

Assessing Information and Communication Needs of Vegetable Growers in Sri Lanka

Rohana P. Mahaliyanaarachchi

Senior Lecturer, Department of Agri Business Management, Faculty of Agricultural Sciences, Sabaragamuwa University, Belihul Oya, Sri Lanka

Abstract

Sri Lanka, an island off the coast of southern India, is heavily dependent on rice and vegetables as the staple foods for its 19 million people. However, production of rice and vegetables is largely in the hands of subsistence farmers. Thus to ensure national food security, eradicate poverty, and promote sustainable development, the government must pay particular attention to increasing small farmer productivity by encouraging adoption of modern techniques and technologies of rice and vegetable production. This survey research of vegetable growers in *Welimada* Divisional Secretary area in the *Badulla* District of Sri Lanka, determined farmers' sources of technical information. Source is important because it is associated with factors such as reliability, availability, timeliness, relevance, and comprehension of the information. The study found that neighbouring farmers and farmer organizations were the primary sources of information to vegetable producers. Newspapers, radio, television and extension workers ranked very low which suggests that vegetable producers have practically less access to modern technical information. Farmers also ranked extension workers low in comprehension also implying a need for communication skills training for these agents. The study found that farmer organizations provide a more equitable means of disseminating innovative information instead of opinion leaders, an approach that only makes the information rich, richer.

Introduction

In Sri Lanka, an island off the coast of southern India, the production of rice and vegetables, the national staple foods, is largely in the hands of subsistence farmers, unlike the cash crops, such as tea, rubber, coconuts, and spices which are grown in large commercial plantations. To ensure national food security, eradicate poverty and promote sustainable development, it is an essential fact that the Government of Sri Lanka must take measures to improve rice and vegetable production. Rupasena (1999) warns that unless productivity is substantially increased there will be a shortage in vegetables to meet domestic and export requirements. A fundamental question, however, is how the government can go about systematically increasing subsistence production. This study suggests that the first step is to finding out whether subsistence farmers have access to information on new techniques and technologies on vegetable by examining farmers' information sources. This study, therefore, focuses on sources of information for vegetable farmers in *Welimada*, a popular vegetable growing area.

Background to the Study

The Republic of Sri Lanka, with its 19 million people and occupying a land area of 25,300 sq. miles is very densely populated (Volume Library, 2001). Therefore, the common practice of increasing subsistence food production by clearing more land is not a viable option (Mahaliyanaarachchi, 2000). The only feasible method

is to intensify the rate of production on existing farms that is, enabling small farmers to double or even triple output from the same piece of land (Agunga & Singh, 2000). Recent advances in agricultural and horticultural research make this possible. The challenge is helping farmers to overcome daunting obstacles, such as drought, traditional practices and access to credit and production technologies.

Welimada divisional secretary area, in the *Badulla* District, where this study was conducted, is among the highest vegetable producing areas in Sri Lanka. Vegetable growers in *Welimada*, to produce abundantly, must maintain high soil fertility, use improved seed varieties, and new technologies in temperature regulation (such as poly tunnels and green houses), among other modern methods (Hurelbrink et al, 1993). The problem is whether information on these modern techniques of vegetable production is available to traditional growers. Thus, the overall purpose of this study was to determine small farmer sources of technological innovations on vegetable production in the *Welimada* divisional secretary area. The specific research objectives were:

1. to identify vegetable growers' sources of technical information; and
2. to examine characteristics of these sources.

Six main characteristics of sources were identified for this study. They included: 1) availability or accessibility of the information source, 2) amount of information provided, 3) timeliness of information delivery, 4) relevance of information, 5) understandability or comprehension of information provided, and 6) overall usefulness of the information source.

