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LEARNING FROM PEASANT FARMERS: SOME CARIBBEAN EXAMPLES

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Domestic food crop production within the small-scale farming sector has long been regarded as a key aspect of economic development in poor Third World countries. Despite continuity of interest and wide ranging government initiatives designed to increase output, the depressing facts are that in many developing countries, domestic food production continues to stagnate. A variety of explanations have been offered to account for this, but a basic point is that the success of many new agricultural initiatives is bedevilled by the gaps which still exist in our understanding of these highly complex and adaptable farming systems, and the cultural and environmental milieu in which they are embedded.

Farmers are often aware of more efficient or effective methods of farming, but the realities of their agricultural environment may necessitate a course of action contrary to official advice. Farmers continue with well established principles, and they are probably correct to do so; not only does 'expert' advice often fail to appreciate the circumstances under which small farmers make decisions, but sometimes when that advice is applied in a practical sense, it can turn out to be at worst 'bad' advice, or more usually, require the farmer's ingenuity to adapt it to local conditions.

Thus the ability of agricultural planners to predict how farmers will react to advice and new initiatives is still rudimentary, yet they are frequently surprised by farmers' refusals to adopt what appear to them to be sound innovations. An understanding, therefore, of the decision-making environment of farmers is indispensible to any agricultural plan which anticipates success.

Behavioural research in agricultural geography has started to make significant inroads into understanding decision making amongst small farmers in the tropics. Inevitably this research has investigated farmers' environmental perception and cognition, alongside detailed documentation of their skills and agronomic practices. Research has moved ahead faster in Africa (Knight, 1976; Richards, 1975; Atteh, 1981) than in the Caribbean (Iton, 1970; Innis, 1980; Hills and Iton, 1983).

A more sympathetic view of small-scale farmers is starting to emerge. Farmers can manipulate their resource base in highly skillful ways, in the face of severe financial constraints, and meshed in an exploitive, urban-biased, economic system. They can be highly innovative, possess and utilise an imprseeive functional knowledge of their environment, and frequently conduct their own informal experiments, for example, to determine successful crop combinations or to try out new fertilisers or pest control strategies.

This alternative view of small-scale farmers, as potentially responsive to change, but trapped in an exploitive economic system, is difficult for some people to reconcile. The pejorative image of these farmers, as illiterate 'peasants', conservative, primitive and inefficient 'bad' farmers is deeply ingrained in the popular mind, and until

relatively recently, was the dominant stereotype in the literature.

The purpose of this paper is to highlight some positive aspects of farmers' knowledge, and argue that there is a great deal that we can learn from them in the tropics. Knight (1974;1976) and Richards (1975; 1979) suggest, in the African context, that research should identify the structure and content of indigenous knowledge, and the way farmers acquire and use their knowledge (whether internally generated or externally derived) to fashion their agricultural landscapes. A growing interest in indigenous knowledge systems is also evident in other disciplines, and the orientation is refreshingly multidisciplinary (see for example the special issue of IDS Bulletin, 'Rural Development' whose knowledge counts', 1979).

There has been a parallel interest in methodology (Barker, 1977; 1979; IDS, Workshop on Rapid Rural Appraisal, 1978). Concern here was that formal questionnaire methods were not always the most appropriate way of communicating with farmers and eliciting knowledge from them. A variety of supporting projective elicitation techniques have been suggested and tested in the field.

An important feature of farmers' indigenous environmental knowledge is its practical utility and its dynamism in the face of rapidily changing conditions. Barker, Oguntoyinbo and Richards (1977) provide an illustration of how Nigerian farmers learned to cope with a grasshopper pest (Zonocerus variegatus) by mobilising their own, often considerable ecological knowledge. The farmers' knowledge of the pest was acquired through their day-to-day contact with it and quite independently of parallel entomological research on the insect by the scientific

community nearby at I.I.T.A. In an interesting, and perhaps salutary commentary on the results of the two types of 'research', that is, by scientists at I.I.T.A. and by local farmers learning how to deal with the pest through their own trial and error procedures, Page and Richards (1977) demonstrate that some similar methods of pest control were arrived at by both routes. They conclude that both methods of 'research' would have benefitted from more effective communication between the scientists and the farmers.

The paper presented here is based on the premise that the traditional diagnosis of the problems of small-scale farmers (based on the pejorative image of them as 'bad' farmers) has seriously impaired the nature of any dialogue between farmer and agricultural planner. Almost always the communication between the two parties is unidirectional, one-way traffic from expert to farmer. The skills and knowledge of the farmer is sometimes acknowledged (more often in private conversations) but rarely is an attempt made to build farmers' knowledge, experience and diagnosis of their own problems into the planning process, as an integral part of it.

