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Mahinda Silva

# THE EFFECTIVENESS OF AGRICULTURAL EXTENSION METHODOLOGY



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S.B.R. Nikahetiya  
A.M.T. Gunawardena  
Samir Asmar  
C.M. Wijeratne

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S.B.R. Nikahetiya  
A.M.T. Gunawardena  
Samir Asmar  
C.M. Wijeratne



Agrarian Research and Training Institute  
114 Wijerama Mawatha  
Colombo 7.

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## F O R E W O R D

Agricultural extension plays a vital role in assisting the rural people in improving their farming techniques and methods with the ultimate objective of increasing production. The effectiveness of agricultural extension would depend on the speed with which improved practices and methods are adopted by the farmers and the overall impact it has in increasing productivity and improving income levels. The Extension worker in the capacity of a catalyst helps to change the attitudes and outlook of farmers to a point where they become responsive to new ideas and innovations.

A comprehensive study covering the major agro-ecological zones in Sri Lanka would no doubt have been more appropriate at the present juncture but due to the complex issues involved in undertaking such a broad-based study, the Agrarian Research and Training Institute in consultation with the Department of Agriculture decided to confine the sample area to the Ampara District. The different techniques and methods adopted by the agricultural extension workers in this district were studied by a Research Team with a view to understanding not only the individual merits of each method adopted, but also the relative advantages of some of the methods commonly adopted by the extension personnel. In order to have an insight into the extension programmes adopted by private agencies, a case study of the package programme in extension implemented by the Ceylon Tobacco Company Limited in Rajangane was also done.

This report while presenting the findings of the study undertaken in Ampara district also highlights some of the specific features of the extension programme of the Ceylon Tobacco Company Limited in Rajangane. The findings and conclusions emerging from this study no doubt have limited applicability and relevance in the overall national context. However, it is hoped that some of the conclusions and recommendations in the report would receive the active consideration of Extension personnel and implementing Departments.

C. Narayanasamy  
Director

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Finally, the valued comments and suggestions given by the Director, Agrarian Research and Training Institute, Mr. C. Narayanasamy are deeply appreciated.

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## Introduction

## THE EFFECTIVENESS OF AGRICULTURAL EXTENSION METHODOLOGY

Agricultural extension aims at training farmers and farm families to adopt improved practices in crop and livestock production, management, conservation and marketing. It is concerned not only with promoting the adoption of new techniques but also in changing the outlook of the farmer in improving his farm business. To achieve these objectives, certain methodologies are used whose pattern of organisation may change from country to country. Nevertheless, the basic principles remain the same.

In the extension service of Sri Lanka — which is the primary responsibility of the Government Department of Agriculture — the accent has always been on the provision of technical advice, though the supply of a few inputs like seed and planting material does take place. The more common methods used in extension are:

- (a) Personal contact with the farmers either in the field, farmers' home, or at the Agricultural Extension Office, which is thought to be a widespread means of communication.
- (b) Demonstrations laid down or conducted in farmers' fields to show farmers the performance of a new crop variety or the superiority of a new technique;
- (c) Organisation of field days with the objective of exposing farmers to new ideas, concepts and methods;
- (d) Conducting farmer training classes to impart new skills, knowledge with a view to changing the attitude of farmers towards technological innovations;
- (e) The distribution of "Minikits" and "Production Kits" of new seed material to speed up the adoption of new varieties of both paddy and other field crops;
- (f) The distribution of printed reference material like Farmers' Journals and free Advisory Leaflets.
- (g) The use of the radio to create an awareness of new agricultural practices, new varieties, etc.

Two previous studies conducted by this Institute, namely, the Agrarian Situation Relating to Paddy Cultivation in Five Selected Districts of Sri

Lanka and The Agricultural Extension, Training and Communication in Colombo District with Special Reference to Six Selected Villages in the Class II Coconut Area have shed some light on the extent of use of various extension methods in Sri Lanka, and to some extent attempted to provide evidence of their impact on the dissemination of information and promotion of experiences and skills amongst our farmers. Relevant data from the "Agrarian Situation" Study<sup>1</sup> have revealed that the percentage of farmer respondents who knew the *Krushikarma Viyapathi Sevaka* (KVS) personally, ranged from 33 to 45, the percentage of farmers who visited an Extension Centre to meet extension personnel within a season ranged from 39 to 50, while 55 to 65 per cent of the farmers were visited by extension personnel.

The "Agricultural Extension" Study<sup>2</sup> revealed that 46 per cent of the farmers knew the Agricultural Instructor (AI) and the KVS while 70 per cent of the farmers did not visit the extension centres and 91 per cent did not visit either the home or office of the KVS during the season under study.

The emphasis of the extension services in Sri Lanka is on the provision of a technical advisory service. It was observed that the percentage of farmers who sought technical advice from extension workers ranged from 23 to 39 while 61 to 65 per cent visited extension centres for obtaining inputs.<sup>1</sup>

This information is reinforced by the Agricultural Extension Study<sup>2</sup> which showed that 20% of the farmers visited the extension centres for technical advice while 55% went there to obtain inputs.

Farmer training classes which appear to be widely used by extension workers in Sri Lanka were not able to draw as wide an audience as anticipated. The "Agrarian Situation" Study<sup>1</sup> revealed that the percentage of farmers who attended these training classes in the five districts ranged from 15 to 34 while up to 80 per cent of those who did not attend were not aware of such classes being held in their areas.

One of the well established methods used by extension workers to show the performance of a new crop variety or a new technique is the "Demonstration" method. The "Agrarian Situation" Study<sup>1</sup> showed that the percentage of farmers who were exposed to this method in one season ranged from 41 to 66.

Printed matter like Farmers' Journals and free advisory leaflets are useful reference material for farmers, while the radio is used the world over as a quick and cheap medium for the dissemination of information and is therefore an useful tool in the hands of the extension worker.

The "Agrarian Situation Study"<sup>1</sup> revealed that the percentage of farmers who made use of printed matter ranged from 39 to 56 in the five districts while 57 to 68 per cent were exposed to the radio. The "Agricultural Extension" Study<sup>2</sup> showed that 14 per cent read the Farmers' Journal while 18 per cent used advisory leaflets; 50 per cent of the farmers listened to farm radio programmes.



