Belg. J. Zool. - Volume 127 (1997) - supplement 1 - pages 171-180 - Brussels 1997

COMMUNICATION IN NATIONAL RODENT MANAGEMENT PROGRAMMES

HEIMO POSAMENTIER
Leiweg 8, D-61389 Schmitten, Germany
e-mail: posamentier.consult@t-online.de

Abstract. Despite of various national and international activities regarding the management of rodent pest populations, many recent publications still bemoan the fact that technical recommendations and control programmes are not implemented or sustained. The author is of the opinion that most programmes emphasise the aspect of technical solutions and overlook the importance of communicating the appropriate information to the relevant people at the right time. Therefore, for programmes to be successful, they should include a comprehensive communication component, which goes beyond merely passing technical information to farmers. This paper discusses and describes the need to motivate farmers to implement technical solutions; why and how to include intermediaries, who carry messages and physical inputs to the farmers, into a communication plan; and the role of decision makers, who are instrumental in legitimising local activities necessary for the success of a programme.

Based on the experience in several countries, the author argues for the need of including a communication component into a rodent management programme and describes some relevant aspects necessary in designing such a component.

Key words: rodents, control, managment programmes, communication channels, communication messages, extension, training, pre-test.

INTRODUCTION

Despite considerable research (BUCKLE & SMITH, 1994; PRAKASH, 1988) into rodent control techniques and many rodent control programmes around the world, present and past, rodents still pose a recurring problem in agricultural systems of many countries (QUICK, 1990; FIEDLER & FALL, 1994). Invariably surveys show that rodents are considered a major or even the number one pest, but recommendations are not implemented despite this awareness. The reasons may be a lack of political will, recommendations are too complex for those who should apply them or a lack of good technical solutions (FIEDLER & FALL, 1994).

Most rodent control programmes are managed by rodent specialists. These specialists often overlook the needs of farmers because they are too concerned with technical solutions. However, there are signs that this problem is recognised: a meeting of rodent specialists at IRRI, Philippines (QUICK, 1990) identified the need for further research into control techniques incorporating the principles of integrated pest management including

biological control. However this meeting also pointed out that extension staff and other intermediaries have to be trained and equipped adequately, so that farmers can be informed about and implement rodent control strategies.

This paper discusses the benefits of including a well designed communication component into rodent management programmes. Regarding the design of programmes in developing countries, it emphasises the importance of an analysis of farmer needs and the identification of groups directly or indirectly involved in rodent control and their potential impact on programme implementation. The discussion is based on the experience of the author, from which some solutions are drawn and suggested.

SITUATION ANALYSIS

The first step in programme planning is performing a situation analysis, collating current knowledge on the pest species and the crop of interest, determining how farmers can readily access relevant knowledge and materials for implementing effective management and examining the strengths and weaknesses of the existing infra-structure necessary for the programme (see also ALBRECHT *et al.*, 1989). The needs, expectations and problems of the target group are assessed through «knowledge, attitude and practice» (KAP) surveys, designed specifically to provide information for planning the programme and providing benchmark information for evaluation purposes (ADHIKARYA, 1994).

From this situation analysis, farmer opinion and observation surveys, general observations and interviewing people familiar with the local situation, we prepare a problem analysis. These problems are sorted into cause-effect relationship producing a «problem tree», with the effects at the top and the respective causes below (Fig. 1). It shows the relationships between problems, identifies information gaps and forms the basis for the programme plan. Figure 1 is such a tree, coalescing information from interviews conducted in Bangladesh, Myanmar and the Sudan. It will form the basis of the discussion to follow.

We may decide from this tree that the key problem is «rodents cause excessive damage» and therefore the goal of the programme is «rodent damage is reduced efficiently». If the government is involved in rodent control farmers consider the government to be responsible for their fields (Table 1). In the case of Sudan with large numbers of sharecroppers 32% of the farmers considered the owner to be responsible, who in general did not participate in the costs of inputs.