Research Methodology

Primary data were collected from vegetable growers in *Welimada* divisional area in December 2003. A cluster sampling method was used due to unavailability of proper and accurate records of growers in the area. The agrarian region was considered as the cluster. Thus, the survey was conducted in *Tennekumbura*, *Boralanda*, *Keppetipola* and *Dambavinna* agrarian areas (Figure 01). Due to very close equal distribution of the farmers in the four centers, equal numbers of 20 farmers were selected from each agrarian area. Overall, the sample size was 80 farmers. Sample was drawn as shown in Figure 01.

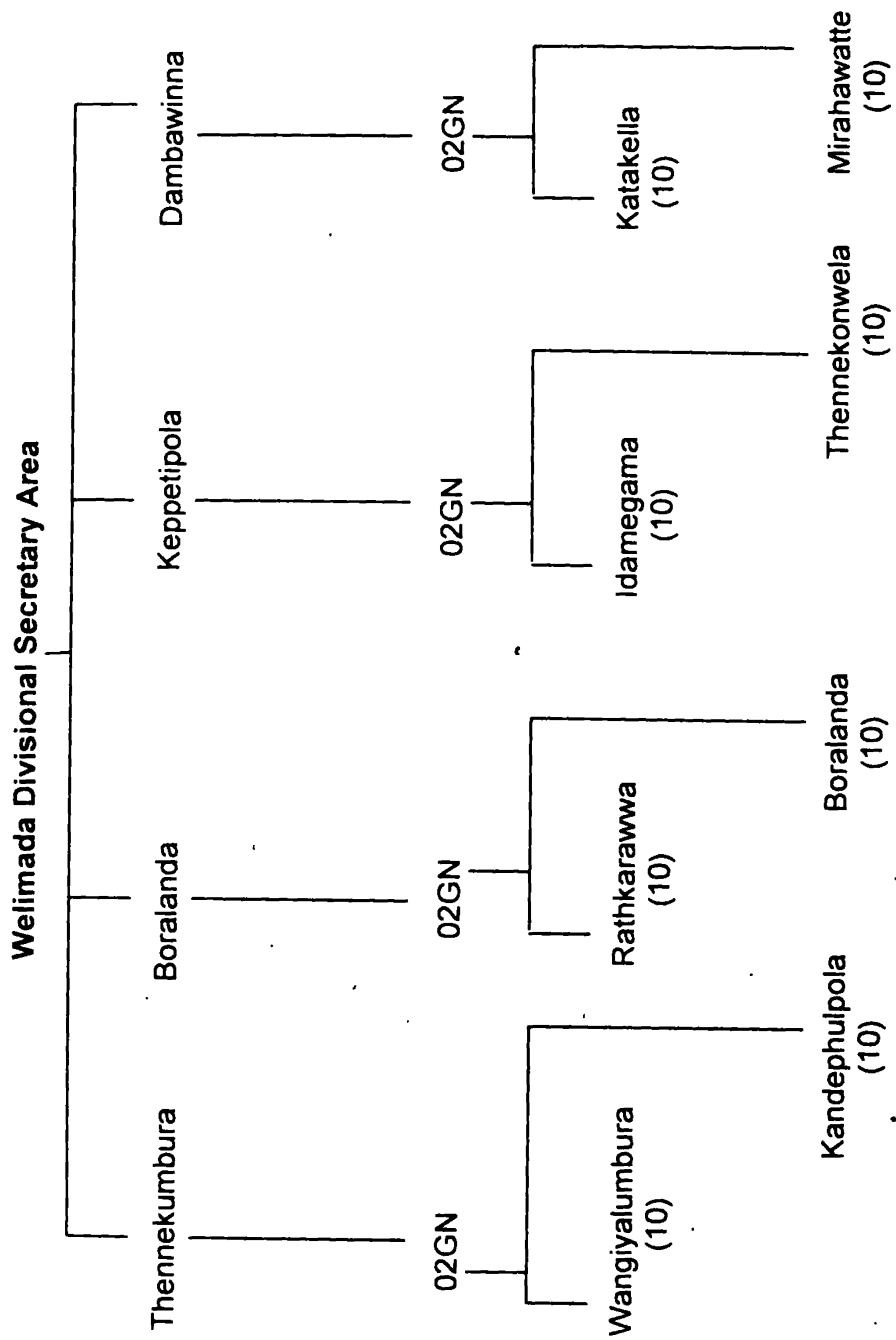


Figure 1: Stratification of the sample

Secondary data relevant to the information sources in the vegetable sector in Sri Lanka were collected from sources such as agrarian service centers, Central Bank reports, Hector Kobbekaduwa Agrarian Research and Training Institute reports, and other publications. The questionnaire was pre-tested to ascertain content validity, that is, whether the intended information could be obtained without any problems. Based on this pre-testing, changes were made to the questionnaire. Analysis of data was done using SAS package. Frequency distribution was used to discuss the research findings.

Results and Discussion

What follows is a presentation and discussion of the results of the study. In general, the research goal was to identify sources of technical information for vegetable farmers in *Welimada* divisional secretary area. Overall, six main sources of information were identified through secondary data gathering. These were: 1) extension officers, 2) farmer organizations, 3) radio, 4) newspapers, 5) neighbours, and 6) retailers (of fertilizer and chemicals). For each of these six sources, the study further sought to determine their characteristics. These were: 1) availability of the information sources when needed, 2) amount of information provided, 3) timeliness of information delivery, 4) relevance of information provided to farmers' needs, 5) understandability or comprehension of information, and 6) overall usefulness of the information source.

Availability of the information source

Availability of the information source is whether source was readily accessible to farmers? The study showed (Table 1) that neighbouring farmers were the main information source to the vegetable farmers in *Welimada* (37 percent available at "any time" and 11 percent available "some time") with a weighted mean score of 1.95. This finding is in line with other studies in the country. Mahaliyanaarachchi (1998) found neighboring farmers ranked second as information source among tea small farmers. Sivayoganathan (1982) and Jayasena and Herath (1986) also identified neighboring farmers as the second primary source of information for paddy rice cultivators and rubber smallholdings. The second most available information source to the vegetable farmers was retailers of fertilizer and chemicals at 7 percent "anytime" and 45 percent "sometime" followed by Extension officers and radio.