The widespread use and acceptance of these extension methods are indications of their positive impact and usefulness in the dissemination of agricultural information and in imparting skills and experiences to farmers. However, the above quoted data indicate that the extent of use and the relative impact of these methods is lower than expected. This situation suggests that, the process employed by extension workers in the organisation and use of these methods need improvement.

This suggests the importance of undertaking an in-depth study to ascertain the actual processes involved in the use of these methods on the one hand and the evaluation of the effectiveness of these methods in bringing about desirable changes in farmers on the other.

### Objectives of the Study

The main objective of the study is to determine the processes involved and the effectiveness of the following methods used by extension workers in the Ampara District.

- i. Inter-personal contact
- ii. Demonstrations
- iii. Field days
- iv. Farmer Training Classes
- v. "Minikits" and "Production kits"
- vi. Journals and Advisory Leaflets
- vii. Radio Programmes

### Methodology

The study took the form of a two-phase survey. During the first phase a questionnaire was administered to the Agricultural Instructors (AIs) and the *Krushikarma Viyapthi Sevakas* (KVSs) in the district, of whom 16 and 51 respectively responded. The purpose was to determine the actual processes involved in organising and administering the above extension activities in their areas. The questionnaire itself was in two parts. The first part was mailed to them ahead of the field investigations, as reference to official records was needed to supply the information asked for. The second part of the questionnaire was administered to all of them at two centres within the district.

As it was also intended to undertake an in-depth study of the effectiveness of the extension methods mentioned, a purposive sample of farmers who had been exposed to one or more of the methods during the two seasons immediately preceeding the study was selected. Each AI was initially requested to nominate fifteen farmers for each area, ten of whom were later randomly selected for the study. There being 16 ranges in the district a total of 160 farmers were interviewed. The data collection was carried out with the aid of a structured questionnaire.

The Ampara district was selected for the study in consultation with the Extension Division of the Department of Agriculture because it was felt that there was greater concentration of activities when compared to other districts in the country. Further, it was felt that there was very little information available on agricultural extension activities in the Ampara district.

The district extension service is headed by a District Agricultural Extension Officer (DAEO), who is assisted by an Additional DAEO and AI Headquarters and two other AIs, one dealing specifically with paddy and the other with plant protection. There are 16 AIs in the field, operating from the APCs in the district. One of the AIs is in charge of the district farmer training centre at Malwatte. At the village level 60 KVSs operate directly under the range AIs.

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Inter-personal contact with the farmer still occupies more than half the working hours of a typical field extension worker, and is considered to be the most effective method of disseminating information. It serves a variety of purposes. The contact may be to give general advice, to get advice or to discuss arrangements for a meeting or a field day. It may be to assess a problem at the request of the farmer or may be to secure cooperation in the diffusion of information or ideas through a "Key" person in an informal group. Whatever the reason, it consolidates or advances good relationships and establishes a rapport and trust between the farmer and the extension worker. This provides the extension worker with an opportunity to obtain first hand knowledge of farm conditions and the farmer's point of view, his problems, his needs and aspirations. From the farmer's angle, personal contact with the extension worker provides an opportunity to find solutions to some of his specific problems. From the extension worker's angle it is the best opportunity to build confidence, which in turn forms a base for the effective use of group and mass media. Personal contact also fosters the development of effective local leadership.

However, inter-personal or individual contact is the most costly extension method, specially in a "small farm - high population" situation such as is found in Sri Lanka. It takes a relatively large amount of the extension officer's time which he can ill-afford under a situation where the number of small farmers are continuously increasing due to increase in population and land fragmentation on the one hand and the increasing intensity and complexity of work on the other. Therefore, the number of clients that could be reached through this method is low. This results in a tendency to concentrate contact with farmers who show a friendly, cooperative and progressive attitude at the expense of those who may need the extension worker most. Though the efficiency of personal contact as an extension method is questionable under these circumstances, it could be widely used by the extension workers as a means of identifying the "Key" people who by their innovativeness would help in the lateral spread of information, thus causing a multiplier effect. This helps in establishing a base for the gradual use of less personal methods.

Inter-personal or individual contact methods are exemplified by the extent and frequency a farmer seeks the assistance of the extension worker in his area, which is invariably dependent on the personal relationships that the extension worker has established with his clients. This study revealed that over 90 per cent of the farmers knew the AIs and KVSs and have visited both officers during the period of two seasons under study. The purposes of these visits are shown below (Table 1).

Table 1      Distribution of farmers by reasons for  
                 visiting AI and KVS officer  
                 N = 157

Reasons	AI		KVS	
	No.	%	No.	%
For advice	116	74	104	66
Obtain seed paddy	107	68	93	59
Obtain other seed	51	32	28	17
For pesticides	25	16	22	14
Obtain fertilisers	9	5	4	2
Planting material	5	3	2	1

The Table reveals that an equally large proportion of farmers did visit the AIs and KVSs for the purpose of seeking advice when compared to those who visit for planting material and other inputs. However, the Agrarian Situation Study<sup>1</sup> and the Agricultural Extension Study<sup>2</sup> revealed that only a small percentage of farmers knew the AIs and KVSs and made visits to their offices, while more farmers visited the offices for inputs rather than for advice.

The Agrarian Situation Study<sup>1</sup> and the Agricultural Extension Study<sup>2</sup> were conducted with random samples of farmers while the present study used a purposive sample of selected farmers who had been exposed to one or more of the extension methods under study. If a random sample reveals very little personal contact while a purposively selected sample shows very high personal contact it suggests that extension workers are working very closely with selected progressive farmers in their areas of operation.

The establishment of rapport and meaningful relationship with farmers requires effort and a certain aptitude on the part of the extension workers. The study revealed that all KVSs and 80 per cent of AIs have visited the farmers in their farms more than once in a 12 month period. There was evidence of certain farmers being visited practically every week by the KVSs. This supports the view that frequent and intensive contact takes place between the Extension Officers and certain selected farmers in their areas of operation.

However, an AI has an average of 3,000-6,000 farm families and a KVS an average of 700-1,000 farmers in their area of operation and very frequent contact with a few selected farmers would be at the risk of neglecting those who may need extension personnel most.

Table 2      Distribution of farmers according to the knowledge and the degree of relationship with various extension personnel and office bearers of rural institutions  
N = 157.

