THE ROLE OF AGRICULTURAL EXTENSION IN MAXIMIZING REGIONAL SELF-SUFFICIENCY IN FOOD SUPPLIES

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Introduction

In the first issue of a very useful and long overdue international journal devoted to agricultural administration, Guy Hunter discusses the following hypothesis on the implementation of agricultural development:

> *In considering a choice of methods (organisation, administration and institutions) for the implementation of an agricultural development programme (assumed to be technically sound) consideration of four main factors will lead to choices which are more likely to fulfil the objectives of the programme.*
>
> *(i) Technical factors, and particularly the type of crop or animal husbandry.*
>
> *(ii) The attitudes, capacities and needs of the particular farming communit at the time of initiating the programme.*
>
> *(iii) The nature of the processing and marketing channel.*
>
> *(iv) The administrative capacity and resources of the agency of change (frequently, the government: but also special authorities of various types)* [1, p.59].

The all too common practice in the Caribbean in planning agricultural and rural development projects is to ignore, or at best pay only passing attention to factors (ii) and (iv). Some, if not always adequate, attention is given to research to develop the technologies required for modernising regional agriculture. However, as Leagans aptly puts it:

> *As new breakthroughs occur in agricultural science and technology, profitable agricultural practice becomes more achievable, and, at the same time, more sophisticated and complex. Likewise, influencing behavioural change (in relation to new technology) becomes more essential and complex because as technology becomes more scientific its proper use requires greater precision. It is comparatively easy to design a technical package, but far more difficult to design and implement a scheme which implants it in the minds and actions of people ... To expect, without an effective educational input, an uneducated tradition-bound farmer to identify and clarify the most technically sound, economically feasible, politically compatible, and socially desirable goals to pursue; to expect him to assemble and effectively utilise new production technology and related inputs required to achieve modernisation; and to expect him to self-generate the motivation necessary to achieve new and complex (to him) behavioural innovations in his long practised farming pattern, approaches sheer romaticism* [2, p.102].

We in the Caribbean can no longer afford the romanticism of incomplete planning. Hence we must pay emphasis to all the four factors mentioned by Guy Hunter if the implementation of our development plans are to result in the desired objectives. The inclusion by the Agro-Economic Society of the topic of this paper in the deliberations of this Conference is a welcome recognition of this fact.

Regional Producers of Food

In order to place the role of agricultural extension in its proper perspective as regards the production of food in the Caribbean, it is necessary to mention here the much recorded *dualism* which characterises the structure of agricultrue in the Region. On the other hand there are the plantations and large estates. These generally occupy the better lands, use or have easy access to relatively large amounts of input capital, are able to employ professional and managerial skills required for efficient production, readily adapt and adopt appropriate technological innovations, and have well organised markets for their products.

The plantations and large estates by and large specialise in the production of export crops, e.g., sugar on both mainland territories and several of the Islands, citrus in Belize, Jamaica, Dominica and Trinidad, rice in Belize. Generally, only in those countries in which it was specifically required by law did plantations devote any appreciable attention to the production of non-export food crops (e.g., St. Kitts and Barbados).

Then there are the small farmers (often referred to as the peasant sector) who, in addition to individually owning much smaller plots on poorer lands than obtain for plantations, conform to the following definition of small farm agriculture:

Small farm agriculture comprises those farms where:

(i) the bulk of the labour force, management, and capital come from the same household;

(ii) production is either consumed on the farm and/or traded in local markets;

(iii) the decision-making process is hampered by limited access to marketing and political institutions; and

(iv) the farmers do not live much above culturally determined subsistence level [3, p.2].

Small farmers constitute an estimated at least 80 per cent of total farmers of the Region. Many of them practise satellite production of plantation crops (sugar, citrus, cocoa), for which there is organised marketing, in order to obtain much needed cash. However, as a group they produce the bulk of the Region's food crops (rice, rootcrops, vegetables, fruits, peas and beans). Although large estates must in future be required to play a greater part in food production if the Region is to approach anything near self-sufficiency in food supplies, small farmers will continue to produce a great share of the Region's food.

The Role of Agricultural Extension

Stated rather simply agricultural extension is an educational process through which farmers are persuaded to adopt improved farming methods and improved ways of living. It is a system designed to implant technological innovations *"in the minds and actions of people"*[2].

