Journal of the Rubber Research Institute of Sri Lanka, (2003) **86**, 32-37

Preference ranking as a participatory tool in identifying farmers' perceptions in planning effective dissemination programmes

Wasana Wijesuriya*, D M A P Dissanayake*, Mahinda Wijeratne**, Jagath Edirisinghe*, Keminda Herath* and Vidura Abeywardene*

Recd 04 December 2003; Accepted 15 January 2004

Abstract

This paper introduces 'preference ranking' as a participatory tool in understanding farmers' perceptions on priority areas for planning effective dissemination programmes. It also provides a guideline for application of appropriate statistical methods for interpretation of preference ranking studies.

Key words: non-parametric methods, preference ranking, rubber smallholders

Introduction

Awareness programmes on rubber cultivation mainly fall into immature, mature and processing stages. Proper implementation of these programmes should be based on farmers' needs. This is often neglected and is a major reason for poor interest shown by the farmers on these programmes. Hence, knowing the farmers' perception in advance on needs and preferred media for dissemination are of immense importance for planning effective extension programs.

The tools available for understanding the farmers' perceptions on several items of interest are preference ranking and preference scoring. Preference ranking or scoring by different farmers for the same set of items (varieties or management practices) gives a set of ranked indexes by farmers. These ordered lists are important in planning researchers' investigations and policies.

Some of the problems related to preference ranking are documented by Fielding and Riley (1998). The importance of having sufficient number of participants was highlighted in this paper. Further, the scoring and ranking methods were compared. Scoring method has several merits over the ranking method but it was found to be difficult when dealing with a farming community.

Therefore, this study employed preference ranking as the participatory

* Rubber Research Institute of Sri Lanka. Datronfield. Agalawatta. Sri Lanka
** Dept. of Economics & Extension. University of Ruhuna. Mapalana. Kamburupitiya. Sri Lanka

approach to identify the farmers' perceptions focusing on activities pertaining to immature, mature and processing stages and preferred media for dissemination in planning effective awareness programs. This paper is also focused on appropriate use of non-parametric statistical methods in interpretation of preference ranking exercises.

Methodology

Locations

The preference ranking exercises were done in three villages; namely, Welihelatenna, Batugampola and Pohorabawa in Kegalle, Kalutara and Ratnapura districts, respectively.

Participatory method

This study was focused on the immature and mature stages of rubber and preferred media for dissemination. The items compared under each stage are listed below.

a) Immature stage
- Land preparation
- Nursery mgt. & field establishment
- Establishment of cover crops
- Fertilizer application
- Weeding
- Soil conservation practices

b) Mature stage
- Marking of tapping panels
- Correct tapping methods
- Fertilizer application
- Weeding
- Disease control

c) Processing
- Recommended practices
- Maintenance of smoke houses
- Maintenance of machinery
- Low cost methods

d) Preferred media for dissemination
- Lectures
- Workshops
- Video documentary
- Radio programmes
- Newspaper supplements

A set of cards was prepared for each study with options written on them. Subsequently, each participant was asked to prepare the set of cards in order of preference and it was recorded in a data sheet for each participant.

Statistical analysis

Friedman's test was employed for the analysis of preference ranking exercises assuming the options as the 'treatments' and the participants as the 'replicates'. Genstat version 5 was used in this analysis. Afterwards, multiple comparisons were made using the following inequality (Siegel and Castellan, 1988).

$$| R_i - R_j | \geq Z_{\alpha^*} \sqrt{\frac{nk(k+1)}{6}}$$

R_i = Rank sum of i^{th} group
R_j = Rank sum of j^{th} group
n = No. of blocks
k = No. of treatments

$$\alpha^* = \frac{\alpha}{k(k-1)}$$

where α = experiment wise error rate and k= number of treatment groups.

Results and discussion

Activities during the immature stage

Sum of ranks obtained for each area of awareness during the immature stage is given in Table 1. Land preparation, nursery management/field establishment and weeding were considered as important by the smallholders in the Welihelatenna village. Smallholders in Batugampola have considered fertilizer application also as important in addition to the above 3 areas. Smallholders in Pohorabawa have considered all the areas as important except for fertilizer application.

Activities during the mature stage

Smallholders in Pohorabawa have considered every area as equally important while smallholders in Batugampola were of the view that 'disease control' is not important. Weeding was considered as not important by smallholders of the Welihelatenna village. The sum of ranks obtained for each area is presented in Table 2. Participants in all the villagers confirmed that correct tapping methods should be given the highest priority.