Personnel	Personally known		Have close relationship	
	No.	%	No.	%
Agricultural Instructor	149	95	65	41
KVS	148	95	139	88
Chairman - CC	149	95	56	35
Chairman - APC	138	88	47	30
Divisional Officer - R.I. & P.L. Division	102	65	13	8
Veterinary Surgeon	82	52	16	10

The above Table reveals that both AIs and KVSs are personally known to a very large proportion of farmers and farmers maintain a close relationship mainly with the KVSs. It also reveals that Chairmen of CCs and APCs are known to 95% and 88% of the farmers respectively. However, only about one-third of these farmers maintain close relationships with them.

The above discussion brings out the importance of personal contact in promoting good relationships with farmers, in gaining first hand knowledge of farm conditions, in helping to identify and develop local leaders and in forming a base for the use of other methods. However, the shortcomings of this system are - it takes a relatively large amount of the extension workers' time; the percentage of total clients that could be visited is definitely low; the cost per practice adopted is high and the risk of neglecting those who may need personal contact is also high.

The above data shows that there is a very high degree of contact between the farmers selected for the study and the extension personnel. The frequency of visits is very high, the intensity of contact is greater and the extension officers are personally known and associate closely with a very large proportion of the farmers. In addition the extension officers have been visited a number of times by the farmers. The method of intensive contact is useful provided that :

- (a) Contact with a particular farmer will not only benefit him but benefit certain others as well;
- (b) The farmer in turn will influence certain other farmers;
- (c) Contact with selected farmers will not debar extension officers contacting farmers who need their services most.

In a situation where a limited number of extension workers are catering to a large number of farmers in diverse agricultural activities, the following considerations would be important in increasing the effectiveness of this method of extension.

- (a) Extension workers who are new in service or new to an area should initially devote more time in implementing this method and then gradually employ less personal means in carrying out their extension activities;
  - (b) Extension workers should move around the range according to a planned programme fitting personal contacts into a schedule of visits from area to area to economise on time and cost. Each visit should be planned in such a way as to contact a larger number of farmers as possible;
  - (c) Once village leaders are identified it would be advantageous to concentrate more on them so that in time a "cadre of followers" could be established to help in the lateral spread of information. These farmers could be visited on certain pre-determined days of the month so that farmers in the neighbourhood could also benefit by these visits;
  - (d) Developing the "Office visits" system is advantageous as it is a low cost method of personal contact. Fixing a particular day in the week as an office day will help to increase the visits of farmers to the office. An office caller comes for a purpose and so is highly receptive to advice that affects his purpose.
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Demonstration is considered to be one of the most effective methods available to extension workers. It provides farmers with an opportunity to acquire experience and/or learn new techniques through actual participation as well as seeing new technological innovations in a setting much similar to theirs. However, successful demonstrations are very costly in terms of material inputs and also time consuming in terms of preparation and implementation. The competence of the extension worker responsible for the demonstration is also important. An experienced extension worker resorts to the use of demonstrations only for introducing new techniques and imparting new skills to farmers.

Although the use of demonstrations by extension workers in Sri Lanka appears to be widespread, data from the Agrarian Situation Study<sup>1</sup> and the Agricultural Extension Study<sup>2</sup> reveal that only an average of 30% of the farmers obtained their general agricultural information through demonstrations and almost the same proportion was influenced by demonstrations to adopt new high yielding varieties of paddy.

In this study, of the 157 farmers selected, 75 (48%) were chosen for carrying out demonstrations in their field by the extension workers during the two seasons under study. The criteria used by the extension workers in the selection of these farmers for demonstrations are given below (Table 3).

Table 3 Criteria used by the extension workers in the selection of farmers for demonstrations  
N = 75

Reasons	No. of farmers	%
Interest shown by the farmer	49	65
Fields situated close to the road	25	33
Farmers readiness to carry out activities as requested by extension worker	9	13
Education and leadership in the community	4	5
Adopt new ideas easily	1	2



Demonstrations were carried out mainly by the AIs and KVSs with a very small percentage being carried out by specialist officers. However, there were instances where demonstrations were carried out jointly by AIs and KVSs or AIs and specialist officers.

With regard to farmer participation, 51% of the KVSs and 31% of the AIs stated that these demonstrations were restricted to selected farmers nominated on the basis of a definite number from each KVS or CC area. The rest stated that demonstrations were open to all farmers. Publicity to draw farmers for demonstrations appeared to be done mostly through personal contact as over two-thirds of KVSs and AIs resorted to this method while the rest used posters and notices.

To make demonstrations more effective the actual operation should be confined to a small and manageable number of farmers while a larger number of farmers may be invited to the site where the demonstration is laid out purely for the purpose of observation. Almost all the demonstrations that were carried out were "laid out demonstrations". It was observed that 56% of the demonstrations were conducted in the presence of more than 15 farmer observers, 28% with less than 15 farmer observers and 16% without any farmers other than the farmers selected for the demonstration. Nineteen per cent of the farmers who had demonstration plots in their fields reported that more than 100 farmers visited the demonstrations. The estimates of farmers regarding fellow farmers who visited the demonstration plots are given below (Table 4).

Table 4      Estimates of the number of farmers who  
                 would have seen the demonstration  
                 N = 64

No. estimated	No. of farmers reporting	Percentage of farmers reporting
Upto 50	34	53
51 - 100	18	28
Over 100	12	19

A very large proportion (95%) of the farmers reported visits from their neighbours and friends to the demonstration sites. The display of signboards at a majority of the demonstration sites apparently helped to draw farmers to the demonstration sites.

With regard to visits of respondents to other demonstration sites it was revealed that of the 157 farmers, 59% had visited a demonstration plot during the period under study. About two-thirds of the demonstrations visited were those on paddy while the others were highland demonstrations. Seventy eight percent (78%) of the farmers reported adopting the practice that was demonstrated.

As shown in the Table below, the source through which these farmers came to know about the demonstrations was through inter-

personal contact with extension officers and their neighbours. There had been very little publicity given through other media. (Table 5).

Table 5      Distribution of farmers by the source of information on demonstrations      N= 93

Source of information	No. of farmers	Percentage of farmers
Through AI/KVS .. ..	52	56
Through neighbours .. ..	36	39
Through notices and posters..	1	1
Other methods .. ..	4	4
Total .. ..	93	100

The study revealed that 84% of the farmers who had demonstration plots in their fields had adopted what was demonstrated while 16% did not adopt the innovation. The reasons for non-adoption were given as unsuitability of the practice to their field conditions, failure of the demonstration as a whole, lack of inputs and the high cost involved.

