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A Classification of Farming Systems in the Eastern District of Dominica

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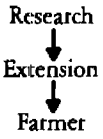
A preliminary classification is presented as a working document for development agents on the agricultural extension staff. The research work for this classification is based on interviews conducted by F.T.C. staff with the assistance of other agents from 1981 to 1984. An attempt is made to place farmers in homogenous groups to allow more relevant interventions to be proposed for each group. This is hypothesized to increase the chances for adoption of new ideas and practices. Other applications include (1) identifying target groups for training and for work elements; and (2) identifying relevant interest groups of farmers. The classification, subject to refinement, includes five main elements: (1) "Petit Planteur"; (2) the progressive farmer; (3) diversified farmers (3 categories); (4) part-time farmers; and (5) limited agricultural income farmers (four sub-categories).

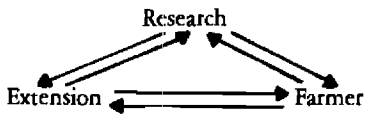
The Training-Research and Development Project in Dominica

This project started in 1981, in the southeastern district of Dominica. Its prinicples are those of a "Research-Training-Development (TRD)" process:

1. Research, training, extension and development must be closely linked. They are generally separated from both structural and geographical points of view.
2. Research must operate close to farmers. Farmers' participation is required. The researcher must know the farmer, so research can really focus on farmers' needs. The technical information given to extension must not only include isolated topics, but the coherence and the insertion capability in the present system must be checked.
3. The Research-extension-development process much be continuous. The usually vertical structure



is replaced by the following one, which includes feedback at each level.



At an institutional level, a small team of three agonomists, two French and one Dominican, are working in close relation with the Extension staff of the district (two extension officers, one agricultural officer). It provides technical support to Extension, training activities and realises a part of the research work needed (on the farming systems of the district especially). This district covers six main villages and about 1,200 farmers.

Other similar projects, supported by the French Regional Cooperation Mission in St. Lucia, have been established in other Windward Islands (St. Lucia, St. Vincent, Grenada). The compatisons of their results and evolutions helps to generalize the results of these projects, and gives ground to regional cooperation on these methodologies.

A new university degree in Caribbean agricultural development, in collaboration with UWI, has recently been established in the University of French West Indies and Guyana. This is expected to deliver training on research/development processes and farming system analyses to students of French or English-speaking countries of the West Indies.

Methodology

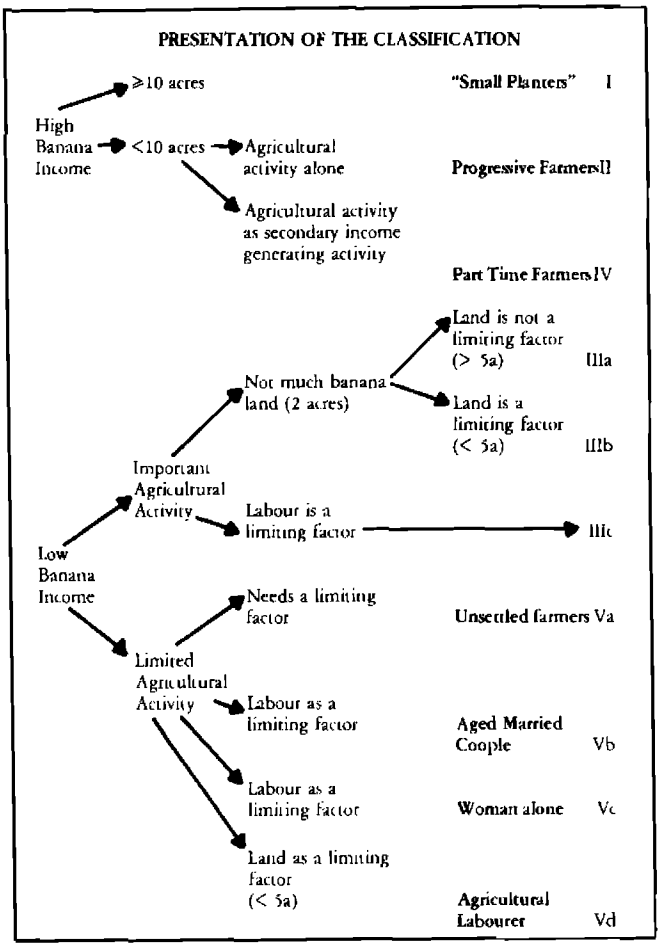
The basic assumption of the TRD process is that the farmer's decisions are rational, given the objectives and the set of constraints he faces, whether at the field level (for example, fertility problems), at the family level (allocation of work, land available), or at the regional or national level (marketing of agricultural products, transport facilities, support from extension services). In other words, the farmer gets roughly the best results possible, given his environment and objectives. His objective might not be to get a maximum level of income and production, but to secure what he considers as "his basic needs" and to engage in other activities during his spare time.

