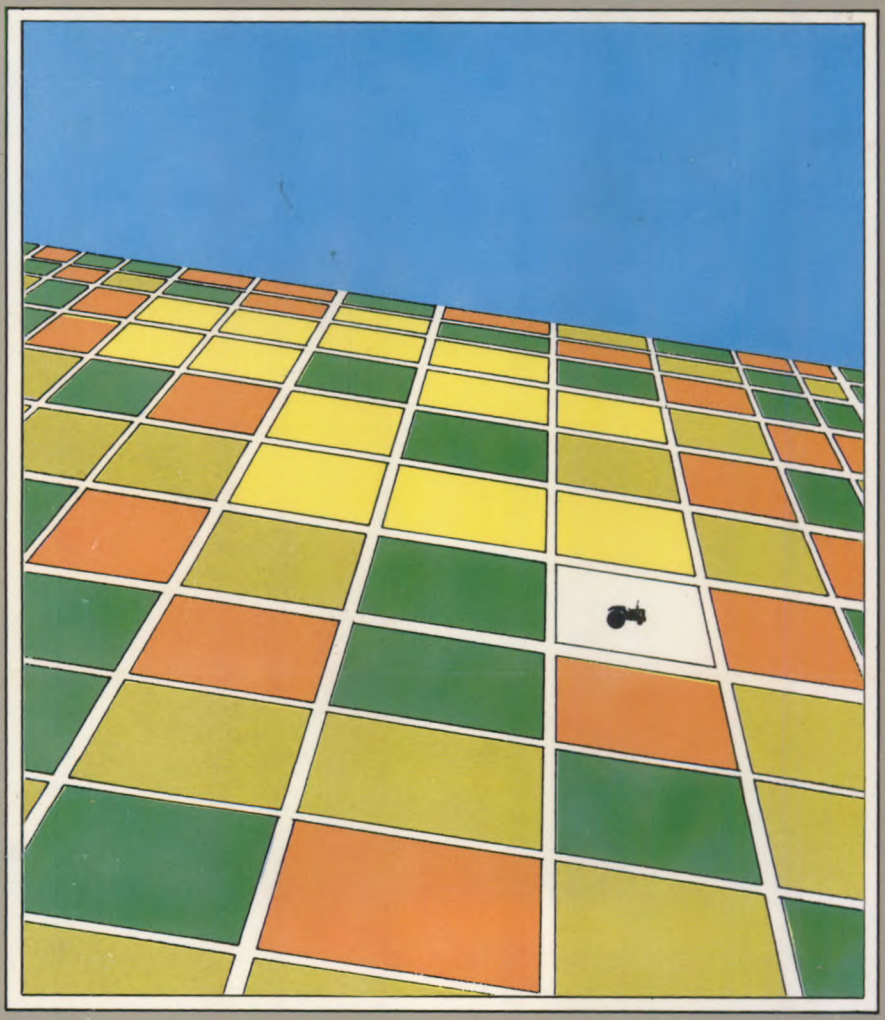
ASSOCIATIVE FARM MANAGEMENT

Héctor Murcia



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Héctor Murcia

INTER-AMERICAN INSTITUTE FOR COOPERATION
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The associative production enterprise is commonly felt to be a valid response to the problems of land shortages, inadequate levels of capital and of managerial skills, and surplus labor, all of which are so common in the rural areas of our countries. This is why the community enterprise has emerged as a new option for reforming the agricultural sector on this continent.

In spite of the current acceptance of, and enthusiasm for, associative or community production enterprises, we are all aware of the difficulties involved in attempting to develop such systems and run them successfully.

This book, whose prologue I am honored to write, is a sample of the efforts needed if associative production enterprises are to overcome the stumbling blocks that lie before them. Héctor Murcia has worked patiently, meticulously, and with technical expertise to give us the tools we need. These tools, if skillfully used by agricultural enterprises, will do much to guarantee success in their operations.

Management is not the only area that should be taken into consideration in the creation and operation of enterprises. However, while much has already been said about the political, social, economic, and even psychological components, administration as such has received little attention. It is a modest and soft-spoken science, but it is essential if we are to move from poetry to prose and from theory to practice.

Furthermore, it is safe to say that proper management is the major challenge facing associative enterprises. While other companies with a solid capital base and long years of experience may find it easy to hire well-trained managers, it is quite difficult for the associative enterprises. This is why they will need help in the form both of personnel and of such publications as this book.

The author is an agronomist from the National University of Colombia, in Bogota, from which he graduated in 1966. He did specialized studies in Agricultural Economics at Oklahoma State University in the United States, where he earned his Master of Science degree. He has served as professor, Director of the Department of Agricultural Economics, and of the School of Agronomy for

the National University of Colombia in Bogota. His teaching experience in the field of agricultural economics began with his work in Colombia at the university level and continued when he was a professor in the Graduate Program of the National University of Colombia/Colombian Agricultural Institute (ICA). He has also been a lecturer in a number of national and international courses in his field. Upon entering IICA, he was able to consolidate his broad experience by working as a professor and advisor of agricultural economics, coordinator of the Contract between IICA and the University of Costa Rica, and professor in the Graduate Program of the Tropical Center for Research and Teaching (CATIE) located in Turrialba. In addition, he has worked in support programs for several countries, contributing particularly to the preparatory and project evaluation phases. He has also given a number of courses on rural administration and management of associative enterprises.

At the Inter-American Institute of Agricultural Sciences, he has held the following positions: from 1972 to early 1974, he was Director of the Office in Nicaragua; from 1974 to 1976, he served as Professor and Advisor in Agricultural Economics and Coordinator of the final phase of the Contract between the University of Costa Rica and IICA; and at the present time, he is a Specialist in Agricultural Economics at the Office of Coordination for IICA's Plan of Action in Costa Rica.***

I applaud Héctor Murcia for having the wisdom to write and publish this book, and I am certain that the readers will be able to make constructive use of what they find in its pages. I am also certain that, with this help, associative production enterprises will be able to move more decisively toward their goal, which is nothing less than to increase the standard of living and the dignity of farmers.

José Emilio G. Araujo
Former Director General
Inter-American Institute of Agricultural Sciences

San José, Costa Rica

* Now Inter-American Institute for Cooperation on Agriculture.

** In 1984 Mr. Murcia resigned from IICA.

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It would be impossible, in such a short space, to name all the people and institutions that, in one way or another, have contributed to this book. I would like, however briefly, to mention at least those who have supported me and to acknowledge the following individuals and organizations to which I am grateful:

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To my wife, Carmen Alicia Rojas de Murcia, and our children, for their unflagging encouragement while the book was being written, and for their understanding and support throughout the time I sacrificed so many hours of family activities in the interest of completing it.

To the Murcia Cabra and Rojas Bernal families, branches of the family tree whose example has stood before me as unwavering inspiration, maintaining the purest concepts of work well done.

To the School of Agronomy of the National University of Colombia in Bogota, the educational facility in which I learned the foundations of agricultural science and undertook my first professional endeavors; to the professors, friends, and colleagues I knew there, and all my countrymen who have provided their warmest friendship and support; through them I give my thanks to Colombia, my homeland, whose memory stands as the lasting spark for my work.

To the countries of Latin America, in which I have had the honor to lend my professional services, because they have given me the opportunity to expand my knowledge and acquire the valuable experience I needed to complete this book. In particular, I would

like to thank Costa Rica, the noble land which has provided the headquarters for my present work; at the same time, I would like to express my gratitude to the University of Costa Rica and the School of Agronomy, an educational center in which I was able to apply my experience and expand my knowledge. My thanks also go out to the directors and professors of the School of Agricultural Economics, to my former co-workers under the UCR-IICA Contract, to the students and graduates of the School, and especially to those who did me the honor of dedicating their graduating class to me. Several of their theses, which they invited me to advise, provided me with valuable material for enhancing the concepts included in this book.

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To Matilde de la Cruz and the specialists who reviewed the original material, for their valuable contributions to the improvement of the book. Similarly, I would like to thank all those who made corrections in form and style, for this helped immeasurably to improve the final product.

To the Kellogg Foundation for making possible the publication of this book as a part of the Educational Books and Materials Series it is developing jointly with IICA.

To the farmers of the hemisphere, for serving as the on-going inspiration in my work, and who deserve a true opportunity to learn to use technical progress for their own profit.

To all of these I extend my eternal gratitude and recognition. I assume full responsibility for the content of this book, and I strongly hope that it can serve as a stepping stone in our continual search for the best road to effective improvement of the lives of our rural populations.

Héctor Murcia

To my wife, Carmen Alicia,
and our children.

To my parents

INTRODUCTION

Agricultural management must be included as a part of any effort to bring about real improvement in the standard of living of the rural population, with the primary goal of effecting true changes by treating the rural dwellers as both subjects and objects of the development processes.

The author of this book has been strongly aware of such a need and has been eager to make the relevant technical information available to all members of the rural sector through books and other publications to introduce the traditional concept of agricultural management, adapted to the particular case of Latin America and the Caribbean. These contributions to the currents of technical knowledge, together with the work of others, reflect a renewed effort to link scientific concepts to the day-to-day activities of farmers on all levels.

In conjunction with this process of search have appeared the new associative forms of agricultural production. These units are emerging and being reinforced throughout this part of the world as a reflection of the coming rebirth of collective forms of labor. The consciousness that must exist for such forms of endeavor is as ancient as the origins of the native populations inhabiting our part of the American Continent, and its roots go much deeper than some of the individual production systems.

A detailed examination of many of these associative forms of production, and of a broad spectrum of other types of production units, reveals that the failure to apply managerial principles and methods is very widespread. Even the most simple techniques are absent from these individual microeconomic units, a fact whose negative repercussions are felt not only in the rural sector, but also on the macroeconomic level.

It is this failing, and the paucity of published material on the subject, that moved the author to turn his efforts to a detailed study of associative production enterprises in all their managerial aspects.

He is convinced that, in many cases, the origins of the defective functioning of agricultural enterprises do not lie exclusively within the walls of the enterprise itself, but must rather be sought in the structural defects of the rural sector and in the nature and quality of support provided for the production units by participating institutions. For this reason, all these factors, only one of which is the managerial element, must be kept in mind when cooperative efforts are made to improve the functioning of production units, in this case, the associative units.

The book is intended as support material for other efforts to give the farmers conceptual help consistent with their level of education. For this reason, the author has not been able fully to satisfy all his intellectual aspirations, but he

does feel motivated more strongly than ever to develop future publications whose technical message is specifically oriented to these levels. This book, then, would serve as a core.

Although the text concentrates primarily on the associative form of agricultural production, the universal point of view we have attempted to adopt, within a humanistic framework, makes it equally relevant to individual production systems or other types of units. In any case, all systems must be developed in the context of the basic principle of seeking to maximize benefits not only in the strictly physical, technical, and economic framework, but also within the social sphere. This goal is all too often overlooked in the traditional approaches to this science of agricultural management.

The text is divided into four major subject areas organized into ten chapters.

The first subject includes the concept of the associative production enterprise and an analysis of its managerial problems. It is an effort to describe this form of production and emphasize the need of adapting classic concepts of agricultural management to the productive structure, allowing for its special characteristics.

The second major subject heading is a diagnosis for planning the associative production enterprise. It defines the basic steps to be followed in the diagnostic process for this type of productive unit, both on the level of the individual enterprise, and in terms of the environment within which it operates. This is why, in addition to the necessary elements that must be included in any overall diagnosis, emphasis is made on the need to understand the reasons for maintaining effective and organized accounting methods in the individual enterprise. The section ends with the presentation of the overall framework for developing studies on the associative forms of production, in accordance with the findings of research efforts developed and carried out to prove the viability of this type of farm unit.

The third subject introduces the simplest criteria and methods that must go into the planning of associative production enterprises. Physical requirements are discussed, such as the appropriate size of the enterprise and the proper ratio between current use and potential conditions. At the same time, functional models are presented for economic planning in the enterprise on the basis of simple techniques, and methods are described for planning the proper use of available labor, one of the most important elements of the given social goals. The section closes with the presentation of several methods for developing case studies on associative or individual production units. The purpose of this discussion is to demonstrate the need for including diverse aspects in the analysis, diagnosis, and planning of any agricultural enterprise. Examples are given in the last chapter of the section, and the subject of planning thus draws to a full conclusion.

The fourth subject includes suggestions, past experience, and the most important examples developed by the author for training farmers in the management of associative enterprises for agricultural production. This section can stand as a point of reference for the development of similar efforts in other regions, both in the halls of higher education, and in training, research, and extension efforts directed toward the farmers themselves.

Finally, the text closes with several appendices to help illustrate the handling of particular subjects included in the book, and to explain specific experiments developed in several Latin American countries.

Most of the subjects discussed in the text stem from experiments in which the author has participated either directly or indirectly. They have been tested and proved in actual practice, both in research developed during IICA activities, and in the form of joint projects with students and with participants in various courses and studies on the subject. For this reason, the book's major value lies in the almost totally original nature of its source material, with the hope of contributing fresh and renewed experiences to the technical wealth that exists in this particular field.

It would be a source of immense satisfaction to know that this book had helped to further and expand the study of the management of associative forms of agricultural production. It must be recalled that in the future, the discussion of these types of production units will continue as it has for centuries. This writer's greatest satisfaction would be knowing that the book had contributed new elements of analysis to the rural development process in the Americas and that it could give support to the multiple and complex efforts that have yet to be realized.

PART ONE

THE ASSOCIATIVE PRODUCTION ENTERPRISE: AN ANALYSIS OF ADMINISTRATIVE PROBLEMS

CHAPTER 1

THE ASSOCIATIVE PRODUCTION ENTERPRISE IN THE RURAL SECTOR OF THE AMERICAS

"Associative production systems in this area require profound adaptations of the classic concepts of farm management."

Because of the particular characteristics of the rural sector in the Americas, special efforts must be made to avoid dangerous delays in solving the problems so typical of this region. These characteristics will be broadly described in this chapter. They have contributed to a situation which has been a causal factor in the large-scale reappearance of the associative approach to agricultural production in this part of the Continent.

As a productive unit in this hemisphere, the associative enterprise possesses certain special traits that make it unique and distinguish it both from the traditional "farm" analyzed in the majority of studies on rural management, and from the various models of collective production existing on other Continents.

If associative forms of production are to flourish in this region, profound modifications will have to be made in the classic concepts of farm management. Such changes will foster the consolidation of a new science capable of translating the proper use of resources and economic benefits –the basic objective of traditional management– into actual improvements in the way of life for rural dwellers.

1.1 DISTRIBUTION AND USE OF PRODUCTIVE RESOURCES IN THE RURAL SECTOR

A detailed study of the overall characteristics of the agricultural sector in the region, from the points of view of its various participants, demonstrates how limited a role it has played and how insignificant it has been in national development processes. The inefficient use of productive resources, both on the national level and on each farm, is caused by the interrelationships of numerous factors related to the inadecuacy of agricultural structures, so common in

most of the region. This inefficiency has become a permanent hurdle in the path of all efforts to transform the particular conditions of backwardness in our countries.

Our point of reference will be the basic variables involved in economic activities. It is felt that progress, as well as the effective and large-scale integration of farmers into the development process, has been blocked by defective patterns of land use and tenure, the low availability and poor orientation of capital services needed for productive endeavors, the narrow approach in which the human element is viewed as just another material factor in the process, and the incipient nature of efforts to link managerial techniques and methods to agricultural production.

Although it is undeniable that the overall state of this sector exercises an immeasurable influence on the macroeconomic picture, it must also be recognized that, when we examine its influence on the microeconomic level, new, unquestionable obstacles to the integral development of the rural dweller begin to take shape. An analysis of all the variables that go into the productive capacity of the economy, commonly known as the integral elements of the joint production function, reveals the following situation for Latin America and the Caribbean:

1.1:1 Natural Resources. A general study (Araujo[1]) dealing specifically with the land factor recently took a close look at the area in which agricultural activities are in progress and showed a definite tendency to concentrate large proportions of land surface on a small number of farms, and to maintain large numbers of small-scale production units. Central America has a total of 2.9 million hectares of land being used for various kinds of economic exploitation. Of these, 285 000 were found to be in the hands of 765 000 owners, while 2.2 million had for many years been under the control of 59 000 landowners. In South America, estimates of the work of the Inter-American Committee on Agricultural Development (CIDA) revealed a tremendous polarization of land ownership. In 1965, it was estimated that 93.8 percent of all the arable land in Latin America belonged to only 7 percent of the owners, while the remaining 6.2 percent was in the hands of 93 percent of the owners.

Other studies in Central America (CIDA/CAIS[2]) have concentrated on production units (family farms) capable of providing employment and adequate income to a typical family, using the level of technology predominant in the region. This research proved that in the five countries, almost 74 percent of the land surface area was concentrated on farms containing more than 35 hectares (or 50 manzanas) each, while farms of less than 7 hectares (10 manzanas) each made up approximately 79 percent of the total number of production units.

Land use figures indicate that many of the large farms practice extensive farming techniques, while the smaller farms are oriented toward intensive production, most of which is limited to farming. According to figures from the IDB, of a total of 538 million hectares of potential farmland in Latin America, some 30.1 percent (162 million hectares) is under cultivation, while the other 69.9 percent (376 million) consists of natural pasturelands where extensive herds of livestock are kept, thus impeding intensive agricultural activities. (Araujo[1]).

Extensive agricultural practices also have lower labor requirements. Thus, while farming activities absorb around 0.14 worker/years per hectare (0.20 worker/years per manzana) (CIDA/CAIS[2]), ranch work requires only approximately 0.014 worker/years per hectare (0.02 worker/years per manzana).

Agrarian reform studies in several countries of the region have shown that, although many large farms are highly technified and progressive, others lack well-defined economic and social criteria for organizational planning. This makes it impossible to put to use the full potential of available resources to increase efficiency, and instead of helping to relieve the general problems of the rural sector, in some cases actually intensifies them.

1.1:2 **Human Resources.** The rural sector in this hemisphere possesses features typical of less developed countries, with a high level of available labor and a severe shortage of capital resources. This situation has produced many cases of vast flows of workers toward the fields or production centers in which they are most needed, a population shift pattern that stems mainly from the seasonal nature of agricultural production and the varying periods of work for crops requiring manual labor.

Similarly, workers often give up trying to find adequate job opportunities on small farms and run up against the closed doors of large, poorly exploited farms that generate little or no employment. The result is a disorganized emigration to urban centers, bringing about severe social imbalances whose consequences are unpredictable.

1.1:3 **Capital Resources.** Highly developed farms tend to enjoy a strong available capital base using advanced technology. This capital goes into the work itself and is used for creating additional resources. However, in the Americas, a much lower level of agricultural development predominates, and the capital/worker and capital/land ratios tend to be very low. Similarly, the expansion of financial capacities and capital reserves available for productive purposes has received very little attention, due to the traditional nature of agricultural production. In addition, institutional support of the rural credit systems created as a source of capital is subject to the "self-limiting"

phenomenon which reduces the effectiveness of credit policies. This is because loan offers are too often restricted on the basis of the small size of the land holdings (**minifundias**) and the insecurity of land tenure.

At the same time, it is questionable whether or not credit is currently fulfilling the theoretical requirements of timeliness, adecuacy, and reasonable terms and interest rates. In fact it sometimes appears to be creating a situation very common in many of the underdeveloped countries, in which financial resources are all too often channeled principally into commercial production and export agriculture, bypassing the small-scale farmers on the pretext of "their inability to repay the loan and the difficulties facing the credit organization in recovering the money. Therefore, no massive action is taken for this type of farmer" (Murcia and Araujo[5]).

1.1:4 Managerial Resources. Many cases have been documented in the region in which this element is neither given the importance it deserves, nor even fully understood. On the national and macroeconomic levels, as well as inside the farm itself, very little attention is given to the managerial factor. In the particular case of the individual production unit, even though high-technology farms often practice a few basic administrative principles, the same problem of backwardness, noted above in the analyses of other productive factors, continues to hinder the large-scale use of managerial techniques.

It is of note that the administrative sciences are being weighed with increasing frequency not only on the isolated scale of physical and economic efficiency indices, but also within the overall panorama involving the social and humanistic criteria repeatedly emphasized by such organizations as IICA. It is becoming ever more clear that "the human being is the subject, the object, and in fact the very essence of the development process" (IICA[4]).

Moving beyond these elements, we find that the economic activities of the farm are affected by factors originating outside the production unit itself. These factors must not be underestimated in discussions of the macro and microeconomic problems of this hemisphere's rural sector. They stem from institutional variables and economic, social, legal, and political systems, as well as the terms of exchange present in the economy of any country, both internally and externally. This is why any analysis of the particular problems of the rural sector in the Americas must come to grips with the integral and aggregate influence of all the elements we have discussed above. This will provide the frame of reference needed to justify the search for diverse alternatives for promoting the integral development of the rural sector.

1.2 THE AGRICULTURAL ENTERPRISE IN THE RURAL SECTOR

This analysis reveals that the atmosphere in the Americas has never been favorable for the emergence and broad acceptance of true agrarian enterprises.

A number of systems have been devised for describing and classifying agricultural enterprises. Some are based on the level of development of the enterprise and measures of technical, economic, and social efficiency as compared with national averages (traditional or promitive; transitional; and commercial agriculture).

Others question the existence in this region of a modern society clearly separate from traditional society. Nevertheless, from any point of view, the analysis reveals the clear and evident shortage, both qualitative and quantitative, of integrated responsible managerial skills working in the service of agriculture.

In order to understand why this is so, a conceptual definition must be developed of the various features that characterize the agricultural enterprise in the hemisphere. A number of efforts have been made to sketch a clearly defined picture based initially on technical and physical concepts of the rational use of productive resources with an eye to improving output from the economic point of view, and leading to a definition of the role the enterprise plays in its social, legal, and political setting.

A recent article on this subject (Murcia and Araujo[5]) outlines the minimum units or characteristics that must be present if an integrated classification of the agricultural enterprise is to be developed. These are the factors that must be present in agricultural production enterprises that serve as the basic units of the primary sector in the economy:

1.2:1 A Physical Unit. The farm possesses a given set of available productive factors that must be used wisely, from the technical as well as the physical point of view. The proper use of resources must lead to a better equilibrium between current use levels and real potential, by achieving higher levels of productivity and physical efficiency.

1.2:2 An Economic Unit. This views the unit as economically rational and seeks to achieve optimum levels of resource use, meet financial obligations, support the families that depend on the enterprise, provide the entrepreneur with an appropriate salary, produce the economic surplus needed to expand development and make investments in the progress of both the enterprise and the sector, maintain productivity over the long term, and in general, raise levels of economic efficiency throughout the entire system.

1.2:3 **A Social Unit.** This is based on the assumption that the best technical and economic conditions lead to improvements in the standard of living of the farmer, the farm family, and the people who make up the enterprise. In addition, the enterprise must be able to provide sufficient work to occupy the family labor present within its own walls. Attention must be given to the distribution of enterprise profits, to its actual and relative contributions to solving the problems of the rural sector, and to providing its members with an understanding of their social responsibilities.

1.2:4 **An Administrative Unit.** Unlike the traditional operation, in which decisions are made by the person who owns the land and the capital, these associations must attempt to treat their human components as more than just another material productive factor. Rather, the members make decisive contributions to the managerial functions in the enterprise through their effective participation in the decision-making process that determines the operation of the farm.

1.2:5 **An Information Unit:** The enterprise must be the primary source of information on the agricultural sector used in the formulation of policies for improving the way of life in the rural sector.

1.2:6 **A Legal Unit:** Clear legal standards must specify the rights and obligations of the enterprise and give a concrete definition of its role within the established legal order.

Figure 1 is a schematic summary of the minimum characteristics that must be present if agricultural production enterprises are to function as the basic units of the primary sector.

It would be utopian to try to reach a point of equilibrium at which all the optimum physical, biological, economic, and social conditions happened to come together. However, as we become more familiar with the various advantages of any form of production, it becomes necessary to analyze methods for coming as close as possible to the minimum conditions of internal efficiency in the agricultural enterprise. Murcia and Araujo[5] describe the agricultural enterprise in this region as: "a microeconomic production unit which must make rational, orderly, and balanced use of the available resources in order to achieve the technical, physical, and economic results necessary to improve the standard of living of farmers and their families, integrate them effectively and truly into the development process, and help them to understand their social responsibilities and unfold their growing managerial skills in the service of agriculture."

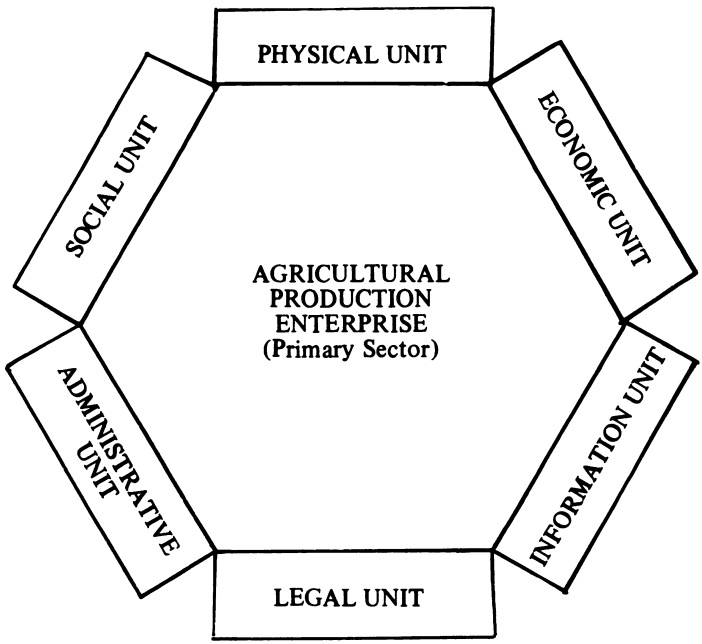

Fig. 1. Minimum Characteristics of the Agricultural Enterprise (taken from Murcia and Araujo[5]).

In addition to these elements, we must not overlook the relationship the agricultural enterprise maintains with the environment surrounding it and the structure within which it must work. This enables us to observe not only its ability to fulfill the requirements for functioning within society, but also to what extent outside factors either support or hinder its development.

These guidelines, together with certain standard-setting criteria that can provide a point of reference, indicate a shocking degree of managerial underdevelopment in this region. Any analytic approach reveals the truth of the theory that only a very few production units in this region can qualify as members of the "agricultural entrepreneurial sector."

This idea is corroborated by the figures in Table 1, which classifies the various types of farms in the Americas according to production goals (either profit-seeking or pursuing integrated technical-economic-social goals), in order to identify the managerial and non-managerial components of the agricultural sector in the region. The Table also grades the farms by comparing them with the minimum characteristics of agricultural enterprises described in Figure 1. It indicates whether the farms satisfy the minimum requirements for inclusion in the category.

TABLE 1. Classification of farms in the Americas by production goals and minimum characteristics of agricultural enterprises (Murcia and Araujo[5]).

Types of farms	Physical Unit (use of physical resources)	Economic Unit	Social Unit	Administrative Unit	Information Unit	Legal Unit
Objective: profit						
Primitive						
Minifundia	Deficient	Deficient	Deficient	Deficient	Deficient	Deficient
Latifundia	Deficient	Deficient	Deficient	Deficient	Deficient	Deficient
Transitional						
Family Agricultural Unit	Efficient	Efficient	Efficient	Partially Efficient	Partially Efficient	Partially Efficient
Commercial	Efficient	Efficient	Partially Efficient	Partially Efficient	Partially Efficient	Partially Efficient
Objective: integration						
Cooperatives	Efficient	Efficient	Efficient	Partially Efficient	Partially Efficient	Efficient
Community Enterprises	Efficient	Efficient	Efficient	Partially Efficient	Partially Efficient	Efficient
Others	Efficient	Efficient	Efficient	Partially Efficient	Partially Efficient	Efficient

If we are careful to differentiate between actual fact and theoretical standards, we find that the family agricultural units and the integrated associative enterprises (technical, economic, social, etc.) come closest to our ideal for enterprises, according to the minimum characteristics described above for the strictly internal functioning of the organization.

However, we must also analyze other details that lie outside the farm itself, such as its relationship with the environment and its contributions to the solution of the overall problems of the rural sector, if we are to cast a clear light on the comparative advantages and disadvantages of each type of production unit. On the basis of these considerations, we can perceive the relative benefits of the associative enterprise within the specific conditions of the agricultural sector in Latin America and the Caribbean.

The various experiments that have been carried out, as summarized in the Administrative Unit column in Table 1, confirm that all types of agricultural production units in this region are deficient in the incorporation and use of managerial methods and techniques. Considerable efforts must be made if we are to improve this situation, even for associative type production units.

1.3 ASSOCIATIVE FORMS OF AGRICULTURAL PRODUCTION

To obtain a clear idea of the various elements of the term "associative forms of agricultural production" in the Americas, we must begin at the very beginning and examine them from their ancestral roots in this part of the world.

1.3-1 BRIEF HISTORICAL SKETCH OF ASSOCIATIVE LABOR IN RURAL SECTORS

A number of research efforts have shown that the primitive indigenous populations of the Americas practiced various forms of working the land that could be considered precursors of today's agricultural cooperativism and modern associative forms of production.

There is extensive proof that the great pre-Columbian cultures were unaware of the individualistic concept of land tenure, although they did practice various forms of transitory family land holding.

For example, the "calpulli" or "calpullali" was an Aztec agrarian organization which, like other types of obligatory communal production systems, employed cooperative methods of managing the major activities. The Incas also used groupings based on mutuality and cooperativism, known as "communities;" similarly, the social unit of the Inca Empire was the "ayllu," maintained over the years by ties of cooperative labor. Agricultural tasks assumed particular importance within this structure. Similar examples of cooperative labor are the

"mingas" and "convites" of the Andean region, the organizational forms used by the guaranis, and other labor systems employed by the indigenous population groups on the continent. Such systems prove that "beyond any doubt, the origin of communal labor in Latin America is deeply rooted in the very essence of our native souls" (Araujo[1]). These traditions in the rural sector are reflected in the current associative forms that have spread throughout this part of the American continent.

Under the Spanish empire, many of the indigenous cooperative land holdings were preserved through provisions of the Laws of the Indies. One such legal institution was the system of safeguards to protect territorial stretches turned over to the native communities for their exclusive use. Another communal form of exploitation was the use of "ejidos," or publicly owned lands surrounding the cities; various other systems of community property ownership persisted until the mid-Nineteenth century.

After the Spanish American nations achieved independence, new laws appeared with an emphasis on individualism, and associative ownership came under attack. It was not to re-emerge until the introduction of cooperative production enterprises.

Today's production cooperatives also have more recent forerunners, for their conformation and development reflect the classic structures of cooperativism established by Rochdale in 1844. This system was generalized and imposed indiscriminately throughout the region as a means for promoting mutual-interest enterprises.

However, ample evidence indicated that this system of collective organization was insufficient to deal with the complex problems facing the rural sectors of the region. Thus emerged the peasant farm community enterprise. This generic term covers associative forms of production that stem from agrarian reform processes. It is therefore an associative form that identifies with the process of transforming agrarian structures, in contrast to other cooperative models that may develop under diverse circumstances or that have appeared during earlier stages of the shifting land tenure systems.

1.3-2 THE CONCEPT OF ASSOCIATIVE FORMS OF AGRICULTURAL PRODUCTION

To determine the various components of the "associative form of production," reference must be made to the following general conditions:

The concept of **associative forms** in the rural areas includes all units in which collective activities are put to use in achieving final goals. For this reason, the term covers all types of cooperatives or

community establishments directly or indirectly related to the primary sector of the economy and devoted either to direct production or to providing services for credit, savings, consumption, marketing, etc.

In order to use this general approach, we must differentiate between associative forms "that seek only cooperation, and those that seek integration" (Suárez[9]). The first, according to Fernández and Fernández[3], include producer cooperatives, known as "production and service" enterprises; production groups can be further broken down into collectives and semi-collectives, while service cooperatives are divided into horizontal and vertical groupings.

The same writer[3] observes that a distinguishing trait of the "integration" enterprises is that member farmers, in addition to providing each other with mutual assistance, are willing to see "their own personal operations lose individuality, either totally or partially, in certain agricultural tasks or altogether." Ortiz[6] presents the peasant farm community enterprise as an example of this type of associative form, thereby introducing another important element for defining this pattern of collective production.

The next step is to define a scientific method for producing a specific analysis of directly productive activities. In view of the above considerations, several conditions must be established if we are to restrict the "total universe of the study" (Pinto[8]).

This is why the term associative "**production**" forms of agricultural activity refers to any unit based on the collectivization of all work directly related to using the various factors of production to obtain agricultural products in their primary form.

The productive unit must perform the same range of operations as any other enterprise, including commercial, financial, insurance, accounting, and administrative functions. All these elements, together with technical tasks (production and manufacturing) shape a true, accurate picture of the process of producing the articles and distributing them toward other sectors of the economy. They cannot be overlooked in an analysis of the production unit.

This statement, however, suggests that with the concept of "associative forms of production," we can build our operational analysis around the production unit as the most important basic point of reference.

1.3-3 CHARACTERISTICS OF SOME ASSOCIATIVE FORMS OF AGRICULTURAL PRODUCTION IN THE AMERICAS

According to Murcia and Araujo[5], production cooperatives and peasant farm community enterprises are typical examples of the associative forms of production in Latin America and the Caribbean.

These forms of production have been presented as representative cases of agricultural production units with integrated objectives, as

their basic goal is to promote personal development through a spirit of cooperation. This is why these forms of production seek to incorporate all the positive elements of commercial agriculture with the integral benefits of the family farm.

The following criteria are maintained in determining specifically the essential characteristics of these production units.

1.3-3:1 Cooperative Production Enterprise. These enterprises are made up of groups of people who have united their efforts to provide reciprocal cooperation. They are not conceived on the basis of profit-making or individual benefit, but rather in a spirit of service and well-being for all the members as a whole.

In its traditional form, this type of unit exists in all political and economic systems. Its primary characteristic is its social action. In addition, most types of these cooperatives make generalized use of the so-called "Rochdale" principles developed during a movement launched in 1844 to promote organizations similar to the consumer cooperatives. These principles, known as the "cooperative principles," are: democratic control (as contrasted with a mercantile company in which voting strength is a function of capital invested); limited interest on capital; political, religious, and racial neutrality; free entry; division of surplus in proportion to total share in operations; cash sales; and education.

As was stated, agricultural cooperatives exist throughout the Americas. The members have received enormous benefits and their new privileges (PAU[7]) have included:

- Receiving higher percentages of the sales price of their products.
- Organizing sales markets and improving agricultural production with the use of new methods and tools which would otherwise have been difficult to obtain.
- Increasing their level of schooling by opening new educational facilities.
- Raising their standard of living.

1.3-3:2 Peasant farm Community Enterprises. During the process of creating new agrarian structures, it became clear that production cooperatives had received neither the encouragement nor the support so loudly acclaimed when their services were originally defined. Moreover, they have commonly been forced to function inside the overwhelming straightjacket of the profit-making mentality that governs the traditional enterprise (Araujo[1]).

At this point in the process, the peasant farm community enterprise was born. It is an associative form of production whose roots lie in the agrarian reform programs of the most recent historical period. The community enterprise has other distinguishing characteristics beside its origins, such as common ownership of the factors of

production, personal contributions to the work of the enterprise, distribution of surplus in proportion to the labor provided by members and their families, types of membership (farmers or rural laborers whose resources, while easily available and fully controlled, are insufficient to provide an adequate living), the continual process of moving toward farmer self-management, and finally, as mentioned by Pinto[8], "certain ties to the state through an agrarian reform institution that has direct or indirect participation in the management of the operations."