TABLE 1

Percentage of farmers considering the government responsible for rodent control in their fields (adapted from ADHIKARYA & POSAMENTIER, 1987; POSAMENTIER, 1991 and unpubl. data)

Bangladesh	*Myanmar*	*Sudan*
58	95	27

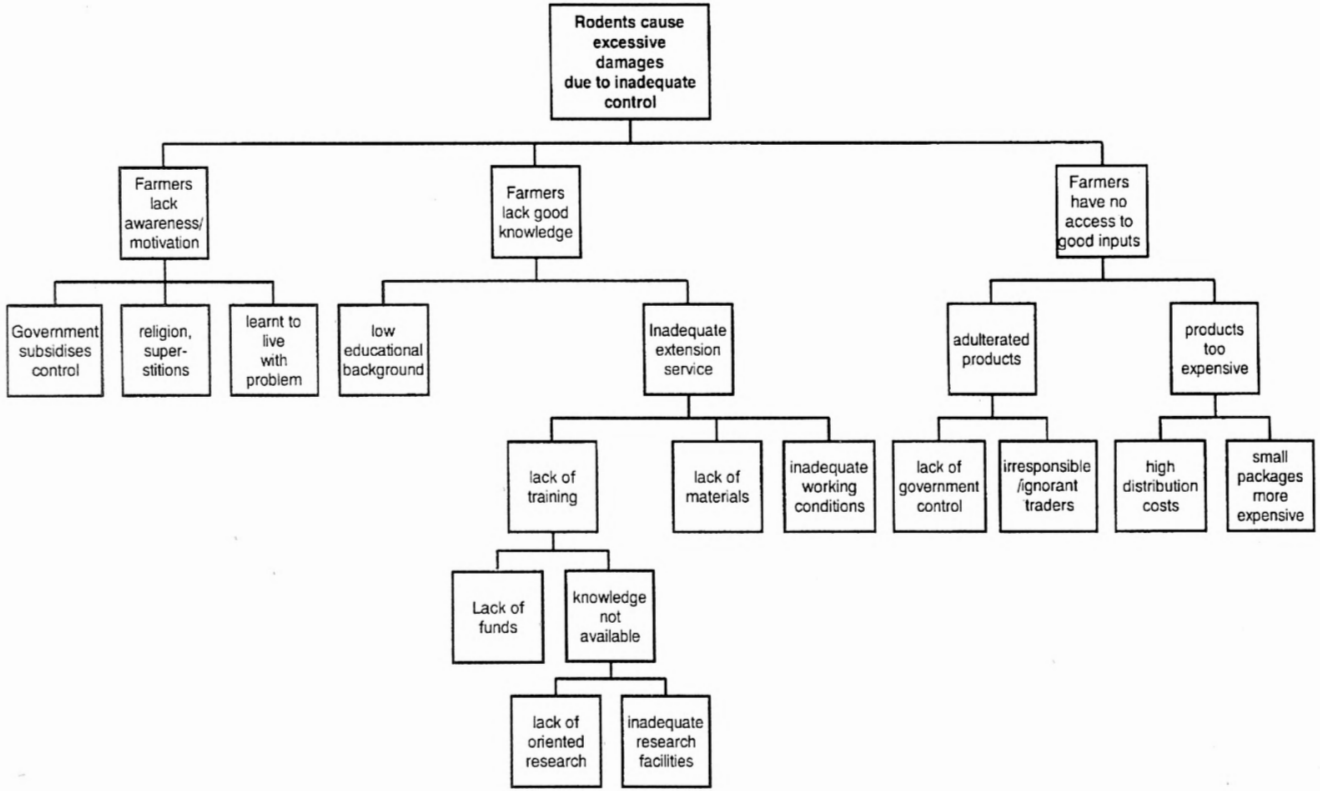

Fig. 1. – Simplified problem tree for generalised rodent control programme

In addition farmers opinion surveys invariably identify further reasons for not controlling rodents (Table 2).

TABLE 2

Reasons for not practising rat control
(adapted from ADHIKARYA & POSAMENTIER, 1987 and reports)

Country	Bangladesh (post-campaign)		Myanmar	Sudan
Year	1983	1984	1987	1991
Percentage not controlling	51	33	76	37
Number not controlling	586	359	183	55
Reasons mentioned	Percentage of farmes not controlling			
No knowledge regarding techniques/do not know	22	24	21	23
Good rodenticides not accessible	12	7	-	-
Rodenticides not available	25	20	<1	9
No rats/no damage	21	18	73	38
Others (no money, no time, etc.)	20	31	5	19

Of course it must be realised that the form and content of such a tree can vary between situations and countries; for discussion purposes it has been simplified slightly. The remainder of the tree details the causes, which would represent the activities of the programme designed to find solutions. Given the scenario presented, a programme concentrating only on designing an efficient rodent control strategy could not expect to reduce damage in the fields of farmers.

SOLUTIONS

In this section some ideas and suggestions are provided to answer some of the identified problems.