The demonstration method though effective, requires more time, inputs and the active participation of the farmer concerned. An extension worker could therefore effectively conduct only a few in his area during a season. Demonstrations should be well planned and carefully executed to get the maximum effect. The effectiveness of the demonstration method can be improved in many ways:

- (a) Emphasis has generally been given to demonstrations laid out in the farmers fields. Practices can be successfully communicated through demonstration of methods;
- (b) The selection of suitable farmers and fields for a demonstration plays an important role in a successful demonstration. The main criteria of selection had been interest or keenness shown by the farmer and the situation of fields close to roads. Over dependence on farmers who show greater interest to extension work could lead to a situation where demonstrations would be limited to only a few interested individuals. Criteria such as the socio-economic position of the farmer in the community, the selection of the fields in different areas so that no particular area gets priority treatment and the leadership qualities of the farmers are equally important. The selected situations should also be typical of the area.
- (c) The study revealed that the majority of demonstrations were conducted in the presence of farmers. It is best if all demonstrations are conducted in the presence of a manageable number of farmers and the same farmers are brought back to the demonstration plots during the middle and end of the season to show the progress and results of the new practice or practices;
- (d) A good proportion of the demonstrations was carried out in the presence of farmers selected from each KVS or CC area. Even in cases where demonstrations were open to all farmers they were individually informed by the extension workers. It is possible that

some farmers are left out in the process. It is very necessary to publicise these events through other methods such as posters and notices so that more farmers would come to know of them;

- (e) The study also revealed that signboards had been used at a majority of the demonstrations. An eye-catching signboard is extremely useful and should be used at every demonstration plot.
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### Chapter Three

### FIELD DAYS

This is one of the methods used by extension workers in their efforts to expose farmers to new ideas and concepts and to introduce new and improved practices. Primarily, field days are used to publicise new research findings and practices that are successfully used by some farmers.

Field days are usually conducted in Government farms or in private farms in the area. Field days could be effectively used to provide information to the farmers on new techniques and experiences which could later on be possibly adopted in their own farms. Field days also provide farmers an opportunity to meet each other, see things for themselves, exchange ideas and information and decide what they wish to use in their own farms. They also keep farmers informed of experimentations and trials carried out at research stations. However, successful field days require time and often funds to carry them out, since they invariably need to transport groups of farmers to and from places where the field days are held.

Earlier studies have shown that field days are not widely used in Sri Lanka and only a small percentage of farmers have had the opportunity of participating in them. The Agrarian Situation Study<sup>1</sup> showed that only about 8% of farmers had the opportunity of visiting Government farms to participate in field days, while the Agricultural Extension Study<sup>2</sup> showed that out of 177 farmers included in the study, only 8 had the opportunity of attending field days organised by the extension staff, and five of those who attended had successfully adopted practices which they had learnt. The primary reason given by farmers for non-attendance was that they were not aware of the field days. There is an apparent lack of knowledge about field days among farmers as in the case of farmer training classes. Very few field days seem to be conducted by extension workers and even the few that are held are not adequately publicised.

The present study shows that out of the 157 farmers, 48 attended field days during the two seasons under study. Almost all the farmers (98%) who attended were informed of the field days by KVSs and AIs, while the rest were informed by neighbours and through notices and posters. With regard to the venues of the field days, two-thirds of farmers who attended them stated that they were held locally, while the remaining one-third stated that they were held on Government farms. Field days had been carried out for paddy as well as for highland crops. All the farmers who attended them indicated that they were useful.

Since the two previous studies had shown that farmers' lack of participation in field days was due primarily to a lack of knowledge about them, this study concentrated mainly on determining the method or methods by which farmers come to know about field days. It was revealed that the majority of the field days were open to all farmers. The farmers were personally informed by AIs and KVSs about these field days. It was shown earlier that 98% of the farmers came to know about these events through AIs and KVSs.

Notices and posters have also been used to publicise these events. Thirty-eight per cent of the AIs have reported publicising field days through these media. However, as a large majority of farmers have come to know about these events through personal contact, it could be concluded that notices and posters had not been effective in drawing farmers' attention to field days.

Although the majority of the field days were open to all farmers, a certain degree of indirect selection of farmers followed as the farmers were personally contacted by the KVSs and AIs. It was also shown that selection was done on a random basis at times from each KVS or CC area and not according to the needs of the farmers. Though field days are an effective tool in the hands of extension workers, the previous two studies have revealed that they are not widely used. Government production farms, Research Stations, Direct Farmer Training Centres, In-Service Training Institutes and even farms of progressive farmers can be made use of for field days.

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Training classes provide a forum for exchange of ideas and information among farmers. If farmer training classes are organised after due publicity at regular intervals and held at places easily accessible to farmers, they would be very effective in disseminating technical information.

Relevant data from the Agrarian Situation Study<sup>1</sup> show that about one-quarter of farmers obtained general agricultural information at farmer training classes. About 30% were influenced to adopt new high yielding varieties while about 20% were influenced to use recommended fertilisers. The Agricultural Extension Study<sup>2</sup> revealed that only 6 out of 177 farmers had attended farmer training classes. The reason for not attending as stated by a majority of the farmers was lack of knowledge about these classes.

Sixty-six per cent of the farmers in this study had attended training classes during Maha 1975 and Yala 1975 seasons. The majority of the farmers who attended were informed about the event by the extension officers while only 3% came to know about them through notices and posters.

Fifty-seven per cent of the farmer training classes were held at the District Farmer Training Centre at Malwatte, while the balance was held locally. The majority of the classes were conducted by the AIs and KVSs. It was also noticeable that Specialist Officers had played a major role in farmer training classes while in demonstrations their role was limited. The duration of the classes ranged from ½ day to one day. The technique used for the dissemination of information was mainly the lecture method, coupled with demonstrations. Films and slides were also used. The table shows the breakdown of the different teaching methods used.