These peasant farm community enterprises operate on the basis of the active participation of a human group generally isolated by the traditional system and untouched by its benefits. The goal is to expand the original horizons of the agricultural enterprise and seek real improvements in the conditions of life for the rural dwellers by integrating them into the economic production process and encouraging their constructive and effective involvement in the management of the enterprise.

Although the peasant farm community enterprise does have a number of features resembling those of traditional production cooperatives*, in addition to its special distinguishing traits, Araujo[1] provides a more in-depth discussion of the other special characteristics that enable us to obtain a clearer picture of the individual nature of each of these associative forms of production:

- The cooperative may emerge under any circumstances or in any environment, while the community enterprise is specifically identified with the new conditions caused by shifting land tenure patterns.
- A farmer joining a cooperative must necessarily renounce any independence as an owner or renter of a private farm and be willing totally to accept new working methods. Those farmers who join community enterprises through a process of agrarian reform must be willing to change their way of life as well.
- The community enterprise also advocates direct management and full ownership. It contrasts with the cooperative in this sense, for decisions are made and implemented with the participation of the entire campesino membership.
- The community enterprise does away with the idea of mutual self-help, so typical of the cooperative, and instead expands its emphasis to include group operations oriented toward the well-being of the society as a whole.

(*) Reference is made to "traditional production cooperatives" without generalizing the discussion to include other types of enterprises that, although known as "production cooperatives," have characteristics similar to those of the community enterprise.

The special identifying features of the associative forms of production make it clear that any efforts at planning and administration must allow for the fact that these models of production are substantially different from those of the typical individual agricultural enterprise. It must be recalled that, in contrast to the traditional ideas of the latter, with the exclusive goal of improving the efficiency of production and productivity levels and increasing profits, the associative forms of production have clear-cut social and integrated goals that contribute to the complete development of all the members of the enterprise and their families. For this reason, it is necessary to expand efforts at adapting managerial concepts and theories to the particular case of these associative forms. Just such a concern has been the incentive for the preparation of this text.

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CHAPTER 2

ANALYSIS OF ADMINISTRATIVE PROBLEMS IN THE ASSOCIATIVE AGRICULTURAL PRODUCTION ENTERPRISE

". . . defects in the overall performance of the enterprise can all too often be attributed to ignorance or misuse of managerial principles."

Now that we have examined the general characteristics of some of the most representative associative agricultural production enterprises in the Americas, we will take a look at the management area, one of the key elements of the agricultural firm. This chapter can be considered complementary to methodological texts on associative forms of agricultural production and will contribute to an understanding of the need to solve managerial problems on the production unit level.

In order to adapt theories to the reality of agricultural enterprises in the hemisphere, we will take the specific case of the community enterprise, based on several studies conducted in countries of the region, as well as experiments with other similar types of associative production (Murcia[10]). The goal is not only to present the problems that have emerged, but also to recommend solutions to help improve all facets of enterprise operation.

We will begin by outlining several theoretical concepts of rural management, extended to include associative production enterprises; we can then discuss the need to develop new specific managerial tools and place them in the service of decision-makers on the national and regional levels and inside the associative enterprise.

2.1 THE CONCEPT OF FARM MANAGEMENT

2.1-1 DEFINITION AND PURPOSE

According to one widely accepted definition (Murcia[10]), farm management is the science of implementing principles and methods for improving ways of using and combining the production factors present in an agricultural enterprise or region, with the essential goal of raising the standard of living of rural dwellers.

It should be emphasized that, although workers are classified as production factors, they are in fact the one essential element of the process, for they determine resource use and are the basic point of reference toward which the productive process should be oriented. This is the reason for sidestepping the dehumanizing nature of traditional approaches to farm management which view the human element as just another resource, "such as, for example, a tractor" (Brevis and Jolly[2]), in total blindness to all that has been said about the social development of the enterprise.

If any production improvement is to be achieved, activities must be effectively coordinated in the various primary fields – technical, economic, social, managerial, etc. Each of these factors must be ascribed its real value in the development of any working plan.

The purpose of studying the planning and management of agricultural enterprises is to augment the economic progress of a country by finding better ways to use production factors inside the enterprise and to apply them to regional and national needs.

In any overall agrarian policies, agricultural activities must be planned and reorganized, as in agrarian reform programs, and this is also necessary for the development of activities in a number of related fields. Rural underdevelopment is conditioned by a complex set of factors, and the managing and planning of agricultural enterprises is an important element of the joint effort to deal with the situation, making simultaneous use of various agrarian policy tools.

2.1-2 ACTUAL AND GENERAL APPLICATION OF MANAGERIAL PRINCIPLES TO AGRICULTURAL ENTERPRISES

The application of managerial methods to agricultural enterprises in the Americas has been a source of considerable controversy. Franco and Samper[7] maintain that the agricultural economies of many of the countries of this region undergo three distinct stages of development:

2.2-2:1 Traditional or primitive, characterized by low productivity in comparison with the national average.

2.1-2:2 Transitional, with productivity levels near the overall average.

2.1-2:3 Commercial agriculture, with output above average.

However, even in the so-called underdeveloped countries that have cases of commercial agriculture, these farms are strikingly different from the truly organized and technically advanced farms of the developed world.

The classic approach to agricultural management is custom-made for transitional and commercial farming. However, if its principles are to be intensively used for traditional or primitive agriculture, the agrarian situation in each country must be taken into consideration. Clearly, in applying this or any other discipline to the agricultural field, great care must be taken not to widen the gap between the poor sectors and the technically advanced groups; efforts must seek instead to improve structural conditions and effectively incorporate primitive or traditional groups into the development process.

Another theory (Murcia and Araujo[11]) prefers a structural interpretation of underdevelopment in the rural sector of the Americas, for the apparent existence of a social duality in this region is still very much in question.

From any point of view, however, it is clear that the use of managerial principles and techniques in the rural sectors of this region has gone into stagnation. There is an urgent need to incorporate these tools effectively into any efforts to advance integral development.

Another point that should be considered is the concept of management as a tool for the exclusive purpose of improving income or augmenting individual profit. The fact is that this science has many other basic goals whose priorities are closely tied to the overall economic structures of the area under consideration.

In the case of the private or individual enterprise (in which property ownership, managerial responsibilities, and profit from production resources are all in the hands of a single individual), management methods seek to improve the use of available production resources and thus strengthen the operation and guarantee its survival by effecting a steady rise in income.

Organizational methods on the farm are also fully applicable to collective or community economies. In associative organizations such as cooperatives, community enterprises, and communes, characterized by greater or lesser degrees of collective ownership of the production resources, it is important to organize production systems, plan carefully the employment of factors under collective use, and make decisions for the common good. This guarantees the efficient operation of the collective enterprise.

Technical skills should be suited to the general goals of the society in which they are being introduced. While local economic structures will determine the ways and means of wielding new skills, overall principles are more universal.

2.1-3 GENERAL MANAGERIAL PRINCIPLES

It should be emphasized that the operations taking place in the agricultural enterprise are the very same tasks that must be undertaken in any other company. They can be summarized as follows:

2.1-3:1 Technical operations (production, manufacturing).
2.1-3:2 Commercial operations (purchasing, sales, trade).
2.1-3:3 Financial operations (credit acquisition and control).
2.1-3:4 Safety operations (Protecting persons and property).
2.1-3:5 Accounting operations (financial and cash flow control in the company).
2.1-3:6 Administrative operations (planning, organization, integration, implementation, and control).

This general framework gives an idea of the basic tasks facing agricultural enterprises, for each of these operations plays an important role at some phase of the planning or production process. It should be noted that this discussion will concentrate on managerial situations that directly affect the functioning of the enterprise; however, emphasis should also be given to the managerial operations or general principles of business management that determine the progress of the enterprise.

Managerial principles seek to provide any project in a company with an established plan specifying goals to be pursued, resources available, and evaluation and correction systems to be used.

Many writers, including Taylor[15] and Fayol[6], define management as the process of "planning, organizing, integrating, directing, and controlling." The following synthesis of managerial principles applicable to agricultural enterprises adheres to these general guidelines:

- **Planning**: This includes the decision-making process for enterprise activities and, as far as possible, predicts future operations.

- **Organizing**: This involves improving company operations by assigning specific functions to each operating unit and clearly maintaining such principles as proper delegation of authority, definition of actions and responsibilities, establishment of a central unit of authority, the proper organization of mechanisms for evaluation and control, communications, etc.

- **Integrating or coordinating**: This means that all the constituent parts of the agricultural operation must work harmoniously together in pursuit of previously established goals.

- **Directing or executing**: this involves having the authority and technical and practical knowledge to keep the enterprise running smoothly.

- **Evaluating or controlling**: Periodic checks should be made to verify that the results being achieved are in accordance with proposed goals.

A step-by-step analysis of how these principles are being used in rural enterprises can help bring to light any major operational problems that must be solved. Only this will make it possible to lay the groundwork for a progressive integral production process.

2.2 MANAGERIAL ASPECTS OF THE COMMUNITY ENTERPRISE

In the managerial sense, the community enterprise can offer greater advantages and lower costs per beneficiary when it forms part of an agrarian reform program. This is partly because labor is done by organized groups rather than individuals. Araujo[1] draws a direct ratio between reductions in the administrative costs of agrarian reform and the scale on which the program takes place. He also notes a proportional elimination of the immediate causes of rural poverty.

Nevertheless, it would be difficult to overstate the need for enterprise-level administrative activities to function well and be properly implemented. Like other agricultural concerns, the community enterprise must organize its tasks around a set of clear-cut managerial concepts; defects in the economic performance of the enterprise can all too often be attributed to ignorance or misuse of managerial principles. Good intentions and a desire to serve on the part of technical personnel responsible for the enterprise activities are not enough to eliminate these problems; rather, substantial efforts must be made within the production unit.

Below is a discussion of some of the most common administrative problems in this type of associative enterprise.

2.2-1 PLANNING PROBLEMS

An oft-recurring problem in community enterprises is the lack of production planning and the need for technical assistance for defining plans of action. This is one of the most basic steps in reaching the goals of the productive process, and it cannot be successful unless enterprise members receive the technical support they need to make wise decisions.

The author has developed seminars and specific courses in several countries of the Americas for the purpose of studying agricultural cooperatives and community enterprises. In management discussions, seminar participants clearly emphasized the need for all enterprise members to receive intensive training in the area of planning. This could be done either by technical assistance units inside the organization itself, or through on-going training cycles run by the sponsoring national institution.

It is also common in associative enterprises to find deficiencies in long-term planning and a lack of commitment to programs with a technical, economic, and social orientation. Even medium-term plans

for meeting overall goals are frequently missing. Instead, work is conducted on the basis of annual credit plans which make it impossible for the enterprise to carry out development policies, often paint an incomplete picture of the problems, and in many cases give an erroneous idea of physical and economic performance.

2.2-2 ORGANIZATIONAL PROBLEMS

2.2-2:1 Lack of internal organizational regulations. An essential factor for the community enterprise to function properly is to provide the members with a document specifying certain minimum standards they are expected to maintain as participants in the organization.

In the case of a specific community enterprise studied in Colombia, (Orchard[12]), regulations were never mentioned when the community was first starting. However, land recipients quickly recognized the need for such a document, and upon the request of interested members, an instrument was drawn up.

However, the same study concludes that the final document as approved is incomplete, in spite of the fact that its simply-worded provisions establish minimum formal structures and define member obligations and sanctions. The problem is that it "omits a number of situations commonly solved through a type of verbal pact among members: for example, it does not establish who appoints the board of directors, it does not specify the functions of the general assembly and the board, it says nothing about election procedures, quorum, duration of appointments, etc." (Orchard[12]). As a result, although in this particular case the regulations are felt to be fulfilling some of their objectives, as community enterprises achieve higher levels of development, it becomes necessary and appropriate to formulate more comprehensive regulations.

Likewise, it is not enough simply to draw up the regulations without any guarantee that they will be put into practice. This can be solved by working with the members of the enterprise to help them understand the real significance of the various sections of the document, as well as their own roles in goal achievement.

2.2-2:2 Unclear Hierarchical Lines and Absence of Organizational Charts. Associative enterprises often function on the basis of empirical hierarchical distributions that are inadequate for the minimal organizational needs of the enterprise. Similarly, the general membership of the enterprise rarely has access to any type of an organizational chart giving exact descriptions of the lines of authority. This was very clear in a production cooperative studied in Costa Rica (Salinas[13]), in which the major administrative problem

proved to be the lack of a specific organizational chart defining the hierarchical positions of the principal managerial entities. This was translated into a lack of specific plans, inadequate coordination, and poor control, "for every one wanted to be in charge."

2.2-2:3 Disorganized accounting. One of the most common failings in associative enterprises is disorganized accounting, which gives rise to other, more severe, problems in enterprise management and planning.

The Colombian community enterprise discussed above (Orchard[12]) suffered from a noticeable lack of the kind of detailed, complete inventories that would make it possible to calculate periodic depreciation figures for all the assets, and at the same time, maintain a sufficient level of reserves.

Other significant gaps included cashbooks and records for the majority of cash expenditures. This made it very difficult to differentiate between operational costs and investments. Likewise, no records were kept for the control of credit movement or for debt servicing, of either interest or capital, and available figures on balances and cash income-expenditures were sporadic.

Because of these factors, enterprise operations suffered from a serious lack of control, which in turn led managers to designate as "profits" the difference between cash income and expenditures. In the end, this accounting error led the farm "to consume a total of US$ 225 780.00 of its own assets" (Orchard [12]).

Other analyses of community enterprises in Costa Rica (Clemant[3] and Salinas[13]) have found accounting mechanisms that tend to function very poorly. The result is chaotic billing practices, nonexistent expense control, and a lack of even the most basic elements of systematic accounting.

The Peruvian National Training and Research Center for Agrarian Reform (CENCIRA[4]) has also focused on problems of agricultural accounting in community enterprises. Their brochure "Las Empresas Comunitarias Campesinas en la actual Reforma Agraria Peruana" (campesino community enterprises in Peru's current agrarian reform program) places special emphasis on the need to develop central bookkeeping systems. The study indicates that accounting services had been provided according to the so-called "agrarian zones," a system seen in the brochure to reflect the dependency and paternalism of the rural sector; alternatively, bookkeeping has been conducted individually by each enterprise, aggravating the complex problems of growing shortages of qualified personnel for the job.

In another example, Suárez Melo[14] discusses what happened in settlements in Panama which lacked accounting systems, leading to mistaken impressions of financial health and the subsequent distribution of fictitious profits. For this reason the design of organized internal accounting systems is a high-priority need.

Studies of a number of agricultural cooperatives in Guatemala showed that managers and members of technical assistance teams attached very high priority to organized accounting systems for the operation of the cooperatives. Special emphasis was placed on the need to overcome these accounting deficiencies (the lack of basic books and records, the need for up-to-date, ongoing record-keeping, the lack of appropriate training). The problems could be approached through auditing and control systems and the organization of regular agricultural accounting training courses to help members understand the importance of bookkeeping methods and the need to use them.

2.2-3 COORDINATION AND LEADERSHIP PROBLEMS

Combining and directing all the constituent parts of the agricultural enterprise is a task requiring special attention if established goals are to be reached by group action.

The community enterprise demands an even greater effort due to the many diverse elements that make up the whole. High levels of motivation are needed if group unity is to be maintained, and strong leadership is essential to make activities run effectively.

It is very important to involve members actively in managerial tasks. This factor received particular emphasis in a recent study on campesino organizations in Honduras (García[8]). Attention is given to the need for member participation in decision-making and in the management, distribution, implementation, and control of tasks. This type of participation is viewed as an essential aspect of the nature of a community enterprise.

It is also important for the membership to participate in the general assembly meetings or the joint sessions. Participation can be encouraged by using some of the techniques developed through group dynamics, such as encouraging constant member input.

Particular problems attend the task of appointing or electing the board of directors for enterprises made up largely of illiterate community members who are unfamiliar with the individuals available to fill the positions. In these cases, systems must be developed whereby all members can participate knowledgeably. This can be done with the use of figures, drawings, symbols, colors, or distinguishing marks to identify all the candidates. This was tried for a number of settlements, agricultural boards, and peasant organizations in Panama from 1968 to 1975. At that time an original voting system was adopted for filling these managerial positions under conditions of severe illiteracy. The candidates were lined up before the community members and identified with small figures pinned to their clothes. Each figure, examples of which are shown in Appendix 1, represented an object generally familiar to the campesinos, such as a hat, a farm building, an ear of corn, a table, a bowl,

etc. This symbol was associated with the name of each candidate. In a separate room, a large supply of sheets printed with copies of the figures was available so each member could fill out a secret ballot by marking his or her preference according to the person represented by the figure. In this way, the voting was completed, ballots tallied and the election decided along standard lines.

This evaluation system has gradually been replaced in the country with the progress of literacy campaigns, and by 1975, it had fallen out of use. Nevertheless, it provides a good example of one way to promote peasant participation in the leadership process.

These and other criteria often go unnoticed, which is why there are so many leadership problems in associative enterprises.

The various analyses that have been made of community enterprises illustrate many positive and negative examples of coordination and leadership. However, it is important from the very beginning to promote high levels of cohesion and coordination among members, thus averting potential conflicts of power and control. This can be done by demonstrating the comparative advantages of the group effort and helping members immerse themselves in the community spirit.

It is not an easy job in some of the areas of the region due to the particular customs of the peasant farmers and their adhesion to traditional production systems based on individual endeavor. Nevertheless, it is the very foundation of the successful future of the enterprise and, in the long run, of the agrarian structures we are seeking to create.

The ongoing participation of the individual in the process of decisions that will change and organize the production system is the key to guaranteeing that innovations will be accepted and consolidated on a lasting basis.

2.2-4 EVALUATION AND CONTROL PROBLEMS

The organizational problems discussed above suggest that if the enterprise does not have access to the basic materials necessary for reaching a real understanding of its own operations, the evaluation and control process comes to a standstill. This in turn hinders any future efforts at economic, technical, and social planning.

For this reason, the first step must be to organize properly the various elements that make up the enterprise, thus facilitating other activities. This fact bears out the need to work extensively and integrally on the administrative housecleaning of the enterprise.

2.3 CONCRETE ACTIONS TO HANDLE ADMINISTRATIVE PROBLEMS ON THE ENTERPRISE LEVEL

The general characteristics of these managerial problems reveal the need for broad-scale action, if they are to be solved.

It is important for these actions to be permanent or ongoing if broad-scale results are to be achieved and to function effectively on all decision-making levels. Any effort in the benefit of all relevant sectors, whether poor and backward or wealthy and modern, must go hand in hand with efforts to adapt concepts and methods to the actual conditions on the target level, especially in the case of more backward groups, if progress is to come about. In addition, all improvement plans, once designed, must be put into actual practice.

The following fields of action are possible first steps for achieving these goals:

2.3-1 DIAGNOSIS OF EXISTING MANAGERIAL PROBLEMS

Scientific method dictates that the first step toward developing an analysis for the managerial improvement of any enterprise is to gain familiarity with all the details of the relevant problems.

The information should be acquired through interviews and other essential methods that will produce the highest possible quantity of data on the administrative variables.

Below is a list of basic, essential topics that should be included in any research plans in this area:*

2.3-1:1 Planning

- Are past agricultural production plans available?

  If yes, what kind?

  If no, why not?

- On what basis was the current production plan developed?
  - Technical elements (yield per hectare, etc.).
  - Economic elements (profits, reinvestment, other).
  - Social elements (education, diet, social services, etc.).
  - Other elements (influence of sectoral institutions, credit availability, etc.).
- Which of the following groups participated in developing the current plan? To what extent?

(*) These points were the basis for the development of forms used in research projects covering associative production enterprises, conducted by students of the School of Agronomy of the University of Costa Rica in 1975, 1976, and 1977.

. The agrarian reform agency;

. The administrative council;

. Community members.

– Evaluate any technical assistance received by the enterprise in developing production plans (good, fair, poor, none).

– Have efforts been made to train enterprise members in various aspects of planning and scheduling?

. If yes, describe.

. If no, indicate major obstacles hindering this type of effort.

– Have future production plans been drawn up?

. If yes, what type (short-term, long-term, other)?

. If no, why not?

– Any additional observations on planning.

2.3-1:2 Organization

– Are regulations or manuals available to clarify the responsibilities and functions of enterprise members?

. If yes, describe.

. If no, why not?

– Is there an organizational chart describing the internal structure of the enterprise?

. If yes, describe (technical opinion).

. If no, why not?

– Determine whether or not functions have been clearly defined for: the administrative council; the manager(s); the general assembly; the committees; the members.

– Determine whether or not distribution of work in the enterprise has been systematized.

– Is some type of accounting system being used in the enterprise?

  . If yes, 1) Explain the current accounting system (specify elements); 2) Identify who is responsible for maintaining it: the agrarian reform agency, enterprise members (specify); 3) indicate whether or not technical assistance has been received in accounting methods; 4) give a general opinion of current accounting practices.

  . If no, determine why not.

– Has authority for decision-making been delegated and communicated throughout the enterprise?

  . If yes, describe.

  . If no, why not?

– Additional observations on organization.

2.3-1:3 Coordination and leadership

– Identify any mechanisms (job calendars, etc.) for coordinating enterprise activities.

– Determine whether or not activities (agricultural, livestock, etc.) are oriented toward a common goal, with a view to inter-task integration.

– Do all enterprise members participate in making basic decisions on enterprise operations?

  . If yes, estimate the level of participation (in approximate percentages) of: 1) the administrative council; 2) the manager; 3) the general assembly; 4) members.

  . If no, explain.

– Ascertain general opinions on what qualities (in approximate percentages) the following persons must possess:

  . Members of the administrative council (technical abilities, administrative abilities, other).

  . Manager(s) (technical abilities, administrative abilities, other).

Committee members (clarify type of committee) (technical abilities, administrative abilities, other).

– Evaluate the current level of leadership in the enterprise (good, fair, poor, observations).

– Do individuals or entities from outside the enterprise participate in management?

. If yes, find out how members feel about this participation.

. If no, discuss whether or not it might be necessary.

– Have efforts been made to train all members to assume leadership responsibilities? If so, describe.

– Additional observations on coordination and leadership.

2.3-1:4 Evaluation and Control

– Is work generally completed as planned?

– Are plans reviewed to determine whether or not output is consistent with plans?

. If yes, indicate:

.. In what areas: yields, profits, social benefits, other.

.. Who does the reviewing: enterprise members, the administrative council, the agrarian reform agency, other.

.. Frequency: monthly, biannually, annually, other.

. If no, why not?

– Is technical assistance available in evaluation or control?

. If yes, what institutions or individuals are providing it, and in which areas?

. If no, why not? Is there a need for such assistance?

2.3-2 ADAPTING GENERAL CONCEPTS OF MANAGERIAL SCIENCE TO THE SPECIAL CASE OF ASSOCIATIVE ENTERPRISES

Adaptations cannot be made without an understanding of the particular conditions of this type of agricultural production unit and the potential contribution management can make to agricultural enterprises. It is especially important for the management to know how to evaluate all existing economic relationships in program diagnosis and planning.

In this chapter, we have seen how to develop methods geared especially to managerial studies of the associative enterprise. Below are summaries of some of the factors that should be taken into account when general managerial principles are adapted to the special case of associative production enterprises. In view of the relative importance of some of these principles, special emphasis will be placed on an analysis of the process of adapting planning and organizational techniques.

2.3-2:1 Planning: The major adaptation needed for planning in rural management must be to design a method for individual analysis, especially in the area of enterprise-level planning techniques.

Although traditional methods of applying economic evaluation to production alternatives play an essential role in these analyses, it is advisable for criteria of social evaluation and human participation to be expanded.

In rural management, as in other agricultural sciences, the process of adapting theories should allow for the specific conditions of the geographical area in which they will be applied. For example, in view of the nature of the rural sector in less developed countries where labor concentration outweighs capital availability, special care must be taken with activities that indiscriminately incorporate technology to displace human efforts.

Another decision is to determine the optimal size of the enterprise. In this case, particular note should be made of social, economic, and physical relationships. Current levels of family income should be identified, as well as conditions for improving and optimizing each individual case.

These and many other considerations corroborate the need to avoid the indiscriminate use of analytical techniques and methods in decision-making processes in the enterprise, as well as the need to continue developing methods applicable to all these particular situations.

2.3-2:2 Organization. Below are some of the areas needing immediate attention for organizing associative enterprises:

– Defining organizational systems and developing handbooks or guidelines for the enterprise.

In view of the complexity and diversity of the social and agricultural issues affecting associative enterprises, it is essential that entities in charge of operations define the organizational and managerial systems most appropriate for each enterprise, following a common general framework.

Thus, a common front could be made for handling problems of planning, organization, integration, and leadership. It would be necessary to design specific organizational tools such as work calendars or time schedules to clarify special labor needs that should be considered in the enterprise planning process and to compare them with the available days of work in such a way as to make maximum use of this important resource. Another necessary organizational element is a detailed organizational chart to make all enterprise members aware of their position in the hierarchical lines of the organization.

Figure 2 gives an example of a simple organizational chart designed on the basis of observations made by the author during a research project (Salinas[13]).

Another publication (ITCO[9]) gives a hypothetical picture of the evolution of an organic structure in a self-managed peasant farm community enterprise. It concludes with a model structure proposed for enterprises more complex than that illustrated in Figure 3.

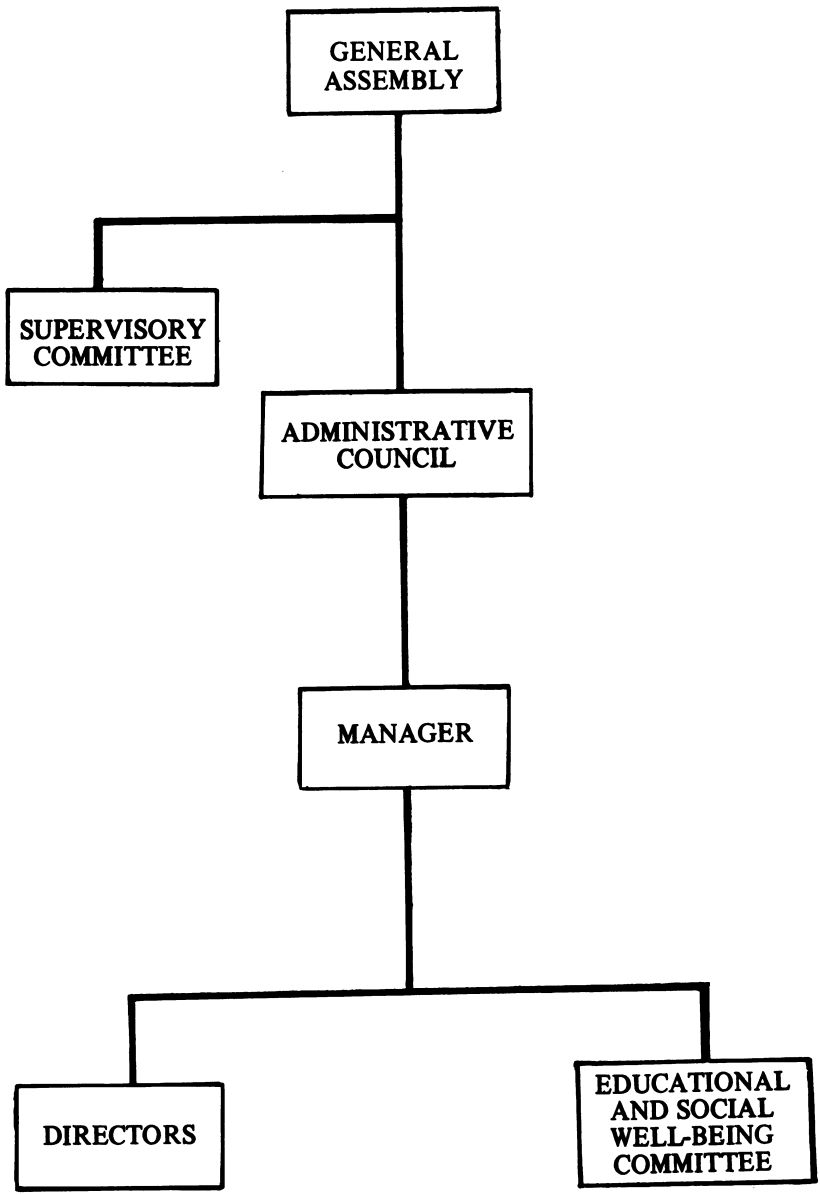

Figure 2. Organizational Chart for an Agricultural Production Cooperative, Costa Rica, 1976 (taken from Salinas[13]).

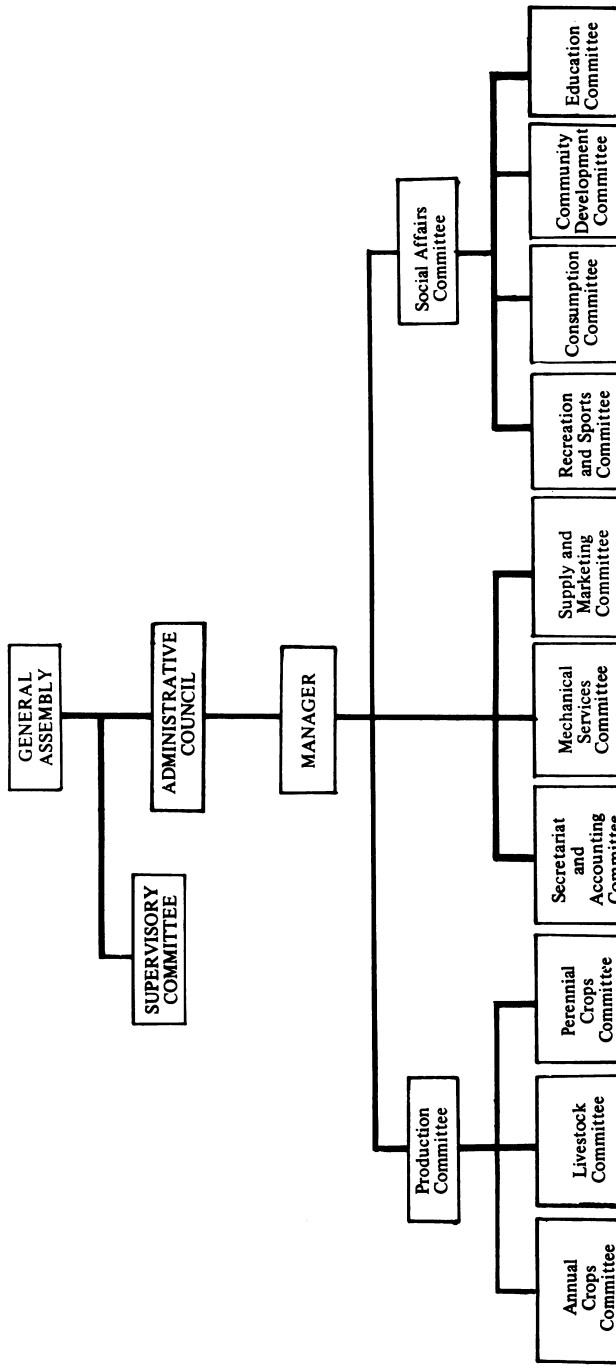

Figure 3. Model structure suggested for more complex associative enterprises (taken from ITCO[9]).

The development of handbooks or guidelines for organizing the enterprise fulfills similar objectives on the production unit level. This task is in the hands of agrarian reform agencies in some countries, but this need not be the universal pattern, in view of the particular conditions of each region. These handbooks should describe the primary mechanisms for integral enterprise planning, giving models for production records, agricultural accounting, data to be collected, and other information needed in the social, agricultural, and economic analysis of farm operations.

Each type of associative enterprise must have its own system of statutes and regulations, based on a common general framework. Examples are included in the appendix at the end of the book. These models or proposals have served as the basis for the development of regulations and statutes for associative production enterprises in several countries.

Every country that practices similar production methods has specific documents covering this aspect of the organization of peasant farm associative enterprises. For concrete examples, see the papers on how to establish and implement self-managed peasant farm associative enterprises, printed in Costa Rica and Peru (ITCO[9] and the Workshop Course on Organizing Campesino Community Enterprises[4]), in which a number of organizational models used in these enterprises are discussed.

2.3-3 INTENSIFYING EFFORTS TO PROVIDE RURAL MANAGEMENT AT ALL LEVELS

– Organizing accounting procedures and methods in the enterprise. This is another important element of organization and control and includes the use of acccounting principles and techniques in the associative enterprise. It will be further discussed in Chapter 4, in view of its importance to the overall diagnosis of the enterprise.

This is another extremely important task for the participants in associative enterprise projects created by agrarian reform programs.

Training programs should follow basic guidelines for preparing the different groups of members and giving them a clear, well-defined picture of the concepts at hand. Participants should develop the ability to take total control of the tasks of enterprise leadership and organization.

Enterprise members must be motivated to seek the advantages of collective labor and to organize basic data for enterprise activities and operation. This can be done with a number of different tools,

such as agricultural accounting, to improve enterprise organization and provide timely, accurate information on current status.

In Chapter 10 we will take a more in-depth look at training processes. At that time, we will emphasize the urgent need for the associative enterprise to provide such training and will demonstrate possible ways of using this as a road toward farmer self-management.

Studies of efforts to deal with the managerial problems of associative enterprises confirm the need to make enormous efforts in the area of agricultural enterprise management. Research, analysis, and a detailed, large-scale study of these concepts can provide the ingredients necessary for completing an overall analysis of the agricultural enterprise.

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PART TWO

DIAGNOSIS FOR PLANNING THE ASSOCIATIVE PRODUCTION ENTERPRISE

INTRODUCTION

PART TWO

DIAGNOSIS FOR PLANNING THE ASSOCIATIVE PRODUCTION ENTERPRISE

INTRODUCTION

The integral planning of the associative agricultural production enterprise must be founded on an initial diagnosis.

The diagnosis is a critical analysis of the current situation. It is a process of tracing the real difference between what the economists would call a positive condition (that which is) and a normative condition (that which should be).

According to Alibert et. al,* several steps are essential in the diagnosis of the agricultural enterprise:

Step One. Determine the land surface area, yields, production, employment, and income obtained with the current production structure. This information is then compared with resource quality in terms of regional averages or averages for similar enterprises.

The writer has also used this initial approach as a guideline for various research projects on associative production enterprises. Results have been successfully used for analysis of enterprise efficiency.

Step Two. Determine the available level of resources, problems of resource use, and relevant problems affecting current practices.

Step Three. Determine resource requirements for current activities and critical periods for resource use. Identify unused resources.

Step Four. Identify potential resources and limitations on their use.

Step Five. Determine the technical, administrative, and financial capacity for the introduction of new investment projects in the enterprise.

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* ALIBERT, P. et al. Guía para la identificación de proyectos de inversión en las Empresas Campesinas Asociativas. Lima, Peru. IICA, Andean Zone. Miscellaneous Publication No. 138, 1976. 44 p.

In this book, these steps have been considered and are supplemented by additional factors needed for the complete diagnosis of the associative enterprise. Emphasis is placed on the idea that the diagnosis of any agricultural enterprise must consist of the following stages:

- Forming an overall picture by gathering the data needed for defining the enterprise and understanding its most relevant characteristic.

- Making an inventory of human, physical, economic, financial, administrative, and other resources on the enterprise level, in order to obtain a qualitative and quantitative understanding of the resource potential available for the productive process.

- Identifying the role of external conditions in past and future enterprise development. The participation and services of the government and public institutions must be examined, as well as their impact on the positive or negative development of the enterprise.

The following section will discuss all these issues in order to establish a basis for analysis that can serve as the backbone of the planning effort.