Table 1: Availability of information sources to the vegetable farmers

Source	Percentage of farmers			Weighted
	Any time	Some time	Never	Mean Score
Extension Officer	6	34	60	1.36
Farmer organizations	5	16	79	1.26
Radio	1	35	64	1.37
News papers	0	22	78	1.22
Neighboring farmers	37	11	52	1.95
Input Suppliers	7	45	48	1.59

A significant finding of the study is that traditional vegetable farmers have virtually no access to new ideas and practices since they are learning from farmers like themselves. The majority of vegetable farmers cultivate the land in much the same way their ancestors did before them, which is highly unproductive. Radio, newspapers, and above all, extension workers, are generally out of their reach. Traditional vegetable producers cannot be expected to adopt modern farming methods if they have no access to this new information.

Amount of technical information received

For this study, the amount of information supplied or made available to farmers is described by a) the frequency of contact with source, b) duration of the contact, and c) the knowledge level of the source. Sivayoganathan (1982), Jayasena & Herath (1986) and Mahaliyanaarachchi (1996) have identified extension workers, mass media and agricultural officers as providing the highest amount of technical information. However, the vegetable farmers in *Welimada* received more information from neighbouring farmers with weighted mean score 2.23, followed by farmer organisations and extension officers (Table 2). This finding again shows that vegetable farmers in *Welimada* divisional secretary area use lesser amount of modern cultivation methods. There is an urgent need for extension workers to play a more dominant role in providing farmers with information.

Table 2: Amount of information received by the vegetable farmers.

Source	Percentage of farmers			Weighted
	High	Substantial	Low	Mean Score
Extension Officer	5	76	19	1.86
Farmer organisations	21	64	15	2.06
Radio	0	46	54	1.46
News papers	0	40	60	1.40
Neighbouring farmers	23	77	00	2.23
Input Suppliers	5	44	51	1.54

Extension workers need to move from "substantial" and "low" contact to the "high" contact category. Many farmers have no access to information from printed and electronic media. It may be due to lack of availability of these sources.