Table 6 Distribution of farmers according to their exposure to teaching methods at in-farmer training classes

N = 157

Teaching Methods	No.	%
Lectures .. .. .	87	55
Film shows/slide shows .. .. .	14	9
Use of specimens .. .. .	7	5
Conducting field demonstrations .. .. .	25	16
Visiting field demonstrations .. .. .	38	24
Visiting other farmers .. .. .	12	8

Ninety-eight per cent of the farmers who attended these classes expressed that the classes were useful while 82% accepted ideas and information and adopted them in the field. The main subjects included in the farmer training classes were paddy cultivation, pest control, highland crops, fertiliser use and animal husbandry. Even the classes conducted on pest control and fertilizer use had been mainly in relation to paddy.

Seventy per cent of the KVSs and about half of the AIs stated that farmer training classes were held for selected farmers. It was revealed that about two-thirds of these farmer trainees were selected by KVSs and the balance by APCs and CCs. The farmers were selected mainly on an area basis where each KVS or CC area was entitled to send a stipulated number of trainees while a few farmers were selected in response to their own requests. It is seen therefore, that most of the training classes were conducted for selected farmers.

Even in the case of farmers who were not selected by extension workers a certain amount of indirect selection would have taken place, as farmers were informed of these events personally by the extension officers. It was mentioned earlier that except for 3% of farmers, the others were informed by the extension officers.

The study also revealed that the few farmers who had not adopted practices after attending training classes had done so not because they were not convinced about the idea but very often due to other factors such as non-availability and high cost of inputs or delay in obtaining inputs.

The following suggestions are made to improve the effectiveness of the farmer training classes as a method of extension education:

(a) In terms of time and expense and limitations of extension staff, it may not be possible to increase the number of farmer training classes so as to accommodate a large population of farmers. In such a situation the proper selection of farmer trainees is of utmost importance. Farmers who are looked upon as leaders in the community should be selected. They could then be used as "contact" farmers who will help in the lateral spread of information;

(b) Effective farmer training could be achieved even without elaborate facilities being made available to farmers provided it is done at a practical level, say in a farmer's field or conducted in an informal manner in one of the rooms at the Agricultural Service Centre or at the Extension Centre. The training classes held at the District Training Centres could be limited to selected farmers (contact farmers may be trained in this manner), while the other training activities held at divisional and village-levels should cater to a larger audience and be given wide publicity through mass communication methods as well. Posters, notices, could be made use of for this purpose;

(c) The study revealed that the main technique used for the dissemination of information was the lecture method. If this method is to be made more effective it should be well illustrated with charts, pictures, models, etc., followed by reference material such as leaflets



and pamphlets. The lecture should be supported by demonstrations, field visits, slide and film shows, etc., whenever possible;

(d) The number of training classes conducted at present should be increased if facilities and staff are available. Training should not be limited to training centres but should be held in informal settings such as in schools or in farmers' houses.

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Before any new idea is accepted and adopted, a farmer goes through a process which involves a sequence of thoughts and actions identified by researchers as consisting of five stages namely - awareness, evaluation, interest, trial and adoption. An integral part of this adoption process is the communication of information at various stages through varied channels. The distribution of minikits and production kits among farmers is one of the most effective methods of speeding up this adoption process. Once awareness of a new variety of seed is created by various methods and interest is established, farmers could go straight into the trial stage by using a minikit. A minikit contains sufficient seed for a small block of land along with small quantities of fertiliser and agro-chemicals sufficient for this amount of seed and is issued free to interested farmers. The production kit, on the other hand contains sufficient seed for a large *liyadda* or a plot of land along with other inputs in required quantities. This is sold for a nominal fee and is given to farmers on request. It is assumed that the produce obtained by cultivating the quantity of seed paddy included in the production kit is sufficient for a farmer to use as his seed on a field scale the next season.

Minikits and production kits have been received by 58% and 28% of the farmers respectively, during the period corresponding to Maha 1974/75 and Yala 1975 seasons. The majority of kits (106) used by farmers contained paddy while an appreciable number of farmers used kits (64) containing highland crops as well. More than 60% of the farmers have reported adopting seed varieties given in kits received by them. Considering these figures, it could be assumed that these kits have played a very important role in the rapid spread of new varieties during the last few years and still continue to play an important role in popularising new varieties.

Although minikits and production kits are available to any interested farmer it was revealed that 69% of AIs and 67% of KVSs had distributed kits to selected farmers. This selection was done mainly on the basis of a stipulated number of farmers from each AI's or KVS's range. However, minikits and production kits have also been given to farmers who make requests for them as reported by 38% of the AIs and 25% of the KVSs.

Though publicity for the distribution of minikits and production kits was given through various channels including posters and notices,

the main channel was through personal contact. This was reported by a large proportion of AIs and KVSSs.

The following procedures are suggested to make the programme more effective:

- (a) Selection of "key" farmers in each tract or area where "minikits" of any new seed variety is issued first;
- (b) Treating all the minikit plots as demonstrations (see Chapter 2), in order to enable neighbouring farmers to observe the plots, etc.

If these measures prove successful, the same farmers could be issued with the larger production kits the following season, while "minikits" of the same variety could be issued to other farmers who have been convinced of the superiority of the new variety. At the same time publicity should be given through various media, both inter-personal and mass, so that interested individuals could collect these kits from the extension workers.

In Sri Lanka the use of mass media for extension work is mainly confined to Farmers' Journals, advisory leaflets and the radio. In agricultural extension mass media enhances adult learning and creates an awareness of new and improved practices. Mass media is also useful in bringing timely information to farmers, like weather and pest forecasts, market situations, etc. However, due to the impersonal nature of mass media, the extent of utilisation and effectiveness of such media in extension depends on their appeal, timeliness and availability with minimum effort and cost. The Agrarian Situation Study<sup>1</sup> has shown **that about 30% of farmers had obtained general agricultural information** through advisory leaflets. It was also observed that 20% who received information through this source was influenced to adopt NHYVs and the recommended fertiliser. However, in the Agricultural Extension Study<sup>2</sup> it was found that only 18% of the farmers made use of advisory leaflets. The main reasons stated for not making use of advisory leaflets were that they were not known to farmers and were not available.