This is not to suggest, of course, that the problems of development planning in agriculture would be solved by simply implementing a more effective communication model between farmer and planner. Lasting solutions lie in solving the much more fundamental problems of beleagured and exploited small-scale food producers, by re-emphasising domestic food production and assigning it priority status, by promoting greater national self-sufficiency and by dismantling an exploitive economic structure. What we are suggesting though is that a greater understanding of the ramifications of decision-making, and appreciation of farmers'

skills and knowledge, and ability to make innovative and sensible decisions, and the creation of a genuine dialogue between planners and farmers is a necessary, but not a sufficient condition for economic development.

The rest of this paper tries to highlight some positive aspects of small-scale farmers' skills and knowledge. The examples cited are mainly derived from a number of ongoing projects based in the Department of Geography, University of the West Indies. They are designed to contribute towards a greater understanding and reappraisal of the value of small-scale farming in the Caribbean. As yet, the data reported have to be fully analysed; many of the examples are general impressions from field work. However, some themes are strongly in evidence.

For the purpose of this paper we have tried to identify and categorise a number of areas in which we feel that outsiders can learn from small-scale farmers. In a sense, any research endeavour in the social sciences, involves an element of learning, either directly from the individuals with whom one is interacting, or indirectly through reasoning about their actions. However, by emphasising the idea of learning in a self-conscious active and intimate way, directly from farmers, we hope to stress their importance as individuals, and the value of their knowledge,.

For convenience, we have classified 5 areas in which outsiders can 'learn' from farmers. The classification is exploratory and makes no claims to be exhaustive; nor are the categories mutually exclusive. It merely serves as a frame reference for discussion. The categories are :-

1. Educational field work - learning, for example, through conducting field trips for the benefit of school children, conference delegates etc.

2. Traditional agronomic practices - many practices are still only partially documented and recorded; rarely are regional

spatial patterns adequately described. Some of these practices (intercropping, mulching, food forests) have great potential utility which we need to learn about before they disappear without comment.

3. Understanding farmers' decision making environment - this is a key aspect in understanding small-scale farming systems, and an area where much research still needs to be undertaken in the Caribbean.

4. Understanding how and why farmers redefine and re-interpret technical advice - farmers sometimes reject technical advice or modify it substantially to suit their own circumstances. Agricultural planners often look askance at this, or in despair. Such redefinitions and reinterpretations are not always undesirable; advice can be 'improved' upon by farmers. Rarely, however, are farmers actions irrational in terms of their decision-making environment. We need to learn why farmers behave in such ways, in order to identify potential conflicts with planners.

5. Learning through monitoring change - networks of farmers could be established to regularly report ecological changes (e.g. incidences of pests, drought, changes in soil fertility) and associated problems. By utilising such relatively cheap and effective information system, agricultural planners could keep track of regional problems, as a supplement to more scientifically based monitoring systems.

BACKGROUND TO CASE STUDIES

The data relate to two areas in the Caribbean. The first project is a study of Maroon farming in Accompong, St. Elizabeth, Jamaica, the second a study of small farmers in northern St. Vincent. In Accompong, 98 farmers were interviewed during July and August, 1983, a 50% sample of farm families. In St. Vincent, 130 farmers were interviewed in the same period, representing approximately a 7% sample of farmers living in the study area.

The two projects differ in spatial scale, covering different sized geographical areas. Accompong is a small community of 2,000 people, occupying an area of about 8 sq. miles. Although the area was defined at the time of a Treaty with the British, it was never properly surveyed.

The village is located on the edge of remote Cockpit Country, straddling the parishes of St. Elizabeth and Trelawny.

The St. Vincent study covers the northern part of the island. There are over 1,900 farmers in the two districts (Agricultural Statistical Digest, 1978) in a dispersed village pattern. On the leeward side (District 1), the main settlements are Rose Hall, Chateaubelair, Troumaca, Petit Bordel and Coull's Hill, whilst on the windward side (District 8) the principal communities are Georgetown, Dickson, O'Brien's Valley, Sandy Day (a largely Carib area), Owia and Fancy.