Awareness and knowledge

Many farmers are not aware of the benefits of regular rodent control or do not know why they are not carrying out control. Some of the reasons for this apparent lack of awareness and possible solutions are listed in tables 2 and 3. Table 3 serves to impress that some of these barriers have to be removed before the farmer will be involved in control, and this may include more than 30% of the farmer population (Table 2). More details and ideas on

this topic from evaluated rodent programmes can be obtained from ADHIKARYA (1994) and ADHIKARYA & POSAMENTIER (1987).

TABLE 3

Some causes and solutions for the lack of awareness. Suggested solutions/actions

Causes	*Suggested solutions/actions*
The government services have conducted or subsidised rodent control, and consequently farmers do not see the need to look after their own fields.	Lobby government to eliminate subsidies; demonstrate benefits through trials, etc.; use of motivational messages (i.e. «your field is your responsibility»).
Sharecroppers are not willing to control, because benefits go largely to the landowner.	No practical solution unless tenure system is changed.
Rats are seen as a nuisance rather than a threat. The problem is nothing new to farmers, and they have learnt to live with it.	Use of motivational messages creating fear of disease or of insufficient food to feed the family; providing information on benefits.
Lack of knowledge and access to information does not enable them to understand or see the benefits.	Provide information; for example at farmer meetings or through leaflets.
Many extension staff are not sufficiently knowledgeable to provide adequate advice. This leads to a low credibility with farmers.	Improve the extension service.
Many farmers lack faith in the available control methods because of negative past experience with ineffective bait formulations.	Lobby for quality control by government services; influence manufacturers.
Farmers are superstitious: rats are intelligent, take revenge, reincarnations of relatives and friends.	Religious disincentive, it is sinful to be superstitious.

Material inputs for control

The motivation to control rats can quickly wane, if farmers do not have easy access to good quality bait. In general, programmes overcome this handicap by organising the production and distribution on a local scale to demonstrate the benefits. However, this cannot be sustained and attempts should be made to improve the situation during the period of programme activities. Some ideas are listed below.

- Influence the government to eliminate subsidies for rodenticides. It means that manufacturers and distributors have to serve the farmers directly, establishing suitable outlets and packaging.
- The programme can demonstrate to manufacturers the potential market by providing survey statistics.
- Programmes could co-operate with manufacturers through assuring sales by organising and financing national campaigns (see ADHIKARYA & POSAMENTIER, 1987).

- Impress on manufacturers the benefits of improving labels or by-packs (information leaflet sold with item), including information on measures besides the use of poison bait.
- Provide local manufacturers with information on application techniques and good formulations and offer training to their staff.
- Mention reliable and good quality brands in extension activities.
- Introduce quality control procedures for rodenticide baits within the government services.
- Search for alternate distribution channels and make these known to manufacturers.

The above may not solve the problem. However, depending on the situation, close, regular contact and cooperation with sincere manufacturers should eventually lead to an improvement in the accessibility of good quality baits at the level of farmers.

Communication

Communication depends on intermediaries who carry information and motivation to the target group or even block it. Therefore it is necessary to perform an analysis of people and groups who may be involved, benefit or lose from the implementation of a rodent control programme and their possible function and influence. The content, for example the control strategy, should be adapted to the local conditions and be within the scope of farmers. Finally the impact of the programme depends on how the information is packaged, presented and distributed.

Control strategy

Many aspects should be considered when designing a control strategy, for example costs and benefits related to the target crop and level of damage, farmers ability to control at particular times of the year given their commitment to farm management activities and even the climatic conditions. Often too much emphasis is placed on designing a «new» technology aiming at 75% or more effectiveness of control. Farmers may be less willing to adopt such a technology as it involves greater costs, more labour or because it is too complex for them to fully understand it (see also FIEDLER & FALL, 1994). In many situations it would be easier to overcome this resistance by starting with existing farmer practices and modifying these slightly, even if the overall effectiveness may reach 50-60% only at the level of farmers fields. For example in most situations control practices are started at a time when damage by rodents is already obvious and extensive. Yet farmers are aware that damage starts long before harvest time and that efficiency can be increased by initiating control efforts earlier. In rice or wheat this means starting control just before booting stage rather than at the milky stage, which is the normal practice.

The introduction of a control programme should select a crop and time for which implementation is simple and straight forward, relatively inexpensive and benefits are obvious (ADHIKARYA & POSAMENTIER, 1987, p. 202). In Bangladesh, campaigns were conducted during the winter season, when rats inflict obvious damage every year. The control at this time is simple and benefits are certain if farmers have access to good rodenticide baits and follow some simple recommendations. Alternatively or in addition high value

crops (fruits and vegetables) can be selected initially, because for these crops farmers are more likely to spend additional efforts.