In the present study it was revealed that 66% of farmers made use of advisory leaflets especially for information relating to the cultivation of paddy, field crops and chillies as well as for information pertaining to pest control. The latter was of particular importance to farmers since at the time of the study the paddy crop was infected with "brown hopper". Of the one-third of farmers who did not make use of advisory leaflets, the main reason expressed for non-use was that they never received them. Thus, it is seen that advisory leaflets are popular amongst farmers who are aware of them. However, they need to be popularised more and made available to all if optimum use of this media is to be achieved. The present channel of distribution is through AIs and KVs only. However, they should also be made available through the APCs and CCs as well as through the cooperatives. Though advisory leaflets are classed as a mass medium, their judicious use converts them to an individual contact method. Instead of free distribution, perhaps the best use of leaflets can be had by dispensing leaflets in combination with personal contact, giving the farmer a leaflet or leaflets referring to the subject or subjects discussed and distributing them as reference material after field days, farmer training classes and group meetings, etc.

As for the two Farmers' Journals the Agricultural Extension Study<sup>2</sup> revealed that 14% and 3% of farmers read the "*Govikam Sangarawa*" and "*Govi Janathawa*" respectively. The main reasons stated for not reading the two journals were: (a) non-availability; (b) farmers were not aware of the existence of magazines; and (c) subjects contained in the journals were not relevant.

In this study it was found that 57% and 12% of the farmers had read the "*Govikam Sangarawa*" and the "*Govi Janathawa*" respectively. The reasons stated for not reading the two journals are given below:

Table 7 Distribution of farmers by reason for not reading the "*Govikam Sangarawa*" and "*Govi Janathawa*"

	<i>"Govikam Sangarawa"</i> N = 67		<i>"Govi Janathawa"</i> N = 138	
	No.	%	No.	%
Not heard of it	15	22	77	56
Not available	28	42	43	31
Not interested	18	27	14	10
No time to read	6	9	4	3
Total	67	100	138	100

The table shows that the reasons for not reading the two journals are similar to those stated by farmers in the earlier extension study.

To make the two journals more readily available and known to farmers as well as to make them more useful, farmers have made the following suggestions: (1) Journals should be sold through the APC and CC; (2) should include findings of research studies; (3) should be written in simple language; and (4) should cater to farmers' needs.

The use of publications as a means of disseminating information to farmers is often limited by the farmers' ability to read. However, in Sri Lanka with over 80% of the rural population being literate, a much wider circulation and use of publications should be attempted, provided, such publications include topics of interest and are written in simple language. The main factors limiting the use of these Farmers' Journals, as revealed in the earlier and present studies are the non-availability and unawareness of the existence of the journals. Therefore, to get maximum use of the journals, a more organised attempt should be made to make more farmers aware of them, while at the same time making them more readily available in the rural areas. Advertising over radio and the newspapers would be effective in increasing the awareness of the journals among the rural population. At village-level the KVS alone cannot effectively handle the sale of these journals. More "sales points" in the APCs, CCs, cooperatives and other rural institutions would enhance a wider circulation of the journals. A very effective but indirect way of reaching the farmers is through their school going children. Material on agricultural and social sciences if included in the journals along with subjects of interest to farmers would while helping students in their studies make the journals available to farmers through their children.

Farm radio programmes are broadcast thrice a week and are intended to convey to farmers various information and experiences relevant to their problems and needs. The Agrarian Situation Study<sup>1</sup> revealed that about 30% of farmers had obtained general agricultural information through the radio. The Agricultural Extension Study<sup>2</sup> revealed that 50% of the farmers were regular listeners of farm radio programmes. Of those who did not listen in to the farm radio programmes, the majority stated that they did not have radios, while 12% and 3% respectively stated that programmes were not interesting and the times were not convenient.

The present study revealed that 39 per cent of farmers are regular listeners of farm radio programmes; 43 per cent listen only occasionally and the rest seldom listen to the radio. According to the study no farmer had ever participated in a farm radio programme. Farm radio programmes could be made more interesting to rural listeners by presenting "success stories" of farmers through interviews, etc. Listener participation coupled with actual work in the field could be obtained by projecting special "package" programmes to selected areas in the country where "rural listener groups" are organised for listening and subsequent adoption in the field.

The radio should be used as an extension tool, and not as a teaching process, complete in itself. Therefore farm radio programmes could be used to enhance and draw attention to other extension programmes that are being carried out in the field. The timing of broadcast at present seems to be convenient to a majority of farmers. However, as the major obstacle to having a larger rural listener population is reported to be the lack of radios, the use of "community receiving sets" is worth pursuing. The placing of radio sets in public places like APCs, CCs, Rural Development Society halls, etc., could be an effective means of building a larger rural listenership.

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This chapter attempts to examine three extension methods, namely Farmer Training Classes, Demonstrations, and Field Days, in relation to the degree of exposure, the effectiveness and their influence on practice adopted. These methods are similar in that they are group methods.

The tables compare the degree of exposure, usefulness and resulting practice adoption of two of the methods mentioned above.

Table 8 Degree of exposure, effectiveness and resulting practice adoption of farmer training classes and field days

	<u>Farmer Training Classes</u>	<u>Field Days</u>
Number of farmers attended ..	103	48
Number of farmers not attended	54	109
Number of farmers who indicated usefulness .. .. .	101	46
Number of farmers who indicated usefulness as a percentage of those attended .. .. .	98%	96%
Number of farmers who adopted practices as a result of the event ..	84	38
Number of adopters as a percentage of those attended ... ..	82%	79%

As seen from Table 8, the effectiveness of the two methods from the point of view of adoption is similar. The only difference being that the number of farmers exposed to field days was smaller (about 50% of those exposed to farmer training classes), indicating that fewer field days were conducted compared to training classes. The major difference lies in the nature of practice adoption (Table 9). Field days have been effective in encouraging farmers to adopt new crops or new varieties, while training classes have been effective in encouraging adoption of other management practices.

