareness to select pest and disease free seeds, when purchasing seeds from fellow farmer or local seed producer, (Table 7). They also considered the recommendations of the fellow farmers and mother plant history while purchasing seeds from fellow farmers or local seed producers in the village.

Table 7 : Characters considered during purchasing seeds from fellow farmers or local

SEED PRODUCERS

Characters	Respondents (%)
Free from pest and disease attack	31
Recommendation of fellow farmer	21
Mother plant history	21
Seed size	12
Seed colour	9
Free from physical damages	6

Respondents provided priority for price followed by information on label when purchasing seeds from private dealers (Figure 3). Price of commercial seeds is very high. Most of the farmers in the study area were resource free poor farmers. Therefore farmers paid more attention to price factor during the purchase.

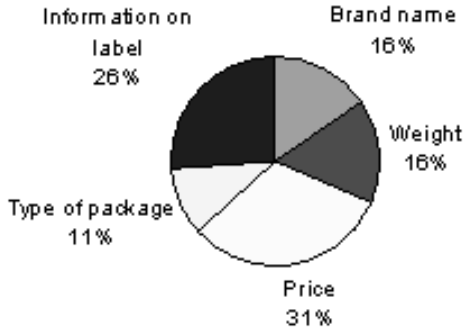

Figure 3 : Factors considered during purchasing seeds from private dealers

Some educated farmers noticed the information on the label and the priority information were varied among farmers. However, most of the respondent farmers (80%) gave priority for the crop variety. Respondent farmers considered several factors to select a new variety for cultivation (Figure 4). Most of the respondents (64%) preferred to select high yielding, pest and disease resistance varieties. Because they would like to minimize cost of production and maximize profit. Some of them considered adaptability (10%) and consumer preference (2%).

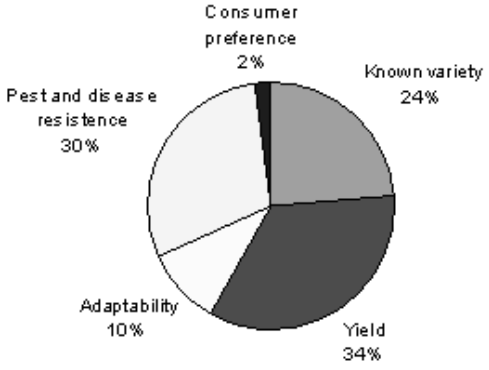

Figure 4 : Factors considered during the selection of variety

5. Problems in obtaining good quality seeds for cultivation

Major problems faced by the respondent farmers were low trustiness in commercial seeds followed by lack of good quality seeds (Table 8). Quality of commercial

seeds is questionable. Therefore farmers were not in a position to take risk in their livelihood activity. They may trust the commercial seeds if they are certified by any recognized institution. However, farmers' awareness about seed quality is much important than seed quality itself.

Table 8 : Problems in obtaining good quality seeds for cultivation

Problems	Respondents (%)
Low trustiness in commercial seeds	45
Lack of good quality seeds	21
Commercial seed sources are far away from farm	19
Less knowledge about new varieties	10
High price for commercial seeds	5

Quality seeds are less available in the farmers' premises and they have to travel longer distance to obtain commercial seeds. Price of commercial seeds is very high when compared to locally available seeds. In addition farmers are less aware about new vegetable varieties. Therefore, these problems should be overcome to improve the crop production in the study area.

6. Seed treatment

Germinating test was performed only by 46% of the respondents and seed treatments were carried out by 70% of the respondents before planting. Types of seed treatment methods were differed greatly between respondent farmers (Figure 5).

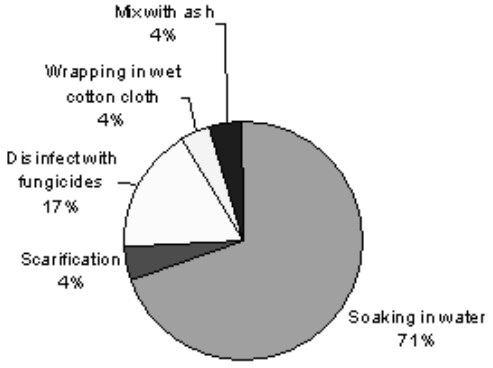

Figure 5 : Types of seed treatments performed by respondents

Most of the respondents (71%) were just soaking seeds prior to planting. Certain extent this practice may improve germination rate of the seeds by softening the outer seed coat. However, it is not prevent seed borne diseases. Some of the respondents (17%) treated seeds with fungicides. Scarification practice was only performed for seeds with hard seed coat like okra. Seeds of solanaceae family crops such as chilli and brinjal were mixed with ash prior to planting. Few farmers wrapped the seeds in cotton to enhance sprouting. This practice commonly had done for okra and leguminous crop seeds. By and large, respondent farmers practiced mostly traditional methods for seed treatment. It is due less awareness of farmers in the study area about seed treatment methods and it's importance.

7. Methods of seed storage

Conventional methods are practiced by the respondent farmers for seed storage in the study area. Most of the respondents (60%) stored their seeds at room temperature without proper package. Rest of them conserved their seeds in sealed poly bags but at room temperature. These types of storage methods would reduce the viability and vigour of the seeds and ultimately reduce seed quality. But farmers were less informed about improved seed storage methods in the survey area.

CONCLUSION

From this study it could be stated that, most of the farmers are still using conventional practices in selection, utilization and storage of seeds. Education level of the farmers is one of the factors, which contributes for this situation. As such, awareness of farmers in Manmunai South and Eruvil Pattu D. S. division of Batticaloa district regarding seed selection, utilization and storage should be improved to increase their crop production. Vegetable farmers in the study area faced several problems generally in vegetable cultivation and specifically in obtaining quality seeds. Therefore remedial actions should be taken to overcome these problems to uplift the livelihood of farmers in Batticaloa district.

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