More specific details of the areas are indicated below:-

1. ACCOMPONG

Accompong is one of three surviving Maroon communities in Jamaica, the others being at Moore Town and Scott's Hall. Accompong remains the most isolated, only having a motorable road since the early 1950s. Jamaica's original Maroons were slaves who escaped from their Spanish masters (as well as freed slaves who remained behind when the Spanish left) before the English invasion in 1655. They found refuge in the hilly interiors of Jamaica, and there, established themselves as farmers, reconstructing their communities along the remembered vestiges of African societies, Robinson (1969).

In the ensuing years of British occupation, the Maroons, along with new escapes from the plantations, aggressively defended their freedom until the British were forced to join in treatise with them in 1739. The treaty allowed these Maroon villages a high level of autonomy. Many of these rights have since been abrogated, such as the right of the chief to exercise judgement on legal matters - nowadays legal disputes are tried at Balaclava. Also, the pressure for assimilation as well as the modernisation process has altered and is still altering the original 'African'

characteristics of these villages. However, some traditional features have persisted. These include communal land ownership, communal labour arrangements and the symbolism of the village chief (or Colonel as he is referred to). The Colonel, formerly elected by a show of hands but now by ballot, presides over a cabinet of selected officers who are collectively responsible for the administration of the village.

Various forms of communal labour arrangements exist, such as.-

(a) Day for day - this is probably the most common type whereby one farmer invites his colleagues to work on his farm for a day. He provides people with food during the day. He is then committed to returning a day's labour (under similar terms) to all the farmers who assisted him. This arrangement is used for clearing of land, tilling, or planting yams.

(b) Digging - as in day-for-day, the farmer is responsible for feeding his invited labour, but is not committed to return the services given to him. This arrangement is used for tilling and sometimes for harvesting yams.

Farming is the main activity, directly or indirectly involving about 75% of the population. Annual rainfall is around 100" , falling mainly in May, and from August to October. Soils vary from thick deposits of heavy clay on the floors of the Cockpits and on the less steep areas, to thin layers of light sandy loams in the crevasses of the higher slopes. Most of the area surrounding the settlement is thickly forested; vegetation rapidly regenerates on the normally waterlogged clays.

Slash and burn methods are still used to clear the land, and the main crops grown are yams, coco, badoo, dasheen, plantains, bananas and beans. Cash crops are however becoming increasingly prominent; sugar cane dominated the village economy until serious transport problems and a drastic

reduction in the importance of sugar in the Jamaican economy occurred about eight years ago.

The communal nature of Accompong lands has removed the necessity for an overemphasis on plot size -- a feature so common among Jamaican small farmers. Farmers explain that the land they occupy was chosen by them (26% of cases) or inherited (82%). In both instances, these lands were never 'staked' (surveyed). This is further compounded by the degree of fragmentation; the mean number of plots per farmer is 3.

The settlement itself is nucleated, many of the building, being strung around the lip of a Cockpit like a necklace. There is also a very well-defined zonal pattern of land use associated with the village. The land immediately surrounding the village is given over to a combination of food forests and yam grounds, for household consumption. Beyond this first zone are found yam grounds which are used for market sales and also private animal pens. Beyond these are the main areas of perennial cash crops, such as sugar cane and bananas. Farthest from the village is the communal cattle pen - a natural depression of about 50 acres with the surrounding sides reaching as much as 500 feet above the floor.

2. SMALL FARMING IN NORTHERN ST. VINCENT

St. Vincent, one of the Windward islands in the eastern Caribbean, is dominated by a mountainous interior and divided by the Central Range which rises to a peak in the active volcano Soufriere (1214 m.), which last erupted in 1979, causing considerable damage. The study area forms the northern parts of the island, both on the windward and leeward sides. The coastal sides show seven terrace levels, which are particularly noticeable on the exposed eastern side.

Rainfall ranges from 300 mm. in the mountainous interior, to 1,500 mm

near the coast, with the heaviest rainfall falling between May and November (Barker, G., 1981). This well distributed and heavy regime is favourable to the growth of tree crops like banana. Temperatures range from 18° C to 31° c, the former being experienced in the cooler months of December and January.

Although St. Vincent lies in the hurricane belt, it seldom suffers hurricane damage, although in 1980 Hurricane Allen destroyed many buildings, crops and stock.

Soils are mainly lithosols (volcanic) and the high level yellow earths (Watson, Spector and Jones, 1958). Volcanic soils are coarse textured cindery loams on the gently sloping sites, and finer loams are on the steeper sites. Steep slopes and loose consistence induce heavy erosion, but soil fertility is easily regenerated by the addition of organic matter. By contrast, the yellow earths are based on deeply weathered volcanics, are subject to high rainfall and a high intensity of leaching, favouring the development of a deeply weathered acidic soil. With the addition of phosphate, they can support a variety of crops such as bananas, cocoa and nutmeg.