CHAPTER 3

CHARACTERIZING THE AGRICULTURAL ENTERPRISE

". . . an in-depth understanding of all the characteristics of the subject is an indispensable element for a correct diagnosis."

In the early stages of the planning process for an agricultural enterprise, it is necessary to obtain as much information on the operation as possible. It can thus be definitively characterized and its overall status can be immediately pinpointed.

As in any task whose goal is to improve the status quo, an initial in-depth understanding of all the characteristics of the subject is an indispensable element for a correct diagnosis.

Although much of this information is easy to gather for agricultural enterprises, it is important to be certain that minimum data is indeed available. This is particularly true for regional agrarian reform projects or other broad-scale programs, or simply to provide a basis for future comparative analyses of different enterprises.

3.1 MINIMUM DATA FOR CHARACTERIZATION

Although opinions vary on the minimum of information that should be available on the enterprise, certain basic models can help provide data on technical, economic, social, administrative, and other aspects and give the professional a reliable, accurate, and cohesive basis on which to operate.

In the case of associative enterprises, the initial responsibility for obtaining information rests on officials of the national agencies providing technical assistance to the enterprises, with help from the farmers, who stand to be most affected. As information is acquired, copies should be submitted to the enterprise to help farmers with future decisions.

The general areas to be included are:

3.1:1 Location. Data helpful in giving an idea of the location of the enterprise in the region.

3.1:2 Basic organization. Information on participants directly responsible for enterprise operations, and company legal status (individual or corporate ownership). In the case of an individual enterprise, this would mean the owner, administrator, and supervisors.

3.1:3 Size, Current land use, and potential land use. These factors make it possible to determine whether or not land resources are being over- or underused in the enterprise. The information, expressed in term of units of land surface area, can be verified by comparing maps of current and potential use, in as much detail as possible.

3.1:4 Person/land ratio. It is necessary to determine whether or not the ratio between the number of units of productive land surface and the number of families living or depending directly on the enterprise is suitable. This provides a yardstick of physical and economic efficiency and indicates the extent to which the goals of agrarian reform legislation are being met.

3.1:5 Additional technical information. This could include data on climate, soil, topography, erosion and vegetation, useful for determining possible production alternatives and the needs for assistance in soil analysis and other technical areas, so necessary in many countries.

3.1:6 Other socio-economic factors. This involves obtaining basic, general information on product marketing, land tenure systems, and current family socio-economic conditions, in order to reveal possible lines of action in each of these fields.

Information on land tenure is particularly noteworthy for individual farms that practice renting, tenant farming, or other systems. In the case of settlements or peasant farm community enterprises, this section could be omitted, as the tenure problem should have been duly covered during the early stages of the organized planning process.

3.1:7 Administrative functions. A good reference tool for evaluating the administrative functions of the enterprise could be the basic list presented in Chapter 2, Section 2.3-1.

3.2 MODEL FOR CHARACTERIZING THE AGRICULTURAL ENTERPRISE

Form 1 gives a model for characterizing an agricultural enterprise. It was originally designed for use in settlements or campesino associative enterprises in Honduras (Murcia[1]), but because of its general orientation, it can serve as a reference guide for any type of agricultural enterprise.

FORM 1. Model for characterizing the agricultural enterprise.

1:1 Location

Name of enterprise _____

Department or State _____

Municipality or County _____

Town _____ Village _____

Distance from highway and nearest town _____

1:2 Organization

President _____ Supervisor _____

Legal Status _____

1:3 Current size and land use units of land surface area

Crops _____

Livestock _____

Forests _____

Fields _____

Other uses _____

Nonproductive _____

Total _____

Form 1, Cont.

1:4 Potential land use for agricultural activities (units of land surface area)

Crops _____

Livestock _____

Forests _____

Fields _____

Other _____

Non-productive _____

Total _____

1:5 Map of current enterprise land use

1:6 Map of potential enterprise land use

1:7 Person-Land Ratio

Number of families on the enterprise _____

Units of productive land surface per family _____

_____

Person-Land ratio _____

1:8 Additional technical information

1:8:1 Climate:

Characteristics _____

Are climatic statistics available for the region?

Yes _____ No _____

If yes, where can they be obtained? _____

Form 1, Cont.

1:8:2 Soil:

Have soil analyses or studies been conducted on the enterprise?

Yes _____ No _____

(If yes, please attach copy.)

Soil type, texture, structure, other characteristics _____

_____

(Include the various soil types on the potential land use map or the enterprise.)

1:8:3 Topography:

1:8:4 Erosion:

1:8:5 Natural vegetation of the region:

1:9 Other socioeconomic aspects

1:9:1 Product marketing:

Product	Where sold	Buyer	How sold	
			Cash	Credit

1:9:2 Type of land tenure

_____

_____

Form 1, Cont.

1.10 Current family socioeconomic status

Date: _____

No.	Name of Member	AGE			Units of work per day	Knows how to read and write M S C*	How long in the enterprise	Previous activity	HOUSING					Medical care
		Member	Spouse	CHILDREN 1-15 / >15					Own House	Number of rooms	Toilets	Water Taps	Location	
TOTAL														
AVERAGE														
PERCENT														

(*) M: Member, S: Spouse, C: Children

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CHAPTER 4

THE ROLE OF FARM ACCOUNTING IN THE AGRICULTURAL ENTERPRISE

". . . if no accounting is practiced, planning efforts fall short of their goals and at best can only approximate reality."

The output of any farm or agricultural enterprise must be expressed in economic terms to convey a clear idea of whether the type of work being done is the most appropriate, or whether it would be advisable to modify current crop or livestock plans.

One of the major difficulties experienced by farms in this region is the lack of a simple, functional accounting system to guide planning projects for integral development on the regional and national levels. This shortage of information and basic data is one of the most severe obstacles to the adoption of advanced planning methods, for it is impossible to obtain a clear idea of the actual economic status of the crops and livestock activities.

Farmers must be motivated to use basic accounting tools, doing away with one of the most fundamental elements of their poverty and economic isolation. At the same time, they would be able to begin integrating themselves effectively into development plans for the national agricultural sector.

Efforts to achieve this goal are a basic factor in the process of integral human development, which is, in turn, the cornerstone for the ongoing progress of agricultural production in the Americas.

4.1 PURPOSES AND VALUE OF FARM ACCOUNTING

It is very common for agricultural enterprises or businesses to find their earnings far below projected levels due to the failure to keep proper records of many of the expense or income factors involved.

The basic purpose of farm accounting is to **describe numerically** the operations of a farm during a given length of time known as the fiscal period. This quantitative description enables the farmer to

determine whether or not to eliminate those crops or livestock activities that are bringing in losses, replace them with other, more profitable endeavors, or intensify production of the high-profit items.

Farm accounting gives the farmer **absolute control** over the farm. Although farmers need not develop an in-depth understanding of all the terms and bookkeeping methods used in commercial accounting, proper records of the most important activities do facilitate the task of obtaining ready access to total profit or loss figures.

Proper accounting also makes it possible to analyze the **operation** of the farm over time, plan **improvements** in organization, and provide access to an **effective source of information** for planning investment efforts or credit requests.

It should be clarified that farm accounting differs from commercial accounting in that it deals with live elements, while the latter works with inanimate objects. For this reason special analytical methods must be adopted for farm accounting.

Similarly, a general look at decision-making procedures on the farm confirms the indispensable role of farm accounting. It is a basic element for identifying problems, observing situations and collecting data. If no accounting system is practiced, planning efforts fall short of their goals and at best can only approximate reality.

In short, farm accounting plays a fundamental role and provides the groundwork for other sciences, such as rural management, agricultural appraising and statistics, and many other disciplines that go into agricultural economics.

4.2 THE BASIC ACCOUNTING EQUATION

Assets generally include all the goods available to the enterprise for use in its operations, or all those elements that make up the enterprise and can at any given moment be converted into cash income. This group includes land, buildings, supplies on hand, work animals, fattening stock, breed stock, farm machinery and equipment, accounts receivable, etc.

The owner's rights or interest in enterprise assets are owner **capital** or **equity**.

When the owner holds all rights to assets on the farm, the basic accounting equation is:

$$\text{Assets} = \text{Capital}.$$

For example, if Joe Williams makes a cash purchase of a farm worth $ 200 000, his financial situation would be:

$$\text{Assets } \$\ 200\,000 = \text{Capital } \$\ 200\,000.$$

Farm operations may require other inputs besides capital. There are two ways of obtaining the items needed:

- Acquiring money through a personal loan and using it to obtain the items needed.

- Purchasing the items on credit; in other words, acquiring possession now with a commitment to pay at a later date.

The persons or entities making funds available to the owner through loans or credit are the **creditors.**

The creditors' claims to enterprise **assets** are the farm debts, known as farm **liabilities.**

If in the above example, Mr. Williams takes out a bank loan of $ 50 000 to invest in farm operations, the bank becomes his creditor.

Two different types of claims on assets can exist: owner rights and creditor rights. The sum of these rights is therefore equal to the total value of assets, or:

Assets = Liabilities + Capital.

This is known as in the **basic accounting equation.**

In the above example, Joe Williams' new situation, after the loan had been obtained, would be:

Assets		Liabilities		Capital
$ 250 000	=	$ 50 000	+	$ 200 000

If assets are equal to liabilities, the enterprise has no capital. If assets are less than liabilities, the enterprise is in perilous straits, unable to meet its obligations.

The ratio between assets, liabilities, and capital is the most fundamental element of accounting and serves as the cornerstone for the balance statement of the agricultural enterprise. If it is to be expressed correctly, the following equations must hold true:

Assets	= Liabilities + Capital	(1)
Liabilities	= Assets – Capital	(2)
Capital	= Assets – Liabilities	(3)

4.3 BASIC ELEMENTS OF FARM ACCOUNTING

Farm accounting, like commercial accounting, must include a number of basic elements if it is to be complete. A large, complex farm may have the resources to support a complete accounting office, but a small, understaffed enterprise would do well to maintain simple, functional books, kept by the farmers themselves.

Although there is no need for farmers to be fully familiar with all accounting terms and bookkeeping methods, they should at least understand certain essential concepts.

Below are some of the basic elements of farm accounting that can help any agricultural enterprise to analyze its economic and financial status and improve operations.

4.3-1 INVENTORY AND APPRAISAL

This is a detailed account of the goods, or items of value, that comprise the farm and go into production.

Form 2 is a sample model for the inventory of any agricultural enterprise.*

The current value of each item must be included, determined with the use of proper appraisal methods.

Below are the minimum factors that should be included in an inventory, as well as several suggestions for appraisal:

4.3-1:1 Land and improvements. This information is broken down according to the number of acres or hectares used on the farm for the following purposes: annual or temporary crops, perennial crops, cultivated grasses (managed and unmanaged), uncultivated fields (with or without pasturelands), other areas (roads, buildings, etc.).

The appraisal of lands and crops or other activities is made on the basis of the following criteria:

- Lands and improvements are appraised by: purchase price, commercial market price (current quotation on the market), or financial value (according to expected crop yields or livestock sales in each lot).

  The most commonly used criterion is the commercial or market value.

- Crops in the field. The appraisal can be made in one of two ways: if the crops are in the early stage of the productive cycle, they should be assigned a real value as close as possible to crop production costs incurred so far; if they are completing their productive cycle, real value should approximate the expected market price for the crop after harvest (in this case, a certain percentage can be allowed for unforseeables, in view of potential yield reductions or possible loss).

  In the case of perennial crops (forests, fruit orchards, etc.), the value can be determined as above, although an additional factor should be the original price minus estimated depreciation, bearing in mind the length of the useful life, which can be roughly estimated.

(*) The author has used this kind of inventory in various types of farms or agricultural enterprises in Latin America. It is applicable to either individual or family production systems, and to various types of associative enterprises.

4.3-1:2 Buildings, constructions, and permanent structures. This section gives details of all permanent structures such as houses, stables, barns, silos, fences, laying sheds, etc. Appraisal is based on cost minus depreciation.

Depreciation is a reduction in the value of an item. It can be caused by three major factors: physical deterioration through normal use, obsolescence due to recent innovations, and deterioration over time. The most common method of estimating depreciation is the linear, or straight-line method, in which annual depreciation is obtained as follows:

$$\text{Depreciation per year} = \frac{\text{Original value} - \text{Residual value}}{\text{Years of useful life}}$$

More detailed examples of the concept and methods of calculating depreciation can be found at the end of this section on inventories.

4.3-1:3 Machinery and equipment. This part of the inventory gives further details on farm machinery and equipment. It includes such items as tractors, vehicles, tools, motor pumps, milking machines, poultry equipment, etc.

The concepts of depreciation discussed above are important for estimating the value of these factors.

4.3-1:4 Animals. This category includes two different types of stock with specific economic and accounting characteristics:

- Income stock (breeders and producers of such products as milk, eggs, etc.), which is subject to depreciation, and whose products are inventoried separately from the animal itself. Appraisal is based on two factors – depreciation and market value.

- Fattening or growing stock, which is not subject to depreciation and whose products are a part of the animal itself. Several of the above appraisal methods are used, although the most common system is commercial or market value.

Section 2:4 of Form 2 gives the system used for farm animals.

4.3-1:5 Materials (products, byproducts, and supplies). This section includes all materials or products in the warehouse. It should be noted that the warehouse contains materials acquired at different times. A number of factors are used for the appraisal:

- Invoice prices (prices are quoted according to purchase invoices).

- Average price (the average of the various prices is used).
- Market value.
- FIFO (First In First Out). On the assumption that the first items to enter the warehouse have now been sold, the most recent price is used for appraising in-house stocks.
- There is one other method, LIFO (Last In First Out) that is used only rarely.

Section 2:5 of Form 2 gives a breakdown of the worth of all materials.

4.3-1:6 Accounts payable. This is a detailed listing of all debts, either to individuals or to entities. The breakdown appears in Section 2:6 of Form 2.

4.3-1:7 Cash-On-Hand and Accounts Receivable. An appraisal of cash and other monies on hand involves no additional effort, as it is enough simply to count the money in the cashbox and request account statements from banks. The appraisal of accounts receivable involves preparing a list of farm debtors with outstanding accounts, eliminating any which are insolvent and must be judged "uncollectable." These accounts are shown in detail in Section 2:7 of Form 2.

4.3-1:8 Inventory summary. Although the most accurate summary of the inventory is the general balance sheet, section 2:8 of of Form 2 gives a simple summary form for all goods calculated in inventory. This summary is useful for comparing increases or reductions experienced during the course of the year by checking opening and year-end figures.

4.3-1:9 The concept of depreciation (Murcia[5]). Depreciation is a cost that must be figured into any agricultural endeavor. It is related to the use of durable goods, and it reflects their steady loss of value.

Depreciation is a result of either the gradual deterioration of the item (machinery, equipment, buildings, etc.), or the principle of obsolescence. The item becomes increasingly out-dated every year due to the appearance of more modern equipment on the market.

Because most of these factors are not worn out in a single year, the depreciation value is distributed throughout the useful life of the item.

A number of basic concepts must be included in depreciation estimates:

– **Initial or purchase value.** This is the original price or value of the item.

– **Useful life.** This is the time (number of years, months, or hours) the depreciating item is expected to last. It is difficult to estimate in practice, particularly because it cannot be applied generally to all items, each of which is used differently. However, an approximate value can be established for each item.

– **Final or salvage value.** This is remaining value of the machinery or item at the end of its useful life.

– **Rate of Depreciation.** A percentage value is commonly used to estimate the yearly devaluation of the item. For example, 10 percent or 20 percent per year may be assigned, and the value of the machinery or equipment under consideration is reduced by that amount.

Methods of calculating depreciation:

.. **Direct or Linear Method:** This method assumes a standard, fixed level of yearly depreciation for every year of useful life. It is calculated with the following ratio:

$$\text{Yearly depreciation:} = \frac{\text{Initial value} - \text{Final value}}{\text{Years of Useful Life}}$$

The system can be illustrated with an example: a new tractor worth $ 80 000 is calculated to have a ten-year useful life, according to the treatment it will be receiving; in addition, a final value is estimated at 10 percent of the initial value ($ 8 000).

$$\text{Applying the formula per year:} \frac{80\,000 - 8\,000}{10} = \$\ 7\,200$$

This, then, is the value that should be subtracted annually so that, at the end of the useful life of the tractor, the economic means to replace it will be available. Nevertheless, other considerations come into play when these theoretical values are calculated for real items.

FORM 2. Model of a general inventory for an agricultural enterprise.

Farm or enterprise: _____ Date: _____

2:1 LAND AND IMPROVEMENTS

2:1:1 Use and value of owned land. Beginning and end of period

Unit: _____ Hectares or acres

Crops or Activities	BEGINNING OF PERIOD No. of Units	Value per unit	Total Value	END OF PERIOD No. of Units	Value per unit	Total Value
ANNUAL CROPS						
1.						
2.						
3.						
PERENNIAL CROPS						
1.						
2.						
3.						
CULTIVATED GRASSES						
1. Managed						
2. Unmanaged						
NATURAL GRASSES						
1. Managed						
2. Unmanaged						
UNCULTIVATED FIELDS, ETC.						
1. With pastureland						
2. Without pastureland						
OTHER AREAS OR CROPS						
1.						
2.						
TOTAL FARM AREA						

Form 2, Cont.

2:1:2 Use and value of unowned land.* Beginning and end of period. Unit: _____ Hectares or acres

Crops or Activities	BEGINNING OF PERIOD No. of Units	Value per unit	Total Value	END OF PERIOD No. of Units	Value per unit	Total Value
ANNUAL CROPS						
1.						
2.						
3.						
PERENNIAL CROPS						
1.						
2.						
3.						
CULTIVATED GRASSES						
1. Managed						
2. Unmanaged						
NATURAL GRASSES						
1. Managed						
2. Unmanaged						
UNCULTIVATED FIELDS, FORESTS, etc.						
1. With pastureland						
2. Without pastureland						
OTHER AREAS						
TOTAL FARM AREA						
OBSERVATIONS						

(*) Specify annual rental costs; these are fixed assets, but because they do not belong to the farm itself, they do not figure in the inventory. Their only costs are rent payments, which appeared above in the expense summary. In the case of a peasant farm community settlement or enterprise, this section may be unnecessary.

Form 2, Cont.

2:1:3 Area planted prior to inventory and still in production.

Crops	Total area planted		Unharvested area	
	Hectares	Value	Hectares	Value

2:1:4 Distribution and use of pasturelands for grazing and harvest.

Grazing areas, Type of grasses	Area in hectares	Animals grazing	Days per month	Hours per day
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				

Form 2, Cont.

2:2 INVENTORY OF PERMANENT STRUCTURES

	Description	Original value	Useful life	Years of use	Yearly depreciation	Initial value	Final value	Appraisal
1. Stables								
2. Barns								
3. Warehouses								
4. Silos								
5. Fences								
6. Farmer housing								
7. Poultry sheds								
8. Irrigation projects								
9. Other								

OBSERVATIONS: _____

2:3 INVENTORY OF MACHINERY AND EQUIPMENT

	Description	Original value	Useful life	Years of use	Residual value	Depreciation	Value of Principal	Final Value	Appraisal
1. Large tractor									
2. Small tractor									
3. Mowers									
4. Truck trailers									

Form 2, cont.

2:3, cont. Inventory of Machinery and Equipment

5. Wheel-barrows	
6. Refriger-ator trucks	
7. Jeeps	
8. Trucks	
9. Equip-ment	
10.	
11.	
12. Other	
TOTAL	

OBSERVATIONS: _____

2.4 INVENTORY OF ANIMALS

		Beginning of year		End of year	
	All animals	Number	Value	Number	Value
2:4:1	Milk cattle				
	Milking cows over 24 months of age				
	Non-milking cows over 24 months of age				
	Breed bulls				
	Heifer 9 to 24 months				
	Heifers up to 9 months				
	Calves up to 9 months				
	Steers 9 to 24 months				
	Bulls over 24 months				
	Others				

2:4, cont. Inventory of Animals

	All animals	Beginning of year		End of year	
		Number	Value	Number	Value
2:4:2	Beef cattle				
	Cows over 24 months of age				
	Bulls over 24 months				
	Heifers 9 to 24 months				
	Heifers up to 9 months				
	Calves up to 9 months				
	Steers 9 to 24 months				
	Others				
2:4:3	Other types of cattle				
2:4:4	Oxen				
2:4:5	Horses				
2:4:6	Mules				
2:4:7	Breed sows				
2:4:8	Hogs				
2:4:9	Fattening hogs				
2:4:10	Piglets				
2:4:11	Hens				
2:4:12	Cocks				
2:4:13	Chicks				
2:4:14	Ducks				
2:4:15	Other (sheep, rabbits, etc.)				
TOTAL ADULTS (animal units)					

Form 2, cont.

2:5 MATERIALS, PRODUCTS AND BY-PRODUCTS. IN-WAREHOUSE INVENTORY AT BEGINNING AND END OF YEAR

Material, product, or by-products (specify use, crop, or activity)	Initial inventory (in-warehouse)		Closing inventory (in-warehouse)	
	No.	Value	No.	Value
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
TOTAL:	XXX		XXX	

Form 2, cont.

2:6 INVENTORY OF ENTERPRISE ACCOUNTS PAYABLE

Creditor	Original amount	Indebtedness: Beginning of year	Indebtedness: End of year	Annual payments: Total	Paid off during year: Principal	Paid off during year: interest
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
TOTAL						

2.7 INVENTORY OF ACCOUNTS RECEIVABLE AND CASH ON HAND

Account	Beginning Year (value)	Interest received (value)	End of year (value)
1. Debtor:			
1:1			
1:2			
1:3			
2. Cash on hand			
3. Money in bank			
4. Other			
TOTAL			

Form 2, cont.

2:8 INVENTORY SUMMARY

Name of farm or enterprise _____ to _____ Day Month Years

INVENTORY

	Beginning of Period			End of Period		
Land and buildings	No. or amount	Price	Total value	No. or amount	Price	Total value
1.						
2.						
3.						
4.						
5. TOTAL	XX	XX	XX	XX	XX	XX
Inventory of animals						
1.						
2.						
3.						
4.						
5. TOTAL	XX	XX	XX	XX	XX	XX
Value of crops and harvests in the field*						
1.						
2.						
3.						
4.						
5. TOTAL	XX	XX		XX	XX	
Machinery and equipment						
1.						
2.						
3.						
4.						
5. TOTAL	XX	XX		XX	XX	

(*) Value of crops refers to the value of perennial trees or plants that produce multiple harvests, if they have not been included in the land appraisal. The value of harvests in the field includes crops for the current season which are ready to be harvested.

Form 2, cont.

2:8, cont. Inventory Summary

	Beginning of Period			End of Period		
Machinery and Equipment	No. or amount	Price	Total value	No. or amount	Price	Total value
1.						
2.						
3.						
4.						
5. TOTAL	XX	XX		XX	XX	
Materials Products/by-products Harvests in warehouse						
1.						
2.						
3.						
4.						
5. TOTAL	XX	XX		XX	XX	
Petty cash, money in banks, stocks, advance payments, debts and accounts payable						
1.						
2.						
3.						
4.						
5.						
6. TOTAL	XX	XX	XX		XX	

Form 2, cont.

2:8, cont. Inventory Summary

Outstanding debts or payables for the period*	Beginning of Period			End of Period		
	No. or amount	Price	Total value	No. or amount	Price	Total value
1.						
2.						
3.						
4.						
5.						
6.						
7.						

(*) Specify term of debt.

.. If effective estimates of depreciation are made every year, and money is set aside for this purpose, the item can be replaced at the end of its useful life, and the money can be regarded as savings.

.. **Decreasing balance**: Under this method, depreciation changes every year, and figures are based on the non-depreciated balance. In order for the system to work, the rate of depreciation must be known as accurately as possible.

Yearly depreciation would be obtained as follows:

Depreciation in a given year = rate of depreciation x non-depreciated balance.

For the previous example, with a 10 percent rate of depreciation, values during the first two years would be:

Depreciation first year = 0.10 (80 000) = US$ 8 000

Depreciation second year = 0.10 (80 000 – 8 000) = $ 7 200

The process proceeds every year along the same lines, the value of depreciation changing from one year to the next. In certain cases, this system provides definite advantages.

.. **Sum-of-the-years-digits**: this is another method in which depreciation changes every year. Under special circumstances, it presents certain advantages. With this method, depreciation values are calculated as follows:

The digits of all the years of useful life are added together, and the depreciation for each year is determined as follows:

$$\text{Depreciation} = \frac{\text{(number of years of useful life remaining)}}{\text{(sum of digits)}} \times \text{(initial value)} - \text{(final value)}.$$

If we use this method to calculate depreciation in the above example:

Sum of the digits: 10 + 9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1 = 55.

$$\text{First year depreciation} = \frac{(10)}{(55)} \times (80\,000 - 8\,000) = 13\,090.90.$$

$$\text{Second year depreciation} = \frac{(9)}{(55)} \times 80\,000 - 8\,000) = 11\,781.81.$$

It should be clear that it is a good practice to calculate depreciation every year and set aside a certain amount of money for replacing machinery at the end of its useful life. Nevertheless, in practice certain limitations exist. They will be discussed below.

.. **Amortization fund.** This is another important technique for estimating depreciation. It is an effort to offset the effect of interest rates on estimates of value. According to Ramos[6], in this method it is assumed that, at the end of each year, fixed amounts of money at compound interest will be deposited. Thus, by the end of the last year of estimated useful life of the item, a total balance (payments plus interest) equal to the initial value will have accumulated.

The fixed depreciation payment to be added to annual costs can be obtained by multiplying the total to be depreciated (value of the item minus residual value) by the "depreciation factor." The formula would be:

$$\text{Depreciation payment} = (V\text{-}R) \frac{i}{(1+i)^n - 1}$$

where i = long-term interest rate.

The value of the formula $\frac{1}{(1+i)^n - 1}$ can be obtained from financial tables for the various years and for the interest rates.

Ramos[6] notes that ". . . the difference between this method and linear depreciation is more apparent than real, in terms of its ability to estimate project profitability."

Advantages and disadvantages of depreciation. The advantages of depreciation include:

.. In order to estimate depreciation, it is necessary to know the approximate value and useful life of the items to be depreciated. This information is extremely useful for the rural entrepreneur, providing for future investment needs and guaranteeing an integral view of the business.

.. The real value of an item is available at a moment's notice for tax or financial purposes.

Problems or disadvantages. If depreciation is to be handled correctly, certain factors must come into play because of their potential for reducing the effective usefulness of these figures.

.. In certain types of agriculture, it is very difficult to estimate such items as useful life and final or salvage value. As most farms (especially in the Americas) do not maintain production or machine use records, it is impossible to determine how the equipment will be used or to make accurate generalizations about the various types of machinery available.

.. Rigid methods for determining depreciation can lead to a situation in which relatively little money is set aside during the first years of useful life of the item, while a great deal is needed for the final years.

.. Product and input prices are never constant, and therefore it is necessary to set aside enough money to replace the worn item with another of similar quality at the end of its useful life. This is a very important factor, especially in the case of certain countries of this region with high rates of inflation. Take the case of a piece of machinery bought this year for $ 50 000.00. If we assume that the useful life is ten years (with a salvage value of $ 5 000), an annual total of $ 4 500 (linear method) must be set aside if another machine of similar quality is to be purchased at the end of the useful life. However, it is very difficult to guarantee that the price of a similar piece of equipment ten years from now will be $ 50 000. For a number of reasons, the prices can be expected to rise steadily.

Therefore the farmer must keep up to date with price and quality changes in the market so that, when necessary, more money can be kept out than simple theoretical depreciation estimates would suggest. Another alternative would be to invest the money set aside in an interest-earning activity that would help reverse the effects of currency depreciation or devaluation.

How can these disadvantages best be overcome? What method of depreciation should be used? The answers to these questions should be determined by those most involved in the problem, fully aware of the importance of solving administrative difficulties, including the lack of farm production records, acquiring information on price statistics and trends, calculating exact values for the useful life of the equipment according to the various practices, and adapting depreciation methods to the special case of each individual rural enterprise.

4.3-2 THE CURRENT BALANCE

This is an inventory summary. It classifies entries or accounts for the basic accounting equation and on the basis of liquidity, defined as convertibility into cash. This information is extremely helpful for understanding the financial status of the enterprise at any given moment and for determining collateral for monetary obligations.

4.3-2:1 Components of the current balance*. Goods in inventory are categorized as follows:

– **Assets:**

. **Current or cash assets.** This includes all items which have a regular rate of turnover and are the basis for enterprise activities. Strictly speaking, it would include only: cash on hand, checking accounts, accounts and effects receivable (quick and easy to collect), inventory of animals being fattened, and other highly liquid items.

. **Intermediate assets.** This includes all items not so liquid as current assets but not so permanent as fixed assets. Intermediate assets would therefore include: inventories of merchandise and supplies, in-ware house agricultural inputs, grains and harvested crops stored for sale, hay stored for sale, etc.

. **Other current or intermediate assets.** When the current balance is drawn up, it is often found that advance payments have been made which cannot be subtracted from the balance until services have actually been received. This category includes deferred expenses or charges, such as advance rent payments, crops in the field, insurance and interest paid in advance, applied and non-amortized bonds, etc.

Fixed assets. These are permanent investments difficult to transform into cash on a moment's notice.

(*) This classification system is only a reference model, to be used as an illustration. Each enterprise must decide for itself what type of model is most appropriate for accounting systems used in the country.

Therefore, fixed assets include: land, buildings, farm machinery, livestock inventories for milk or meat production, work animals, furniture and office supplies, long-term receivables, and permanent investments. In the case of depreciable items, accumulated depreciation should be applied.

. **Intangible assets.** In some cases, other items may be present which have no direct value, like those mentioned above, but which should be included, especially for non-agricultural activities. This class could include, for example, patents, brand names, a good business reputation, organizational expenses, etc.

– **Liabilities.** These are classified under a system similar to that used for assets, although "collectability" is the criterion for categorizing these accounts.

. **Current or cash liabilities.** This group includes short-term debts, with terms of up to one year. This list would specify accounts and goods payable, dividends, unpaid taxes, etc.

. **Other working liabilities.** Like assets (deferred charges), liabilities can be deferred. These credits are bills collected before the balance is drawn up, for services to be delivered at a later date. The category includes: rent billed in advance, interest payments charged but not yet due, etc.

. **Fixed liabilities.** These are long-term obligations such as mortgages, long-term accounts and goods payable, etc.

– **Capital.** This is the difference between assets and liabilities. Form 3 has been included to give a clearer idea of the balance. It is a sample method of organizing the statement.

4.3-2:2 **Balance analysis.** The agricultural enterprise must conduct frequent evaluations of assets, liabilities, and capital, in order to analyze its financial performance.

Accounting relationships and ratios are available for this analysis (Saborío[7]) and use the current balance for generating a number of important indices.

FORM 3. Model for the Current Balance of an agricultural enterprise.

Enterprise: _____

ACCOUNTS	SUBTOTAL	TOTAL
3:1 ASSETS		
3:1:1 CURRENT ASSETS		
Cash on hand		
Bank accounts		
Receivables		
Inventory of animals being fattened		
Other		
TOTAL CURRENT ASSETS		
3:1:2 INTERMEDIATE ASSETS		
Inventory of materials in stock		
In-warehouse supplies		
In-storage grains and harvested crops		
In-storage forage for sale		
TOTAL INTERMEDIATE ASSETS		
3:1:3 OTHER INTERMEDIATE OR CURRENT ASSETS		
Deferred expenditures		
Advance rent payments		
Crops in the field		
Insurance paid in advance		
Other		
TOTAL OTHER ASSETS		
3:1:4 FIXED ASSETS		
Land		
Buildings and installations		
Machinery and equipment		
Furniture and supplies		
Inventory of animals for milk and meat production		
Inventory of work animals		
Long-term receivables		
Permanent investments		
TOTAL FIXED ASSETS		
TOTAL ASSETS		

Form 3, cont. Model for the Current Balance of an agricultural enterprises.

ACCOUNTS	SUBTOTAL	TOTAL
3:2 LIABILITIES		
3:2:1 CURRENT LIABILITIES		
Payables		
Dividends and taxes (unpaid)		
Other		
TOTAL CURRENT LIABILITIES		
3:2:2 OTHER CURRENT LIABILITIES		
Cumulative expenditures		
Deferred credits		
TOTAL OTHER		
3:2:3 FIXED LIABILITIES		
Long-term payable titles and effects		
Mortgages		
Others		
TOTAL FIXED LIABILITIES		
TOTAL LIABILITIES		
CAPITAL		
Member contributions		
Surplus donations		
Reserve funds		
Non-distributed profits		
Cumulative losses		
Profit and loss		
TOTAL CAPITAL		
TOTAL LIABILITIES AND CAPITAL (equal to total assets)		

The major accounting ratios are:

$$\text{General solvency} = \frac{\text{Total assets}}{\text{Total liabilities}}$$

The minimum acceptable value should be 2.

$$\text{Immediate solvency} = \frac{\text{Available assets}}{\text{Current liabilities}}$$

Available assets include cash and checking accounts, as well as goods and accounts that can be quickly converted into cash.

The minimum acceptable level of this ratio is 1.

$$\text{Liquidity} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

A ratio of 1 is acceptable, but 2 is recommended.

$$\text{Physical guarantee} = \frac{\text{Fixed assets}}{\text{Fixed liabilities}}$$

The acceptable minimum is 2.

Financial independence. This is helpful for determining the percentage of goods that are owned by the enterprise. It is the percentage of owned net worth as compared to the sum of net worth and total liabilities. It is obtained on the basis of the following equation:

$$FI = \frac{NW \times 100}{NW + TL}$$

where NW = Net worth, and
TL = Total liabilities

The maximum theoretical value of FI is 100 when TL is zero. When FI is negative, the enterprise is bankrupt; NW can fall below zero only if total liabilities are greater than total assets, because TA = TL + NW. When FI is 50 percent, NW = TL, and TL obligations can be covered with the NW.

Of course, when agricultural enterprises are in the early stage of operations, it would be utopian to except optimum values, or even minimum acceptable values, for these accounting ratios. In such cases, it is advisable to pay close attention to plans, schedules, or projections of activities to be undertaken, in order to understand how these indices will develop and roughly what stages will have to be undergone in the process of achieving higher levels of efficiency.

4.3-3 EXAMPLES OF INVENTORY, BALANCE, AND FINANCIAL PERFORMANCE IN AN ASSOCIATIVE PRODUCTION ENTERPRISE

On the basis of this methodological procedure, a complete inventory was drawn up for an associative production enterprise, as part of a research project (Salinas[8]) developed with the participation of this writer. This type of task had never been undertaken in the enterprise before, and it was useful as a point of reference in developing this chapter and furthering subsequent efforts of accounting organization. The inventory also provided a basis for a current balance statement and financial analysis, as presented below for illustrating the use of this method.

4.3-3:1 Inventory: A model proposed by the research director (Murcia[4]) was used in this project. It could be easily adapted to any agricultural enterprise, as was shown in a number of studies conducted by the School of Agricultural Economics of the Department of Agronomy of the University of Costa Rica.

For the appraisals in Table 2, machinery depreciation was not taken into consideration, as all equipment was relatively new and was in perfect condition. Values for housing were determined on the basis of current selling prices, except in the case of new buldings.

4.3-3:2 Current balance. After the overall inventory of the cooperative had been completed, the current balance was calculated in order to determine the volume of each of the entries listed under assets, liabilities, capital, and total holdings. This could then be used for the financial analysis.

TABLE 2. Example of the overall inventory of an Agricultural Production Cooperative, as of September 30, 1975 (source: Salinas[8]).