One possibility for this situation is that more training classes would have been held on the subject of pest control, fertiliser application and planting time, while the emphasis at field days might have been



on the popularisation of new varieties. In addition, when examining the practices that farmers reported adopting as a result of farmer training classes, it is seen that they are complex innovations requiring detailed

Table 9. Nature of practice adoption as a result of training classes and field days

Nature of practices adopted	Farmer Training Classes		Field Days	
	No. of farmers	%	No. of farmers	%
Pest control .. ..	47	46	5	10
Fertilizer application ..	25	24	-	-
Correct planting time ..	21	20	-	-
New paddy varieties ..	9	9	3	6
Soya beans .. ..	7	7	3	6
Chillies .. ..	5	5	2	4
Lowland paddy growing ..	3	3	2	4
Water management ..	2	3	-	-
Maize .. ..	2	2	-	-
Groundnut .. ..	1	1	5	10
Black gram .. ..	-	-	5	10
Vegetables .. ..	-	-	2	4
Row Planting .. ..	-	-	1	1
Cow pea .. ..	-	-	1	1
Highland paddy .. ..	-	-	1	1

knowledge of how to carry out the practices. On the other hand, adoption of new crops or varieties (which farmers reported adopting as a result of field days), is a relatively less complex innovation. This situation also suggests that farmer training classes are more effective when used to impart the necessary knowledge to adopt a complex innovation while field days have their advantages with relatively simple messages. In addition the idea of a new variety is a message that can be successfully communicated visually since the decision for adoption of a new crop or variety could be made after seeing a successful plot or a field

The demonstration method too is similar to the field day in that both attempt to reach the farmer visually. (Majority of the demonstrations were "laid out demonstrations" and not "method demonstrations"). Although information on the nature of practice adoption as a result of demonstrations is not readily available, the type of demonstrations that the respondents had seen or visited indicates that the demonstration method had been used to popularise certain types of messages only. As seen in Table 10 a very large proportion of demonstrations have been conducted with the objective of disseminating information about new crops or varieties.

The effectiveness of the demonstration method is comparable to that of field days and training classes when viewed in the context of number of farmers who indicated usefulness and the number who claimed the adoption of the practice demonstrated.

Table 10 Distribution of farmers according to the nature of demonstrations they had visited or seen  
N = 93

Name of Demonstrations	No. of farmers visited or seen demonstrations	% of farmers visited or seen demonstrations
New varieties of paddy ..	72	77
Pest control ..	3	3
Row planting ..	2	2
Vegetables ..	13	14
Chillies ..	1	1
Black gram ..	1	1
Maize ..	6	6
Sorghum ..	2	2
Soya bean ..	3	3
Sugarcane processing ..	1	1

The foregoing discussion indicates the importance of selecting extension methods that suit the type of message the extension agent plans to convey. Demonstrations and field days can be more effective with simple messages which can be better conveyed visually, while training classes are useful in imparting the know-how required of a complex innovation. However, demonstrations and field days may be used to create awareness in respect of complex innovations too.

It should be mentioned here that the difference between these extension methods is not clearcut. The difference lies in the extent of use of class-room instructions, (as in the case of a training class), as against the training in the field.

A package programme in extension implemented by the Ceylon Tobacco Company Limited at Rajangana, was examined in order to study the usefulness and relevance of such a scheme in the national context. The scheme that is being operated at Rajangana is briefly described below:

Interested tobacco growers under this scheme are given a loan of Rs.850.00 per acre of tobacco grown. Of this loan Rs.500.00 is paid to the grower in cash in three or four instalments on the recommendation of Field Instructors at different stages. The cash loan is given for money spent on cultivation activities like soil preparation, planting, pest and disease control, etc., and the instalments are paid after field inspections of the crop. The balance Rs.350.00 is reimbursed to the Company for material supplied by the Company to the grower. The materials that are supplied per acre are 5,000 tobacco seedlings, 100 lbs D.A.P. (fertiliser), 75 lbs S.A.O. (fertiliser), 45 fl.ozs of Tiodan (pesticide) and 61 fl.ozs of Dimethate (pesticide).

The loan is recovered from the tobacco leaf purchased by the Company on the following basis:

- 1st purchase - 2/3 leaf value is recovered
- 2nd purchase - 3/4 leaf value is recovered

Thereafter, full recovery of leaf value is made until the loan is settled.

Diploma holders of the School of Agriculture, Kundasale, are recruited to the Company as field instructors. They are given a further two years' practical training in all aspects of tobacco cultivation and curing at the Company's training centre. They are then sent into the field. All tobacco growers under this scheme are given free advice by these field instructors. The tobacco plantations are visited regularly, crops inspected for recommendation of loan instalments and necessary advice given on the various aspects of cultivation. Close supervision and regular advice coupled with regular and systematic crop protection activities ensure a very good crop of high quality tobacco leaf to the farmers.

Sprayers and spray operators are provided by the Company for the payment of a small sum for all farmers thus ensuring timely and systematic crop protection activities.

All farmers in the scheme are registered with the Company. The People's Bank and the Hatton National Bank serve the farmers registered under the scheme and all farmers have savings accounts where their earnings from the sale of leaf are deposited.

The number of tobacco growers in Rajangana area is about 300 cultivators and the extent covered is about 200 acres. A single farmer is allowed to cultivate up to a maximum of two acres, the minimum being 1/4 acre.

The above description reveals that the scheme is designed to look after the following main needs of farmers. The success of the project is dependent mainly on the provision of the following services:

- (a) Educational needs - the provision of technical know-how required to carry out the recommended cultivation practices;
- (b) Credit needs - the utilisation of credit provided to farmers is regularly supervised by the field instructors of the Company. Part of the credit is provided in kind.
- (c) Marketing needs - the produce is purchased by the organisation;
- (d) Provision of material inputs - Fertiliser, pesticides are provided on credit while the equipment is hired out to farmers.

In a project of this nature it is feasible to coordinate all services under the command of one organisation particularly because of its limited size and certain other advantages associated with the project. It is intended to examine here the possibilities of making use of some of the experiences of a project of this nature for extension work in other spheres of agricultural activity.

Some of the observations are presented below:

1. One of the reasons for the success of a scheme of this nature is the involvement of extension officers with groups of farmers who are interested in growing a particular crop. This indicates that the effectiveness of extension work could be greatly enhanced by working with groups of farmers with common interests like growing the same crop/crops or keeping the same livestock. This is already being attempted by the Department of Agriculture under the contact farmer system which is in operation at present.

2. Another indication is that the supply of credit and other inputs like planting material, fertiliser and pesticides when under the control and direction of the extension agency itself greatly contributes to the effectiveness of extension work. But as there are separate State and private agencies for the supply of credit and other inputs it will not be possible for the extension services to control and direct supplies and services. The alternative would be, more effective coordination

of the extension services with lending institutions like the banks and supply agencies like the cooperatives. It is suggested that this coordination be attempted at divisional level where extension officers of the Department of Agriculture and Minor Export Crops and those dealing with Tea, Rubber and Coconut, Divisional Officers of the Agrarian Services Department, etc., could work as a group and co-ordinate their extension activities with the rural banks, cooperatives, etc., so as to ensure the timely flow of credit and inputs along with technical advice. The operation of all extension officers in an area from one single office - like the Agricultural Service Centre, periodical meetings of all officers with representation of banks, cooperatives, etc., will greatly enhance the effectiveness of this integrated approach to extension activities.