Over 90% of the farms sampled were less than 5 acres in size, a distribution similar to that reported in the Agricultural census 1972-73. A variety of crops are grown on these farms, the most common being banana, carrots, tannia and plantain. On 20% of the farms as many as 10 different crops are planted.

Below, we examine, by way of examples encountered during field work for these projects, different contexts in which we can learn from farmers' skills and knowledge. These contexts are organised into the five sections outlined earlier.

1. Educational field work

On a fairly superficial level, by visiting farm plots and talking to farmers, we can begin to learn and appreciate the depth of their skills and knowledge of the land they cultivate. If nothing else, this simple educational experience can, on a personal level, do much to dispel the pejorative popular image of 'peasant' farmers.

Instances of the farmers' environmental knowledge which can be observed at this level abound: for example, centuries of accumulated folk knowledge and experience allows farmers to make accurate judgement about soil fertility and infertility. In Accompong, 78% of farmers interviewed used one or more of the following traditional methods of determining soil capability:-

(a) Indicator plants. These include Spanish needle and wild hops, which indicate fertility, and foxtail grass, an indicator of poor fertility.

(b) Soil texture. Some farmers were able to determine soil fertility by noting texture. This is achieved by rubbing soil between the fingers or by sticking a machete in; in both cases if the soil is sticky it is described as having 'gum' and therefore fertile.

(c) Soil appearance. In Accompong, yellowish soil is an indication of infertility, black soils are considered fertile. Other soils are described as oily, again a fertility indicator.

(d) Soil smell. As yet this adaptation is not clearly understood. The farmers who use this method are unable to describe how fertile soil smells, except that it "smells rich"; soil sniffing though is claimed to be effective.

Similarly, in St. Vincent, 82% of farmers interviewed were able to determine soil fertility by cutting it with their hoe or cutlass, or by rubbing the soil between their fingers. The accuracy of the farmers assessments of soil texture and fertility has been corroborated by Ahmad (1981)

2. Agronomic Practices

Some agronomic practices have proved durable and highly successful over the years; they are proven techniques which have been adapted to local ecological conditions. Generally, within the last ten years, more and more of these practices have been thoroughly investigated and vindicated by modern science. The remarkable volte-face with regard to intercropping (mixed cropping), which was once universally condemned, is a classic example of such rethinking. Recently, some of the advantages which accrue from intercropping have been extended to a reappraisal of the value of food forests in the Caribbean (Hill and Iton, 1982).

However, unless concerted action is taken soon to document and record the geographical distribution and local variants of traditional agronomic practices, and to evaluate their potential ecological and economic utility, many may be lost forever without ever being critically examined. In these days of high prices for agricultural inputs, especially fertilisers and pesticides, this would be indeed unfortunate, since at the very least, some traditional methods can augment and offset the high costs of modern methods and inputs.

In Accompong, for example, both before and since the advent of inorganic fertilisers, traditional organic fertilisers have played an important role in agriculture. Three main types were identified:-

(a) Bogdill This is a type of earth found in caves in the surrounding district. At present the chemistry of the substance has not been ascertained, although it is strongly suspected to contain a large proportion of bat dung. Twenty years ago, 66% of farmers interviewed used bogdill on a regular basis, mainly for the cultivation of legumes, corn and pumpkin. Today only 11% use bogdill though as few as 12% found any fault with the manure. The main reason given for its discontinuance was said to be the distance necessary to travel to obtain it. Also, inorganic fertilisers are more accessible.

(b) Burying of bush 15% of farmers working heavier clay soils bury bush after clearing their farm. They claim this aids fertility since there is rapid breakdown of organic matter in the often waterlogged clays.

(c) Mulching Only 15% of farmers use mulching as a form of manure for bananas. Whilst mulching is not common in Accompong, in other parts of Jamaica such as southern St. Elizabeth, it is extensively and successfully used as a method of conserving soil moisture.

3. Understanding farmers' decision-making environment

Farmers' decision making is based upon their knowledge and skills. However, contrary to the popular belief that farmers' knowledge is static and unchanging, and thus their methods are stereotyped seldom change, we cited literature above that provided examples of the inherently rational, and often innovativethinking and behaviour of which small farmers are capable.