	Quantity (Number)	Per-unit Value (¢)	Total Value (¢)	Total
2:1 LAND AND CROPS (HECTARES)				
Sugar cane	144.6	5 000.00	723 000.00	
Coffee	49.7	4 285.70	212 999.29	
Natural grazing land	71.7	1 100.20	78 884.34	
Forests	85.3	714.30	60 929.79	
Outbuildings and facilities	5.5	7 142.85	38 928.53	
TOTAL LANDS AND CROPS				1 114 741.95
2:2 PERMANENT STRUCTURES				
Administrative building	1	15 000.00	15 000.00	
House, in good condition	1	15 000.00	15 000.00	
Houses, in fair condition	7	2 772.00	19 404.00	
Houses, in poor condition	33	1 800.00	59 400.00	
Mill shed (for cane)	1	13 000.00	13 000.00	
Wood-cutting shed	1	8 500.00	8 500.00	
Warehouse for semi-processed cane sugar	1	3 100.00	3 100.00	
Workshop shed	1	5 150.00	5 150.00	
Sales outlet	1	4 500.00	4 500.00	
Social center	1	8 500.00	8 500.00	
Unroofed patio	1	1 700.00	1 700.00	
Woodshed	1	1 100.00	1 100.00	
Campground, in poor condition	1	1 000.00	1 000.00	
Pigsty	1	1 000.00	1 000.00	
Cattle washing area	1	500.00	500.00	
Fences	8 000 m.	4.00	32 000.00	
TOTAL PERMANENT STRUCTURES				188 854.00
2:3 EQUIPMENT AND MACHINERY				
Tractors	2	50 000.00	100 000.00	
Pick-up truck	1	55 000.00	55 000.00	
Austin jeep	1	56 160.00	56 160.00	
Cane hauling trailers	8	4 500.00	36 000.00	
Ox carts	7	850.00	5 970.00	
Industrial equipment	1	400 000.00	400 000.00	
Workshop equipment	1	7 435.00	7 435.00	
Hydroelectric plant	1	23 750.00	23 750.00	
Sawmill	1	17 500.00	17 500.00	
Pelton wheel	1	3 800.00	3 800.00	
Injection pump	1	3 700.00	3 700.00	
Diesel tank	1	5 000.00	5 000.00	
Diesel meter	1	400.00	400.00	
Back-carried portable spray	5	300.00	1 500.00	
Bee hives	1	1 726.40	1 726.40	

Table 2, cont.

2:3 Machinery and Equipment, Cont.

	Quantity (Number)	Per-unit Value (¢)	Total Value (¢)	Total
Calculator	1	1 250.00	1 250.00	
Shelving	1	200.00	200.00	
Iron chairs	20	100.00	2 000.00	
Table	1	50.00	50.00	
Lubricating pump	1	642.60	642.60	
Knife sharpeners	1	1 204.20	1 204.20	
Tool box	1	445.45	445.45	
TOTAL EQUIPMENT AND MACHINERY				723 733.65
2:4 LIVESTOCK				
Bulls 1.5 years	59	750.00	44 250.00	
Cows 3 years	7	1 500.00	10 500.00	
Pregnant cow	1	1 600.00	1 600.00	
Bull calves	3	1 360.00	4 080.00	
Eight-month calves	3	500.00	1 500.00	
One-year heifer	1	600.00	600.00	
Six-month heifers	4	400.00	1 600.00	
Breed bull, 1 year	1	2 500.00	2 500.00	
Breed bull, 2 years	1	3 000.00	3 000.00	
Team of 2 oxen, 7 years old	4	4 000.00	16 000.00	
Horse, 5 years	1	1 000.00	1 000.00	
Horse, 10 years	1	500.00	500.00	
TOTAL LIVESTOCK				87 130.00
2:5 IN-WAREHOUSE MATERIALS AND PRODUCTS				
Fertilizer			18 707.50	
Weed killer and accessories			7 517.20	
Insecticides			365.90	
Oil and diesel			3 498.05	
TOTAL MATERIALS AND PRODUCTS				30 088.65
2:6 ACCOUNTS PAYABLE				
Land purchase			900 000.00	
Mill purchase			628 000.00	
Bank			73 500.00	
Government Agricultural Agency			32 000.00	
Fertilizer purchase			21 073.50	
TOTAL ACCOUNTS PAYABLE				1 654 573.50

Table 2, cont.

2:7 CASH ON HAND AND ACCOUNTS RECEIVABLE		
Patty cash	3 074.10	
Cane sales	14 859.90	
Coffee Sales	43 101.95	
Advance on coffee for 75-76	68 826.35	
Receivables from members	2 736.00	
Checking account in bank	38 583.10	
TOTAL ACCOUNTS RECEIVABLE AND CASH ON HAND		171 181.40

The assets were divided into current assets, intermediate assets, and fixed assets. A similar procedure was followed with liabilities, categorized as current and fixed liabilities, as seen in Table 3.

This classification system is of fundamental importance in calculating the accounting ratios so necessary for the current balance statement.

4.3-3:3 Accounting Ratios

– General solvency:

$$\text{General solvency} = \frac{2\,315\,729.65}{1\,654\,573.50} = 1.40$$

– Physical guarantee:

$$\text{Physical guarantee} = \frac{2\,027\,329.60}{1\,509\,850.00} = 1.34$$

– Liquidity:

$$\text{Liquidity} = \frac{171\,181.40}{144\,723.50} = 1.18$$

– Financial indendence:

$$\text{Financial independence} = \frac{661\,156.15 \times 100}{661\,156.15 + 1\,654\,573.50} = 28.55\%$$

As can be seen, the cooperative had a general solvency of 1.40, while the minimum acceptable value should be 2. This occurred because all fixed assets were owed to creditors; it indicates that the enterprise or cooperative was not able to guarantee all its debts. A similar situation exists in the case of physical guarantee, for the minimum acceptable figure is 2, and the figure for this cooperative was 1.34. This low ratio indicates that the cooperative was unable to guarantee its fixed liabilities in the medum and long term on the basis of fixed assets.

The liquidity ratio gave better results, with a value of 1.18 compared to an accepted level of 1. This shows that the cooperative could cancel all short-term debts using available working assets (cash on hand and short-term receivables).

Under financial independence, it was found that, of all goods used by the cooperative, only 28.55 percent was fully owned. This is an extremely low percentage compared with the finding for another associative enterprise (Clemant[1]), showing a level of financial independence of 83 percent.

In general, the cooperative was in poor financial condition. With the exception of liquidity, all indicators used in the analysis gave low results.

4.3-4 ACCOUNTING RECORDS

It is essential that the basic organization, development, and use of accounting records be carried out by the agricultural enterprise itself so it can control its activities and obtain accurate information on its performance. Nevertheless, public institutions in the agricultural sector must embark on a broad-scale, well-coordinated, and ongoing campaign of promoting and motivating such efforts on the enterprise level.

The ultimate goal is for the enterprise itself to maintain simple, functional accounting records that will provide a basis for more in-depth analysis. The most appropriate records needed for controlling work activities must be designed according to the specific characteristics of each case.

4.3-4.1 Physical records. In the particular case of a peasant farm settlement, for example, experiences in some of the countries of the region have shown that the most essential physical controls would be: daily and weekly records of hours worked, cash and bank account control, control of in-warehouse stocks, records of machinery and equipment use, production control for crop and livestock activities, and other physical records easy to use and designed for each specific case.

Because each enterprise has its own needs, based on its own particular situation, we will not present all possible models of this type of records. However, a number of designs have been developed and tested (ITCO[2]) to serve as a point of reference. Some of these appear as examples in Appendix 3.

TABLE 3. Example of the current balance of an Agricultural Production Cooperative as of September 30, 1975 (source: Salinas[8]).

Accounts	Partial ₡	Total ₡	Grand Total ₡
ASSETS			
Current Assets			
Cash on Hand	3 074.10		
Checking account in bank	38 583.10		
Short-term receivables	129 524.20		
Total current assets		171 181.40	
Intermediate assets			
Materials and products	30 088.65		
Livestock inventory	87 130.00		
Total intermediate assets		117 218.65	
Fixed Assets			
Land and crops	1 114 741.95		
Permanent structures	188 854.00		
Machinery and equipment	723 733.65		
Total fixed assets		2 027 329.60	
TOTAL ASSETS			2 315 729.65
LIABILITIES			
Current liabilities			
Short-term payables	144 723.50		
Total current liabilities		144 723.50	
Fixed liabilities			
Long-term payables	1 509 850.00		
Total fixed liabilities		1 509 850.00	
TOTAL LIABILITIES			1 654 573.50
TOTAL CAPITAL OR ASSETS			661 156.15
TOTAL LIABILITIES + CAPITAL			2 315 729.65

4.3-4:2 Income and expense records. This type of record does more than to determine the economic performance of the enterprise. It also helps the farmer identify major drawbacks in the use of productive factors, thus increasing profits.

It is easier to describe a problem of poor resource use on the farm if the various parts of the farm can be analyzed separately, whether by crops or by livestock activities. For this reason, income and expense records must include, in addition to the date, item, and total value of the income or expenditure, columns or additional space for listing the activities or resources to which the item should be charged.

This type of record system is illustrated in the example below, designed to facilitate an understanding of the use of these records (Montero[3] and Murcia[5]).

If a given farm concentrates on raising corn and fattening cattle, and $ 4 500 is spent on day wages, $ 500 for fertilizer, and $ 300 for gasoline, these items could be listed on a simple expense record, as shown in Table 4.

TABLE 4. Example of a farm expense record.

DATE	ITEM	TOTAL EXPENSE
XII-5-75	Day wages	4 500
XII-6-75	Fertilizer	500
XII-6-75	Gasoline	300

Thus, all expenses incurred during the fiscal period can be recorded, and at the end of the period they can be totalled. However, it would be difficult to determine which productive resources were actually used and almost impossible to figure out how many of these expenditures corresponded to corn and how many to cattle.

In order to determine resources used and/or the product lines to which they are applied, further columns are added to the simple records shown above.

If in the same example, $ 2 000 of day wages, $ 500 of fertilizers, and $ 300 of gasoline were all used for corn, a record of expenses per product line and per resource could be developed, as shown in Table 5.

TABLE 5. Farm Expenditures, by activity.

Date (1)	Item (2)	Total Expenditure (3)	Corn (4)	Cattle (5)	Day wages (6)	Fertilizer (7)	Gasoline (8)
XII-5-75	Day wages	4 500	2 000	2 500	4 500		
XII-6-75	Fertilizer	500	500			500	
XII-6-75	Gasoline	300	300				300

Columns 4 and 5 give the two major activities and 6,7 and 8 give resources used. It should be noted that the total of column 3 should equal the sum of the totals of columns 4 and 5, or the sum of the totals of columns 6, 7 and 8. In order words, the total value of the expenditures on the farm is equal to the total value of expenditures for the various farm activities and to the total value of resources used.

Expenditures are often for items whose useful life extends beyond the end of the fiscal period, such as buildings, machinery, etc. In these cases, planning can be facilitated if each of the resources is listed as shown above, but grouped together under the subtitle "investments."

In the above example, a new column could be added for animals and another for improvements, such as the construction of a new irrigation ditch, etc., and all these columns would be grouped under "investments."

Income records are not much different from expense records. They can be very simple, reflecting only the date, item, and total value of the sale; or they can be more explicit, including not only the total entry, but also the item by product line and activity.

More detailed records are preferable to very simple books, as they make it possible to determine which activities are most profitable and to calculate the level of participation of each resource on the farm. Thus the manager can determine which areas of the farm operation are not functioning as they should, to develop a more in-depth analysis, and to unearth the causes of certain types of behavior.

4.3-4.3 Summary of Income and Expenses. The data listed in the income and expense records can be grouped and synthesized annually or biannually in an income and expense summary.

This summary includes the various income and expense items of the farm. The difference between the total income and total expenses is the enterprise profit or loss.

In order for this type of summary to be effective, more information on the enterprise must be available.

Forms 4 and 5 are models of income and expense records, and Form 6 synthesizes the two (Murcia[5]).

FORM 4. Model for expense control in an agricultural enterprise*.

Month: _____

Date	Item	Total value	Activity**
TOTAL			

(*) This system can be maintained on a daily basis.
(**) Crop, livestock, other.

FORM 5. Model of income records in an agricultural enterprise*.

Month: _____

Date	Item	Total value	Activity**

(*) This system can be maintained on a daily basis.
(**) Crop, livestock, other.

FORM 6. Income and expense summary for the fiscal period.

Enterprise: _____ Date: _____

INCOME	VALUE	EXPENDITURES	VALUE
Crops			
Livestock			
Other			
TOTAL			
Profit or loss (income – expenses) =			

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CHAPTER 5

A GENERAL ORGANIZATIONAL FRAMEWORK FOR STUDIES OF ASSOCIATIVE AGRICULTURAL PRODUCTION ENTERPRISES

". . . the ultimate goal is to make a wise decision. . . which must emerge from a systematic planning process and be founded on a complete, accurate diagnosis of the production unit."

Because there are so many different types of associative agricultural production systems, it is not easy to adopt a single approach to studying their most noteworthy characteristics on both the micro- and macroeconomic levels.

It is important to recall that the theoretical decision-making process serves as a point of reference for orienting any planning or organizational work in the agricultural enterprise.

This chapter will take a look at the overall characteristics of the associative production enterprise. We will then develop a scheme or methodological guideline for analyses, diagnoses, and comparative studies of these production units.

The elements under study help reveal the need to obtain as much information as possible on the internal and external factors affecting the enterprise. In addition to facilitating the preparation of an appropriate diagnosis, such information lays the groundwork for effective planning.

5.1 THE DECISION-MAKING PROCESS AS A KEY TO AGRICULTURAL ENTERPRISE PLANNING

Murcia[4] has shown how the theoretical decision-making process is an indication of the general planning procedures in agricultural enterprises and reveals the importance of all the components of rural management activities.

The process can be seen in Table 6, which provides a complete, general description of the basic methods for planning agricultural enterprises.

The framework also embraces microeconomic studies of given conducted in the sequence given below, it clearly must include all the elements listed in the chart if the ultimate goal of making a wise decision is to be reached. This decision must emerge from a systematic planning process and be founded on a complete, accurate diagnosis of the production unit.

TABLE 6. The decision-making process as a framework for agricultural enterprise planning.

PLANNING PHASE	
– Identifying the problems Develop a true understanding of the physical, economic, social and administrative problems of the enterprise. Include external conditions and relationships with the rest of the agricultural sector.	CURRENT PLAN
– Observing and collecting data Examine primary and secondary surveys and farm accounting (if unavailable, begin with an inventory and current balance, and organize production records and expense and income controls). Conduct a complete DIAGNOSIS of the current situation.	CURRENT PLAN
– Identifying alternatives Modify the current situation (different crop strains, new agricultural and livestock activities, size adjustments) in order to improve output according to previously-determined goals.	ALTERNATIVE PLANS
– Evaluating alternatives Incorporate technical and social criteria and concepts of production economics. Implement planning methods (partial budget, total budget, linear programming, program planning, group analysis, etc.).	ALTERNATIVE PLANS

EXECUTION PHASE

– Choosing alternatives Select the best alternative according to specified integral goals.	PLAN OR PROJECT SELECTED
– Acting on selection Make recommendations for putting the chosen alternative into practice. Take action.	IMPLEMENTATION
– Determining measures for evaluation and control – Measuring physical and economic performance Social evaluation. Accepting responsibility. Correct or modify plan, if necessary, after observing results as implemented.	FINAL EVALUATION

5.2 METHODOLOGICAL GUIDE FOR EVALUATING ASSOCIATIVE FORMS OF AGRICULTURAL PRODUCTION

In a discussion of the basic factors needed for making farmer organization more effective, Vigués[7] specifies two types of conditions that must be present in the enterprise: endogenous and exogenous. The endogenous conditions are based on a view of the organization as a spontaneous development, rather than something imposed from outside: it is self-sustaining with its own resources; responsible, based on mutual trust; authentically democratic; and adaptable to the environment. The exogenous conditions hold the organization as independent –in other words, managed neither by the government nor by political parties– with access to state decision-making entities, and thus able effectively to represent its interests without sacrificing its independence. It must function within a legal framework guaranteeing its rights and defining its obligations.

In addition, Vigués[7] notes several basic qualities that the farmers must possess if the organization is to be effective. Without these elements, the organizational efforts cannot be successful in the sense of promoting "the mutual interaction of the socio-economic conditions and the basic personality of the farmer members."

All these factors are vitally important in identifying those elements that are indispensable for establishing and consolidating associative forms of production. In addition, they are useful for an in-depth analysis of enterprise operations with an eye to correcting shortcomings and reinforcing accomplishments.

Well-defined methods must be adopted for studying associative organizations. They also prove helpful for developing guidelines on the minimum characteristics needed for these production units. This scheme has been devised in the firm belief that "if it is to reveal the advantages of any agricultural production unit, the analysis should comprise not only an isolated view of efficiency indices on the productive unit level, but also the potential role of the enterprise in the overall economic environment. Therefore, any study must recognize that the political, economic, and social structures of the area in which the enterprise functions exercise a decisive influence on the integral success of the model used" (Murcia[3]).

In line with this general approach, the following methodological guide has been proposed for analyzing associative forms of agricultural production.

5.2-1 THE HISTORICAL BACKGROUND OF THE ENTERPRISE

This aspect is vital for understanding the process by which the associative form of production came into being, as well as its future tasks of consolidation and expansion. The role of the members in the original formation of the enterprise must be studied, as well as the nature of their participation and their previous experience in collective activities and group or community work. This will help cast light on one of the major factors of subsequent enterprise performance.

This area is also helpful in evaluating the enterprise. It shows how, if cooperative organization is imposed on farmers with no type of continuous follow-up, the development of a group-level consciousness of collective labor is limited, while in those cases in which the campesino participates actively in the initial organization of the enterprise, the sense of unity is stronger and a group consciousness is able to develop (Clemant[1], Salinas[6]).

5.2-2 INTERNAL COMPONENTS OF THE ENTERPRISE

The following factors should be included. They can be obtained only through in-depth observation of the various characteristics of the associative production forms and give a clear picture of the internal integrity of these enterprises (Murcia[3]).

5.2-2:1 Physical components.

- Characteristics of the region in which the enterprise is located.
- Location of fields.
- Overall description of the enterprise.
- Potential soil uses.
- Current use compared with potential; this gives an important notion of the rational use of natural resources.
- Size and person-land ratios.
- Productive process, technology use, technological levels.
- Indices of physical productivity and yield of various enterprise projects, which can be compared with corresponding figures for the region in which the enterprise is located, for other regions, and for the country.
- Evaluation of physical output by comparing current and potential performance to production methods used before the enterprise was established.

5.2-2:2 Economic and financial components

- Analysis of inventories, balance sheets, income, and expenses. Production statements and financial analyses.
- Member income as compared with pre-enterprise levels and with levels in other production units.
- Production orientation. Percentage of production sent to market.
- Demand for production goods and services.
- Characteristics of marketing process.
- Evaluation of economic and financial performance.

5.2-2:3 Administrative components. Murcia[3] has developed a specific method for studying administrative components on the enterprise level. It has been used in several case studies (Clemant[1] and Salinas[6]) and is based on a detailed analysis of managerial operations in the associative production enterprises, as discussed in Chapter 2, above.

5.2-2:4 Social and cultural components

– Origin of enterprise members.

– Demographic characteristics. Age, sex, number of children per family.

– Standards of living. Housing, health, nutrition.

– Family income in the enterprise and under previous conditions.

– Educational characteristics. Levels of schooling.

– Levels of social cohesion, mutual assistance, and participation.

– Employment patterns. Available and necessary family labor. Levels of underemployment.

– Degree of personal satisfaction produced by the enterprise, as compared with previous situation.

– Formal and informal leadership. How enterprise members perceive leadership.

– Trends toward peasant farmer organization. Identification of farmer organization processes.

5.2-2:5 Legal components

– Legal background.

– Current legal status of the enterprise.

– Legal characteristics of the cooperative unit or the associative form of production.

5.2-3 RELATIONSHIPS BETWEEN ASSOCIATIVE PRODUCTION ENTERPRISES, PUBLIC SECTOR INSTITUTIONS, AND PREVAILING AGRARIAN STRUCTURES

5.2-3:1 Relationships with agrarian reform agencies. Characteristics of these relationships. Emphasis on paternalism or on self-management training.

5.2-3:2 Links to other sectoral agencies. Credit organizations technical assistance, and marketing. Links with agencies for peasant farmer organization.

5.2-3:3 Relationships with prevailing agrarian structures. This factor has been examined (Pinto[5]) for the peasant farm community enterprise. It is understood to include all economic, legal, political, social, ideological, and cultural relations that "condition the work of the agrarian reform institution and, therefore, of the enterprise."

Because this book is based on a very specific approach, an in-depth analysis will not be given of all these factors. Rather, several will be singled out for special attention. Nevertheless, Chapter 9 will demostrate the importance of taking all these elements into account, especially in comparative studies.

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PART THREE

STANDARDS AND METHODS FOR PLANNING THE ASSOCIATIVE PRODUCTION ENTERPRISE

INTRODUCTION

PART THREE

STANDARDS AND METHODS FOR PLANNING THE ASSOCIATIVE PRODUCTION ENTERPRISE

INTRODUCTION

Once a critical study of the current status of the enterprise has been completed, the planning phase can begin. For this task, the associative production enterprise is more complex than the profit-seeking family farm or private ranch, for other needs must be satisfied in addition to maximizing profits. In this area, the traditional concept of the "enterprise" must be expanded from its isolated economic dimension, to include finding an equilibrium of physical, economic, ecological, and social goals.

Making optimum use of resources in terms of physical, economic, and administrative needs is the goal of every kind of agricultural enterprise. This is not the case for the task of increasing efficiency in the social areas, a factor which is an indispensable additional objective in the associative agricultural production enterprise. This means that the planning process in such enterprises must embrace diverse criteria instead of concentrating on the achievement of one particular goal. Successful planning in such cases is not achieved by optimizing performance in isolated areas, but rather by putting into effect a process that can provide optimal solutions, enhance the overall development of the enterprise, and improve the standard of living of the members of participating families.

This points up the undeniable urgency of seeking appropriate solutions to the apparent contradiction between the innate characteristics of traditional agricultural enterprises as found throughout the Americas, and the integral concept of the enterprise that defines the new associative forms of agricultural production. Associative enterprises fit into established market systems generally by competition, and as such, it is essential that their relations with the enterprise system be carefully planned so as to maximize earnings and compete

effectively. However, the enterprise must also look to its need for an internal equilibrium among the various factors that come into play, seeking maximum levels of member employment, improving standards of living and well-being among members, and supporting their integration into other similar enterprises in order to promote an on-going process of strengthening this type of organization.

This section will discuss physical, economic, and social criteria that should figure in the planning process of associative production enterprises. At the end of the section, it will be shown that the planning and support process in the associative enterprise does not and cannot function in isolation. This was revealed by a number of experiments that emphasize the need to deal with the problem on an integral basis.

Various different methods can be used for planning on the associative enterprise level. These include budgeting (partial or total), linear programming, simplified programming, and others. The author has presented examples of each of these methods and has directed subsequent research on the subject.* However, existing experimental efforts have revealed that planning by budget is the system most easily adapted to self-management processes in the associative enterprise. In addition, it lies within easy grasp of peasant farmers involved in the early stages of training processes.

Budgets are extremely useful in training programs on the farmer level because they are simple to analyze and easy to adapt to all types of agricultural production.

Nevertheless, they require extensive calculations and are therefore quite laborious to develop. For this reason, simultaneous planning efforts covering many enterprises would require a great deal of time. In such cases, more complex planning methods could be used, especially in the area of consolidating the information compiled on groups of enterprises by agencies and individuals providing external support mechanisms.

Because budgeting methods have proven to be so valuable on the enterprise level, they will be emphasized in this study. They are discussed at the end of Chapter 7, with reference to actual experiences in associative agricultural production enterprises.

(*) BERROCAL, M. Comparación de las técnicas de presupuesto parcial y programación lineal en la planeación de una finca en Alajuela. Post-Graduate Thesis, University of Costa Rica School of Agronomy, San Jose, Costa Rica, 1976. 155 p.

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CHAPTER 6

PHYSICAL STANDARDS FOR PLANNING THE ASSOCIATIVE AGRICULTURAL PRODUCTION ENTERPRISE

". . . measuring the technical and physical impact of the alternative proposals and comparing them with the current production plan."

If integral improvements are to come about on the agricultural enterprise, there must be a definite work plan or schedule that gives consistency and structure to the physical, socio-economic, and managerial areas.

The next three chapters will discuss various standards applicable to these three facets of the agricultural enterprise. The purpose is to demonstrate some of the fundamental terms of reference needed for comparing the differences between current production plans (extracted from the characterization of the enterprise and from the inventory, described in previous chapters) and the alternative plans under consideration.

This first chapter will discuss the most meaningful physical standards for measuring the technical and physical impact of the alternative proposals and comparing them with the current production plan. Findings should be subjected to careful analysis in terms of at least the following variables:

6.1 MINIMUM SIZE IN UNITS OF LAND SURFACE AREA

Various criteria not strictly related to physical aspects come into play in determining the size of the agricultural enterprise. The interrelationships of all these factors can provide an answer to questions concerning the most appropriate dimensions for achieving integral improvements. The major aspects to be considered in determining the size of the enterprise are:

6.1-1 TECHNICAL AND TECHNOLOGICAL SIZE ANALYSIS

The comparative advantage of various enterprise sizes is directly related to:

6.1-1:1 Land characteristics. Geographic features, potential for mechanization, production possibilities.

6.1-1:2 Potential crops or livestock activities. The minimum size varies according to whether production is intensive or extensive, as well as the yields and profitability of the various products. This was seen in studies showing, for example, that five hectares planted intensively with temporary crops can maintain an average family at a reasonable level, while the land surface would have to be much more extensive for perennial crops or livestock.

6.1-2 ECONOMIC SIZE ANALYSIS

The dimensions of the enterprise are directly related to the analysis of:

6.1-2:1 Operational costs and required investments.

6.1-2:2 Income or revenue under each production plan.

6.1-2:3 Measurements of economic performance, such as profitability, net income, cost-benefit ratios, etc., on the enterprise level and for the farm family.

6.1-3 SOCIAL ANALYSIS FOR DETERMINING SIZE

An enterprise of the ideal size would make real contributions to solving problems involving:

6.1-3:1 Full employment of available labor. This criterion can be judged by comparing the total number of available days of work in the enterprise or the labor provided by farmers and their families, with the employment opportunities provided by each operational plan. The comparison is made in terms of units of work, such as worker-equivalent, based on the number of days of work provided by each worker, weighted for abilities and age.*

The goal of maximizing employment is valid for the countries of this region and should receive special priority. The unemployment problem plays a special role in the rural sector due to the surplus

(*) Contributions are determined according to ability and to the number of days actually worked in the agricultural sector of each country (omitting holidays and other breaks). The basic unit, 100, is defined as the work done by a farmer or full-time worker between 18 and 60 years of age. Men outside this range and all women are assigned a value between 0.25 and 0.75, depending on their actual work.

of human resources and the shortage of capital resources, as compared to the characteristics of developed countries. Attention should also be given to technological innovation, which must be rationally planned and adjusted to scale.

6.1-3:2 Minimum family income. Another point to be considered is the minimum income level that will enable the farmer's family to live a normal life and make social progress. Therefore, in addition to covering farmer and family wages and all production costs, revenues should leave a margin for internal consumption, education, health, and other minimum factors needed for maintaining operations.

6.1-4 HOW TO CALCULATE ENTERPRISE SIZE

The size of the enterprise should be calculated with an eye to optimum functioning and maximum simplicity in order to facilitate the work of technical specialists and other participants in this field. The process is as follows:

6.1-4:1 Select potential crops or livestock activities. This selection should be based on technical and socio-economic analyses, as discussed above. The idea is to determine the production alternatives available to the enterprise, within the limits of available resources.

6.1-4:2 Examine the composition of the farm family in terms of the actual number of days of work it can provide. As a convenient tool, the model presented in Chapter 3 for identifying the social characteristics of the enterprise can be consulted. The criterion should be the number of days each person works per year. In the case of an associative enterprise, a reference point could be the average number of days of work.

6.1-4:3 Establish minimum income goals needed for each family to satisfy its basic needs and promote its progress. A number of analyses can be used in determining these goals, but levels can be set that are comparable to national minimum wages and that cover all the essential expectations of the farm family. The particular characteristics of each country and the prevailing income levels should be considered in establishing income goals.

The minimum foreseeable needs of the farmers should be the basis for defining income goals. Herrero[4] indicates that minimum requirements of food, clothing, nutrition, housing, and education can be reduced to numerical quantities and translated into short-term, medium-term, and long-term goals. Thus the most pressing needs, as well as the optional needs, would be expressed as the objectives of long-term income goals for development projects in rural settlements.

He also suggests that short- term goals be set for the average family's food and health needs; that medium-term goals include clothing and education for the children; and that long-term goals include the sum of these two areas, plus housing needs, environmental improvement, retirement security, and personal cash savings. Long-run goals should provide the farmers with the level of income necessary to make payments on investments, also known as a savings or capital margin.

Minimum income goals should be equal to minimum annual agricultural wages in the region; however, if the enterprise is not too large, it should be possible to increase this goal with time as investments are increased and the farm evolves in its use of technology, capital, and human resources.

For this reason, permanent, standardized family income levels should not be established. Continual adjustments should be made as the proposed production plan progresses and takes shape.

To calculate minimum income levels for the peasant family, multiply worker-equivalents (or the number of worker units in the family) by the number of working days in the year (days in which work is actually done) and by the miminum agricultural day wage. Social costs should be added to the total.

For example, a given region has a minimum agricultural day wage of 20 monetary units (m.u.), and social deductions cost 12 m.u. If a farming family has 3 available units of labor (combining the contribution of father, mother, and children) and the total number of working days per year is 280, the proposed level of income would be 26 880 monetary units (32 x 3 x 280).

This would be the basis for readjusting the income levels as the enterprise developed and family members increased their level of participation and training.

6.1-4:4 Other important factors increase the minimum size needed to reach these goals. Space must be allowed for housing and other facilities, generally amounting to half a hectare. Broad estimates should be made for unforeseen events, risk of crop loss, and other random occurrences that often attend agricultural production.

6.1-4:5 There are various approaches to take, all of which lead to approximately the same conclusions.

For example, Carrera[1] prefers the following method:

- Develop an **a priori** idea of the size of the land and the structure of the preliminary production plan, according to the overall set of variables affecting production.

– Determine production costs, gross value, total profit margin, and labor needs for the preliminary plan.

– Adjust analytical findings on the income that can be expected under the plan, minimum desirable income, and employment possibilities compatible with the level of available family labor. Results are averaged to determine approximate size.

– Establish the structure of the final production plan, according to the amount of land acquired.

6.1-4:6 Herrero[3], on the other hand, recommends the following method:

– Determine the seasonal needs of potential crops.

– Determine the needs for hired labor on different farm sizes.

– Calculate indicators of actual labor use.

Suggested indicators are: total labor, hired labor, available family labor and family labor actually used. Evaluative measures would include the percentage of family labor used for crops.

– Make a summary of potential income under various conditions and with farms of various sizes.

– Determine minimum surface area, using the following equation:

$$Y = \frac{Y2 - Y1}{X2 - X1} (X - X1) + Y1$$

Where:

Y = Anticipated liquid income (minimum family income)
Y1 = Potential income on one hectare
Y2 = Potential income from the minimum surface area
X = Minimum surface area desirable
X1 = Smallest surface area (1 hectare)
X2 = Largest surface area

This means that X is the target variable, for it is the intermediate value between two known sizes and income levels previously calculated.

This method involves analyzing various alternatives for farm size, income level, and employment. It should give the dimensions needed for reaching all stated goals.

6.1-5 EXAMPLE: DETERMINING THE MINIMUM SIZE FOR AN INDIVIDUAL PRODUCTION UNIT

In 1975 and 1976, the author acted as advisor to a general research project on overall farm characteristics of the San Rafael de Alajuela region in Costa Rica. The research goal was to compile basic information for implementing planning methods on the production unit level (Morales[5]).

All farms studied devoted the summer season to growing such vegetables as onions (*Allium cepa*), sweet potatoes (*Ipomoea batatas*), tomatoes (*Licopersicon esculentum*), and cucumbers (*Cucumis sativus*). During the winter season, they replaced these crops with basic grains or other vegetables. Around midwinter, the land was planted to what the farmers called the "early" onion.

One of the objectives of the project was to select a single farm and carry out basic analyses of its accounting practices, production costs, minimum size, and feasibility of planning methods. All these studies were completed with information taken from the farm itself. An accounting system was then devised to be functional and practical for the farmer. The process took more than six months.

The methods used for determining minimum production unit size were taken from procedures suggested by various authors (Carrera[1] and Herrero[3]). Below is a summary of the general approach:

6.1-5:1 Crop selection. The following criteria were kept in mind:

- Adaptability to the physical and biological conditions of the production unit and the region.
- Peculiarities of the most important and representative crops, both in the economic unit under consideration, and in the region as a whole.
- Availability of factual cost and income data from the farm accounting office.
- The presence of marketing and sales facilities.
- Wise use of productive resources.

On the basis of this information, it was determined that the crops most suitable for the production plan were: sweet potatoes, onions, corn, and beans.

6.1-5:2 Availability of family labor. It was found that the farm had great capacity for using this resource. Over a total of 365 days, a full-time familly worker was able to devote 300 days of work to agricultural chores. The labor force available to the farm under study consisted of the farmer and his five children.

Total worker-equivalents and relevant aspects of the labor picture are shown in Table 7.

6.1-5:3 Size and structure of production. Size and structure of production and the dates for planting and harvesting farm crops were:

Onions (early)	0.7 hectares (1 manzana)	(September-December)
Onions (late)	0.7 hectares (1 manzana)	(January-April)
Sweet potato	1.05 hectares (1.5 manzanas)	(January-April) (September-December, 1 hectare)
Corn	2.10 hectares (3 manzanas)	(May-August)
Beans	0.70 hectares (1 manzana)	(May-August)
Tomatoes	0.70 hectares (1 manzana)	(January-April)

This is the crop pattern actually practiced on the productive unit.

6.1-5:4 Per-crop Production costs. The per-hectare production costs generated by the selected crops were estimated during a preliminary phase of the research.

TABLE 7. Family members by age, worker-equivalent, and days of work, for a farm in San Rafael de Alajuela, Costa Rica. 1975.

LABORER	AGE	WORKER-EQUIVALENTS	DAYS OF WORK*
ADMINISTRATOR	60	0.5	150
Wife	60	–	–
Children			
a.	35	1.0	300
b.	23	1.0	300
c.	22	1.0	300
d.	20	1.0	300
e.	17	1.0	300
f.	15	–	–
TOTAL		5.5	1 650

(*) Days of work per year. A day of work is normally equal to 8 hours of work (this is a function of climatic conditions, and therefore the actual number of working hours can vary.) According to the table, the total of worker-equivalents is 5.5, and the number of days of work available to the farmer for handling the needs and demands of the crops is 1 650 per year.

Costs for "early" onions were higher than costs for late onions, but production was greater. "Early" onion costs were estimated at ₡ 15 000.00 per hectare.

6.1-5:5 Gross value of production and income. The figures in these calculations were actual production levels and final selling price. Real income for each type of crop, as well as surface area, appear in Table 8.

TABLE 8. Real income received for each type of crop in fields of various sizes. San Rafael de Alajuela, Costa Rica. January-July, 1975.