Channels of information

The farmer can be reached by many channels of communication, but there are also select groups of people which influence the opinion and attitude of farmers. These groups need to be identified and incorporated into the communication plan to ensure the correct information reaches the farmers.

Extension. In developing countries, extension staff in direct contact with the farmer normally have very little training and facilities. They rely on inter-personal communication skills only. The training on rodent control, if they receive it, is invariably limited to control techniques and a description of the different rodenticides. Often they cannot answer all the questions farmers may pose and therefore loose credibility. In such cases it is unlikely that extension staff can motivate farmers to change their behaviour. Other than information on control techniques, training sessions for staff should include:

- the biology and ecology of rodents,
- didactic techniques (teaching techniques),
- how to use demonstration and extension materials,
- how to organise farmer meetings and follow-up,
- extension strategies, the content of messages, etc.,
- management, organisation and monitoring and evaluation techniques.

The activities of extension staff can be improved, if they are provided with specifically designed and relevant extension and demonstration materials. A comprehensive and attractive brochure will not only motivate them to perform their duties but also ensure a certain degree of quality control in the delivery of technical information (ADHIKARYA, 1994). If these brochures are available, extension staff can develop good rapport with farmers by accessing information together. They can be motivated further if provided with suitable and attractive handouts, which they can pass out to farmers and other groups.

Many programme managers overlook the benefits of such printed materials because of the costs. In reality however these are negligible relative to the total programme costs (ADHIKARYA & POSAMENTIER, 1987).

Agricultural universities and colleges. Agricultural universities and colleges could be approached to determine whether they are interested in receiving courses on rodent biology and control. Course packages could be prepared to be included in their curricula, and if well prepared such courses would continue after the programme itself has terminated. In addition, relevant literature could be provided to these institutes free of charge, and supporting a local post-graduate programme on rodent control will enhance interest in the subject and provide trained professionals. Supporting international networking through active correspondence, workshops and seminars has been proposed several times (*i.e.* QUICK, 1990), but to date no central organisation or institute has shown interest to take on this task.

Efforts to train professionals now will have important spill-over benefits for future generations. Taken in this context, the costs and efforts of educating people are minimal given they are providing an important investment for the future.

School children and clinics. Children can influence their parents – farmers, and will themselves become farmers. They are an easy group to reach and motivate. Well prepared leaflets or small pamphlets could be distributed, teachers could be trained or supplied with demonstration materials or a comprehensive brochure and programme staff can give talks on the subject. Rural health clinics may also be interested since rats transmit various diseases. Training health practioners on the problems caused by rodents and on simple control measures including hygienic practices as well as providing them with handouts for farmers, will sensitise and may motivate farmers because nurses and doctors are respected people. A major chemical company conducted such activities in South America on the subject of pesticide safety, and these activities were well received by farmers and public opinion leaders including the press.

Dealers. Dealers of agricultural inputs (pesticides, fertiliser, etc.) are in most situation accessible to farmers and at the time of the sale is a good opportunity to inform farmers on rodent control practices. Therefore dealers should be included in a training programme and be given handouts for distribution to farmers. Generally, they are interested if they can provide farmers with quality advice because it will improve their business as well as their standing with farmers.

Respected persons. Often respected persons and those in position of power influence the activities in a rural area. It is therefore advantageous to obtain their good will or even cooperation. These influential people can be reached and informed on rodent control activities or campaigns through television, which is their status medium or by direct mailing. They should certainly be included in any major activity, because it is important to them to be informed about planned activities in their area and their involvement will help legitimise the programme.

Contents, messages and materials

Apart from using the most effective channels it is important to select the relevant information, effective messages and materials. Too often farmers are confronted with posters informing them that rats cause damage. This is known and the remaining information on the poster is ignored. Depending on the results of the KAP surveys it may be more relevant to apply peer pressure by «professional farmers control rats early in the season» or arouse fear by «your rats make your children sick». The positioning of messages (*i.e.* on bill boards, radio or timing) also needs a creative and innovative approach as it may compete with other messages. The message and its packaging should also be adapted to the medium, radio or poster, and target, extension staff or farmer. More information on designing, packaging and placing messages can be taken from ADHIKARYA (1994); VAN DEN BAN & HAWKINS (1988).

Pre-tests. Many mistakes could have been avoided and materials could have been more effective, if they had been pre-tested, that is tested with target audience for comprehension, layout and other aspects, before they are printed and distributed or broadcasted.

It is seldom done, because most planners think they know what is needed and know what is understood by the target group or they want to save costs or time. Without exception, it has been my personal experience every time that the graphic artists, extensionists and project managers were astounded at the results from these pre-tests. They are simple, quick and cheap and almost always lead to an improvement of the materials. A very good description of the procedures can be found in HAALAND (1984).