Table 1. *Sum of ranks for different areas of awareness during the immature stage of rubber*

Area of awareness	Sum of ranks*		
	Welihelatenna	Batugampola	Pohorabawa
1. Land preparation	72 ^{a}	53 ^{ac}	53 ^{a}
2. Nursery management and field establishment	97 ^{ac}	46 ^{a}	82 ^{a}
3. Maintenance of soil conservation practices	132 ^{bc}	63 ^{ac}	78 ^{a}
4. Establishment of cover crops	133 ^{bc}	74 ^{bc}	83 ^{a}
5. Fertilizer application	143 ^{bd}	67 ^{ac}	102 ^{b}
6. Weeding	95 ^{ac}	75 ^{bc}	64 ^{a}

* Highest priority for the lowest rank

Means with the same letter are not statistically significant.

Table 2. *Sum of ranks for different areas of awareness during the mature stage of rubber*

Area of awareness	Sum of ranks*		
	Welihelatenna	Batugampola	Pohorabawa
1. Marking of tapping panels	81^{ac}	43^{a}	57^{a}
2. Correct tapping methods	77^{a}	41^{a}	58^{a}
3. Fertilizer application	100^{ac}	71^{a}	76^{a}
4. Weeding	123^{bd}	64^{a}	63^{a}
5. Disease control	99^{ac}	51^{b}	76^{a}

*Highest priority for the lowest rank
Means with the same letter are not statistically significant.

Activities during processing stage

According to the results given in Table 3, recommended practices in sheet making was ranked as the most important area to be addressed in awareness programs during processing stage. Smallholders in the Welihelatenna village have not considered maintenance of smoke houses and machinery as important since most of their rubber is processed by the a person who does processing as well as marketing. Although there are more number of smoke houses found in the Pohorabawa village, they also considered maintenance of smoke houses and machinery as not important. Participants in the Batugampola village have considered all activities as equally important.

Preferred media for dissemination

In all villages, dissemination through lectures and workshops was found to be the most preferred media as shown in Table 4.

Table 3. *Sum of ranks for different areas of awareness during processing of rubber sheets*

Area of awareness	Sum of ranks*		
	Welihelatenna	Batugampola	Pohorabawa
1. Recommended practices	52^{a}	8^{a}	40^{a}
2. Maintenance of smoke houses	91^{bc}	21^{a}	71^{bd}
3. Maintenance of machinery	108^{bd}	21a	67^{bd}
4. Low cost methods	69^{ac}	10a	42^{ac}

*Highest priority for the lowest rank
Means with the same letter are not statistically significant.

Table 4. *Sum of ranks for different areas of dissemination in awareness programs*

Area of awareness	Sum of ranks*		
	Welihelatenna	Batugampola	Pohorabawa
1. Lectures	85^{ac}	36^{a}	62^{a}
2. Workshops	79^{a}	38^{ac}	43^{a}
3. Video documentary	119^{ac}	74^{bc}	84^{b}
4. Leaflets	105^{ac}	67^{ac}	95^{b}
5. Radio programmes	142^{bd}	82^{bd}	92^{b}
6. Newspaper supplements	142^{bd}	81^{bd}	86^{b}

* Highest priority for the lowest rank
Means with the same letter are not statistically significant.

The following can be highlighted from the preference ranking exercises done in the 3 rubber growing villages.

- It is not possible to design a common awareness programme for the immature phase of rubber cultivation.
- Participants ranked fertilizer application to be a less important area in the immature phase. However, previous studies on adoption and awareness have indicated the importance of addressing this issue.
- Correct tapping methods should be given the highest priority accompanied with correct marking of the tapping panel.
- In the mature stage, the results of Batugampola and Pohorabawa have shown that participants have different views indicating the necessity to address all the areas.
- There is an agreement between the results of Welihelatenna and Pohorabawa for the processing stage where more emphasis can be paid on recommended practices of sheet manufacture employing low cost methods.
- Lectures and workshops are preferred by the smallholders indicating the willingness to learn from somebody rather than self-learning.

Conclusions

Proper use of statistical methods offers a systematic way of describing results and determining their reliability. Further, the choice of the appropriate test is important in obtaining a valid result. The use of Friedman's test in the analysis of preference ranking studies resulted very informative results; *viz.* priority areas and common groups. Subsequently, the extension workers can give emphasis on

the awareness areas depending on the test results.

Acknowledgement

The authors acknowledge the financial support by the European Union to undertake this study. The help extended in organization of participatory studies by Mr Susith Ratnayake, Mr M Dharmadasa, Mr D M Mahindapala, Mr Abey Dissanayake, Mr J A J Perera, Mr Bandula S Silva and Mr K V Nandana Kumara is also greatly appreciated.

References

Fielding, W J and Riley, J (1998). Ranks are Statistics: Some Advice for their Interpretation. *PLA notes* 33, 35-40.

Siegel, S, and Castellan, N J (1988). Non parametric statistics for the behavioural sciences, 2nd Edition. Book-mart Press, Inc.

Address for correspondence: Mrs Wasana Wijesuriya, Biometrician, Rubber Research Institute of Sri Lanka, Dartonfield, Agalawatta, Sri Lanka.
E-mail: dirrri@tradenetsl.lk