Two misconceptions held by many extensionists, other agricultural professionals and the lay public in the Region are: (i) that agricultural extension is merely advisory work, i.e., providing information and free advice to all farmers, and (ii) that extension is concerned only with production.

In the first place extension is active rather than passive in outlook; it is action-oriented. The end objective is to effect desirable changes in the farmers' behaviour (attitudes, beliefs, skills). The provision of information and advice is a necessary but not sufficient strategy for effecting these changes in the farmer. For example, giving the farmer all the latest technical information on the production of foodcrops and advising him to produce these crops will be hardly likely to result in increased food production in the Region. In addition, the farmer will have to be convinced that changing his farming practice will result in his own personal and his family's betterment, and not only in the short-term monetary sense.

Recent studies in the Region have indicated that the income motive is a most powerful incentive to hehavioural change in rural areas, [see 4,5,6, and 7], but also of paramount importance as a motivating force is modernisation of agriculture, e.g., through the provision of access roads, farming equipment and machines, and irrigation. Extension can (and there are at least two cases in the writer's knowledge in which it has done so in the Windward Islands) mobilise and organise farmers into self-help efforts to provide these facilities rather than sit back and wait for government action.

Another factor to be considered by extension in any programme geared to maximize regional food production is the negative attitudes of many farmers towards the production of foodcrops. To many in the Caribbean community, status in agriculture is associated with the cultivation of permanent tree crops, particularly those grown for export. In the Islands, a farmer who owns three acres of land cultivated in cocoa, citrus or nutmeg, sees himself and is seen by others as operating an *estate*; another who grows rootcrops, bananas, plantains, pigeon peas, maize and vegetables on his three acres is seen as having a *garden*. To the first term is associated high status, high land value, stability and security; the latter is associated with subsistence or part-time cultivation, shiftlessness, low land values and low crop prices. Extension will need to take positive action to mitigate the influence of this attitude against food crop cultivation in much of the Region if programmes to increase food production are to be effective.

In the second place, agricultural extension workers cannot realistically view one area of the farming occupation while ignoring other related areas. The extension service exists to serve farmers and to meet their total farming requirements. Production and marketing,

although identified and treated separately in theory, are inseparably bound together in the farmers' world. Decision-making about farming systems and farming practice must simultaneously consider agronomic issues (production practices) and such other issues as marketing (stability and size of demand, price, etc.) as well as produce use. Marketing information is usually difficult to obtain by farmers, particularly small farmers, and when it is available its reliability is often doubtful. An important role of extension must therefore be providing farmers with reliable marketing information. At the same time extension must provide marketing organisations with information on the anticipated time and volume of agricultural produce availability so that adequate arrangements can be made for their marketing.

A CADEC survey in the Leeward Islands found that the younger folk, in particular, *"were not overly perturbed by local food shortages owing to the fact that they have developed 'imported' tastes and live on rice, macaroni and canned foods ... They regard it as something of a status symbol to prepare a meal which consists of 'foreign' foods from tins and boxes. In many cases, they even hesitate to admit to eating such things as sweet potatoes, breadfruits, dasheens, etc., and will never offer them to anyone whom they wish to impress."* [7].

This situation obtains in varying degrees throughout the Region. Evidently, a most positive attitude towards the use of regionally produced foods, fresh or canned, needs to be established. Extension has a role to play in fostering better food habits and the use of regionally produced foods by consumers in both rural and urban areas. This can be achieved in part through the employment of Home Economists in the Ministries of Agriculture to work with farm and non-farm women on nutrition, food preparation, canning and related matters.

It must always be borne in mind that extension's only chance to success in free choice societies such as obtain in the Region, rests entirely on its ability to gain the full confidence of farmers and have them accept its advice. Because of this, it is the duty of extension workers to give their clients the best advice they can on how to utilise available resources to achieve optimum benefits (economic as well as social) for farmers and their families. This principle must be adherred to, even if the proferred advice will be at variance with current Government policy, if farmers are to see extension as working solely to secure their well-being and interest, and are to place their confidence in it.