Timeliness

Timeliness refers to whether farmers get information or technical advice early enough to plan their farming operations. Farmers not only need to have relevant technical information but they must do so at the required time. Vegetable production is highly time-bound. Farmers must not only know when to plant, spray and harvest but also where to sell and for how much. Marketing information is especially important given that vegetables are highly perishable, in the absence of good storage facilities. In general, farmers must have production information before the cropping season begins. However, Table 3 shows that 70 – 90 percent of the information farmers received came during the growing season, at a time probably too late to be of use, though it is true that some information is given during the season, before the intended practice. Less than 25 percent of the farmers said they received information from extension workers

prior to the farming season, and still far less received pre-season information from other sources.

Table 3: Timeliness of the information sources.

Source	Percentage of farmers			Weighted Mean Score
	Before	During	After	
Extension Officer	24	73	3	2.70
Farmer organizations	7	93	0	2.93
Radio	13	87	0	2.87
News papers	16	84	0	2.84
Neighboring farmers	13	87	0	2.87
Input Suppliers	1	94	0	2.48

The data show that many farmers probably did not have access to information at the time they needed it most, that is, before the cropping season. This is not satisfactory. For example, it is impossible for farmers to plan production if they cannot know realistically at what price range they can sell their produce. Fertilizers, pesticides and other production inputs are expensive and the quantities farmers will use on expected revenue. Information obtained during the cultivation process also has less value to farmers as it may come after the operation has been carried out. Information on new technologies, possible markets and expected price ranges should be provided prior to the cultivation period, not during or after.

Comprehension of information sources

Ability of the receiver to understand the information received is defined as understandability or comprehension. Understandability depends on several factors such as language, jargon, readability, use of audio-visual aids and simplicity of the message. For vegetable farmers in *Welimada* the information received from neighboring farmers had the highest level of understandability (with weighted mean score 2.06), followed by extension officers (with weighted mean score 1.85), and input suppliers (with weighted mean score 1.74) as shown in Table 4 radio was ranked last. One reason for the limited effectiveness of radio is that farmers cannot listen repeatedly, if they fail to grasp the information the first time. Radio also does not offer farmers a feedback system to clarify understanding. Extension workers are not ranked highest which suggests that their communication skills probably need fine-tuning. It is also clear from the study that face-to-face is the primary means of communication which suggests that to have more extension contact the number of extension workers has to be increased or means has to be provided to make current numbers more mobile, if they are to reach more farmers. Working through farmer associations is another way to increase extension contact with farmers. In general, however, using community radio might be a cost-effective way to augment use of extension personnel.

Table 4: Comprehension of technical information

Source	Percentage of farmers			Weighted
	High	Substantial	Low	Mean Source
Extension Officer	3	79	18	1.85
Farmers organizations	0	63	37	1.63
Radio	0	52	48	1.52
News papers	0	72	28	1.72
Neighboring farmers	16	74	10	2.06
Input Suppliers	5	64	31	1.74

Understandability of information is very important because if farmers cannot understand the information provided by the source they cannot use it. Providing agents with communication skills will, naturally, enable them to interact more effectively with farmers, thereby ensuring high-fidelity communication and understanding.

Relevance of technical information sources

Relevance means suitability and appropriateness of the information supplied by the information source. The most relevant information to vegetable farmers came from neighboring farmers (weighted mean score is 2.07) followed by extension officers and farmer organisations (Table 5) Neighboring farmers know the local situation and the needs of their fellow farmers. That is why their information is more relevant. Radio and newspapers were ranked the lowest regarding relevance of information supplied. The finding also suggests that extension workers must move into the lead position since they are the bearers of scientific information. Mass media could also be effective, however, it will require reporters getting to understand local community needs as a way of providing information that will have relevance to them.