So the first step of this approach is to identify the general agrarian system of the area. The notion of agrarian systems includes not only farming systems, but also the general environment, socio-political as well as natural. Then, different agro-ecological zones have to be identified within the area. An agro-ecological zone is an area where the natural environment and the combination of different farming systems are homogenous, leading to the same type of geographical characteristics, as landscape, production, etc.

In the case of the southeast district, the first data suggested that the district could be considered as one homogenous area, climatic and pedological vatiations being limited within the different villages of the area.

The next step is to identify the diffetent types of farming systems encountered within each homogenous area. Even if farmers belong to the same agrarian society (which in this case may be considered as peasantry), each individual has a different

FIGURE 1. Schematic of classification of farming systems in the Eastern District of Dominica.



set of constraints that must be identified before any technical or economical development proposal ean be implemented for him. As one cannot study the case of each individual farmer, it is expected that they may be grouped in several homogenous types with minimal variations inside the classes, so that a proposal helping a farmer of this type to overcome some of the constraints he meets will probably be of interest to the other farmers of the same type.

Several approaches may be taken to identify and study these types. Theoretically, one can take a structural or a functional approach. In the structural approach, one studies a sample of farmers' structural parameters of agricultural activities (for example, size of tenure, work-force or available capital), and the distribution of these parameters. In the functional approach, one concentrates on the agricultural activities themselves (type of productions and crops, level of intensification, technical "routes" followed, etc.)

These two approaches are complementary, since the basic assumption of F.S.R. is that there is a regular correspondence between function and structure, based on the "rational assumption" cited above. In both cases, the types of farming systems identified are only hypothetical ones, and need to be checked by more detailed studies (monitoring) on several farmers of each type.

In the case of the TRD project, however, a very light approach which may be described as empiric, was preferred. This was due to the limited manpower available, and the concern of both national authorities and the local team not to spend too much time on research, and the desire to start the training and development of activities as soon as possible.

A first set of 40 interviews was carried out in January 1982, in one "average" village of the area (Morne Jaune), collecting both structural and functional data. Using "data analysis" methodology (but with manual means), a first stratification of six classes ranging from "investor/job integrated in the farm," to "small farmer without land," was obtained. The stratification was mainly based on the past evolution of the farm and the objectives of the farmer.

From July to August 1982, six farmers belonging to the different classes were monitored, through a daily or weekly data collection, by students attached to the project. From January to December, 1984, four farmers were monitored by the project team.

A second classification was proposed in July 1984, based on the first results of these monitorings. This classification takes more structural data, acreage, other regular sources of income, and labor force into consideration, and is more detailed, including five classes, and ten subclasses. The observations realised during Extension activities are also integrated into this classification, which remains, however, an empiric and hypothetical one.

Use of This Classification - Further Investigation Needed

As indicated above, this classification has to be considered as a hypothesis until more detailed studies, including a statistical analysis, are conducted. Nevertheless, it can be used as a training tool for Extension Officers and other officers involved in agricultural activities, and as a working tool for starting development activities with the farmers.

As a training tool, it points out the fact that there is not one average farmer representative of other farmers of Dominica or of the district, and not even one average small farmer or medium farmer. Therefore, there is not one development action which is valid for all farmers at the same time, but several different proposals should be adapted to different types of farmers. This fact is not unknown to the Extension Officers who face it every day in their work, but it needs to be theorized and analyzed in order for them to draw practical implications from it, and be able to return this "field information" to higher levels of the Agricultural Department.

A practical example that has been studied with the Extension Officers is one of pasture development. For many years Extension services have been proposing that farmers interested in livestock establish pastures by fencing an area with wire and planting improved grasses ("Pangola Grass"). After many years of efforts, it can be seen that most of the pastures established in this way, though still fenced, have been overgrazed and have gone back to a "bush savanah" vegetation. The first conclusion could be simply that the technical proposal was not adapted to farmers' conditions, but when one analyzes which type of farmer did what, one finds that two different types were involved in this pasture establishment.

1. Type I, petit planteurs or progressive farmers, have land and capital, but no labour available. For these farmers, fencing a pasture is a way to decrease the work needed in livestock maintenance and still try to intensify animal production and increase the livestock capital. All this leads to a high probability of pasture destruction.
2. Type IIIb, diversified farmers who have limited land, but labour available. Their problem is to increase their income (to meet family requirements) by producing marketable production. If they raise livestock on pasture, they will probably try to increase the production by increasing the size of their stock. This may lead to overgrazing as in above case. These farmers may be interested in an alternative pro-

FIGURE 2. Characteristics of classes.