Recognising this, it becomes incumbent on planners of programmes for the maximization of regional food supplies to ensure not only that the planned programmes are technically sound but that individual needs of farmers are considered, adequate marketing arrangements are established for dealing with the increased production, and a properly organised, well motivated extension service is available to implement programme plans by truly servicing the needs of farmers. Extension workers cannot force farmers to participate in any particular programme, no matter how politically desirable the programme outcome may appear to be.

Organisation

The ratio of extension workers to farmers in the Region is very low, averaging somewhere over 1,000 farmers per extension worker. Atkinson [4]

in 1973 worked out the ratio in St. Lucia at 1:750. He estimated that in that Island extension workers could make between 500 and 600 farm visits a year. If he visited each farm once per month the extension worker would service only about 40 to 50 farmers, about six to seven per cent of his total clientèle. No matter how able an extension worker might be he could not possibly have much impact on the farming of his district if he were to attempt to reach all the farmers of his district.

In relation to the demand for their services for rural and agricultural development, and the ability of regional governments to employ and train them, extension workers must be considered one of the scarcest resources of the Caribbean. Development strategy should aim at getting maximum return on this scarce resource. The current practice throughout the Region of deploying extension workers in a manner calculated to give superficial coverage to as wide an area of the country as possible certainly does not achieve this aim. This approach is jejune: it attempts to please all or most of the farmers and ends up satisfying hardly any. As a public relations effort it may have some dubious value; as a developmental approach our records indicate it has not proved very effective.

For programmes aimed at maximizing food supplies in the Region a *saturation* or campaign approach by extension is suggested. To ensure that extension can play a positive role in achieving programme objectives, planners must make sure that the production package decided on is supported by research and local experience, has taken into consideration both physical and socio-cultural environments, and that dependable and adequate marketing arrangements have been made. Assuming that these conditions have been met, the area of the country with the greatest development potential in terms of the objectives of the programme should be selected and extension efforts, staff, equipment and other relevant resources concentrated in that area. Farmers in the area should be motivated to adopt the production package and their every step in applying the recommendations should be closely supervised to eliminate chances of failure.

During this period, as in fact with all extension work in the Region, large estates (plantations) and small farmers will need differential treatment from extension. With the larger estates which employ or have access to professional managerial and technical skills, the major concern will be convincing management of the economic potential of the proposed undertaking, and its compatibility with other farming enterprises on the estate. Once this has been achieved, usually all that is required is to provide management with the necessary details of the production package and they can carry on from there, with only occasional follow-up visits from extension.

With small farmers, as Guy Hunter observes [1], motivation is from below (the farmer and farm family) but organisation and management is from above. As with the large estate the small farmer has to be motivated to accept the production package, but having decided to adopt he needs close supervision by extension in the proper management of the enterprise, crop or livestock, at least for the first one or two production cycles.

During this period extension ensures that inputs are available when and where wanted, administered how and when is appropriate, and farmers are educated in the how and why of each operation which is novel

to them.

This *saturation* approach gives extension the best chance of achieving programme objectives. If marketing arrangements have been properly organised, then the success of the programme in this first area will have a powerful demonstration effect. If the agricultural information unit is performing a satisfactory propagandizing function, then farmers in other areas of the country should be clamouring to get in on *a good thing*. At this stage a second area of high potential for the particular enterprise should be selected for similar *saturation* treatment, the bulk of staff and other resources being withdrawn from area one, except for a skeleton follow-up team to ensure continued practice adoption by farmers. Two regional cases of successful application of the *saturation* approach, one each with a livestock and a crop enterprise, are the Waller Field Dairy Development Scheme in Trinidad and the Banana Rehabilitation Project in Dominica.

Particularly with regard to the small farmers the factor most responsible for the effectiveness of this approach is the high extension officer to farmer ratio which permits individual farmers to receive greater attention and professional supervision. During the operation of this approach at the Waller Field Dairy Development Scheme, the extension officer to farmer ratio was 1:25. Where the programme district is compact and the accessibility to farms is not difficult a ratio of up to 1:50, coupled with a combination of individual farm visits and group contact with farmers, should prove effective.