Table 5: Relevance of technical information sources

Source	Percentage of farmers			Weighted
	High	Substantial	Low	Mean Source
Extension Officer	6	82	12	1.94
Farmers organizations	0	88	12	1.88
Radio	0	58	42	1.58
News papers	6	33	61	1.45
Neighboring farmers	7	93	0	2.07
Input Suppliers	10	48	42	1.78

Overall usefulness of the information sources

Overall usefulness of the information source is farmers' judgment on what they consider to be the most valuable source of information. Source availability, amount of information provided, timeliness of information delivery, understandability and relevance of information constitute "overall usefulness." It also refers to trustworthiness of source. Table 6 shows that farmer organisations

were the most useful or trustworthy source of information (weighted mean score 2.02), followed by neighboring farmers (weighted mean score 1.97) and extension officers (weighted mean score 1.84). Mass media sources were the lowest in usefulness.

Table 6: Overall usefulness of the technical information sources

Source	Percentage of farmers			Weighted Mean Source
	High	Substantial	Low	
Extension Officers	3	78	19	1.84
Farmers organizations	18	66	16	2.02
Radio	5	53	42	1.53
News papers	6	33	61	1.45
Neighboring farmers	7	83	10	1.97
Input Suppliers	15	45	40	1.75

This finding also has extreme usefulness for extension planners. Given that farmer organizations are deemed trustworthy in the region, there is a need to identify and use them as effective channels for equitably delivering information to all farmers. Disseminating information through opinion leadership is more likely to be inequitable as those who receive it first are more likely to use it to their benefit before passing it on, if at all.

Farmers preferred technical information sources

When farmers were asked to identify their preferred sources of information, extension officers were ranked first with 77 percent of respondents, farmer organizations, and a close second with 65 percent and neighboring farmers with 58 percent as third. Radio and newspapers were the least preferred sources. Again, this finding stresses the need for extension to work with groups, not with individual farmers. It also shows that the mass media, which have been very powerful in reaching large numbers of people with information, could be effective in reaching small farmers in Sri Lanka and their usage should be explored.

Farmers' sources of market information

A well-organized market information system is an indispensable institution for the smooth functioning of an agricultural production system. A market information system is one that regularly collects and disseminates to farmers, information on prices of agricultural products, marketing options, and product quality requirements. A sound market information system helps producers make long-term decisions on production choices, such as what to grow and how much.

As shown in Table 7, farmers identified wholesalers as their main source of market information, based on anytime availability, followed by television and neighboring farmers. Radio and farmer organizations also featured prominently as "sometime" available sources. Farmers were essentially, interested in price information. This suggests that their propensity to increase output will depend on for how much they can sell their produce. This market information should be provided before the production season.

Table 7: Availability of the market information sources to the vegetable farmers

Source	Percentage of Farmers			Weighted mean
	Any time	Some time	Never	Score
Radio	2	53	45	1.57
Newspapers	1	10	89	1.10
Television	15	45	40	1.60
Wholesaler	30	32	38	1.92
Neighboring farmers	7	11	82	1.25
Input Suppliers	0	63	37	1.63

The highest amount of market information was provided by wholesalers, followed by farmer organisations, television and radio. Neighbouring farmers provided the lowest amount. The last point is not surprising given that in a competitive market environment, neighboring farmers may not readily share information on market prices.

Timeliness of market information provided was also asked. Wholesalers were considered as providing market information on time, that is, information on possible price levels before production started. Mass media sources such as radio, newspapers and television provided information after the market operation occurred and therefore were of little use to farmers.

However, when asked which of the sources were most reliable, television ranked first, followed by farmer organizations, newspapers and radio. Wholesalers who were the highest predictors of market information ranked last in reliability indicating farmers' distrust of them. It suggests that if farmers have alternative sources of pre-season information they might avoid wholesalers altogether. It is important that extension workers become this alternative source.