CROP	FIELD	VALUE IN COLONES*
Onions (early)	0.7 hectares (1 mz)	₡ 50 625.0
Onions (late)	0.7 hectares (1 mz)	20 208.5
Sweet potato	1.05 hectares (1.5 mz)	13 384.2
Corn	2.10 hectares (3 mz)	11 250.0
Beans	0.7 hectares (1 mz)	6 064.0
Tomatoes	0.7 hectares (1 mz)	1 120.0
TOTAL		₡102 651.7

(*) These figures represent total income from the 3.15 hectares (4.5 manzanas) included in the analysis.

6.1.5:6 Net income. Net income was the difference between total income and total expenses for the different production lines or crops.

Net income per productive unit for crops was ₡ 67 496.75 using the formula N.I. = gross income – total expenditures. Applying this equation to the example under analysis, we find:

Gross income	= 102 651.70
Total expenditures	= 35 154.95*
Net income	= 67 496.75

6.1-5:7 Need for non-family labor. The need for hired labor on the production unit was estimated to be 1 200 days of work. This brought total required days of work to 2 850, of which 1 650 were provided by family labor.

(*) This includes ₡ 10 000 for the "early" onions. The figure includes production costs plus interest on working capital and the need for part of the net income to be reinvested in the same land.

6.1-5:8 Minimum family income. Minimum family income should satisfy the basic needs of the farm family, such as education, health, housing, nutrition, recreation, savings, financing, etc.

It was estimated at ₡ 4 000.00 per month, for an annual total of ₡ 48 000.00. The calculations allowed for family wages and for the possible further development of the enterprise at the end of the current production season.

6.1-5:9 Income and employment goals.

– **Income goal.** If total net income generated by the crop is ₡ 67 496.75, and minimum annual income should be ₡ 48 000.00, the number of hectares needed to provide minimum family income can be found with the following ratio:

₡67 496.75 _____ 3.15 hectares

₡48 000.00 _____ X

X = 2.24 hectares = 3.2 manzanas

– **Employment goal.** The total number of days of work needed to cover all needs was 2 850. Of this total, 1 650 days of work were provided by family labor.

2 850 days of work 3.15 hectares
1 650 days of work X
X = 1.82 hectares = 2.60 manzanas

Therefore, using one of the proposed methods (Carrera[1]), the minimum size of the productive unit capable of providing minimum family income and full employment would be found with the following ratio:

$$\frac{2.24 + 1.82}{2} = 2.03 \text{ hectares} = 2.90 \text{ manzanas}$$

Thus the minimum size of the productive unit would be:

2.03 hectares = 2.90 manzanas

With this minimum size it should be possible to use all available labor on the farm and produce most, although not all, of the minimum family income necessary. Therefore, in the opinion of the author of the research (Morales[5]), the actual minimum acceptable size would be 2.24 hectares (3.2 manzanas). With a farm of this size, the two goals could be feasible.

On the basis of this analysis, and using these methods for calculating minimum family income or proposed levels of income, it could be stated that greater attention should be given to reaching income goals. According to the conclusions of a recent publication[8], "in any case, the ultimate purpose of establishing minimum income goals should be to seek maximum use of labor."

Finally, the minimum size should be expanded to include required space for housing and installations, as well as the standard coefficients for unforseeables and normal risks of crop loss. This would give the final figure for minimum required size in hectares.

The same research (Morales[5]) concludes that this concept of minimum size should be closely analyzed for the medium and long term, as the number of children in the farmer's family can produce problems of fragmentation or atomization of the land. For natural or other reasons, "this may be only a temporary solution to the problem of land tenure." Therefore, the determination of optimal size cannot be too rigid, either for the individual production unit or for the associative enterprise.

6.1-6 ADDITIONAL FACTORS FOR DETERMINING THE OPTIMAL SIZE FOR A PEASANT FARM ASSOCIATIVE ENTERPRISE

Exact figures cannot be calculated for the dimensions of a peasant farm associative enterprise, in terms of the number of members and the land surface area, because these figures vary according to the different elements of each case. However, it is important to take into consideration such factors as:

6.1-6:1 Person-land ratio. This ratio must be viewed as a comparative measure, rather than an absolute figure, because one of the short-term goals of the associative enterprise is indivisibility.

Nevertheless, it must be calculated with an eye to the potential production characteristics of the entire extension of the enterprise

and the quality of the land. It would not be correct to use the total land surface area for this estimate if large percentages of marginal land were included. For this reason, it is best to work with figures on actual useable agricultural land. This is usually much less than total area.

6.1-6:2 A recent publication[8] gives other factors that should be considered when determining the optimum size of a peasant farm associative enterprise. They include:

- Land to which economies of scale can be applied, and resources of a quality that can guarantee maximum employment of available labor.
- The number of members needed for maintaining group solidarity.
- The opportunity for all group members to participate in the economic, social, and political processes of the enterprise.
- Internal physical distances on the enterprise that prevent time loss, both in the productive process and in the access of members to basic daily services.
- The level of vertical and horizontal integration needed in the enterprise and with other enterprises for marketing, agribusiness, input supply, and other services, facilitating the use of economies of scale on a secondary level.

Another method (Vaz[9]) recently recommended for establishing the size of agrarian reform production units gives first priority to social criteria. The goal is to establish the number of families that can work together —whether under family relationships, ties of friendship, religious bonding, tradition, or other factors. This is particularly relevant in countries that have a tradition of large-scale associative projects (as in the case of the **mingas**, a cooperative work system practiced in Chile).

Once the number of families has been established, the availability of labor and other elements can be calculated. This information can then be analyzed as necessary for determining the minimum size (useful farmland, production plans, proposed income levels, employment, etc.). In the case of an associative enterprise, all these factors should be viewed as a whole.

In any case, whether the study is based on the need to place a known number of families on an undetermined area of land, or to determine the best number of families to be placed in a given area, the basic procedure for calculating the minimum size of the associative enterprise follows methods similar to those used for individual farms. All the factors discussed above come into play.

6.2 POTENTIAL VS. CURRENT SOIL USE CAPACITY

This factor is essential, both for conducting a thorough characterization of the agricultural enterprise, and for calculating the levels of efficiency or inefficiency in the use of soil resources. These levels necessarily make themselves felt in the production and productivity indices.

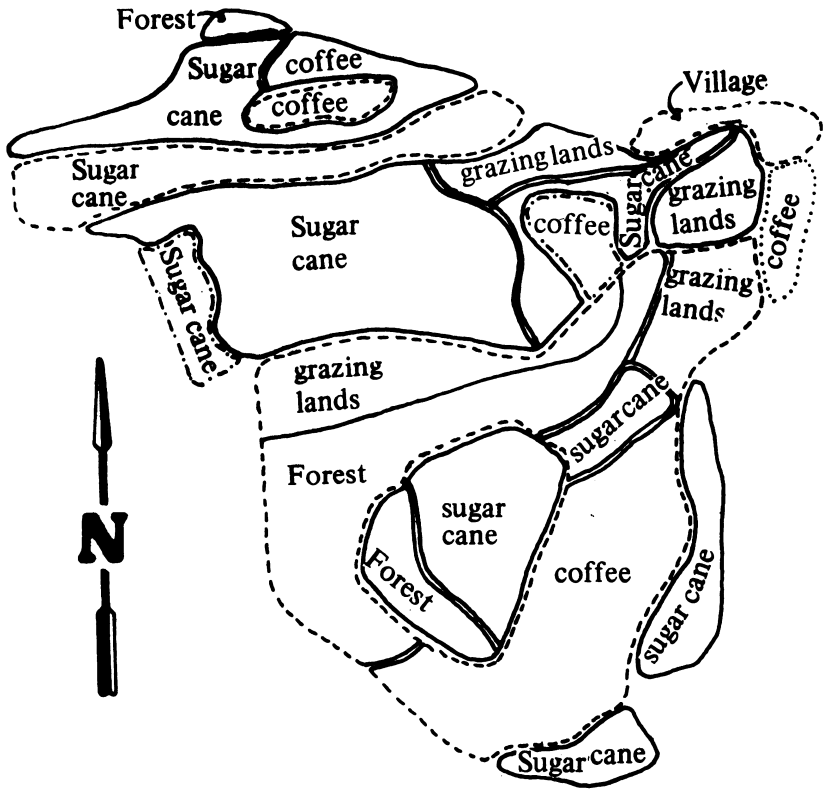
The maps suggested in Chapter 3 (Form 1) above can be used for orienting this comparative analysis. They can then be superimposed to give an idea of the acceptability of current levels of land use as compared with potential capacity.

This procedure was adopted for a research project supervised by the author (Salinas[7]). The study found yields more than 50 percent lower than regional averages for such crops as coffee and sugar cane. This low performance was attributed to the poor placement of crops, which were planted primarily on Class VII lands suitable mainly for forest growth. This can be seen in Figure 4, drawn up by the scientist who conducted the research (Salinas[7]).

6.3 PRODUCTIVITY

The physical measurement of the impact of a production plan cannot be determined unless the variations caused by the following factors are understood:

6.3:1 Yield per land surface unit. In the case of crops, figures on the volume of production (kilograms, tons, quintals, etc.) obtained under each alternative must be available, expressed in terms of production per land unit (hectare, acre, etc.).



SYMBOLS

..... Class II

-·-·-·-·- Class III and IV

——— Class V

- - - - - - - Class VI and VII

▬▬ Crop distribution

Figure 4. Cooperative agricultural production enterprise. Soil use: potential vs. current. (Source: Salinas[7]).

6.3:2 Head of livestock or animal units per land surface unit. When livestock plans are being developed, the standard of measurement is generally the animal unit, calculated by comparing the ages and types of stock with standard figures for adult animals.

6.3:3 Yields per unit of non-human labôr required under each alternative. On the basis of labor provided by the different elements available, such as work animals and traction, the output of or needs for each individual factor can be determined.

Under each plan, the need for these elements will vary according to specified goals.

6.3:4 Yields per unit of labor or human resources. It is important to determine the ratio between labor needs and current availability. Various indicators are available for expressing the available quantity of output obtained per day of work or worker-equivalent (on the basis of one year of full-time work).

Other measures of labor efficiency can be obtained, but in this section we will limit ourselves specifically to the technical or physical aspects of the volume of production per unit of physical input. The economic approach would be based on the efficiency of capital or investment, expressed specifically in monetary terms. Nevertheless, this strictly physical analysis could include the ratio between actual output (kilograms, tons, quintals, etc.) and monetary units spent (pesos, pounds, dollars, etc.). Thus, money would function as a simple factor of production.

6.4 MODEL FOR PLANNING PHYSICAL FACTORS

A helpful model for measuring the technical and physical impact of various alternative plans and comparing them with the current plan has been developed through the use of overall budgeting methods applied to actual cases studied in this area (Murcia[6]).

6.4:1 The number of land surface units needed for annual or perennial crops. This table is comparable to those used in development projects to summarize soil use projections.

6.4:2 Head of livestock or number of animal units under alternative livestock plans.

6.4:3 Power and traction expectations, or non-human labor needed under each alternative.

6.4:4 Labor needs for each plan, compared with current availability. This also includes a sample calendar of activities, providing information on specific labor needs for each farming task or livestock chore during the year.

The basic information need for filling in the columns on current use and present availability of the various resources can be extracted from the characterization and inventory models presented above. The task of recording identical information here is not a duplication of effort, for in this case the data functions as a basic dynamic element of the feasibility study and physical variation analysis of the alternatives proposed for the future.

Form 7 gives the charts used for each section of this model, corresponding to the numbering system used in Section 6.4.

FORM 7. Model for physical planning.

7:1 Crop production plans (in land surface units)

	Current Plan		Alternative Plan							
			I		II		III			
Crops	First Semester	Second Semester	1st S*	2nd S	1st S	2nd S	1st S	2nd S		

(*) S = Semester

FORM 7, cont.

7:2 Livestock Plans (in heads or number of animal units)

Live-stock	Current Plan		Alternative Plan							
			I		II		III			
	First Semester	Second Semester	1st S*	2nd S*	1st S	2nd S	1st S	2nd S		
Milk cows										
Calves										
Heifers										
Hogs										
Chickens										
TOTAL (animal units)										

7:3 Power and traction plans (in numbers)

Power	Current Plan		Alternative Plan							
			I		II		III			
	First Semester	Second Semester	1st S*	2nd S	1st S	2nd S	1st S	2nd S		
Oxen										
Work animals										
Tractors										

(*) S = Semester

FORM 7, cont.

7:4 Labor plans

7:4:1 Calendar of tasks for each crop or livestock activity on the enterprise (number of days of work per activity).

Farm: _____

Crop: _____

No. of acres or hectares _____

ACTIVITY	Month:	January	February	March	April	May	June	July	August	September	October	November	December
	S												
	C												
	S												
	C												
	S												
	C												
	S												
	C												
	S												
	C												
	S												
	C												
	S												
	C												
	S												
	C												

S = Scheduled

C = Completed

FORM 7, cont.

7:4:2 Labor: monthly needs and availability under current and alternative plans (in days of work/month).

ACTIVITY Month:	January	February	March	April	May	June	July	August	September	October	November	December
1.												
2.												
3.												
4.												
5.												
a. Total needs												
b. Availability												
c. Days of work by members												
d. Days of work by family												
e. Days of work by hired labor												

7:4:3 Labor plans (in days of work or worker-equivalents)

	Current Plan		Alternative Plans									
			I		II				III			
Labor	First Semester	Second Semester	1st S*	2nd S	1st S	2nd S			1st S	2nd S		
Days of work by members												
Days of work by family												
Days of work by hired labor												

(*) S = Semester

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CHAPTER 7

STANDARDS FOR PLANNING THE ECONOMIC PERFORMANCE OF THE AGRICULTURAL ENTERPRISE

"The point of maximum profit is not always the point of maximum physical production, a distinction based primarily on input and product prices."

Planning in the economic context must create programs for improving production, profits and earnings, measuring the repercussions of each alternative on such elements as capital investments, expenditures, and income.

Below are the major concepts necessary for understanding the nature of the various factors involved in economic analysis.

7.1 ECONOMIC PRINCIPLES AFFECTING PRODUCTION DECISIONS

Naturally, any endeavors in agricultural production must take into consideration production or productivity increases that can be brought about with some specific use of inputs. However, this analysis should be complemented with a study of optimum levels of economic performance or profitability.

The point of maximum profit is not always the point of maximum physical production, a distinction based primarily on input and product prices. Any agricultural professional –researcher, teacher, or extensionist– involved in the planning of agricultural enterprises, as well as the farmers themselves, must pay close attention to the principles of agricultural economics which play an essential role in the decision-making process.

Agricultural economics provide the farmers and specialists involved in the progress of the enterprise with a series of tools and concepts helpful in making appropriate decisions, both on the

production unit level and in the national and regional spheres. The basic academic disciplines that come into play are agricultural production economics, management, marketing, and agricultural policies and planning, as the essential elements in a preliminary definition of the field of agricultural economics.

These areas will not be discussed in depth at this time, as this would be an unnecessary repetition of theoretical concepts easily available in specific texts. However, it should be emphasized that, as the enterprise develops, farmers must be encouraged to develop a fuller understanding of the strictly technical and economic concepts which can be applied to specific situations and needs.

Below are the major factors that influence economic planning for the agricultural enterprise. These elements can be integrated into specific tools of analysis in this area.

7.2 FACTORS IN PLANNING INVESTMENTS, EXPENDITURES AND INCOME

The overall analysis of these factors comprises what is commonly known as the "investment plan," which is the basis for activities connected with credit programs on the enterprise level. This plan is also useful for projects that need financing with internal or external funds. The factors that should be included are:

7.2-1 CAPITAL INVESTMENTS

This heading includes all expenditures or outlays for more or less permanent goods, normally classified as "fixed assets." Examples would be land purchases, constructions, machinery and equipment, permanent installations, and other durable goods. Every alternative plan based on annual or temporary crops requires investments during the production cycle. Although the same holds true for perennial crops or ongoing activities, in these cases, other criteria are used for updating the investment, in view of the greater length of time necessary for production.

7.2-2 OPERATIONAL COSTS

These costs include all expenditures made specifically for the operation or production of the crop or livestock activity.

In general, these expenditures fall into two categories.

7.2-2:1 Cash or monetary expenditures, or disbursements of the farmer's cash. This would include outlays for seed, fertilizers, insecticides, wages, technical support, loan interest, land rental (when applicable), incidental expenses, services, etc.

7.2-2:2 Allocated, non-cash expenditures which do not represent actual cash disbursements. This could include inventory reductions, depreciation of fixed assets, non-remunerated family labor (with the exception of the farmer), upkeep of work animals (belonging to the farmer), etc.

The method used to calculate production costs or expenditures depends on the type of product involved (annual crops, perennials, livestock, etc.) and is determined by the vegetative cycle of each product.

7.2-2:3 In the case of annual or temporary crops, estimates are made for a single unit of land surface and projected to the entire area under production. As the vegetative cycle is brief, a calendar or simple record of activities can be used to schedule all expenses incurred from land preparation through harvest, without significantly altering the cost or income calculations.

7.2-2:4 Perennial crops: although the initial calculations are also made by unit of land surface area, the peculiar characteristics of the vegetative cycle require all analyses to be made in overall terms for the entire useful life of the crop. Categories can be created for the various phases: installation or establishment (from planting until the point at which production exceeds annual costs), expansion (until production stops increasing and levels off), full production or maturity (until production begins to slacken) and decline (until production costs outweigh income). Each of these phases has its own costs. For the general calculation of the total value of the project and the investment analysis, close attention must be paid to such factors as depreciation, appraisals, current value, and other elements that are not essential for annual crops.

7.2-2:5 Livestock. Unlike crop calculations based on units of land surface, livestock calculations are generally made for the entire extension of the enterprise, for here there is no direct relationship between fixed investment and units of land. Although there is a tendency to present economic data by unit of land, according to concepts of animal units and animal load, it is more common for the information to be expressed in terms of an optimal amount of land which has generally been established beforehand.

Similarly, livestock activities can be divided into various groups (dairy, breed stock, meat production), each of which has special qualities that should be analyzed separately. For example, dairy farming and calf breeding definitely pass through well-defined stages of expansion and full production, but there is no need to

calculate the decline stage because of the ongoing reproduction of the herd. Fattening has special characteristics that lend themselves to the adoption of methods similar to those used for annual crops.

7.2-3 INCOME

This element includes estimates of all the income or revenue of the various agricultural activities. They are classified as follows:

7.2-3:1 Monetary or cash income. These income items consist primarily of actual production volume, multiplied by product sales price and added to such other factors as machinery and equipment sales, machinery rental income, land rental, etc.

7.2-3:2 Imputed or non-cash income. This is in-kind farmer income such as inventory increases, appraisals, products for internal consumption, etc.

7.2-3:3 Off-farm income. Although calculations are generally made on the basis of costs (cash or imputed) and income (cash or imputed) originating inside the farm, at times it is appropriate to include external income sources.

This can be a very useful technique for certain production units in the hemisphere in which farm labor is supplemented by handicrafts or similar activities. This figure can be quite valuable, for example, in calculating family cash income.

7.3 MEASURING ECONOMIC PERFORMANCE

If any production unit is to be viewed as an enterprise, it must fulfill certain minimal requirements: covering all operating expenses, paying current interest on capital, and providing adequate, fair remuneration for the farmer.

The following indicators can be used to determine whether or not these conditions are being met. They can be applied almost directly to annual crops or activities (Murcia[1]).

7.3:1 **Enterprise income.** This index is obtained as follows:

Total income – Total expenditures

It is defined as the surplus needed to remunerate both the use of capital (if interest on the investment was not included as an expenditure) and the farmer's labor (if it has not already appeared as wages for the farmer).

7.3:2 **Farmer income.** This is obtained as follows:

Enterprise income – interest on investments

This can be defined at the farmer's earnings after expenses have been paid and interest on the investment has been covered. The interest figure can be obtained by applying the current capital market interest rate to total investments.

7.3:3 **Capital income.**

Enterprise income – estimated value of the farmer's labor

This is the surplus used for paying capital costs after expenses, including the farmer's labor, have been covered.

7.3:4 **Cost-benefit ratio.** This is a good yardstick for comparing the economic performance of the various phases of the enterprise, and it gives the enterprise's comparative advantage over other enterprises. It is calculated as follows:

$$\text{Cost-benefit ratio} = \frac{\text{Total income}}{\text{Total Costs}} = \frac{\text{Profit + Total Costs}}{\text{Total Costs}}$$

A ratio greater than or equal to 1 is considered acceptable.

7.3:5 **Profitability of investment.** This is a very useful index for understanding the economic performance. The calculation is:

$$\text{Profitability of investment} = \frac{\text{Enterprise Income x 100}}{\text{Total Investment}}$$

Higher values are considered more favorable.

For perennial crops or permanent activities, these same measurements can be used. However, because of the longer duration of the investment it is important to update the values as necessary, according to the years of useful life of the project.

For this reason, such cases should, at the very least, be analyzed in terms of the following concepts and indicators:

7.3:6 Present value of costs and income. When long-term production plans are under consideration and income and expenses are subject to constant change, the concept of present value is used, and all future costs and income, duly discounted, are added together. For this reason, the estimate is made on the basis of the initial investment, "reducing all annual payments to the equivalent of a single payment" made at the time of the investment. In this case, the formulas serve to "discount" future values, making it possible to add investment costs to annual costs (United Nations[4]).

The price updating process involves using a table of discounting values (the single factor for updating, or the uniform series factor for constant values over several periods), which can be found in mathematics or financial textbooks.

Table 9 illustrates the use of present value. It is a simple example of a project requiring an investment of 1 000 monetary units during the first year, producing 1 250 m.u. the second year. Calculations for updating this cash flow at an interest rate of 10 percent are:

TABLE 9. Example of the procedure for expressing an investment, in terms of present value.

Year	Monetary flow (a)	Discount factor i = 0.10 (b)	Product (axb)
1	– 1 000	0.9091	– 909.10
2	+ 1 250	0.8264	+ 1 033.00
Total present value			+ 123.90

This positive present value means, among other things, that the project will be profitable at the 10 percent interest rate. This idea becomes clearer when the internal rate of return is brought into play.

7.3:7 Cost-benefit ratio (at present value). For production plans or more permanent projects, this updating process takes the following form:

$$\text{Cost-benefit ratio} = \frac{B}{C}$$

B = Total project production (at present value)
C = Total project costs (at present value)

For example, plans are made to develop a dairy project over a ten-year period on a farm currently being used for farm crops. The probable flow of investments, income, and expenditures for a project of this nature is illustrated in Table 10. The cost-benefit ratio, at a present-value interest rate of 10 percent, appears at the bottom of Table 10.

TABLE 10. Calculation of the cost-benefit ratio for a dairy project (in monetary units).

Years	EXPENDITURES			Total Income	Discount Factor 10%	Present Value Costs	Present Value Income
	Basic Investments	Operation	Totals				
0	7 000	–	7 000	–	1.0000	7 000.00	–
1	35 000	7 300	42 300	12 000	.9091	38 454.93	10 090.20
2		7 400	7 400	14 300	.8264	6 115.36	11 817.52
3		7 400	7 400	16 300	.7513	5 559 62	12 246.19
4		7 400	7 400	16 500	.6830	5 054.20	11 269.50
5		7 400	7 400	16 500	.6209	4 594.66	10 244.85
6		7 400	7 400	16 500	.5645	4 177.30	9 314.25
7		7 400	7 400	16 500	.5132	3 797.68	8 467.80
8		7 400	7 400	16 500	.4665	3 452.10	7 697.25
9		7 400	7 400	16 500	.4241	3 138.34	6 997.65
10		7 400	7 400	16 500	.3855	2 852.70	6 360.75
			TOTALS			84 196.89	95 324.96

$$\text{Cost-benefit ratio} = \frac{95\,324.96}{84\,196.89} = 1.132$$

The 1.132 figure obtained for the cost-benefit ratio in this example means the project is advisable from the economic point of view, for the ratio is greater than 1. Nevertheless, it does not mean that this is the best possible choice, for the feasibility of other alternatives must still be analyzed.

7.3:8 **Profitability of the investment** (at present value). This ratio gives the earnings, or profit, obtained for every monetary unit invested. It is expressed in percentage terms, and the value should be as high as possible.

The following ratio is used:

$$\text{Investment profitability} = \frac{\bar{P}}{I} \times 100$$

Where:

$\bar{P}$ = Average annual profit (at present value) or annual enterprise income (Total Income – Total Costs), at present value.

I = Total investment (at present value).

In the above example of a dairy project, investment profitability can be calculated as shown in Table 11. At the 2.87 percent figure obtained for a 10 percent interest rate, we find that some profit can be earned per monetary unit invested: the final figure, while low, is nevertheless greater than zero.

TABLE 11. Calculation of investment profitability for a dairy project (in monetary units).

Years	Annual Profit	Investment	10% discount factor	Annual profit at present value
0	–7 000	7 000	1.0000	–7 000.00
1	–30 300	35 000	.9091	–27 545.73
2	6 900		.8264	5 702.16
3	8 900		.7513	6 686.57
4	9 100		.6830	6 215.30
5	9 100		.6209	5 650.19
6	9 100		.5645	5 136.95
7	9 100		.5132	4 670.12
8	9 100		.4665	4 245.15
9	9 100		.4241	3 859.31
10	9 100		.38.55	3 508.05
TOTAL				+11 128.07

Annual average profit: 1 112.81

$$\text{Profitability} = \frac{1\ 112.81}{38\ 818.50} \times 100 = 2.87\%$$

7.3:9 Internal rate of return or yield. The internal rate of return is that interest rate which brings the net monetary flow to zero. In other words, it is the value at which the sum of expected income is equal to the sum of expected expenses.

This means that the internal rate of return gives the interest rate at which the present value of the cost-benefit ratio is equal to 1. Table 12 shows an example of the present value of monetary flow for various rates of interest (Solomon[3]).

It can thus be seen that the rate of interest at which net monetary flow in our example is equal to zero is 25 percent, which is the maximum rate of interest that could be paid if a project were to produce neither profit nor loss.

When the internal rate of return is greater than the prevailing interest rate (in banks), the producer would do well to take out a loan and make the investment. If the internal rate of return is less than the market interest rate, farmers would be ill-advised to borrow money for completing the project.

TABLE 12. Sample calculation of the internal rate of return on an investment.

Year	Monetary flow	Discount factors			
		15%	20%	25%	30%
1	−1 000	.8696	.8333	.8000	.7692
2	+ 1 250	.7561	.6944	.6400	.5917
Total present value		+ 75.52	+ 34.70	0	− 29.58

In many cases, when the calculations of rate of return do not give results as precise as those presented above, it becomes necessary to use the following formula:

$$\text{I.R.R.} = {}^{i}I + \frac{Y_1 (i_2 - i_1)}{Y_1 - Y_2}$$

in which:

i_1 = Positive discount factor.

i_2 = Negative discount factor.

Y_1 = Sum of net profit at present value with i_1.

Y_2 = Sum of net profit at present value with i_2.

Table 13 shows the use of this formula for the dairy operation we have been studying. This calculation gives an internal rate of return of 17.2 percent. Although this value demonstrates that the project has good economic prospects in comparison with normal rates of interest in the banks, this does not necessarily mean that the investment should be made. There could be other projects with much higher rates of interest, that would be preferable.

TABLE 13. Calculation of internal rate of return for a farm-level dairy project (in monetary units).

Years	Total Cost	Total income	Net Profit	15% discount factor	15% present value	20% discount factor	20% present value
0	7 000		−7 000	1.0000	−7 000.00	1.0000	−7 000.00
1	42 300	12 000	−30 300	.8696	−26 348.88	.8333	−25 248.99
2	7 400	14 300	6 900	.7561	5 217.09	.6944	4 791.36
3	7 400	16 300	8 900	.6575	5 851.75	.5787	5 150.43
4	7 400	16 500	9 100	.5718	5 203.38	.4823	4 388.93
5	7 400	16 500	9 100	.4972	4 524.52	.4019	3 657.29
6	7 400	16 500	9 100	.4323	3 933.93	.3349	3 047.59
7	7 400	16 500	9 100	.3759	3 420.69	.2791	2 539.81
8	7 400	16 500	9 100	.3269	2 974.79	.2326	2 116.66
9	7 400	16 500	9 100	.2843	2 587.13	.1938	1 763.58
10	7 400	16 500	9 100	.2472	2 249.52	.1615	1 469.65
TOTALS					+ 2 613.92		−3 323.59

$$\text{I.R.R.} = i_1 + \frac{Y_1 (i^2 - i^1)}{Y_1 - Y_2} = 15 + \frac{2\,613.92(5)}{2\,613.92 - (-3323.59)} = 15 + 2\,201 = 17.20\%$$

7.3:10 Sensitivity analysis. Another useful indicator for any production plan or agricultural project is the sensitivity analysis that shows the extent to which price variations (especially reductions) can be tolerated, or changes in production costs (especially increases) can be sustained, as well as real possibilities that such changes might occur.

7.4 METHODS FOR THE ECONOMIC PLANNING OF THE AGRICULTURAL ENTERPRISE

A number of methods are available for conducting an economic evaluation of alternative plans and selecting the plan most appropriate to the general conditions and proposed goals of the agricultural enterprise.

Among these techniques, we can differentiate among **planning** methods, such as budgeting (partial and total), linear programming, and simplified programming, and **comparing**, such as group analysis and comparative studies.

As was mentioned at the beginning of this section, there are a number of cases of each of these methods in the Americas. They have been summarized in various publications and research notes, and there is no need to repeat them at this time for purposes of demonstration or academic discussion.

However, it would to helpful to draw special attention to methods for planning by budget. These have been shown on various occasions to be highly effective in facilitating an initial understanding of planning processes among groups with low levels of education, and our concern is to demonstrate simple planning models that can be used immediately and made directly available to associative enterprises and used by the members themselves. For this reason, and in no way rejecting the diverse advantages that the various planning methods provide for different levels of complexity, special attention will be given to certain simplified plans.

7.4-1 PARTIAL BUDGETS

The partial budgeting method is used for making a quick analysis of the advantages that a given alternative plan has over the status quo, when proposed changes will affect only part of the farm. This method helps the farmer select those alternative crops or livestock activities that will be most valuable under a given series of conditions, such as replacing manual labor with machines.

The factors needed for developing a partial budget are:

7.4:1 Additional income: new income that can be expected.

7.4:2 Reduced costs: How many expenses will be eliminated.

7.4:3 **New earnings**: the degree to which the alternative plan increases the farmer's income , as compared with current plans. It is the sum of 7.4:1 and 7.4:2.

7.4:4 **Reduced income**: amount of income that will be lost.

7.4:5 **Additional costs**: new expenditures that will be needed for effecting the alternative plan.

7.4:6 **New outlays**: how much the new plan increases the farmer's expenses. It is equal to the sum of 7.4:4 and 7.4:5.

7.4:7 **Difference**: changes in income, either positive or negative, that are reflected in the comparison between the alternative plan and the status quo. Subtract 7.4:6 from 7.4:3.

The figures in 7.4:1 and 7.4:2 are on the positive side of the ledger, for they give the new income that will be provided by the alternative plan. 7.4:4 and 7.4:5 are on the negative side, or the increase in expenses. Therefore, a positive value of 7.4:7 indicates that the alternative plan has potential for adoption, because it increases farmer income as compared with the current plan. The opposite conclusion will be drawn if this figure is negative.

Form 8 gives a model for the partial budget analysis of an agricultural enterprise.

Below are a few simple examples demonstrating the use of this technique:

7.4-1:1 **Replacing one crop with another.** An associative enterprise has a 20-hectare lot usually planted to rice. This year, one of the members proposed that cotton be planted instead. How can the decision be made?

The first step is to determine the expenditures and income involved per land unit of rice or cotton.

One hectare planted to rice costs 3 500 monetary units to produce and yields a gross income of 5 000 m.u. One hectare of cotton costs 4 200 m.u. and provides 7 000 m.u. of income.

The following procedure, based on partial budgeting, can be used for determining whether or not the change should be made:

– Additional income 20 hectares x 7 000 m.u.	=	140 000
– Reduced costs: 20 hectares x 3 500 m.u.	=	70 000
– New earnings: (140 000 + 70 000)	=	210 000
– Reduced income: 20 hectares x 5 000 m.u.	=	100 000

– Additional costs: 20 hectares x 4 200 m.u. = 84 000
– New outlays: (100 000 + 84 000) = 184 000
– Difference (210 000 – 184 000) = 26 000

The new plan would provide 26 000 m.u. more income than the current plan, and therefore the change is advisable.

FORM 8. Partial budget format for determining whether or not a change is economically advisable

Change from _____ to _____

	Item changed	Change in monetary units	Total
8:1.	Additional income		
	Total additional income		
8:2.	Reduced costs		
	Total reduced costs		
8:3.	New earnings (8:1 + 8:2)		
	(Positive effects)		
8:4.	Reduced income		
	Total reduced income		
8:5	Additional costs		
	Total additional costs		
8:6.	New outlays (8:4 + 8:5)		
	(Negative effects)		
8:7.	Difference (8:3 – 8:6)		
	(Change in net income)		

7.4-1:2 Replacing manual labor with machinery. A farm product is being harvested manually, and the enterprise would like to implement the use of a tractor. The manual labor for one hectare costs 5.00 m.u. per hour for 180 hours. The tractor would cost 60.00 m.u. for 12 hours, plus the wages of the driver, or 8.00 m.u. per hour.

The tractor wastes 50 kilograms of farm product, worth 2.00 m.u. per kilogram, but it increases income through the sale of byproducts, for a total of 400.00 m.u. Calculate whether or not the change is worth making.

The solution to this problem can be found in Table 14, which also illustrates the use of the standard forms for a partial budgeting analysis.

7.4-2 MODEL OF THE TOTAL BUDGET METHOD FOR ECONOMIC PLANNING IN AN AGRICULTURAL ENTERPRISE

A set of guidelines based on the total budget method (Murcia[2]) has been designed for use in any type of agricultural enterprise in the Americas. It takes into consideration all the facets of economic planning for the enterprise as described above.

The effectiveness of this system was demonstrated in a study of settlements or peasant farm associative enterprises in Honduras, and positive experiences have also been recorded in other countries of the region.

The model is commonly known as the "expense, income and investment plan." Although it is shown here for crops or annual activities, it is easily adaptable to more permanent types of operations.

The guide is given in Form 9. It can be used for analyzing or studying the following factors:

7.4-2:1 Capital investment plans. This includes outlays or expenditures for durable or relatively permanent goods, as distinguished from operational expenses per se. Each alternative requires its own investments and expenditures throughout the period of crop or livestock production.

7.4-2:2 Expense plans. These cover cash and non-cash expenditures directly related to crop or livestock production. Cash expenditures include the cost of the farmer's labor (as a member of a community enterprise), and this figure should also be included for calculating minimum family income for the specific plans to be adopted under each alternative.

TABLE 14. Sample of partial budgeting for determining the advisability of replacing manual labor with a tractor.

	Item changed	Change in monetary units	Total
A.	Additional income Sale of byproducts	400	
	Total additional income		400
B.	Reduced costs		
	180 hours at 5.00 m.u. each	900	
	Total reduced costs		900
C.	New earnings (Positive effects)		1 300
D.	Reduced income (50 Kilograms at 2.00 m.u. each)	100	
	Total reduced income		100
E.	Additional costs (12 hours at 60 m.u. each)	720	
	Tractor driver (12 hours at 8 m.u. each)	96	
	Total additional costs		816
F.	New outlays (negative effects)		916
G.	Difference (change in net income)		384

Therefore, it is worthwhile to make the change.