It is evident that within the decision-making capacities of many farmers is a very strong propensity to 'experiment'. Farmers may adjust their methods on the basis of their own, simple, trial-and-error experiments. Whilst lacking the formal rigour of organised scientific experiments, they form important facets of farmers' decision-making apparatus, and as such are thus of inherent research interest. Where farmers reach new or different conclusions based on such experiences, there are obvious lessons to be learnt by outsiders.

A very common area where farmers extensively 'experiment' is in trying out different crop combinations. Strict scientific 'control' is never attained, but over a long period of experimentatation and trial-and-error, sensible intercropping patterns have emerged. A wealth of scientific literature now attests to this (Norman, 1977; Jodha, 1980)

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Farmers too, will readily adopt a 'new' combination if they have convinced themselves of its utility.

A more specific example of experimentation was found in Accompong, where a farmer had set up his own informal experiment to assess land capability. He was trying to determine the effect of cultivating for a longer period than normal on a particular plot (ground). Normally, farmers cultivate a ground for one or two years, then clear another site. Four years ago this farmer recleared and replanted a small patch of his old ground in order to compare the output of the replanted ratoon* site with the output from a new site. He explained that at harvest time the output of the ratoon site was greater. He is now in the fourth successive year of replanting this particular ratoon site, and has been obtaining a steady output. His own explanation of his 'research' findings is that with each consecutive year of replanting, the soil becomes more workable and this facilitates root penetration and thus healthier crops. Thus, experimentation is often within the decision-making process of farmers. Such features are important qualities of small-scale farming systems (Richards, 1973) and need to be carefully encouraged within agricultural communities.

Sometimes we can learn from analysing decision-making activities in other ways which can be equally revealing. In St. Vincent, Tannia is intercropped with plantain. 60% of farmers in the eastern half of the study area engaged in this crop combination. However, they realise that Tannia, when intercropped in this way, does not give good yields. However, they argue that intercropping is the most effective way of keeping the plantain field clean. Tannia helps keep down weeds, and when it is being cleared the plantain field also benefits. Whilst Tannia yields are not high as with commercial crops, the farmer does obtain some return on his labour.

A few farmers, however, have discovered that if they plant tannia two months before the plantain, then they have a better chance of obtaining 'commercial' yields of tannia. This earlier planting practice is becoming more common, amongst farmers in the area.

Another illustration of the inherent soundness of farmers' decisions, despite apparent discrepancies between their assessment and use of a resource also comes St. Vincent. 70% of farmers in the sample thought pen manure was better than fertilisers, yet only 34% use pen manure to any significant extent.

Many farmers do not have animals to meet their basic manuring needs. It is much easier to purchase fertilisers than to either purchase manure or to rear animals and then obtain manure from them. Also, rugged terrain makes it difficult to transport bulky loads of manure. Bulk-for-bulk more manure is needed than fertiliser per area. Over 70% of the farmers walk or ride to their farms by donkey, a journey which takes on average over an hour. Many more trips carrying manure would be necessary than when fertiliser is used.

To obtain manure, the animal must be penned, and in St. Vincent this also militates against the more widespread use of manure since penning incurs additional time costs in searching for grass for animals, thus reducing time available for crop husbandry. Some farmers have adjusted to this problem to some extent by staking the animal over a field at different points in time - practice also undertaken widely in Jamaica and called fly-penning.

There is a sound economic reason too why St. Vincentian farmers prefer to use fertilisers. Since they are in farming to make money, they argue that fertiliser 'pushes' the crop faster than manure and also increases the yield, whereas manure, though it lasts in the soil for a longer time,

takes a longer period to decompose and be available to plants. 25% of farmers also claim that manure is generally a breeding home for insects like cutworms that lie under the soil, and so prefer fertiliser for environmental reasons.

In this example, then, an apparent anomaly between farmers' assessment of an input, and their actual use of it, becomes less mystifying when a greater understanding of the decision environment is ascertained.

Thus by looking closely at farmers' decision-making and their behaviour we can learn to appreciate both its logic and its capacity for change.

4. Farmers' redefinition and reinterpretation of technical advice

We can pursue the above theme further. Farmers, as they acquire additional information from their own experiences or through externally generated technical advice, constantly reassess their knowledge and readjust their farming methods, but always within the constraints of their own particular decision-making environment.

However, sometimes reassessments of external advice lead to outcomes (in terms of farming practices or methods) which were not intended by the advisory bodies. In some of these instances, the farmers modifications can be more realistic assessments or produce better results. This then is another fruitful area whereby planners and others could learn by obtaining feedback from farmers about their own advice.