CLASSES	OBJECTIVES/STRATEGY	CHARACTERISTIC/ MEANS OF PRODUCTION	PROBLEMS	POSSIBLE IMPROVEMENT
Small planters (I)	• to ensure high income for family needs and investment (in and out of agriculture)	• 10 acres of land • intensive banana • diversifying with livestock/ tree crops • employ laborers	• heavy expenses for crop labour	• development of livestock and tree crops
Part-time farmers (IV)	• to increase the income of a regular wage earning activity (e.g., civil servant)	• primary source of income is not agriculture • investments on agriculture: banana, livestock	• not much time available/ heavy expense for crop labor	• field packing for bananas • rationalization of livestock management ("cut and carry")
Progressive farmers (II)	• to ensure high income for family needs	• 5-10 acres of land • priority to intensive banana • livestock and food crops production are limited	• cost of production (fertilizer, day labourers)	• improve banana management (fertilizer usage, time of planting)
Farmers with little banana land (IIIa)	• to ensure sufficient income for family needs • diversification/ home consumption/ marketing of extra	• a lot of land (more than 5 acres) but difficult accessibility •1 acre banana, food crop, small livestock, tree crop	• little cash flow, little investment possibilities • marketing problems for food crops	• access to credit • livestock development with use of crop residue • organization of groups for marketing/for field packing of bananas
Farmers having little land (IIIb)	• to ensure sufficient income from the limited acreage	• less than 5 acres of land. • vegetables/small livestock (pigs-rabbits), root crops • intercropping • use of crop residues and pen manure	• little cash flow • little investment • marketing problems • lack of land	• technical assistance for intensive livestock production • processing of excess production (juice/wine)
• Farmers having little labour available (IIIc)	to ensure certain income with limited labour	• people who have retired but have been able to invest in the past (livestock land) • 10 acres of land, cattle food crop • no bananas • employ workers for heavy work	• limited farmer's labour	• livestock improvement ("cut and carry") • grouping for marketing
Unsettled farmers (Va)	• to have a minimum agricultural activity, allowing time available for other jobs (masonry)	• low needs • young people • 1 acre banana and food crop for home consumption	• lack of capital for investment • eventually lack of land	• access to credit • training - assistance for settlement
Aged married couples (Vb)	• to have a retirement farm to satisfy home consumption	• farmers over 65 • low needs • small stock/food crop	• lack of labour • lack of capital	• establishment of an improved back yard garden for home consumption needs
Woman alone (Vc)	• to satisfy family needs with limited labour available	• a woman with several young children • food crops/small stock	• lack of labour • lack of capital	*(same as above)*
Agricultural labourer	• to satisfy family needs with little land	• food crops/small stock • 5 acres of land is employed by other farmers (I II IV)	• lack of land • lack of capital	*(same as above)* • small livestock development (pigs, rabbits, fowls) • credit access

posal, the "cut and carry" sysrem, which involves more work but is easier to manage and involves less capital at the start.

As a developmental tool, the TRD project has already used this classification for two orientations. A proposal has been made for the development of pig production oriented towards small farmers (types IIIa, IIIb). Efforts have been made to organize an adequate credit facility with IFAD, and develop a technical pattern of feeding (trials on feeding with reject bananas and supplements). The TRD project has also supported a Health and Nutrition Project, established by a heath and agricultural team of the district, whose aim is to ensure better nutrition to some poor families of the area (mainly from type Vc "woman alone," and Vb "aged couples") by helping them to establish small backyard gardens to produce vegetables for the home consumption.

Further Investigations

With the help of the Extension Officers and based on a recent "Farm Register Survey" conducted with all the farmers of Dominica, the TRD project has rried to get a first estimation of the reparrition of the farmers of the district between the different classes, with absolute and relative figures.

This exercise has pointed out some of the weaknesses of the classification system. One example is that the district was consiered as one homogenous area; it appears thar in fact the classificarion is better suited for the norrhern part of the district, which is more oriented towards banana production, rhan for the southern one, which is more oriented toward traditional crops such as bay leaf and cassava. The differences between these two areas seem to be due more to historical factors (later arrival of the road and sertlement of boxing plants in parricular) rhan to ecological ones (the variation of rainfall, temperature, and soils is not very significant from north to south).

Another problem with this classification system is that it is difficult in some cases to classify the farmers because the criteria for separation are sometimes structural (toral available acreage), and sometimes functional (main income from agriculture).

A more systematic approach is needed to make this classification system more practical, and to allow scientific control of its validity.