Conclusions and Recommendations

The production of vegetables in Sri Lanka's is largely in the hands of partly subsistence farmers. Therefore, to ensure national food sufficiency, eradicate poverty and promote sustainable development there is a need to pay particular attention to the plight of these farmers. This study examined source of scientific information of vegetable growers in *Welimada* district of Sri Lanka. Without access to information on productivity-increasing techniques and technologies and credit poor farmers cannot be expected to increase output. They need information on high-yielding vegetable varieties, improved cultivation methods, production techniques and farm prices. In particular they need guidance from extension workers since mass media facilities are virtually unavailable to them. The study showed that vegetable producers in *Welimada* area have virtually no access to scientific information. Their primary source of information is neighboring farmers followed by farmer organizations. Interpersonal communication or "word-of-mouth" is also the primary means of communication in the area. Based on the findings, the following conclusions and recommendations are made:

1. Farmer organisations play a major role in information dissemination and should be recognised and used more extensively by extension workers. Providing extension information to farmer groups instead of individuals is a more equitable way of disseminating information instead of the opinion leadership technique used in many extension systems.
2. While other farmers constitute the main source of information to vegetable producers, their preferred source is extension. This means that extension workers need to intensify their contact with these farmers. Further studies may be necessary to determine constraints extension workers face in reaching and involving partly subsistence farmers like the vegetable producers in *Welimada* divisional secretary area.
3. Although the vegetable growers identified market prices as their main information need, a more comprehensive study of their farm and family needs is needed to help the government adopt a more comprehensive policy towards rural development in the district and neighboring areas. Vegetable production is only one aspect of community life. Sustainable and holistic development must take into account the totality of community needs, not just vegetable production.
4. Although the mass media, such as radio and newspapers, ranked low as information sources for the vegetable growers, a further study is needed to determine how these media can be utilized to augment face-to-face extension contact and group interaction. For example, community radio broadcasting in local languages and promoting local culture, could raise issues of significance, such as family planning, which can then be discussed at community group meetings and actions taken. It is clear from the study that individuals tend to adopt innovative decisions sanctioned by the group.
5. For rural areas like *Welimada*, the extension worker constitutes the farmer's gateway to new ideas developed outside their narrow environment. However, in terms of comprehension or understandability, farmers did not rank extension workers highest. This suggests that the communication skills of extension workers may need fine-tuning. Therefore, a study is needed to understand the training needs of extension workers, particularly at the district and village levels, as a basis for designing and implementing a professional development program for extension personnel in Sri Lanka.
6. This study has implications for improving overall extension delivery to small farmers in Sri Lanka. The Ministry of Agriculture is, therefore encouraged to examine these recommendations.

References

- Agunga, R. A. & L. Singh (2001). A communication strategy for improving small-scale farmer productivity in India. Journal of Extension Systems, Dec. 2000, Vol. 16.
- Hurelbrink R.L. G. A Marlowe, J. R. Rose (1993). Role of public and private sectors in horticultural development, Uva Province, Peradeniya.

Jayasena W G , Herath H M.G. (1986). Innovation, receptivity and adoption in rubber small holdings of Sri Lanka. Agrarian Research & Training Institute, Colombo.

Mahaliyanaarachchi R P (1998). Information sources in the Tea Small Holdings Sector, Sabaragamuwa University Journal, Volume I, 43-51.

Mahaliyanaarachchi, R.P. (2000). Factors Affecting Market Failures in Vegetable Sector in Welimada Area, Research Report(Unpublished), Sabaragamuwa University of Sri Lanka, Belihul Oya, Sri Lanka.

Rupasena L. P. (1999). Production and marketing of vegetables. Research Study, No 102, HARTI, Colombo.

Sivayoganathan C. (1982). Importance of contact farmers as a source of information in the adoption of selected rice production practices among farmers in Anuradhapura district, Sri Lanka. Ph.D thesis, Texas A & M University.

Volume Library (2001). Volume Library 2: World Index, A Modern, Authoritative Reference for Home and Schools Use. Nashville, Tenn.: Southwestern Press.