7.4-2:3 Income plans. This includes cash income from product sales, rent, etc. Non-cash income and on-farm consumption are also counted as enterprise earnings.

Another item in this category is off-farm earnings, which could be an important factor in figuring family cash income.

7.4-2:4 Income and expense summary. Measures of economic performance. This a table synthesizing the income and expenditures involved under each alternative. It is used for calculating the net profit of each plan and measuring the plan's economic performance. This table provides a mechanical method for measuring each factor, and the resulting indices can be applied both to crops and to long- or short-term livestock operations, although in the latter case, it is best to use present value and internal rate of return as a basis.

7.4-2:5 Cash flow, biannual plan for financing by source, and plan for debt cancellation. These outlines help the farmer appraise economic resources at the beginning of each working period, calculate cash needs for the semester, and keep aware of deadlines for meeting monetary commitments.

The system is extremely useful for enterprise members, and it can serve indirectly to meet the needs of credit agencies.

FORM. 9. Model for the economic planning of an enterprise with the total budget method.

9:1 CAPITAL INVESTMENT PLANS

	Current Plan		Alternative I		Alternative II		Alternative III	
INVESTMENT	1st sem.	2nd.sem.	1st sem.	2nd sem.	1st sem.	2nd sem.	1st sem.	2nd sem.
Constructions								
Machinery								
Productive livestock								
Other								
TOTAL								

Form 9, con't

9:2 OPERATIONAL EXPENSE PLANS

	Current plan		Alternative I		Alternative II		Alternative III	
EXPENDITURE	1st sem.	2nd sem.	1st sem.	2nd sem.	1st sem.	2nd sem.	1st sem.	2nd sem.
Cash								
Seed								
Fertilizer								
Herbicides								
Insecticides								
Other materials or inputs								
Loan interest								
Labor*								
Taxes								
Water								
Electricity								
Insurance								
Fuel								
Machinery and equipment maintenance								
Building upkeep								
Other cash expenditures								
Subtotal								
Non-cash								
Reduction of machinery inventory								
Reduction of livestock investment								
Depreciation								
Unrenumerated family labor (except farmer)								
Subtotal								
TOTAL								

(*) When family income is calculated, the cost of labor provided by the farmer (or members) should be added to net income or to land, capital and administrative payments.

9:3 INCOME PLANS

9:3:1 Annual production and cash income (current and alternative).

		Current plan					Alternative plan I					Alternative plan II				
		Production* per Ha		Production* Total		Sale** Total value	Production* per Ha		Production* Total		Sale** Total value	Production* per Ha		Production* Total		Sale** Total value
ACTIVITY	UNIT	1S	2S	1S	2S	1S 2S	1S	2S	1S	2S	1S 2S	1S	2S	1S	2S	1S 2S
Crops																
Subtotal	X	X		X	X	X	X		X	X	X	X		X	X	X
Livestock																
Subtotal	X	X		X	X	X	X		X	X	X	X		X	X	X
Others																
Subtotal	X	X		X	X	X	X		X	X	X	X		X	X	X
Total cash income	X	X		X	X	X	X		X	X	X	X		X	X	X

(*) – (**) The difference between these two figures is equal to benefits, privileges, or on-farm consumption.

9:4 NON-CASH INCOME (CURRENT AND ALTERNATIVES)*

	Current plan		Alternative plan I		Alternative plan II		Alternative plan III	
INCOME	1st sem.	2nd sem.	1st sem.	2nd sem.	1st sem.	2nd sem.	1st sem.	2nd sem.
Increase in livestock inventory								
Increase in machinery and equipment inventory								
Appraisal								
Investments								
Other								
Total								

(*) In order for these to qualify as real income rather than simple increases triggered by inflation or currency devaluation, corrections should be made with the use of the appropriate tables.

9:5 BENEFITS OR PRIVILEGES (ON-FARM CONSUMPTION)

		Current Plan				Alternative Plan I				Alternative Plan II				Alternative Plan III			
		Production		Value		Production		Value		Production		Value		Production		Value	
ITEM	Unit	1S	2S	1S	2S	1S	2S	1S	2S	1S	2S	1S	2S	1S	2S	1S	2S
Crops																	
Livestock																	
Other																	
Housing																	
TOTAL																	

9:6 OFF-FARM INCOME

	Current plan		Alternative plan I		Alternative plan II		Alternative plan III	
ITEM	1st sem.	2nd sem.	1st sem.	2nd sem.	1st sem.	2nd sem.	1st sem.	2nd sem.
Wages								
Handicrafts								
Subsidies								
Machinery rental								
Other								
Total								

9:7 INCOME AND EXPENSE SUMMARY. MEASUREMENTS OF ECONOMIC PERFORMANCE

ITEM	Current plan		Alternative plan I		Alternative plan II		Alternative plan III	
	1st sem.	2nd sem.	1st sem.	2nd sem.	1st sem.	2nd sem.	1st sem.	2nd sem.
1. Cash income								
2. Non-cash income								
3. Benefits or privileges								
4. Total income from property (1+2+3)								
5. Off-property income								
6. Cash expenditures								
7. Non-cash expenditures								
8. Total enterprise expenditures (6+7)								
9. Net profit* (4–8)								
10. Enterprise income (4–8)								
11. Interest (%) on investment								
12. Farmer income (10–11)								
13. Capital income (10–labor cost for members)								
14. Family cash income (value of labor of member and family) + 1 + 5 (excluding labor costs for members) –6								
15. Cost-benefit ratio (4÷8)								
16. Investment profitability $\left(\frac{9}{\text{Total investment}}\right) \times 100$								
17. Rate of return**								

(*) If remuneration for the labor of members is included as expenditures, it should be categorized as payments for land (when not included as rental), capital, and administration.

(**) Primarily for permanent activities.

9:8 CASH FLOW

	Year *	Year *	Year *	Year *	Year *	Year *	Year *
	1st sem. 2nd sem.	1st sem. 2nd sem.	1st sem. 2nd sem.	1st sem. 2nd sem.	1st sem. 2nd sem.	1st sem. 2nd sem.	1st sem. 2nd sem.
1. INCOME							
Previous fiscal year							
Product sales							
Crops							
_____							
_____							
_____							
Livestock							
Credit							
_____							
_____							
_____							
2. EXPENDITURES							
Investments							
Operational costs							
3. CASH BALANCE (1-2)							
4. AMORTIZATION							
5. CASH BALANCE (3-4)							
6. PAID TO ENTERPRISE							
7. CASH BALANCE (5-6)							
8. OTHER (Dividends to members, etc.)							
BALANCE							

(*) Primarily for medium-and long-term activities.

9:9 BIANNUAL FINANCING PLAN BY ALTERNATIVE SOURCES

Source	Activity	1st sem.	2nd sem.	3rd sem.*	4th sem.*	5th sem.*	6th sem.*	TOTAL
TOTAL								

(*) Primarily for medium-and long-term activities.

9:10 PLAN FOR DEBT CANCELLATION

Term	Source	Amount of financing		PAYMENT DUE									
				First semester				Second semester				Year total	
		1st sem.	2nd sem.	Date	Capital	Interest	Total	Date	Capital	Interest	Total	Capital	Interest	Total
TOTAL			XX					XX					

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CHAPTER 8

STANDARDS FOR PLANNING EMPLOYMENT ON ASSOCIATIVE PRODUCTION ENTERPRISES

"One factor that should take top priority in planning an associative production enterprise is human labor."

The purpose of the associative agricultural production enterprise is not exclusively to maximize earnings. Rather, special efforts must be made to analyze the social conditions present on these enterprises; one of the central ideas behind this type of organization is to improve the standards of living of the human groups involved.

In addition, the current trend is to make human beings the nucleus and ultimate goal of the development process. The concern is not only to bring about quantitative production increases, but also to alter the human condition.

One fundamental factor of this is human labor. The importance of this element is undeniable, for it is the human being who is ultimately responsible for putting the production process into motion and organizing its course. In addition, the less developed countries are facing a critical need to make use of the human resources in rural sectors.

This chapter will first present some of the background theories needed for understanding why it is so important to approach the employment problem as a part of general development strategies. This will be followed by a description of experiments conducted by Vargas[7], in which a more concrete analysis is made of labor use on associative agricultural production enterprises.

8.1 THE EMPLOYMENT PROBLEM IN THE RURAL SECTORS OF THE AMERICAS

The overall labor picture in the rural sectors of the Americas is indeed alarming, due to a number of factors stemming from the poor distribution and use of productive resources.

In general terms, human resources are plentiful in the rural zones of this region, while capital resources are scarce and costly. This situation is illustrated in Figure 5, which shows the patterns of labor and capital resource combinations used for achieving similar production levels in developed and less-developed countries.

The magnitude of the problem is exacerbated by the patterns of extensive land use that generate very low levels of employment per unit of land surface area.

Similarly, it should be recognized that recent development trends strongly focused on modern sectors with complex, high-capital technology, to the detriment of both rural and urban activities needing extensive labor (Blanchard[1]). The gravity of this situation has shown us the need to adopt macro or microeconomic planning methods that do not produce major imbalances.

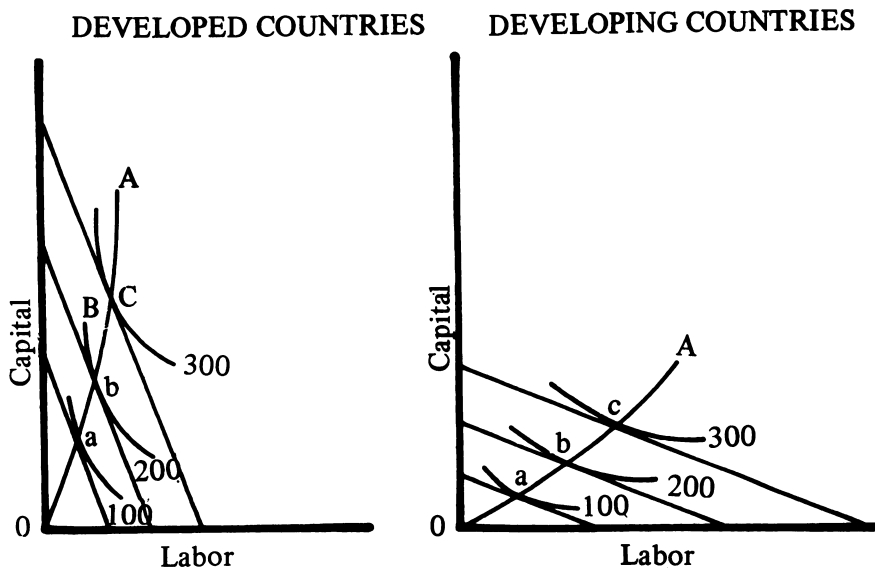

Figure 5. Size, scale and productivity ratios (source: Febres[4]).

One of the major questions, for example, is whether or not to mechanize production on associative enterprises with high levels of available labor. In less-developed countries, it is evident that any attempt to introduce mechanized changes will tend to replace human labor, thus increasing production at a high social cost.

8.1-1 PROBLEMS OF THE INDISCRIMINATE USE OF MACHINERY. EXAMPLES.

In order to examine the problems that attend the use of machinery, a research project in Costa Rica (Rosales[6]) was designed for analyzing labor use and labor displacement under three types of production systems (manual hand-hoe cropping, semi-mechanized, and fully mechanized) for several different crops.

Rice is presented as an example in Figs. 6, 7 and 8. These graphs show an uneven use of labor during the crop season, depending on the production system used. The hand-hoe method (Fig. 6) has high labor needs, while the mechanized system (Fig. 8) uses low amounts of labor. Semi-mechanized production (Fig. 7) occupies an intermediate position in which one of the three production periods is characterized by high labor use.

This research showed that the mechanized rice system displaced 86.83 percent of the labor needed for hand-hoe cultivation during the planting stage, while the semi-mechanized system produced a 63.64 percent displacement (see Table 15). Later, the use of an automatic harvester for the rice crop produced a displacement of 95.51 percent of the labor required per hectare for a manual harvest. Similarly, the use of airplanes, tractors, automatic pumps, etc. produced a displacement of 83.33 percent of the labor needed for manual cultivation and 80 percent of the labor for the mechanized system. An integrated set of equipment (combination of tractor, plow and harrow) and a seeder for land preparation and planting produces an estimated displacement of approximately 80 percent of the workers needed for these tasks.

This displacement, together with inadequate levels of absorption of displaced workers, seriously hinders the rural development processes. One author (Brown[2]) has stated that, in view of this combination of factors, indiscrimitate mechanization can only lead to a full-scale social disaster in many countries, to the severe detriment of the rural population.

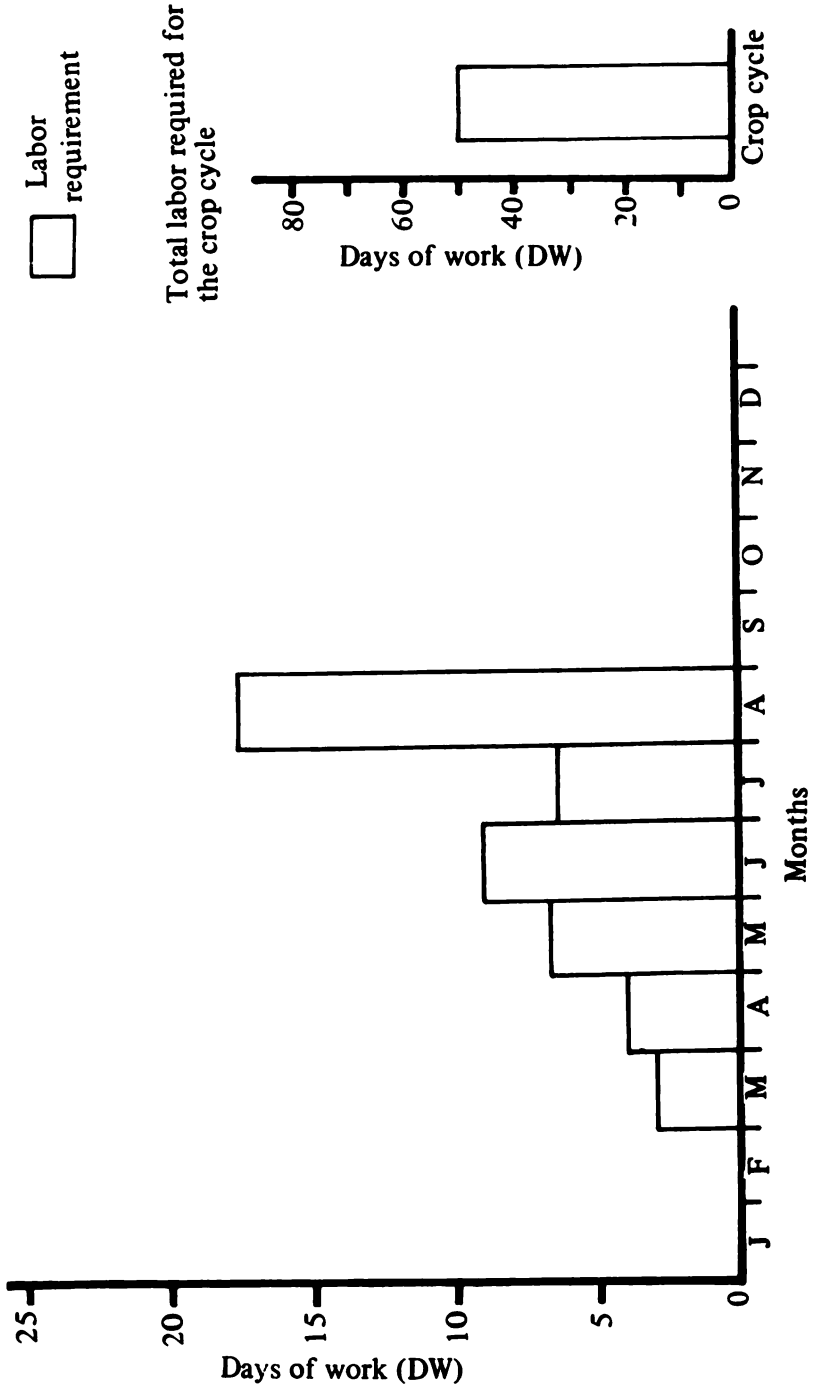

Fig. 6. Labor requirements for manual, hand-hoe production of one hectare of rice Costa Rica, 1976 (source: Rosales[6]).

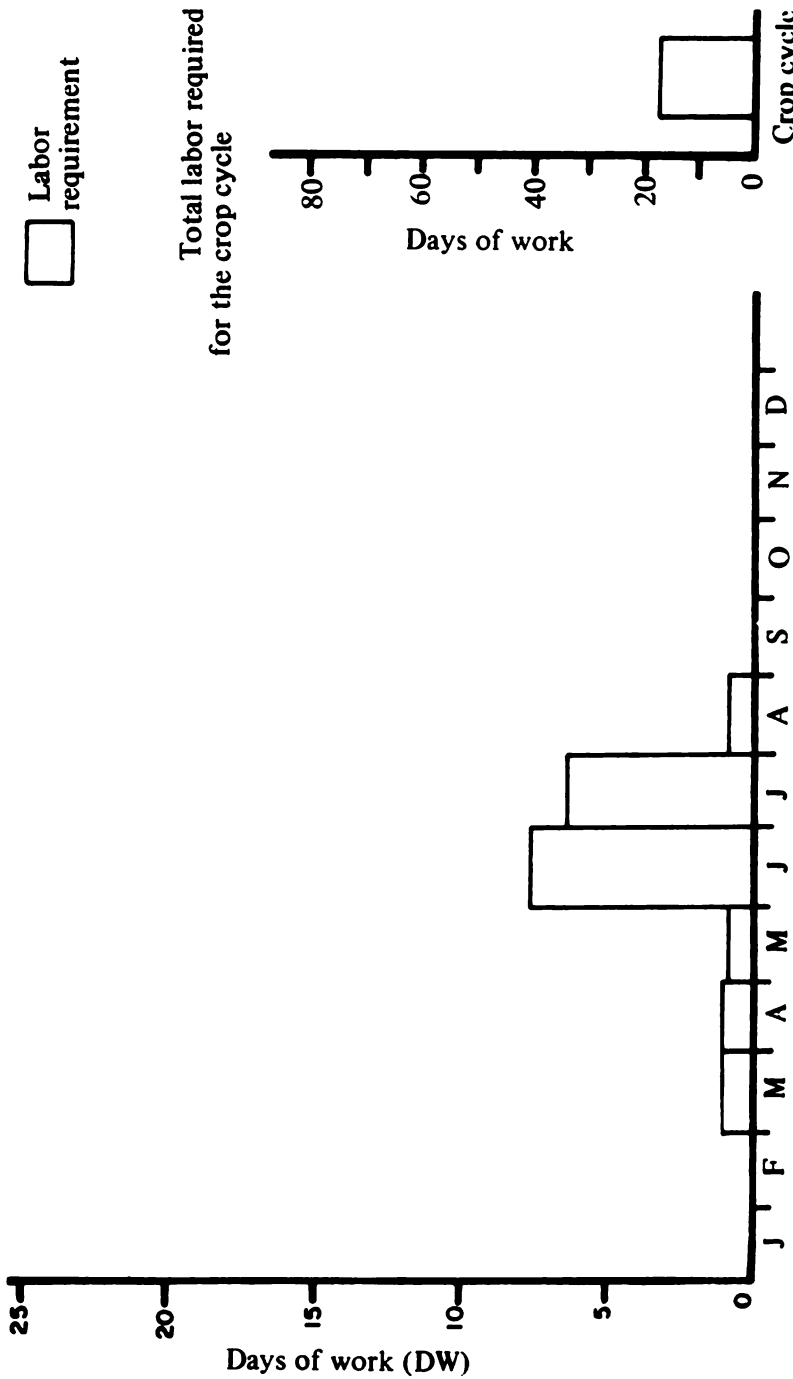

Fig. 7. Labor requirements for the semi-mechanized production of one hectare of rice. Costa Rica, 1976 (source: Rosales[6])

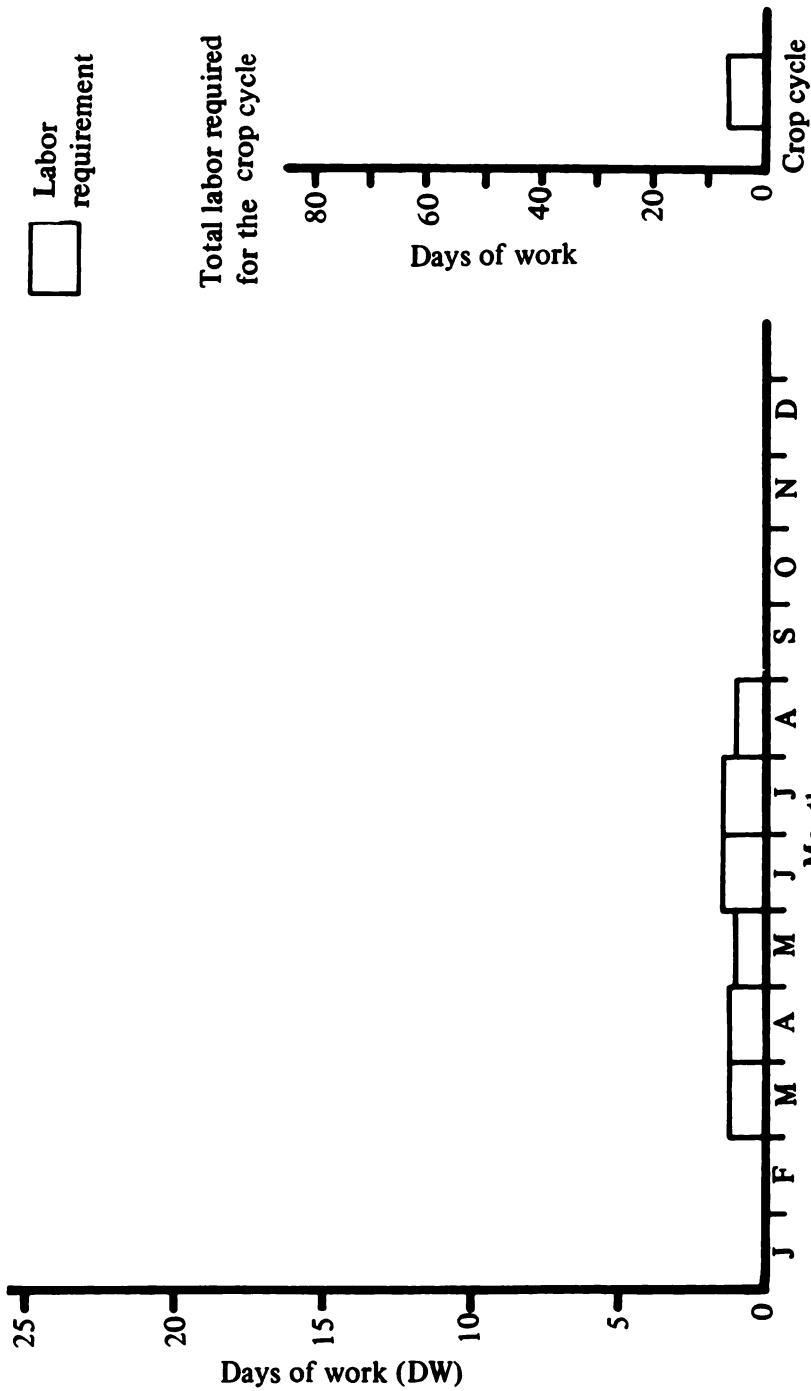

Fig. 8. Labor requirements for the mechanized production of one hectare of rice. Costa Rica, 1976 (source: Rosales[6]).

TABLE 15. Comparative labor requirements for the production of one hectare of rice under three different cultivation systems. Costa Rica, 1976 (source: Rosales[6]).

CROP	TASKS	CROPPING SYSTEM (DAYS OF WORK) Hand-hoe (H) Semi-mechanized (SM) Mechanized (M)			Labor displacement (%)	
					Hand-hoe vs. Mechanized	Semi-mechanized vs. Mechanized
		H	SM	M		
RICE	Land preparation	7.0	2.1	2.1	70.00	0.00
	Planting	7.0	0.7	0.7	90.00	0.00
	Cultivation	16.8	14.0	2.8	83.33	80.00
	Harvesting	17.8	0.8	0.8	95.51	0.000
	TOTAL	48.6	17.6	6.4	86.83	63.64

8.1-2 SUMMARY OF THE EFFECTS OF INDISCRIMINATE MECHANIZATION

To summarize, Rosales[6] found the following effects of high levels of indiscriminate mechanization:

8.1-2:1 Displacement of labor by machinery. This leads to socio-economic problems. While it increases labor productivity, it tends to displace unskilled agricultural workers who are unlikely to find employment in other economic sectors (Cipagauta and Fuster[3]).

8.1-2:2 Rural-urban and rural-rural migration. This is a consequence of the unemployment or underemployment produced when labor is replaced with capital.

8.1-2:3 Capital exports. This occurs when unplanned amounts of machinery are imported. It prevents productive capital from being incorporated into the national economy in the form of benefits, exporting it instead to the country providing the machinery.

In spite of all these findings, it has been concluded that there is still a need to mechanize for improving agricultural production, in view of technical, economic, social and political factors. Lizano[5] gives a deeper insight into this area by proposing the use of selective mechanization that would maximize the use of the most abundant resource, labor, while minimizing the use of scarce capital resources.

The development process pursues a number of goals, one of which is to guarantee minimum family income and improve employment levels. It is never easy to reach optimal levels for all these factors and strike a balance between maximum earnings, with their high social costs, and low profit levels with improved social conditions.

A number of alternatives are available, depending on the development policies of each country. Nevertheless, the most urgent goal for the Americas is to meet the basic needs of the large groups who live in miserable conditions, by concentrating on efforts to redistribute income and wealth. Work must be done to develop an employment policy that will help maintain a proper balance among the various productive sectors.

In order to provide a clearer understanding of these ideas, we will analyze the specific case of the associative production enterprise. These organizations are felt to be an accurate microeconomic reflection of the magnitude of regional or national-level problems.

8.2 A METHOD FOR PLANNING ASSOCIATIVE PRODUCTION ENTERPRISES ON THE BASIS OF LABOR USE

A research project completed by Vargas[7] in Costa Rica concentrated on twelve selected associative enterprises. The goal was to conduct preliminary studies and then begin gradually to establish specific employment plans for each enterprise.

The first stage of this project was to determine the human resources available on each enterprise and categorize them by age group and day of work equivalent for each group (a day of work is defined as the work completed over an eight-hour period by a male from eighteen to sixty years of age). These equivalents were assigned according to Table 16, in line with the concepts of Castro (cited by Vargas[7]). This classification system is consistent with that suggested in Section 6.1-3:1.

TABLE 16. Age groups and day of work equivalent.

AGE GROUPS (IN YEARS)	DAY OF WORK EQUIVALENT
MEN	
12-14	0
14-16	0.5
16-18	0.75
18-60	1.00
WOMEN	
12-14	0
14-16	0.25
16-18	0.35
18-60	0.50

The human resources are broken down below, in accordance with the criteria discussed by Castro (cited by Vargas[7]).

8.2:1 Available Family Labor (AFL), which includes all males between eighteen and sixty years of age.

8.2:2 Potential Family Labor (PFL), which includes available family labor plus males between fourteen and eighteen years of age and females between fourteen and sixty years of age. This figure is the sum of the total number of members of the various age groups, multiplied by their respective day of work equivalents.

Both figures are expressed in terms of monthly labor.

A monthly and annual comparison was then made between available family labor, potential family labor, and the actual labor requirements for the work being done in each settlement. This gave the labor surplus, or unemployment, figures for certain periods of the year.

On the basis of this information, bar graphs were drawn for each settlement, as shown in Fig. 9, to illustrate the employment situation on one enterprise. In the example, the enterprise was cultivating rice, watermelon and cantaloupe, and the yearly distribution of labor resources was inadequate.

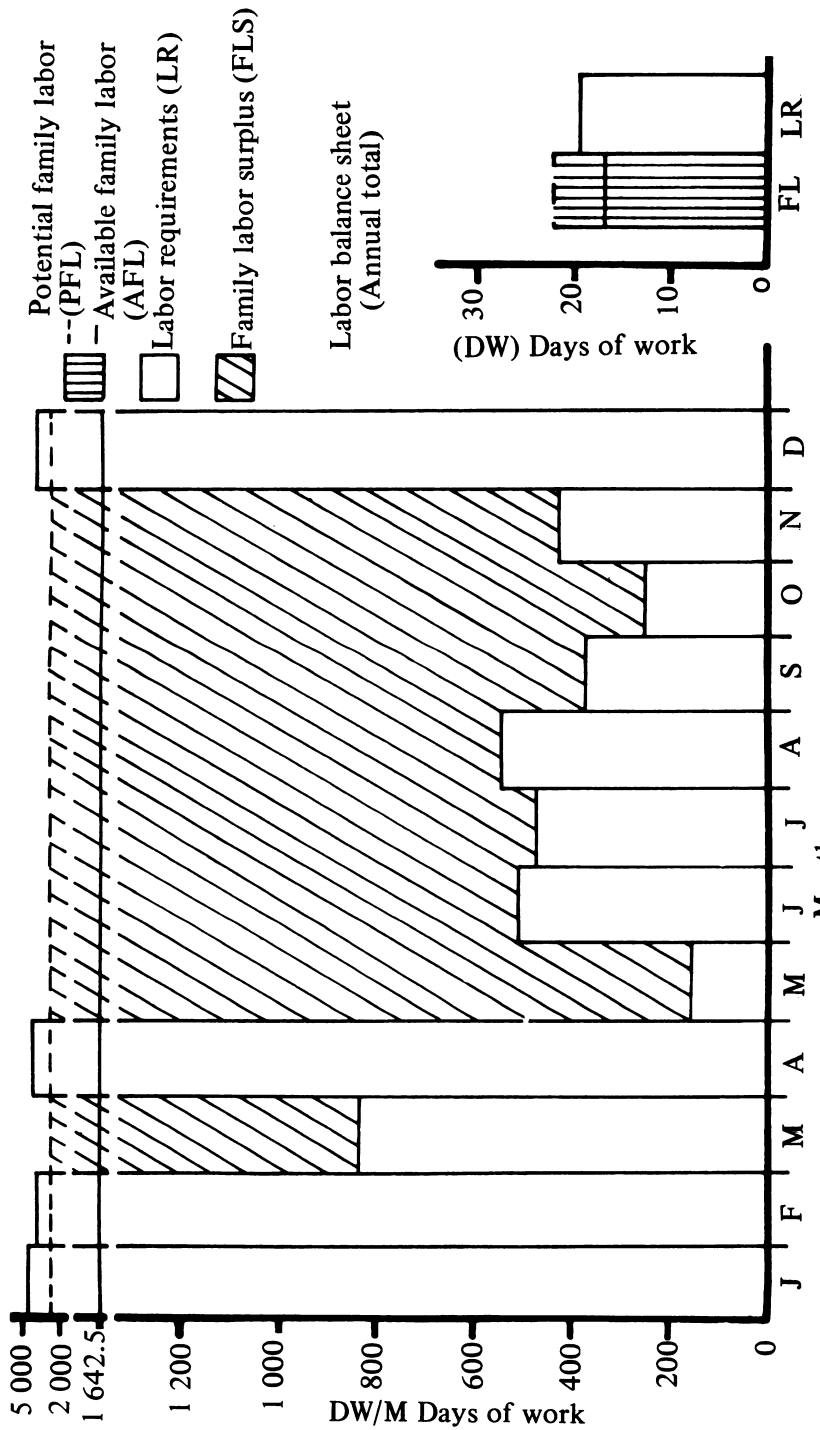

Fig. 9. Associative agricultural production enterprise, Costa Rica, 1975. Initial status (source: Vargas[7]).

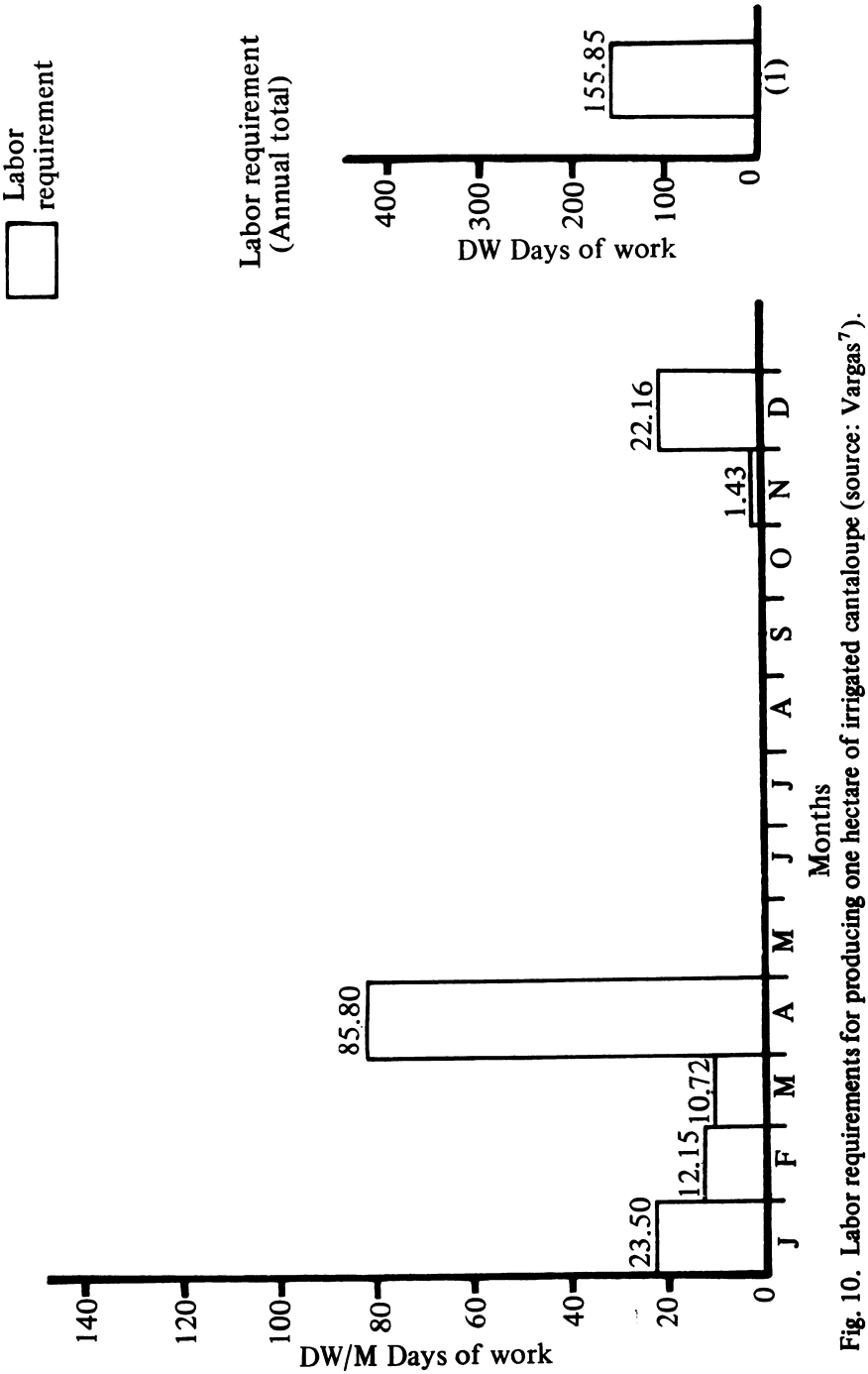

Fig. 10. Labor requirements for producing one hectare of irrigated cantaloupe (source: Vargas[7]).