Participation. The benefits of utilising the «participatory approach» should be stressed. Involving the respective target group in the design of media and messages and even control strategies saves time and money and increases the chances that the results are appropriate for the local situation and acceptable to a large section of the target group. Sitting down with three extension agents and a graphic artist for three days, we designed the outline and contents of a manual on plant protection in cotton including visual representations. The manual was to be used by them in farmer meetings. The pre-tests took another three days including travel. Further ideas can be taken from MÜLLER-GLODDE (1991).

PROGRAMME SUSTAINABILITY

In most cases, programmes financed by international agencies are too short to ensure a sustainable impact after termination. The staffing, finances and power structures will hardly have improved or changed to allow activities to continue, which is necessary as rodent management is a ongoing process. Once a major rodent outbreak has subsided, so does the interest in supporting related activities. There are some simple activities which could be included into the programme plan improving the chances of sustainability.

- Institutionalising within the government service a training course package for new extension staff and of repeater courses.
- Providing funds not only for overseas studies, but also at local universities.
- Preparing a course package for agricultural universities and colleges including materials.
- Preparing and distributing self-contained information packages for other groups such as medical services, schools and dealers.
- Providing various institutions including the extension service with sufficient materials such as brochures and handouts to last beyond programme completion.
- Stock libraries of different institutions with reference books.
- Work towards privatising the manufacture and distribution of inputs.
- Lobby the government to charge for services and that these moneys are returned to the respective section to cover replacement costs (i.e. for training, providing materials and expert advice).
- Lobby government to introduce laws and/or regulations such as discontinuing subsidies and controlling the quality of bait.

In addition it would help the cause of rodent control world-wide, if an international organisation co-ordinates various activities in this field. A number of recommendations had been submitted during the IRRI workshop (QUICK, 1990), which are still relevant and should be communicated to decision makers of funding agencies. For example after pro-

gramme completion there should be a follow up by supplying the latest information, enabling participation in seminars and maintaining contacts. This may be achieved by incorporating funding for these activities in the original programme proposals or by creating supra-regional ongoing programmes. The government services and organisations responsible for rodent management activities have to realise that it needs continuous attention and not just at the time when major outbreaks hit the public media.

REFERENCES

ADHIKARYA, R. (1994) – *Strategic extension campaigns;. a participatory-oriented method of agricultural extension.* FAO of the United Nations, Rome, Italy, 211 pp.

ADHIKARYA, R. & H. POSAMENTIER (1987) – *Motivating farmers for action; how strategic multimedia campaigns can help.* Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, Eschborn, Germany, Schriftenreihe No. 185, 209 pp.

ALBRECHT, H., H. BERGMANN, G. DIEDRICH, E. GROSSIER, V. HOFFMANN, P. KELLER, G. PAYR & R. SÜLZER (1989) – *Rural development series: Agricultural extension, Vol. 1, basic concepts and methods.* Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, Eschborn, Germany, Sonderpublikation No. 212, 276 pp.

BUCKLE, A.P. & R.H. SMITH (eds.) (1994) – *Rodent pests and their control.* CAB International, Wallingford, 405 pp.

FIEDLER, L.A. & M.W FALL (1994) – Rodent control in practice: Tropical field crops. In: *Rodent pests and their control.* BUCKLE A.P. & R.H. SMITH (Eds.). CAB International, Wallingford: 313-338.

HAALAND, A. (1984) – *Pretesting communication materials: a manual for trainers and supervisors.* UNICEF, P.O. Box 1435, Yangoon, Myanmar, 62 pp.

MÜLLER-GLODDE, U (1991) – *Where there is no participation...: insights, strategies, case studies, «Do's and Dont's» in regional rural development, Asia.* Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, Eschborn, Germany, 96 pp.

PRAKASH, I. (ed.) (1988) – Rodentpest management. CRC Press, Inc., Boca Raton, Florida , 480 pp.

POSAMENTIER, H. (1991) – *Field rodent control supra-regional Africa, report on second visit Sudan.* Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, Eschborn, Germany (Mimeo, 25 pp.) (Available from author).

QUICK G.R. (ed.) (1990) – *Rodents and rice; Report on proceedings of an expert panel meeting on rice rodent control.* International Rice Research Institute, Manila, Philippine 132 pp.

VAN DEN BAN, A.W & H.S. HAWKINS (1988) – *Agricultural extension.* Longman Scientific & Technical, Essex, England & John Wiley & Sons, N.Y., 328 pp.