As far as possible the farmer should have regular contact with only one extension officer, and the quality of the extension worker is therefore of particular importance. On the basis of the level of sophistication of the *average* farmer in the Region the extension worker who is in direct contact with farmers should be at least a two-year agricultural college or farm institute graduate whose training is supplemented from time to time with short specialist courses. These field level officers should be given professional support by a team of subject-matter specialists (e.g., food crops agronomist, vegetable crops specialist, tree crops specialist, plant protection specialist, livestock specialist, etc.). The number of categories of specialists required will be dependent on the size of the Ministry of Agriculture concerned and the enterprises which are most important in the country.

The extension organisation within a Ministry of Agriculture should, as mentioned earlier, include Home Economists to work with farm and non-farm wives. Since these professionals will be working with consumers rather than directly with producers, they should not be concentrated in the production *saturation* area, but, resources permitting, should operate as widely within the country as possible.

It was earlier mentioned that small farmers and large estates make differential demands on the extension service. It has also been found that because of the superior agricultural knowledge and skills of many large estate owners and/or managers, field level extension workers do not feel confident to deal with this sub-group of their clients but prefer to work with the smaller farmers [8]. In the *saturation* approach, and indeed for extension work in the region generally, field level extension workers (middle level technicians) should deal with the small

farmer while the appropriate subject-matter specialist or the extension supervisor (university graduates) should devote the necessary attention to the large estates.

One final necessary cog in the extension organisation wheel of action is an agricultural information unit. This should serve as the connecting pipeline ensuring two-way flow of information between the extension organisation and relevant research units. It should also provide back-up information and supportive teaching aids for extension workers, subject-matter specialists and Home Economists, and perform a public relations and propagandizing role for the extension service. In addition, it should establish very close links with the local marketing organisations and provide efficient marketing channels so as to provide farmers with dependable knowledge of outlets for their products, and consumers from widespread areas with information on the availability at particular times of supplies of various farm products.

In the final analysis, however, no matter how administratively sound the organisational structure and staff deployment of the extension service may be, no matter how technically sound and socio-culturally appropriate the programme plan, no matter how amenable farmers are to th desired change, programme results will be determined largely by how strongly motivated the extension officers are to work the plan. The extension worker's motivation is determined largely by his work conditions.

A study of the work performance of extension workers in the region discovered a high positive correlation between officers' job performance and their level of professional training. The study further indicated high positive correlation, among one group of workers, between self confidence and job performance [9]. Provision of opportunities for in-service training (at diploma level, graduate level, short specialist courses, or even travel tours within or without the Region to observe extension at work in a different locality) will result in improved staff morale and self confidence and consequently more satisfactory job performance. Similarly, the provision of needed institutional support - assistance from subject-matter specialists and the information unit, the understanding attention of supervisors, availability of simple equipment required for proper functioning - will cause the extension worker to believe that the organisation considers his job as a worth-while one, and he will thus be motivated to give his best.

Finally, an individual works best at a job he enjoys doing and in which he is confident there are adequate career opportunities. The extension worker who sees that his chances for promotion rest on his transfer to another section of the Ministry, or equally important, one who sees his chances of career advancement blocked by the transfer to his section of individuals from another area of specialisation, will obviously conclude that efficient performance and specialisation in extension is of no value. Such an individual cannot remain a highly motivated extension worker. Therefore, before agricultural extension can fully execute its very crucial role in any agricultural and rural development programme, including any programme for maximixing regional self-sufficiency in food supplies, agricultural planners and administrators must demonstrate by the resources they allocate to the extension service, the support they provide for extension staff and the career conditions they establish for extension workers, that they truly have

faith in extension's ability to perform that critical role.

Summary

Regional producers of food fall into two broad groups: plantation or large estate owners and small farmers. Traditionally, small farmers produce the greater share of the Region's food supplies, but in order to maximize regional self-sufficiency in food supplies the larger estates will need to make an increased contribution to food production.

The maximization of regional food supplies is dependent on the development of programmes which are technically sound. The role of extension is to implement such programmes. Extension cannot force farmers to participate in any programme but must depend on its ability to gain their full confidence and accept its recommendations. Therefore, the chances of extension being able to successfully execute these programmes will be determined by whether the planned programme took into consideration the individual needs, attitudes and capacities of farmers, whether adequate marketing arrangements have been established for dealing with the increased production, and how well organised and motivated is the extension service.

An appropriate organisational scheme and a *saturation* approach to extension are recommended to ensure effective implementation of projects.

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