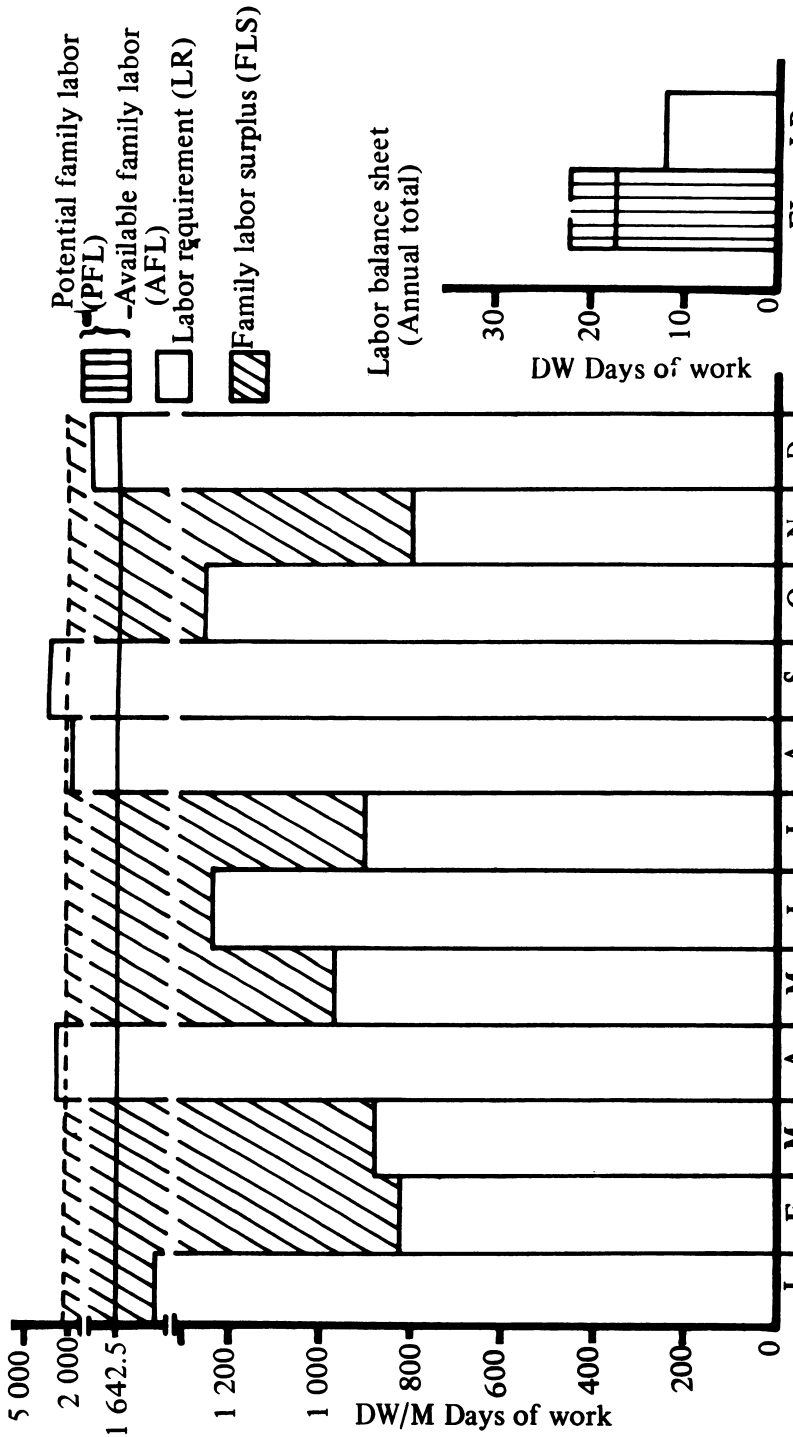

Fig. 11. Associative agricultural production enterprise, Costa Rica, 1975. Third stage of permanent plan (source: Vargas[7]).

Before and during this analysis of the status quo on the enterprise, the author of the research had studied the yearly labor requirements for various crops. The corresponding graph is shown in Figure 10, for the production of one hectare of irrigated cantaloupe in Costa Rica.

With these data on various crops, and broad-based information on income, costs, physical and biological factors, and other variables, it was possible to determine production alternatives that would bring about ongoing improvements in the use of labor and, at the same time, increase income. The result was a scaled plan whose third stage would require the level of employment shown in Figure 11, which is an 88.75 percent increase over the initial labor needs (see Figure 9). At the same time, it produced "a 67.67 percent increase in income over the current levels" (Vargas[7]).

This method shows how the employment situation can be improved in associative enterprises by combining complementary or supplementary labor-use activities, thus improving the level of employment for the members of the enterprise.

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CHAPTER 9

AN ANALYSIS OF SPECIFIC ASSOCIATIVE PRODUCTION ENTERPRISES IN THE AMERICAS

"Although it would be premature to draw categorical, generalized conclusions, we can already see early signs of the progress possible through associative forms of production."

This author followed the methodological framework presented in Chapter 5 above to analyze several representative cases in Costa Rica, Panama and Colombia. A paper was then written as a basis for discussion at a seminar held in Costa Rica* in 1975.

The analysis took the form of a comparative study of peasant farm community enterprises and other forms of agricultural production. Therefore, certain well-defined criteria had to be adopted for defining these enterprises and differentiating them from other types of production units in the rural sector. These criteria were taken from a model defining the characteristics required for enterprises included in the study. The model has also proven useful for developing methods of analyzing community enterprises in other countries (ITCO[4]) with a restricted universe of study. It stipulates that the enterprises to be included must fill the following requirements:

9:1 They must have been created through agrarian reform programs (this excludes other forms of economic association and cooperation established prior to, or independently of, agrarian reform processes).

9:2 They must be associative entities centered around the productive function (this excludes cooperatives for marketing, savings, credit, consumption, services, etc.).

(*) This section is based largely on the report, "Analysis of Latin American Rural Development Models," which the author presented at the Special Seminar on Integrated Regional Development. IICA/Government of Israel. San Jose, Costa Rica, November, 1975).

9:3 They must practice community control over the factors and processes of production.

9:4 The labor must be contributed by members or their families.

9:5 The members' share of benefits must be proportional to labor contributions.

9:6 The enterprise must maintain some type of relations with the state through an agrarian reform institution that provides services and directly or indirectly participates in enterprise management.

Taken as a whole, all these characteristics disqualify the so-called "family agricultural units," even those that form part of agrarian reform or settlement programs.

The study process for this analysis was based on the following approaches (Pinto[9]): 1) an internal view of the enterprise as such; 2) the enterprise and its relationship with sectoral entities and with the prevailing agrarian structures.

The following examples are intended to illustrate the various subject areas which have been described in this book. They will summarize each of the factors presented in previous chapters, particularly the requirements for the diagnostic and planning processes of associative agricultural production enterprises.

9.1 THE ENTERPRISE: AN INTERNAL VIEW

9.1-1 PHYSICAL FEATURES

9.1-1:1 One of the most telling signs is the pattern of land use, as compared with conditions prior to the establishment of the community enterprise. The cases analyzed in the three countries showed clear improvements in conditions, as follows:

- In the two studies in Costa Rica (ITCO[4]), the peasant farm community enterprises achieved these results: before the first group established its farm, 75.94 percent of the land was totally unused, while at the time of the analysis, the community was working 63 percent of the total land. In the case of the second community enterprise, 50 percent of the farmland was being underused before the establishment of the enterprise, while later observations showed that over 75 percent of the total area was under cultivation.

– The two settlements studied in Panama (FAO-IICA-MIDA[3]) showed clear evidence of increases in total production area (totalling over 200 hectares per settlement) and in levels of available land for family production (up by 7.25 hectares for one and 14.75 hectares for the other), as compared with the situation before the establishment of the community enterprises. The land currently occupied by these families had previously belonged to a company and had been idle.

9.1-1:2 When productivity and yields per unit of land surface area on peasant farm community enterprises were compared with figures for other types of production units and with regional averages, the findings were as follows:

– In Costa Rica (ITCO[4]), yield levels on the two peasant farm community enterprises under study were compared with regional averages for certain production lines. It was noted that, even though the community enterprises had been operating for only a brief period of time, productivity for certain crops (tomatoes, sugar cane and coffee) was already higher than regional norms. However, certain other crops (rice, corn, and green beans) were showing higher rates of productivity in the region than in the community enterprise. Therefore, although it was impossible to draw any sweeping conclusions about higher productivity on the community enterprise, there are indications that it could be possible.

– In Panama (FAO-IICA-MIDA[3]), the two peasant farm settlements under study were compared with several neighboring "small individual campesino enterprises" (SICE). Data showed that per-hectare yields of rice and beans were higher on the settlements than on the SICE's. In the cultivation of corn, one of the settlements under study showed yields 43 percent higher than those of nearby SICE's, but in the other region, SICE corn yields were 65.7 percent higher than those of the settlement. On the national level, the rice, corn and bean crops on both settlements showed net superiority in overall yields, in comparison with national averages. The single exception was the corn crop on one of the settlements, which was 30 percent below the national average. The authors of the study noted that this low yield could be explained by inadequate technical assistance, lack of proper equipment and experience, and the fact that no technical know-how or appropriate business practices were "intentionally and systematically programmed" for community members.

– In Colombia (Orchard[8]), studies showed that average yields on the community enteprise generally surpassed regional levels. In coffee production, this yield superiority averaged 180 percent per hectare. For per-cow milk production, the community enterprise registered 2.2 times the regional levels (8.30 liters vs. 3.75 liters). At the same time, the rate of live births among Brahman stock was higher than area averages, and animal death rates were lower on the community enterprise.

9.1-1:3 This analysis of physical components also showed that through the community enterprise, farmer members had been able to improve their production methods over pre-enterprise practices. This was verified in all the cases studied, especially in Costa Rica, where it was proven that the use of improved production methods was due primarily to the extensionist's ability to provide technical assistance on a massive, rather than an individual, level in the community.

In conclusion, the strictly physical studies of the internal operations of the production unit show the actual and potential comparative advantages that are available through community ownership. This is summarized in Table 17, which categorizes the findings described above on the basis of physical variables, including current versus prior (pre-enterprise) use of the land, yields in comparison with regional averages, and the use of new production techniques.

These findings failed to provide a unanimous demonstration of the superiority of community enterprises in the cases under study. This is largely due to drawbacks in the policies for technical assistance for the enterprises. Nevertheless, community forms of landownership demonstrated enormous potential for the adoption of new technologies and for increasing the scale of production through the community approach.

TABLE 17. Summary of the findings on physical features in community enterprises in Costa Rica, Panama and Colombia.

Community Enterprises	Current land use vs. pre-enterprise land use	Yields, by comparison with regional averages	Adoption of new production methods
Costa Rica	Higher	Higher (50%)*	Higher
Panama	Higher	Higher (>50%)*	Higher
Colombia	Higher	Higher (100%)*	Higher

(*) For production lines studied.

9.1-2 ECONOMIC FEATURES

The cases that were studied showed the community enterprise to provide certain advantages from the economic point of view. This is reflected in indicators such as the following:

9.1-2:1 When the income levels of peasant members of community enterprises were compared with pre-community earnings and with the income provided by other production units, the findings bore out positive results for community enterprises:

- One of the community enterprises studied in Costa Rica improved members' income levels by approximately 73 percent per year over pre-enterprise earnings. At the same time, another community enterprise showed drops of almost 25 percent in average family income, by comparison with pre-enterprise levels, but the fact that the members had voluntarily agreed to accept wage reductions during the early stages of the enterprise introduces a new element difficult to evaluate but which, in any case, reveals the potential of the community enterprise (ITCO[4]).

- On one of the settlements studied in Panama, evidence clearly showed that the average income level of the peasant farm community enterprise members was over 130 percent higher than that of farmers in the "small individual campesino enterprises" (SICE). However, the other settlement studied in Panama did not bear out this hypothesis. The net per capita income of members was lower than that of SICE farmers, a phenomenon explained by the authors of the study "by the changes in traditional methods that accompanied the alteration of production relations within the structure of the peasant farm community enterprises" (FAO-IICA-MIDA[3]).

- In Colombia, the status of the farmers who belonged to the community enterprise was shown to have improved over previous levels in terms of income and wages.

9.1-2:2 Studies for other economic factors showed that:

- Community enterprises are able to send a higher percentage of their production to the market than other types of production units. This was particularly evident in the cases in Panama, where both settlements noticeably increased their percentages. Similar conclusions were reached in the enterprises in Costa Rica and Colombia.

– It was also observed that the community enterprises produced a higher demand for production goods and services than other units. Again, this was particularly true in the study in Panama, where demand levels in the community enterprises where nearly 1 000 percent greater than those on nearby SICE's (FAO-IICA-MIDA[3]).

Therefore, in terms of the economic performance of the enterprise, it was concluded that community ownership did provide certain comparative advantages in the cases studied, as summarized in Table 18.

TABLE 18. Summary of the findings on economic features in community enterprises in Costa Rica, Panama and Colombia.

Community enterprises	Current Income levels vs. pre-enterprise level	% of production going to market	Demand for goods and services
Costa Rica	Higher (>50%)*	Higher	No information available
Panama	Higher (>50%)*	Higher	Higher
Colombia	Higher (100%)*	Higher	No information available

(*) For cases studied.

9.1-2:3 This analysis of physical and economic features was complemented with a study conducted in Colombia by Fiori[2] in which a community enterprise was compared with an individual multi-family enterprise operating under similar conditions. In this study, 17 of the 21 hypotheses for technical and economic performance demonstrated higher levels of efficiency in the community enterprise. Nevertheless, although the author recognized that "the broad-scale and ultimate validity of certain premises does not depend on the acceptance or rejection of the hypotheses," it was proven that "if the necessary conditions are taken into account, it can be concluded that the community enterprise can be as efficient as the individually-owned farm on the production unit level" (Fiori[2]).

In summary, the physical and economic analysis of these cases produced no conclusive findings as to the overall superiority of the community enterprise. This can be attributed to many factors discussed in the specific studies, rather than to the community enterprise model as such.

9.1-3 SOCIAL FEATURES

Another important element for analyzing the peasant farm community enterprise model is whether or not the farm is functioning well on the social level. This can be determined by considering such factors as use of productive resources, income distribution, generation of employment, and all the factors that go into improving the standard of living of the enterprise members. Certain facts were in clear evidence in this area:

9.1-3:1 In the cases studied in Costa Rica (ITCO[4]), the following observations were made:

- There was a tendency toward more rational use of the land and improved income distribution, as well as a commitment to social savings and reinvestment of profits, which was not observed in individual tenure situations.

- There seemed to be a feeling of farmer cohesiveness in the face of external factors, for the group was able to function as a unit when dealing with outside agents with which commitments and obligations were held.

- The lower levels of absenteeism, in comparison with individual landowners, altered the need for hiring outside workers, which was particularly significant in cases in which the hiring of farmworkers has led to indirect tenancy.

- Lower levels of desertion, in comparison with individual landowners. The higher incidence of desertion on private land parcels was attributed to faulty support services that either ignore the laborers or focus on other activities altogether. The peasant farm community enterprise members have fewer economic incentives for backing out, due to the characteristics of group labor which help develop social interrelationships and thus reduce desertions. They are also spared the need to enter into individual negotiations on land ownership and improvements.

9.1-3:2 The study of social factors on the enterprise in Panama (FAO-IICA-MIDA[3]) showed:

- The peasant farm community enterprises make it possible to improve health standards for members. The farmer organization and a more concentrated population make it easier for doctors to pay more frequent visits to the population in the community.

- The peasant farm community enterprises provide members with higher levels of training than the small individual enterprises. While settlers on the two community enterprises under study received eleven training courses, individual farmers received only two during the same period.

- Peasant farm community enterprises facilitate improvements in projects for social infrastructure (communication lines, schools, housing, sources of drinking water, latrines, electricity, recreation centers, etc.). No clear-out conclusions were reached on the construction of new facilities, as the period of analysis was too brief.

9.1-3:3 In Colombia (Orchard[8]), evidence showed that community enterprise members enjoyed better levels of nutrition, housing, health, hygiene, and education. The members also demonstrated concern for educating themselves and their families, as well as a strong desire for improvements in these areas. In other social matters, the Colombian study drew certain interesting conclusions:

- Rational patterns of leadership emerged, together with efforts to incorporate the more passive members into the decisions and achievements of the enterprise.

- All but two members of the enterprise felt that their situation had improved in such areas as employment stability, freedom from hunger, satisfaction of basic needs, and access to facilities for acquiring credit.

- The family group enjoyed high levels of social cohesiveness and made real efforts to save, stretching their income to satisfy family needs.

In terms of generating employment, various cases (Suárez[10] and Vargas[11]) have shown employment on the associative enterprise to be high in comparison with pre-enterprise conditions and with other productive forms.

Nevertheless, a study of certain selected cases (Vargas[11]), based on the methods described in Chapter 8, showed that more study is needed and that additional efforts must be made to raise levels of employment in associative enterprises.

These and many other advantages of community ownership show clearly that the community enterprise model improves the social aspects of production organization and fulfills the social function of providing a balanced rational approach to production activities. This

tends to improve the standard of living of enterprise members and helps them perceive their own responsibilities in the intergrated development process. The advantages of the community enterprise in this area specifically include its tendency to support social equality and to promote shared responsibility and participatory decision-making. This was not observed in family-owned agricultural units, which tend to promote individualism and the danger of land fragmentation, as well as absorption by the more powerful sectors.

9.1-4 ADMINISTRATIVE FEATURES

In the area of administration and management, the analysis must include both the comparative advantages of the community enterprise and the specific problems that occur on the enterprise level. Comparative studies have shown that the community enterprise provides great advantages and lower costs per beneficiary of agrarian reform programs, in view of the fact that it involves organized groups rather than individuals.

This was confirmed in Costa Rica (ITCO[4]), where figures showed much lower cost for adjudicating land in peasant farm community enterprises than in individual plots. This is due largely to the participation of the farmers themselves in seeking out and selecting their farms, which brought costs down to reasonable levels, and to the ability to avoid the excess costs of dividing land and hiring notaries, all of which was covered by a single writ. The cost differential for management was attributed to the fact that managers in community enterprises are primarily the members themselves (project management costs averaged almost US$ 9 665 for four individual land division projects, while comparable costs for five community enterprises were only US$ 359).

Nevertheless, on the specific enterprise level, attention must be given to the proper operation and implementation of managerial tasks. The community enterprise, like any other agricultural production unit, must organize jobs according to clearly-defined management concepts.

Using the methods set down in detail in Chapter 2 as a frame of reference, Murcia[5] analyzed a number of administrative difficulties that often appear in community enterprises and noted the following problem areas:

- **Planning problems.** A lack of production planning; inadequate technical assistance for developing plans of action; no long-term planning; programs that are too vague and have no technical, economic or social foundations; a lack of medium-term plans for reaching overall goals; low levels of member participation in drawing up production plans; excessive control by the agrarian reform agency; etc.

- **Organizational problems.** A lack of operational regulations and manuals, disorderly accounting procedures, etc.
- **Coordination and leadership problems.** The analysis of community enterprises included both positive and negative examples.
- **Evaluation problems.** Problems in the evaluation process, together with incomplete control mechanisms, caused by the lack of a basic understanding of how they should function.

However, these irregularities are not the exclusive domain of community enterprises. They occur in every type of production unit throughout the rural sectors of the developing world.

Below is a more in-depth analysis of administrative features.

The case analyses in Costa Rica (ITCO[4]) led to the following conclusions:

- Although the study did not show that the community enterprise model was more efficiently managed than the individual plot, it was concluded that the community enterprise had the potential for improving managerial techniques over those used in individually owned firms, due to the production structure, the scale of operations, and the need for members to be aware of administrative functions for the success of the enterprise.
- Farmers on a community enterprise understand the importance of farm management and the need to receive training in this area, while the individual owners seem unaware of such problems.
- The management failures found in community enterprises are caused fundamentally by a lack of institutional support "that derives from the belief that, because these are self-managed community enterprises, any form of support goes against the model." The study concludes that "without farm management training, the community enterprises will not be able to function properly" (ITCO[4]).

These two Costa Rican cases showed full member participation in developing production plans, but other cases analyzed subsequently showed a tendency to place planning work in the hands of the agrarian reform agency, with little participation from enterprise members. Although controversy has been raging over the fine line that separates "delegation of decision-making" from "anarchy," there has been a notorious lack of support in the area of self-management training, and in certain cases it has reached the extreme of indefinite, prolonged paternalism. Nevertheless, studies conducted in Costa Rica showed that the community enterprises delegated more

planning functions to the members than individual landowners, whose farms plans were all drawn up by the agrarian reform institute, with no participation by the beneficiaries.

In the case of Panama (FAO-IICA-MIDA[3]), the peasant farm community enterprises had a more advanced and efficient working structure and organizational system that the SICE's. Due to the individual nature of the SICE's, some of the indicators used for analyzing peasant farm community enterprises were not available. Gauges that would be valid for both models, including written plans, accounting controls, and performance evaluation, were generally present "although often inadequate" (FAO-IICA-MIDA[3]) on the two settlements, but nonexistent on the SICE's.

Below are the findings of the enterprise management study conducted in Colombia:

- Regulations existed for enterprise operation, and although they were incomplete, they served the purpose.

- The formal structure was well defined and met the needs of the enterprise, and members had a clear understanding of their own functions within the general structure.

- There was an evident disorganization in accounting methods, to the extent that the enterprise began to consume large quantities of its own assets. The study concludes that many of the "economic failings of the enterprise can be attributed to an ignorance of managerial principles" (Orchard[8]).

The managerial analysis reveals that a number of problems still remain to be solved on the community enterprise. It should be emphasized that such shortcomings do not occur exclusively in associative production organizations, but rather can be found, often to an alarming degree, in all types of production units in the agricultural sector of developing countries.

9.2 THE COMMUNITY ENTERPRISE AND ITS RELATIONS WITH THE AGRICULTURAL SECTOR

9.2-1 SECTORAL ENTITIES

There is extensive evidence that community enterprises are able to develop better relations with the entities of the agricultural sector than other types of production units.

In this area, the following observations were made:

9.2-1:1 The Costa Rican (ITCO[4]) study showed that community enterprises received more services from a greater number of institutions than individual landowners. While seven support institutions were working with community enterprises, only five provided services for individual owners. Individual landownership patterns forced the farmers to make private efforts to obtain these services, and the outcome depended on personal factors. However, in community enterprises, the group itself arranged for support services and had enough awareness to make use of available mechanisms, thus eliminating isolated individual efforts. It was also observed that peasant farm community enterprises could present a united front for seeking services, while individual farmers were on their own. This reduced the effectiveness of the services and minimized the institutional concern for providing ongoing services. It also created an imbalance in the benefits received by the owners of plots included in any one project.

Finally, it was observed in Costa Rica (ITCO[4]) that large-scale landowners in the area had more positive attitude toward peasant farm community enterprises than toward individual owners. On certain occasions, representatives of peasant farm community enterprises had even joined forces with larger businesses in the region to submit joint requests to state institutions.

9.2-1:2 In the case of Panama, findings were positive in all aspects of this area.

9.2-1:3 In Colombia (Orchard[8]), the community enterprise received high levels of service in such areas as credit. In fact, in an episode similar to the experience of a community enterprise in Costa Rica, credit was so easy to obtain that there was a danger of assuming obligations above and beyond advisable levels, due largely to a lack of experience. It was also noted that the community enterprise in Colombia did not maintain permanent relations with sectoral entities other than the agrarian reform agency. This may have been due to the fact that, for the agencies and for the farmers themselves, the enterprise was seen as a by-product of the agrarian reform process, and it seemed preferable, from an institutional standpoint, to channel relations through the corresponding agency, in the belief that communication would thus be more direct and more effective.

9.2-2 OTHER FEATURES OF THE COMMUNITY ENTERPRISE

A number of other important factors should also be included in an integrated study of community enterprises:

9.2-2:1 The cases studied in Costa Rica, Panama and Colombia showed that peasant farm community enterprises require their own charter, giving them a legal definition and independent legal capacity. It is inappropriate for all enterprises to be governed by a common body of legislation that does not allow for the diverse situations required by agrarian laws creating these new associative forms of production.

This area is particularly relevant for the special characteristics of our societies in which legalism predominates and legal mechanisms are generally inadequate for guaranteeing the continued operation of the associative production models (Oliart and Araujo[6]).

9.2-2:2 These studies also showed that integrated processes such as farmer organization had grown stronger, thus making it possible to provide peasants with technological and managerial training and to promote more rational forms of behavior for the collective good. One example would be the development of closer relationships with the prevailing agrarian structures, and the creation of a pressure group for bringing about agrarian reform.

9.3 GENERAL CONSIDERATIONS ON THE CASE ANALYSES

Because of its special nature, this type of analysis is subject to various limitations caused by low levels of available information and the wide range of methodological approaches. Therefore, although it is not possible to make categorical generalizations in all these areas, the evidence points up certain comparative advantages provided by the community enterprise model and singles out the areas in which future support activities should be concentrated.

By observing these cases, it is easy to see the importance of the community enterprise for the process of developing an agrarian reform doctrine for the Americas. The studies show that:

9.3:1 In order to clarify the advantages of an agricultural production unit, the analysis should not be limited to isolated efficiency standards on the production unit level. Rather, it should also examine the role of the enterprise in the overall economy. For this reason, every study must recognize the political, economic and social structure of the area in which the enterprise functions, for this environment has a decisive influence on the total success of the model.

9.3:2 The enterprises included in these case studies have made achievements on the social level, established relationships with agricultural sector entities, and been successful in terms of farmer organization. These achievements bear strong witness to the fact that the

community enterprise can play an important role as a viable alternative within the agrarian reform process. Because of its importance in this area, the community enterprise has been able to make basic, integral improvements in the standard of living of rural dwellers, a goal which has not been stressed by other, more traditional, forms of production.

9.3:3 The community enterprise has been shown capable of achieving a level of efficiency equal to that of other types of production units on the enterprise level. Although studies do not provide unanimous evidence that the enterprises offer an absolute advantage in terms of the physical, economic and administrative factors affecting all production units, the findings reveal the need for assistance efforts to be intensified. Technical cooperation must be increased by the agencies working with these forms of production.

9.3:4 As the community enterprise develops, it becomes essential to integrate it appropriately into the other stages of the productive process. Additional measures must be taken to guarantee the integrated development of the rural dwellers and to give overall impact to the profound economic, political and social changes.

9.3:5 At the same time, the community enterprise can bring about major alterations in the social structure and in the integral process of making the productive system democratic. However, this is possible only to the extent that it receives the support and decision-making power it needs to reach its integrated goals. The advantages we have discussed in this chapter spotlight the important leadership role that the community enterprise can assume for reducing the percentage of regional dwellers subject to poverty and isolation, and linking them to progress being achieved within the basic structures of society.

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PART FOUR

DEVELOPING TRAINING ACTIVITIES FOR THE ADMINISTRATION OF ASSOCIATIVE AGRICULTURAL PRODUCTION ENTERPRISES

CHAPTER 10

GUIDELINES FOR MANAGEMENT TRAINING IN ASSOCIATIVE AGRICULTURAL PRODUCTION ENTERPRISES

". . . the training process must go beyond simply providing isolated courses. . ."

10.1 GENERAL CONSIDERATIONS ON THE DEVELOPMENT OF MANAGERIAL SKILLS IN THE AGRICULTURAL SECTOR

One of the fundamental elements for promoting agricultural development is to foster training efforts in the area of farm management. Some countries have great awareness of this need.

Many technical views corroborate the theory that managerial skills, as inherent personality traits, are as well-distributed in underdeveloped countries as they are in wealthier nations. The difference is that the organization of society in poorer nations is not conducive to the training of managers, while the opposite situation exists in more advanced countries (Bruton[2]).

Statements such as this indicate that one of the most powerful obstacles to developing agricultural management skills in the Americas is the marked structural inadequacy and the poor distribution of agricultural resources in this area. It could also be argued that technological progress and managerial training have already been oriented toward the commercial agricultural enterprises, overlooking traditional farming sectors. At the same time, many medium-scale or transitional farmers are ignored in the process of introducing technological improvements. This creates a real vacuum hampering the progress of integrated agricultural development. It is a classic weakness of the development processes that benefit the wealthy and powerful sectors, as discussed by a number of specialists in the field, particularly by Waterston[8], who states, ". . . even when this is not the intention, agricultural development has frequently been more

beneficial for wealthy farmers than for the poor in the developing countries, due to the fact that the wealthy have the education, the credit and the other qualities that the poor lack and that are necessary for providing adequate responses to new opportunities."

For this reason, any further delays or holdups in providing rational responses to these problems will only continue to widen the gap between the advanced sectors and the poor by impeding the integration of all types of farmers into the national development processes.

In an effort to find solutions to this situation, Murcia[6] makes several recommendations concerning the role that the government should play in the process. Two of these recommendations are:

10.1:1 **Acknowledging the crucial need to promote the development of managerial skills** in the agricultural sector, thus enabling farmers to take an active part in all the tasks that affect their progress. This means it is the responsibility of the government to provide rural dwellers with every possible incentive for learning to make appropriate decisions that will improve the standards of living for farmers and their families.

This can be done by reorienting agricultural policies for rationally channeling the services of the sectoral entities. Training activities must impart the methods and know-how that will effectively help farmers in their work, and rural dwellers must receive regular incentives for the daily performance of their tasks. Thus, they will be recognized as the touchstone of agricultural production.

10.1:2 **Developing organizational activities and establishing agricultural enterprises** to make integrated improvements in the lives of farmers and their families. Because associative production enterprises, like other types of agricultural operations, seek concrete improvements in technical, economic, administrative and social areas, the government can make valuable contributions to the organizational process and can supervise goal achievement, while removing obstacles that stand in the way of progress.

Government support must take the form of technical advisory services. Assistance is needed in finding appropriate solutions to the difficulties involved in initiating and establishing the enterprise, and special efforts should be made to develop the type of awareness that leads to confident decision-making, avoiding extremes of extended paternalism. This can be done only through ongoing training efforts in self-management skills.

This means that the training process must take a special approach that goes beyond simply providing isolated courses.

10.2 THE ROLE OF AGRICULTURAL PROFESSIONALS AND TECHNICAL EXPERTS IN PROMOTING MANAGERIAL SKILLS IN THE AGRICULTURAL SECTOR

In addition to government and institutional work, clear-out efforts to promote and develop managerial skills must be provided by all those (professionals, technicians, officials, etc.) who are directly involved in agriculture.

With this general goal in mind, we can specifically mention some of the efforts that should be made by agricultural professionals or specialists in such fields as education, research and extension, for promoting managerial skills in the rural sector.

10.2-1 EDUCATION FOR THE ADMINISTRATION OF AGRICULTURAL ENTERPRISES

Professionals involved in teaching this discipline can initiate a number of efforts to develop agricultural management skills.

10.2-1:1 They must make sure that their course materials are in tune with agricultural realities in the countries or areas in which they are working, so their theoretical and practical teachings will make sense in the context of the common situations in the country.

Experience has shown that, in order to provide a better understanding of the material being taught, teaching should be adapted to specific cases in each area. Theoretical or outside analyses should be presented only as extra material to complement the subject at hand, rather than providing the central focus of the coursework. As the capacity of the students for handling new material increases through the ongoing process of coordinated training, it will become possible to introduce more theoretical concepts. This principle has been observed among course participants with low levels of schooling who are unwilling to accept principles of production economics and advanced methods of planning and scheduling, which they often consider irrelevant. However, in the academic realms of post-graduate education, not only are such ideas well received, but more in-depth treatment is demanded.

10.2-1:2 In view of these factors, it is best to make maximum use of teaching methods requiring the active participation of students in the classroom. The most widely used methods for providing a better understanding of the material in agricultural management courses are:

– **Case studies.** This method is well suited to developing countries and is being used in courses on all academic levels. In order to guarantee its complete success, the following recommendations should be taken into consideration:

Select a topic for special emphasis in the broad area of administration of agricultural enterprises, and use truly representative cases. For example in a course on the administration of associative enterprises, efforts should be made to select case studies on similar enterprises to illustrate the theoretical concepts presented in the course.

Make sure that class preparation covers every detail of the case analysis, depending on the amount of time scheduled for the course. Before the class is convened, coordinators must visit the enterprise and become thoroughly familiar with it. Similarly, it is important to estimate the amount of time that will be needed for completing an analysis or study of the case. Depending on time limitations, it will then be possible to determine whether or not the key data should be given to participants beforehand to facilitate the class discussion, or whether information on the various aspects of the enterprise should be collected and programmed.
This approach has been used successfully in courses lasting a week, a quarter, a quatrimester, or a full semester, on the university and postgraduate levels.

Get the students actively involved in the case analysis through group dynamics techniques or by assigning specific tasks. All members must contribute to the overall effort to enrich the group work through mutual interaction.
The value of this approach was confirmed in courses for managers of Guatemalan agricultural cooperatives (1973), for Costa Rican banking officials (1974) and for technical specialists from the Costa Rican Land and Settlement Institute (1975 and 1976). All participants acquired an active interest in the process, and the general farm planning work was divided into blocks (social diagnosis, technical diagnosis, economic diagnosis, etc.) representing specific areas of the overall effort, for conducting the general study. The subgroups worked individually and then reported to the entire group. With the participation of all present, the general analysis was put together, and constructive criticisms were made of the various aspects of the work.
This system is at its best when the group includes specialists from different disciplines (agronomists, engineers, zoologists,

veterinarians, forestry officials, etc.), as often occurs in graduate programs. Each member conducts an individual analysis of his or her own area and learns to integrate it into a team effort. This has proven to be an effective approach in courses on agricultural enterprise management in Colombia (1971 and 1973 Program for Graduates of the National University, Colombian Agricultural Institute) and Costa Rica (1975 and 1976, Tropical Agriculture Research and Training Center, CATIE, Turrialba).

Any study of this kind should be oriented toward actual experience, and any conclusions should be taken into account for the future of the enterprise under study. This can be done if the case is properly selected and if all course participants can see the actual impact of their work and the improvements it brings about in concrete problem areas. The study should actively involve enterprise members, who will be receiving direct support from technical activities implemented under realistic circumstances.

The importance of this work was shown in a research project on associative production enterprises in Costa Rica. The findings of the studies were brought to the attention of enterprise members, who also received a copy of the final report, accepted its conclusions, and immediately implemented some of the recommendations.

For this reason, it is important to establish the linkages between agricultural enterprise management training efforts and national problem areas, thus making an effective contribution to the development of managerial skills. However, this will happen only if the study and improvement program concentrates on those enterprises that excercise fully integrated functions, which implies the demand for, and acquisition of, social rights for rural dwellers.

– **Seminars, round tables and other teaching methods.** Other teaching methods that effectively provide training in agricultural enterprise management are round tables, seminars, workshops, psychodrama, and other methods in which the responsibility falls primarily on the students, with assistance and direct advice from the professor. The use of these methods helps promote the expansion of technical and critical skills, which are an indispensable ingredient in the development of constructive managerial awareness.

Approaches to the use of these techniques include:

Seminars. Classroom instruction is combined with parallel efforts by seminar students, in areas related to course topics. This provides an effective medium for teaching the disciplines, particularly in courses that last a quarter, semester, or other relatively long-term period. The value of this system has been shown in experiments at the University of Costa Rica (School of Agronomy, 1974, 1975, and 1976), where a number of courses were given on agricultural economics and agricultural enterprise management. The courses included a detailed course outline, handed out during the first few class sessions. Responsibility was divided among the students for conducting research on upcoming class material, and students took turns presenting the major theoretical concepts of each subject area and relating them to national conditions.