3. Another aspect that has contributed to the success of the package programme is the marketing programme initiated by the Company under which fairly stable prices are paid to the farmers for their produce. This indicates that if farmers are assured of guaranteed or fair prices for what they produce through easy marketing channels the results of the extension effort would be more promising.

4. Another important feature of the Rajangana programme is that of supervised credit, which ensures the use of credit only for the purpose it was intended for. The appointment of field supervisors by banks for checking on the use of loans and for recommending the payment of loan instalments will prevent the major proportion of loans being used for consumption by farmers. The use of credit for actual production will ensure higher yields and more income to farmers and consequently in more regular repayment of loans.

Although supervision of credit may not be a function of extension, the extension services could assist the lending institutions by:

- (a) Encouraging borrowings by those who do not normally borrow for production purposes;
- (b) Encouraging repayment;
- (c) Making those unaware of lending institutions, aware of these organisations and the procedure of lending adopted by them;

Such a complimentary relationship between the credit institutions and the extension services should on the long run improve the effectiveness of the extension effort.

5. The extension work in relation to plantation crops, minor export crops and livestock at present are handled by several institutions other than the extension services of the Department of Agriculture. The ideal situation would be that of an extension worker serving all the extension needs at village level. This may be built in to the present system by attempting to channel all extension work through the village level extension worker of the Department of Agriculture. All other extension agencies could act as specialised services operating at divisional level. A "generalist" working at village level will be in a

better position to give overall advice to and also service a farm family, thus avoiding the need for a number of personnel visiting the same farm family on various aspects of agriculture. However, for the efficient working of such a system the educational level, especially the technical qualifications of the village level worker should be such as to enable him to cater to all development needs of the farmers. This problem is being gradually solved with increasing numbers of diploma holders from the School of Agriculture, Kundasale, joining the KVS cadre. However, the present situation could be immediately improved by the coordination of activities of the various institutions, as mentioned above.

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1. The farmers selected for the sample have had very close association with extension personnel. These farmers have been frequently visited by them. Considering the nature of the sample this observation supports the idea that extension personnel do work closely with selected farmers in their areas of operation. It is important to ensure that these farmers in turn will influence other farmers as well and that contact with selected farmers will not debar the extension officers contacting farmers who need their services most.

2. Both Agricultural Instructors and *Krushikarma Viyapthi Sevakas* are personally known to a large proportion of farmers and farmers maintain close relationship mainly with the KVSS. The study also reveals that although Chairmen of Cultivation Committees and Agricultural Productivity Committees, are known to a large proportion of farmers only a small proportion of them maintain close associations with the farmers.

3. It is suggested that information about farmers whom the extension officers meet personally be recorded in a "farmer record card" system maintained in the office. This would help in any follow-up action wherever necessary.

4. Apart from the above considerations to make personal contacts more effective, the ultimate goal of the extension service should be to appoint extension workers according to the number of farm families and not according to paddy acreage or physically demarcated areas.

5. Emphasis has generally been given to demonstrations laid out in farmers' fields. Less importance has been given to method of demonstrations.

6. The interest shown by farmers for extension agent contact and the easy accessibility of the fields were the main criteria used in selecting farmers' fields for demonstrations. Criteria such as the socio-economic position of the farmer in the community, his leadership qualities and the location of the farmer so that no one area gets priority treatment, are some of the other considerations that should be taken into account in the selection of farmers.

7. The study reveals that the majority of demonstrations were laid out in the presence of farmers. It is advantageous if all the demonstrations could be laid out in the presence of farmers and if some of these farmers are brought back to the demonstration plots at regular intervals so that the progress and the results of the demonstrations could be shown more effectively.



8. A good proportion of farmers who participated in these demonstrations have been selected by extension staff. Even in instances where farmers were not selected they were personally informed by extension staff. This method of personal contact has its disadvantages in that it could result in haphazard selection of farmers for extension activities. It is very necessary to publicise these events through other media such as posters and notices so that more farmers could come to know about them.

9. The majority of farmers had come to know about field days through personal contact with extension staff. Although notices and posters were used to publicise these events their effectiveness was marginal.

10. Farmer training classes may be held at two levels. The training conducted at divisional and village levels should cater to a larger audience and be given wider publicity while the training conducted at district training centres could be limited to selected farmers as a continuation of the training given at divisional and village levels.

11. Minikits and production kits had played an important role in the rapid spread of seed of new varieties.

12. It is important to make the Farmers' Journals readily available and known to farmers. The study reveals that most farmers are unaware of them and further these journals are not available for them to read.

13. Though advisory leaflets are classed as a mass medium, their use as reference material in association with other individual or group contact methods should be given priority. It is found that advisory leaflets are popular among those who are aware of them.

14. Broadcasting success stories of farmers and listener participation are some of the ways suggested to enhance the effectiveness of radio programmes. As one of the obstacles to having a larger rural listenership is lack of radios, the use of community receiving sets is worth pursuing.

15. It is important in extension work to consider the relevance of selecting extension methods to suit the type of message that extension agents have to convey. Demonstrations and field days had been more effective with simple messages which can be conveyed visually while training classes are useful in imparting the needed know-how with regard to a complex innovation. However, demonstrations and field days may be used to create awareness in respect of complex innovations too. It should be mentioned that the difference between these extension methods is not clearcut. The difference lies in the extent of use of class-room instructions (as in the case of training classes) to training in the field.

16. The contract farming scheme as implemented by the Ceylon Tobacco Company Limited, was examined in order to study the important features of a project of this nature which had led to its success and which could be made use of in extension work. Some of the suggestions made based on this observation are as follows:

- (a) Extension workers to identify groups of farmers with common interests (growing the same crop/crops or keeping the same livestock) and pay greater emphasis to working with these groups;
- (b) Coordination of extension services with agencies concerned with the supply of material inputs and credit. Efforts should also be made to coordinate the extension activities of the Department of Agriculture with the extension activities of other services;
- (c) Greater involvement of extension personnel in matters pertaining to credit.

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