An example of this was noted by one of the authors during field work in the summer of 1982, in the Kellits area of Clarendon, Jamaica. One farmer related that traditionally farmers had planted yams in hillocks. The Intergrated Rural Development Programme (I.D.R.P.) at the time (it is

now defunct), through extension services, advised farmers to plant yams in extended banks. To qualify for cash incentives offered by the programme, this farmer had planted most of his yams in these particular extended banks, but also cultivated a traditional plot close by. At harvest time he invited the extension officer to observe the output from both plots using the amount of seeds planted as a reference point. The yams from the individual hillocks, the traditional cultivation method, were larger than those in the extended banks.

Another example comes from St. Vincent. Some banana farmers on the windward side worked steep slopes and realised that fertiliser was being washed away during rainy periods. Agricultural officers recommended that farmers should avoid such waste by digging a hole to the depth of half a luchette, and put fertiliser in the hole. Farmers found this useful, but very time consuming, and so resorted to spot fertilising. This involved dropping fertiliser about two feet upslope from the plant, so as to allow the rain to wash it down to the plant.

They claimed this was effective. Here, labour constraints necessitated a modification of the recommendation, which though probably not as effective as that officially recommended, was an improvement on the previous situation.

A final example comes from Accompong. In the 1970s, when A.M.C. food collection from Accompong was at a peak, the extension services advised farmers to use commercial rat baits with a highly toxic substance called dildrin. Farmers explained that some of the commercial baits were quite effective but others were removed by the rats without any obvious reduction in their activities. Moreover, commercial baits were not easily available. 58% of farmers who have employed pest control methods other than

traditional ones expressed reluctance to use dildrin because of its high toxicty. Dildrin dehydrates rats. The nearest supply of water are the household water tanks. Instances have occurred where dead rats have been found in water tanks, and thus farmers fear water contamination.

Traditional methods of pest control for rats do not carry such threat to water contamination. In Accompong there are two traditional methods of rat control:-

(a) Dungcane with turned cornmeal. Dungcane is a wild soft-stemmed plant whose exposed edges results in prolonged itching on contact. The plant is crushed into a paste which is mixed with cooked cornmeal. The mixture is used as a bait and the extreme discomfort caused by the itching results in the rats being unable to feed. Slow death ensues.

(b) Bitter cassava Contains a toxic juice (prussic acid) which has to be squeezed from the plant before human consumption. As a poison for rats cassava juice is mixed with cornmeal and set as a bait. The apparent effect is to drastically increase the rat's need for water to the point where they over-gorge themselves causing an eruption of the stomach.

5. Monitoring Change

A fifth scenario which presents an opportunity to learn from small-scale farmers, is to harness their observational and reasoning abilities within a kind of monitoring system. This would involve using a network of farmers who make regular verbal reports on various types of ecological problems, such as the incidence of pests, changes in rainfall patterns and soil fertility, and on their own farming problems. These reports could be monitored and collated by agricultural planners, and used in conjunction with instrument-based monitoring systems, as a way of keeping a pulse on the agricultural problems of an area.

These ideas are developed more fully in Barker, Oguntajinbo and Richards (1977). An example of an organisation which has potential to carry out similar functions is the Organisation for Rural Development (O.R.D.), a voluntary, non-profit making organisation based in St. Vincent. It operates in 26 villages, many of which are located in the study area. O.R.D.'s main objectives are to help farmers increase their agricultural production, improve nutrition and support development projects undertaken by village communities.

However, O.R.D.'s direct involvement with 900 farmers could, if taken further along the lines suggested above, utilise farmers' observational reports to help monitor environmental change, and also provide feedback from farmers on their current problems. This might be done through the Voluntary Field Corp, who visit the farm at least once a week.

To conclude, we have tried to demonstrate, through a selection of field work examples, that there are a number of potentially useful ways whereby outsiders, whether research workers or agricultural planners can learn from Caribbean small-scale farmers. We have deliberately highlighted the positive aspects of farmers skills and knowledge. This is not to deny that there are serious malpractices by small-scale farmers in the region. The most noticeable of these is farming steep slopes in Catchment Areas, which can result in serious erosional problems. These practices severely effect the Kingston area, and also other parts of Jamaica and the Caribbean. However, we feel that the small-scale farmer has been denigrated far too often in the past, in almost a blanket condemnation of his methods and practices. There are, it is true, many environmentally disastrous farming methods in certain situations, but equally there is a lot that we still need to learn from farmers for effective agricultural planning and management.

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