This system increases the teaching duties of the professor. Given the freedom for bibliographic research and the possibility that students will be introducing unexpected problems and situations, individual class preparation must be broader and more closely tied to reality. The professor must complement the students' presentations, clarify areas that need further explanation, and expand upon the concepts presented by the students.

The benefits that students can receive from this system are extensive. They are provided an opportunity to apply their new knowledge to national problems, develop public speaking skills for discussing areas relevant to their future professional endeavors, and achieve a more in-depth understanding of the course topics by participating in a critical analysis of them.

Round table. The round table system of teaching farm management can be based on either of the following two approaches:

.. a) Student participation (taught in quarters, quatrimesters, semesters, etc.). This method is effective for relatively long -term courses. Because of the participatory nature of the classes, this system is similar to the seminar. Student groups prepare discussions on each topic, preferably on controversial issues, to encourage class participation. Naturally, the method is very time-consuming if the issues are to be discussed thoroughly, and this could be its major drawback when time is limited. Nevertheless, for dealing with certain specific questions, such as the actual existence of managerial skills and the development of a business mentality in the rural sector, or for dicussing various alternatives for planning an enterprise, it is of unquestionable value.

This system has been used effectively in courses on farm management at the university and post-graduate levels.

b) Taught by professors or specialists in each subject (short courses). Training in farm management frequently involves short-term educational activities, lasting from several days to a week and taught by specialists in the various areas. The lecture method is used for introducing course subject matter.
This system has been effectively used in a number of countries. Round tables have been given at the end of the day or the end of the course, led by visiting technical experts. The primary advantage of this method is that, through question-and-answer and group analysis, it casts light on those areas which have not been clearly understood. Nevertheless, such short courses should be complemented with methods to encourage participation, such as those discussed above, or that produce a similar understanding of the subject matter.

10.2-1:3 Another effective way in which teachers can contribute to the development of agricultural managerial skills is by actively conducting research that will help farmers, and by seeing that needed information is provided on all the various levels of training.
For example, one concrete possibility would be to organize a support center for the management of agricultural enterprises. This could be promoted by any educational organization and would make it possible to:

- Conduct research that, in addition to providing educational benefits, would collect data on production costs, yields, and the profitability of crops and livestock operations.
- Organize courses that would not only further the work of the center, but would also help support activities to ensure that training efforts be continued.
- Cooperate with programs for planning, administration, accounting, and similar skills.

Such a center could be easily established if planning were sufficiently detailed and the financing needed for supporting its work were obtained. The eventual benefits for agricultural development would more than repay initial efforts.
As an example of the functions this type of center could conduct in the area of farm management, Table 19 illustrates a system designed by this author in 1976 in connection with a project for

establishing a support center for agricultural planning in the School of Agricultural Economics, a department of the College of Agronomy at the University of Costa Rica (University of Costa Rica[7]).

In accordance with recommendations, the support center would concentrate on this area and on the preparation and evaluation of projects on agriculture and agricultural marketing. The project would fully comply with the university's obligation to project its work into the rural community by channeling its efforts toward the farmers. As can be seen in Table 19, coordinated endeavors for education, research, and extension in the field of farm management are beneficial for both the university and the sectoral institutions; such efforts facilitate access to the basic information that stems from the most accurate primary source, the agricultural enterprise, and duly sort this information through a data bank.

10.2-2 RESEARCH

Research on farm management can be conducted as follows:

10.2-2:1 Organizing groups to research and analyze all types of agricultural enterprises, detect areas in which the operation is efficient or wasteful, and make concrete recommendations for specific measures. This task can be conducted by training centers or by organizations that act as leaders in the agricultural sector, and it should be a permanent, constantly updated task.

10.2-2:2 Promoting an awareness of the need to apply theoretical teachings to real administrative needs in every area, through research adapted to specific situations. This research should seek constructive improvements by pinpointing limitations and obstacles to the use of modern methods.

10.2-2:3 Acting as a point of contact between teaching and extension efforts. Various strategies are needed to make the knowledge of the educators available to farmers and, at the same time, to incorporate the experiences of the farmers into the technical theories developed by professors.

TABLE 19. Diagram of administrative tasks in agricultural enterprises. Data on a support center for agricultural planning, Costa Rica, 1976 (source: University of Costa Rica[7]).

Farm management

TEACHING

1. Regular and ongoing courses, as a part of the curriculum of the School of Agricultural Economics.
2. Short courses to train officials from public sector institutions, farmers, and business people.
3. Training agreements with institutions.

RESEARCH

1. Theses, practica and research projects.
2. Ongoing research by professors and students.

EXTENSION

Stage 1. (from the center to the farmer)

1. Farmer training by personnel prepared in specialized institutions and by faculty members of the School of Agricultural Economics.
2. Direct advisory services to help farmers with methods of accounting and farm management.
3. Advisory services in designing and controlling farm plans.

DATA BANK

Stage 2. (from the farmer to the center)

1. Providing agro-economic information on crops, livestock projects and agribusiness activities.
2. Processing information for use in periodicals, farm plans, research, agricultural institutions, agrarian policies and decision-making.

10.2-3 EXTENSION

A number of countries, including those in the Central American region, are neglecting extension work in the area of economics and management. These countries are not aware of how to make economic principles available to farmers who have little incentive to use economic analysis in their work.

For this reason, the types of activities needed in extension work could include:

10.2-3:1 Recognizing the need for contact between the programs of extension centers or agencies and the professionals in agricultural economics. Only in this way can the efforts of these specialists complement each other.

10.2-3:2 Studying the conditions that characterize farmers in their workplace, in order to set appropriate strategies for applying simple elements of planning, administration, accounting and other methods. This work would require large-scale advisory services during the early stages, as well as continuous training efforts to help the farmers themselves make proper use of the training they receive.

10.2-3:3 Ensuring that the training received by extensionists through courses or other programs be duly channelled toward the farmers, and not remain limited to a passive audience. This work should be facilitated by the entity to which the technicians belong. Specific functions in this area should be included as a part of their usual duties, and they should receive full institutional support.

10.3 THE PROPER APPROACH TO TRAINING FOR SELF-MANAGEMENT IN THE ADMINISTRATION OF ASSOCIATIVE AGRICULTURAL ENTERPRISES

The training process in this area must not be limited to massive, uncoordinated courses. These educational efforts must be regularly organized on various levels. Efforts should be made to awaken a critical awareness in the participants and help them develop their own abilities, thus bringing about more autonomous working systems for the continuous progress of the human subject.

The primary objective of any project, whether based on minimum participation methods or seeking self-managed or fully participatory systems, should be to give the worker true decision-making power.

If we are truly interested in training for self-management, the first element to keep in mind is the need to re-evaluate and extend the traditional concept of education. It must be seen as a process of

change requiring an expansion of the scope of educational action, seeking to develop human abilities and help human subjects achieve their own permanent integrated development (Furter[5]). The essential role of education in the development process is becoming ever more obvious; however, the process must operate with a high level of humanistic sensitivity, oriented toward fully developing the capacities of the human being who is part of a social body and an educational system.

This is particularly important in view of the more or less generalized impression that modern-day education "is not humanistic, for it is not concerned with educating people by awakening their critical and constructive abilities" (Araujo[1]).

The educational process does not currently develop the human being as an important, concerned element of a social group. Rather, the educational priority is to train people to incorporate themselves into the development process on the basis of primarily individualistic interests. This is why Freire[4] warns against the "banker's" concept of education. He emphasizes the importance of dialogue as an educational tool, adding that "self-sufficiency is incompatible with dialogue" and that "those who lack humility, or who had it but have lost it, can never grow close to the people."

This idea reinforces the need to maintain a humanistic perception of education and avert the ever-widening gaps that separate people, and the degradation of the groups that make up the composite of human society.

The administrative processes of the enterprise must spark the interest of the farmers and attract their active participation. It is not enough simply to give lecture courses transmitting capsules of cultural baggage. Rather, joint activities must be developed by the professor or instructor and the participating groups and extend beyond the confines of the classroom. Such training efforts can truly fulfill their function by providing the farmers with a broader range of responsibility and developing their natural capacities through ongoing educational endeavors.

10.4 PROPOSED ACTIVITIES FOR PROJECTS TO TRAIN AND ASSIST ASSOCIATIVE PRODUCTION UNITS

It has been shown that associative production units need technical administrative support in order to make integrated improvements in overall performance.

To this end, a number of projects have been designed for providing advisory assistance and training in administrative methods and planning techniques for associative agricultural production units.

One such project seeks to combine the work of a university with that of an agrarian reform agency. These two institutions join efforts for training activities in production units under the programs of the agrarian reform agency, by making use of the technical know-how and facilities available through the university.

As an example of the various elements that should be included in this type of project, some of the basic features are described below to serve as a point of reference for similar activities in other countries.

10.4-1 OBJECTIVES

This type of joint endeavor pursues the following general objectives:

10.4-1:1 Establishing close ties between the university and the agrarian reform agency, to the mutual benefit of both.

10.4-1:2 Providing an additional source of support for the work being done by the agrarian reform agency in the agricultural development process.

10.4-1:3 Establishing coordinated contact with farmers working on the production units of the agrarian reform agency, in order to help them improve the administrative performance of their enterprises and eventually learn to assume these responsibilities for themselves.

10.4-1:4 Helping the university involve itself in the agricultural sector and expand its educational efforts.

10.4-1:5 On a larger scale, helping agricultural sectoral entities and governments make better decisions affecting farmers, on the basis of the availability of individual and aggregate information.

10.4-2 ACTIVITIES TO BE DEVELOPED

The work needed for a project of this nature can be divided onto two levels for the production units: courses and advisory services. Below are areas of action for these two fields.

10.4-2:1 Courses:

– **Course on rural management with an emphasis on associative enterprises,** for professional officials and technical experts involved in the program. This work would come under the

responsibility of university professors and trained professionals from the agrarian reform agency, for the purpose of making high-level program participants familiar with major administrative methods and techniques and the importance of cooperation on all levels of the process.

Appendix 4 is intended to complement this subject. It presents a sample prospectus for a course on farm management, with an emphasis on associative enterprises, to be taught to officials and specialists from the organizations working with such enterprises.

The prospectus was developed through several courses held in Costa Rica in 1975 and 1976 for specialists from the Land and Settlement Institute (ITCO) and graduates of the College of Agronomy of the University of Costa Rica. In addition, it was used as a model for organizing similar activities in Honduras, Panama, and Colombia.

In Costa Rica, this program was used for ongoing training efforts, and it subsequently provided the core material for other courses taught on more elementary academic levels.

The course model is presented here as a concrete contribution to the development of similar activities in other countries, to orient the training process toward rural dwellers.

For implementing the course model, this book can be used as a basic reference. The general topics contained herein have been used successfully on several occasions in specific training activities.

- **Courses for middle-level regional authorities.** These courses would be conducted by officials who had attended the high-level course, and who would receive technical assistance from their original professors. Future instructors can be selected from among course participants, to conduct farmer courses and form permanent technical teams. The intermediate courses and the earlier, more technical, courses should both devote a section to methods of transferring technical know-how to the farmers with the use of teaching methods and appropriate audiovisual tools.

  The author has developed this type of activity in Nicaragua (1973) and Costa Rica (1974), with promising results. Courses have covered management, planning, and accounting for agricultural enterprises, and have included lectures on communication and teaching methods for the heads of extension agencies and field-level specialists.

- **Courses for farmers, taught by trained technical teams** with initial support from high-level technical personnel trained in the earlier stages of the process.

10.4-2:2 Advisory services for production units. In conjunction with the training process described above, direct support efforts can be provided for associative production units, through such activities as:

- Conducting physical, economic, administrative and social diagnoses using methods similar to those described here.

- Designing forms for physical and accounting records, simple enough to be used by peasant farmers. Broad supervision, provided initially by officials of the sponsoring organization, would later be phased out.

- Systematizing the accounting methods used in the production units, and preparing statements of current production plans.

- Designing simple planning methods to be used by farmers with initial outside technical assistance, gradually decreased to promote the implementation of true self-management.

- Consolidating information on production costs, prices, and other variables that affect the production of diverse agricultural endeavors, in order to begin establishing information centers in these areas and working with other information programs on various levels.

- Increasing the complexity of record-keeping and planning models, as the training process proceeds.

Efforts to develop and consolidate managerial skills in the rural sector should not be viewed as an isolated task. They are an integral, continuous project seeking to provide a permanent support structure. Activities such as those described above, as well as others which may be deemed appropriate, should be promoted and supported in all the countries, for the benefit of the agricultural sector in general and the rural population in particular.

Development efforts take on extraordinary dimensions when faced with the challenging complexity of rural problems, but the urgent nature of this work requires decisiveness and a commitment to ongoing, coordinated efforts.

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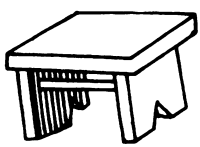
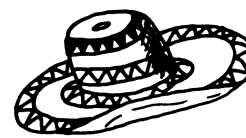
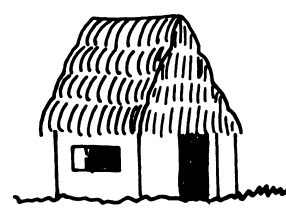
SAMPLES OF SYMBOLS AND VOTING SYSTEMS USED FOR ELECTING LEADERS ON SETTLEMENTS, AGRARIAN BOARDS, AND PEASANT ORGANIZATIONS IN PANAMA BETWEEN 1968 AND 1975, UNDER CONDITIONS OF ILLITERACY AMONG ENTERPRISE MEMBERS

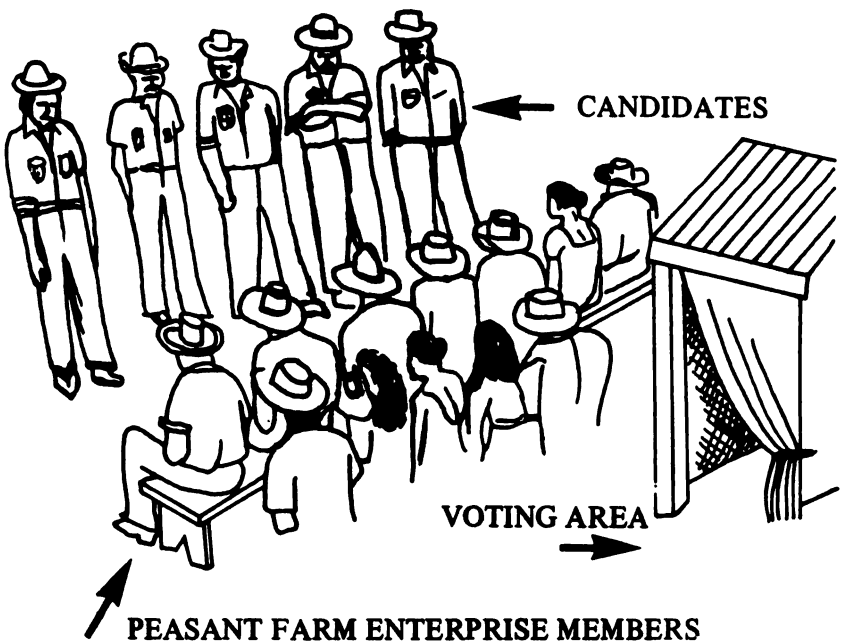
SYMBOLS


(*) Source of symbols: Ministry of Agricultural Development, National Social Development Office, Department of Campesino Organization, Panama, Panama, 1977.

VOTING SYSTEM



APPENDIX 2

BASIC ELEMENTS TO BE INCLUDED IN THE CHARTER OF AN ASSOCIATIVE AGRICULTURAL PRODUCTION ENTERPRISE, WITH REFERENCE TO THE EXPERIENCES OF SEVERAL COUNTRIES

BASIC ELEMENTS TO BE INCLUDED IN THE CHARTER OF AN ASSOCIATIVE AGRICULTURAL PRODUCTION ENTERPRISE, WITH REFERENCE TO THE EXPERIENCE OF SEVERAL COUNTRIES

One of the essential organizational features of an associative production enterprise is the preparation of a charter to define the responsibilities of the different organizations that make up the enterprise, as well as the obligations and duties of all members (see charter 2).

This author is personally familiar with several examples of associative enterprises in Costa Rica, Panama and Colombia, and has studied publications discussing cases in Peru, Venezuela and other countries. On the basis of these experiences, a general framework will be presented of the elements that should be included in the charter of an associative agricultural production enterprise.

1. Name of the enterprise, address, region, projected duration, type of association, and nature of responsibilities.

These general features identify the enterprise for legal purposes and define limits of the land assigned to it and the qualities that characterize it as one of the various types of associative organizations.

2. Objectives and means of achieving them.

The objectives of the associative enterprise must be clearly specified in terms of the physical and economic aspects of the production unit, as well as the social and cultural circumstances of the members. The charter should also give a basic description of the role played by the enterprise within the local, regional and national development processes, in accordance with the government-level development plans.

In addition, it should include a definition of the means that the enterprise will use for achieving these goals.

3. Characteristics, rights and attributes of members.

This covers the various features of the enterprise members. As a very minimum, the following points should be included:

a. Characteristics and requirements for enterprise membership.
b. Member rights.

c. Member obligations.
d. Conditions under which membership may be lost.
e. Disciplinary matters.
f. Provisions for dealing with the voluntary withdrawal of members.
g. Procedures to be followed in case of the death of a member.

4. Administrative procedures.

A good illustration of this section is the case of the Social Action Agricultural Corporation (SAIS) of Peru, where a draft charter[1] established, among other things, that the administrative structure of the production unit should include the following organizations:

a. General Assembly of Delegates.
b. Administrative Council.
c. Supervisory Council.
d. Specialized Committees.

This section of the charter sets down the basic conditions for the operation of each of these organizational units, including such features as:

a. Frequency, times and places of meetings.
b. Names of members and requirements for membership on each of these bodies.
c. Rights and obligations of the unit.
d. Provisions for filling vacancies.
e. Other general matters concerning the operation of these units.

5. Economic procedures.

This section of the charter should lay the groundwork for the effective functioning of the enterprise and help members gain a clear understanding of their own role in the economic activities of the farm.
Below is a sample of the general format of the economic procedures on the SAIS in Peru. It provides a useful point of reference for a number of agrarian production cooperatives in that country, based on a publication[1] containing several sample charters for productive units:

ECONOMIC PROCEDURES ON THE SAIS

Article 88. The economic resources of the SAIS shall be:

a. Capital stock, comprising:

1. the membership fund, made up of member dues;

2. the common fund, not subject to distribution; this shall consist of any surplus obtained during the period between the appropriation of the land and legal establishment of title;

3. the SAIS Fund, not subject to distribution; it shall consist of an annual amount deducted from gross earnings, used for amortizing property granted by the General Office of Agrarian Reform and Rural Settlement as specified in the pertinent purchase-sales contract;

4. any subsidies, donations, inheritances, or other resources received by the SAIS;

5. any part of the interest and surplus that the General Assembly of Delegates agrees to invest and which consists of member contributions;

6. bonds issued by the SAIS.

b. Loans acquired in pursuit of SAIS goals.

c. The reserve fund.

d. The reinvestment fund, the development fund, the educational fund, the social security fund, and any other funds established for specific purposes by the SAIS.

e. Any surplus generated by SAIS services to third parties.

Article 89. The membership fund, variable and unlimited, shall be comprised of voluntary or obligatory contributions by members for the SAIS. They will be acknowledged with face-value share certificates, which shall be nominative, of equal value and nontransferable.

Article 90. The SAIS shall be initiated with a pledged membership fund totalling S/. . . . . and a pre-paid membership fund of S/. . . .

Article 91. SAIS members shall be eligible to take out new share certificates for amounts to be established by the Assembly of Delegates. These certificates shall be payable in a single installment or through time payments to be stipulated by the Administrative Council.

Article 92. The issuing of share certificates shall be subject to the following regulations:

a. Every issue must be approved by the General Assembly of Delegates.

b. The share certificate shall be a registered bond.

c. Bonds shall be classified by series, one for each issue.

Article 93. The share certificate shall designate:

a. The name of the SAIS.

b. The nominal value of the certificate, expressed in writing and in numerals.

c. The numerical order of the title.

d. The alphabetical letter of the series.

e. The name of the member holding the title.

f. the number of share certificates included in the title.

g. Information on the SAIS and how it is registered in official records of Social Action Agricultural Corporations and in books of organizations listed on public registries.

h. The date on which title is extended.

i. The signature of the president, treasurer and secretary, and the SAIS seal.

Article 94. The value of share certificates shall not exceed the nominal value established in this Charter, nor shall it be used for exchange on the open market.

Article 95. Fully paid share certificates shall accrue interest at 2 percent per year, payable from SAIS surplus income, according to means and terms established by the General Assembly.

Article 96. Any applicable surplus reflected by the annual statement, after the deduction of operational costs, general expenditures, depreciation, company reserves, etc., shall be distributed as follows:

a. Not less than 10 percent for establishing or increasing the reserve fund.

b. Not less than 5 percent for the educational fund.

c. Not less than 10 percent for the social benefit fund.

d. Not less than 10 percent for the reinvestment fund.

e. Not less than 2 percent for the cooperative development fund.

f. An amount agreed upon by the General Assembly of Delegates for paying interest on fully paid share certificates; the rate of interest shall not exceed 2 percent per year.

g. The balance shall be distributed among members as surplus earnings, in accordance with participation percentages determined with the coefficient "K" as follows:

Order	Members	Coefficient of surplus distribution
1		%
2		%
3		%
4		%

Article 97. The surplus to be distributed as per clause (g) of Article 96 shall be invested when financial needs so require. When these circumstances cease to exist, members may be paid in cash or in kind, by agreement of the General Assembly of Delegates, with the purpose of using funds to strengthen and develop the community or to implement services in benefit of the members of the social institution.

Article 98. The coefficients of distribution of surplus indicated in clause (g) of Article 96 above shall be readjusted every five years, following an examination of the development achieved by members.

Article 99. The reserve fund shall be used to cover any losses incurred in current SAIS operations, as well as other unforeseen needs. The liquid reserves provided by the fund shall be used for acquiring goods that make a direct contribution to productive activities or services in the SAIS, and at no time shall they be used for speculative operations. Whenever reserve funds are used for productive activities, their use shall be administered by the service cooperative; when used for enterprise development, they will be administered by the Development Division.

Article 100. Funds for education, social benefits, and cooperative development, surplus generated by services to outside parties, and any other funds so approved by the General Assembly shall be allocated to the budget of the Development Division.

Article 101. The educational fund shall be used by the member institutions for providing the level of education needed for the effective participation of members in SAIS activities.

Article 102. The social benefit fund shall be used for maintaining assistance and welfare services established by the SAIS, replacing individual security systems with cooperative security measures.

Article 103. The reinvestment fund shall be used for acquiring capital goods to expand and modernize the enterprise, and it shall be administered by the service cooperative.

Article 104. The cooperative development fund shall be used for consolidating member organizations.

Article 105. Any surplus generated through services provided by the SAIS to outside parties shall be used for expanding the educational fund.

Article 106. Former members shall have no claim to reimbursement from the reserve, educational, social benefit, reinvestment, or development funds, nor shall they have a claim to any surplus generated by outside services provided by the SAIS.

Article 107. During the three-month period following the close of every fiscal year, the SAIS must submit to the National System to Support Social Mobility (SINAMOS) all balance sheets and sworn statements required by SINAMOS regulations.

Article 108. The SAIS may issue bonds specifying nominal value, redemption period, and interests.

Article 109. All bond issues must be approved by the General Assembly of Delegates and authorized by the General Office of Agrarian Reform and Rural Settlement. In order to obtain this authorization, the SAIS shall submit issue regulations and the relevant feasibility study, as well as the investment plan and the resources to be used for redeeming bonds and paying interest.

Article 110. The fiscal year shall begin on _____ 1 and end on _____ 31.

Article 111. The SAIS shall guarantee:

a. The intangibility of production structures included on the adjudicated enterprise.

b. The continuity of technical and administrative leadership teams and the job security of workers in the enterprise.

Article 112. The social benefits earned by all workers on the special administrative committee shall be assumed by the SAIS.

Article 113. SAIS workers shall be governed by current labor laws.

Article 114. The SAIS shall assume any commitments and obligations entered into by the Special Administrative Committee during its administrative tenure. It shall also observe any agreements and contracts in force at the time of the land grant.

Article 115. Economic resources, goods and rights corresponding to the SAIS, including the corporate signature, may be employed only by authorized entities and only in the conduct of their duties. Any parties in violation of this regulation shall be unequivocally required to reimburse the SAIS, and shall be subject to applicable civil or penal sanctions.

Special attention should be given to the distribution of surplus. A recent publication[2] takes a more in-depth look at this area and discusses the experiences of several countries. For purposes of illustration, some of the cases discussed in the articles are presented below:

a. Profit distribution in associative enterprises in Colombia: the process establishes that once the percentages stipulated for the

various funds have been deducted from net income, the surplus is distributed among members in proportion to the work they have contributed. In the case of overall losses, the burden is assumed by the enterprise, and the personal liability of each member corresponds to individual shares.

b. The distribution of surplus and profit in Panama: on this enterprise it was observed that, in accordance with official decrees pertaining to farmer settlements, "for legal purpose, it shall be agreed that Campesino Settlements are not profit-making organizations. Any favorable balance shown on the balance sheet shall be viewed as savings to be used for the economic management of the settlement."

c. The distribution of profit on peasant farmer enterprises in Venezuela: peasant farm enterprises in this country are required to use 10 percent of their profits for reserves, 10 percent for the Social Benefit Fund, and 5 percent for education. The remaining 75 percent can be distributed in proportion to the number of days of work contributed by each member. In the case of capital shares, individual property rights, or unequal ownership of land, installations or machinery, members receive additional profits in proportion to their contributions. This standard of profit distribution as a function of work contributions by each member is combined in actual practice with profits received on capital.

As can be seen, the process is essentially the same for these three cases, except for slight variations in the form of distribution. Nevertheless, close attention should be paid to the particular situation of each individual associative enterprise, in order to develop an appropriate economic structure for its specific circumstances.

6. Enterprise Books

This section stipulates the books that should be carried by the associative enterprise. In the case of the enterprise in Peru[1], the major books carried by the SAIS, or Agrarian Production Cooperative, are:

a. Minutes of meetings of the General Assembly of Delegates.
b. Minutes of meetings of the Administrative Council.
c. Minutes of meetings of the Supervisory Council.
d. Minutes of meetings of the Specialized Committee.
e. Membership rosters.
f. Account books, as prescribed by current legislation.

g. Records of title of share certificates.
h. Any additional books required to meet particular needs of the SAIS.
i. Any other books established by the National System to Support Social Mobility (SINAMOS).

It is also necessary to stipulate the requirements to be filled by each set of records, in accordance with the regulations of the country in which the associative enterprise is located.

7. The Associative Enterprise and its relationship to National Development Institutions

This is a very important area, particularly in a case like Peru. The mechanisms must be established by which the associative enterprise is incorporated into the Integrated Rural Development Projects (PIDR), and its position must be defined in the framework of the Integrated Development Plans (PID). A broad-scale analysis has been published[2] in this area, and a good example is the case of the Charter for the Santa Margarita Agrarian Production Cooperative, Ltd., No. 246 in Peru, as discussed in the text material from the workshop on Organization of Peasant Farm Community Enterprises[1].

In general terms, this section should specify the obligations of the enterprise vis-à-vis its incorporation into a central network. This involves production plans, terms of participation such as workdays and wages, and, in general, all the social, technical, administrative, economic, financial and other provisions established by the central body.

8. Dissolution and liquidation

This section sets down the causes for dissolution and the procedures to be followed when an associative enterprise is dissolved or liquidated.

9. Special or provisional measures

This includes any matters related to amending the bylaws or charter, fiscal intervention, hiring temporary workers, and other general provisions not included in other parts of the charter.

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APPENDIX 3

SAMPLE OPERATIONAL RECORDING AND CONTROL SYSTEMS FOR ASSOCIATIVE AGRICULTURAL PRODUCTION ENTERPRISES

SAMPLE OPERATIONAL RECORDING AND CONTROL SYSTEMS FOR ASSOCIATIVE AGRICULTURAL PRODUCTION ENTERPRISES

The design of physical records for associative agricultural production enterprises will be illustrated with several models presented in this section. The author participated in the organization and revision of these models.

They are quoted in this book through the generous cooperation of the Land and Settlement Institute (ITCO) of Costa Rica.

1. DAILY TIME SHEET

Objectives:

a. To determine how many hours of work have been provided by each member of the settlement or by temporary workers.

b. To determine the labor costs of each activity.

Content: The first line of the daily report gives the date, followed by "activity" (construction, rice, corn, etc.) and the task that was completed (tilling the soil, fertilizing, spraying, harvesting, etc.).

Column One gives the names of the workers, beginning with the supervisor. Column Two tells what time the work was begun, and Column Three, what time the work was finished. Column Four gives the total number of hours worked. On the last line, the supervisor signs the daily report.

If land is worked around the clock, reports must be filled out for every shift.

DAILY TIME SHEET

Date: _____ 19 _____

Activity: _____ Task: _____

NAME	Time started	Time finished	Total hours worked

Coordinator _____

Operational Control: The daily report should be filled out in duplicate by supervisors from each of the production committees. The original is handed in to the payroll manager on a daily basis to facilitate the preparation of the weekly payroll summary sheet. If a worker is transferred from one job to another for any special reason, thus undergoing a change of supervision, both supervisors must report the time the worker was under their responsibility.

The time worked in the second position will begin as of the time of the transfer. The time sheet for members working under the responsibility of the manager should be filled out by the manager.

These reports provide the basis on which the payroll clerk can close out the week and draw up a summary of hours of work for each worker or member. After necessary deductions are made, the worker's pay can be determined.

2. WEEKLY LABOR REPORT

Objectives:

a. To determine the number of labor hours completed by each settlement worker and by hired labor.

b. To determine the cost of labor in each area where a given item is produced.

c. To determine the number of working hours for each task in the various productive activities, in order to evaluate labor efficiency.

d. To determine the actual labor contributions that each member makes to enterprise development.

e. To determine the labor requirements in the various phases of each productive activity, for future scheduling.

f. To acquire, in writing, each worker's approval of the number of hours indicated in the report.

Content: The name of the member appears on the first line, as well as the dates covered by the report. In Column One, under "Task," the work actually done by the member is specified (spraying, fertilizing, etc.). Column Two, "Activity," gives the crop, industry, type of livestock, etc.

The third column gives the area (lot name) in which the work was done.

NAME OF ENTERPRISE _____

Name Date: from _____ to _____, 19_____

WEEKLY LABOR REPORT

TASK	ACTIVITY	AREA	WEEKDAYS (HOURS) M	T	W	TH	F	S	S

_____ Member signature

_____ Supervisor signature

_____ Manager signature

The remaining columns give the days of the week, and the spaces are used for noting the number of hours worked in each activity. The bottom of the chart leaves a space to be signed by the member, the supervisor of the activities in which the member has worked during the week, and the manager.

Operational control: Records should be kept on a daily basis by committee supervisors. They should be done in ink, and in duplicate, and the original is submitted weekly to the payroll office so the information can be noted for the weekly payroll. These notations are then used for determining deductions and calculating how much each worker will be paid. If for any unusual reason a worker switches activities and moves to a new supervisor, the labor record becomes the responsibility of the manager, who must report the hours worked.

3. WEEKLY PAYROLL

Objectives:

a. To establish weekly enterprise costs for labor contributions.

b. To determine weekly labor payments.

c. To make deductions as dictated by member commitments, in accordance with the legal standards of the enterprise.

Content: At the top is a space for the name of the enterprise, the payroll number, and the week.

Column One gives the name of the member or of any temporary workers hired as current or aspiring members. The hourly labor contributions are shown, with a weekly summary. The next column reflects the value of labor contributions, in terms of enterprise expenses. This is followed by several columns for appropriate deductions. The difference between these deductions and the total gives the amount due. Finally, when payment is made, the space or column for receipt is filled out. All lines are numbered on both sides of the payroll sheet, in order to avoid confusion.

Operational control: This payroll is the responsibility of the Secretarial and Accounting Committee, and it should be completed with at least one file copy. The information is taken from member time sheets completed by the committee supervisors.

NAME OF ENTERPRISE _____

Payroll No. _____ From _____ to _____ , 19_____

NAME	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thur.	Total Hrs.	Cost p/hr.	Total	DEDUCTIONS					Received
											Commis-sary	Capital shares	Loans	Benefits	Payables	
1																1
2																2
2																2
4																4
4																4
6																6
7																7
9																9
9																9
10																10
11																11
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20																20
21																21
22																22
22																22
24																24
25																25
26																26

4. ANNUAL LABOR SUMMARY

Objectives:

a. To keep a monthly summary of member labor contributions.

b. To keep an annual summary of member labor contributions.

c. To provide the information necessary for calculating the distribution of enterprise products and/or surpluses.

Content: At the top are spaces for the name of the enterprise and the year.

Column One is for name of the member, preceded by an order number. The following columns give the months of the year, and the fifteenth column is for the total. The total labor contribution is then noted on the last line.

Operational control: The Secretarial and Accounting Committee is responsible for this record. The annual summary is completed with sufficient copies for the original to go into a file and copies to be distributed among the operational units of the enterprise.

5. DAILY RECORD OF MACHINERY USE

Objectives:

a. To keep daily records of time used for mechanical operations.

b. To measure the hourly use of all machines and tools.

c. To measure machinery requirements for the various agricultural projects.

d. To provide the information needed for calculating costs for each piece of equipment per agricultural job.

Content: The first column gives the date work was done. The second is for the tractor (type, model), mechanical harvester, or vehicle. The third column gives the tool, and the fourth, the job. Column Five is for the name of the operator, and the sixth and seventh columns are for the hours the work was initiated and completed, as recorded on the time clock. Finally, the Column Eight gives total hours.

Operational control: This record is the responsibility of the Committee for Mechanized Services, which must name a supervisor to be in charge of keeping track of machine use. Records must be made whenever a machine operator begins a new job. Information on the use of the various machines or tools is recorded on a monthly basis and used in the yearly summary.

ANNUAL LABOR SUMMARY

YEAR _____

No.	MEMBER	MONTHS J	F	M	A	M	J	J	A	S	O	N	D	TOTAL HOURS
1														
2														
3														
•														
•														
•														
•														
•														
•														
47														
48														
49														
50														
Total														

ENTERPRISE _____ No. _____

DAILY RECORD OF MACHINERY USE

Date	Tractor or Vehicles	Tools	Job	Operator	CLOCKED TIME In	CLOCKED TIME Out	TOTAL HOURS

6. DAILY RECORD OF FUEL AND OIL CONSUMPTION

Objectives:

a. To keep a daily record of expenses for fuel (diesel, gasoline, etc.) and oil.

b. To determine fuel costs per tractor.

c. To keep annual control sheets of supplies required from the Supply and Marketing Committee.

d. To summarize the information needed for determining operational costs by tractor.

Contents: Column One gives the date the tank is filled or the machine is lubricated. Column Two gives the machine (tractor, standing motor, rotobeater, grain harvester, etc.). The third column is for the amount of fuel and/or oil procured or used. Finally, the fourth and last column gives the name of the person who requisitioned the fuel or oil.

Operational control: This record is the responsibility of the member of the Mechanized Services Committee who is in charge of fuel distribution.

A record sheet should be kept for each type of fuel and oil (gasoline, diesel, oil, grease). The daily record gives the information needed for the monthly and annual summaries of fuel and oil consumption. The Secretarial and Accounting Committee and the Supervisory Council should receive periodic reports, as needed.

7. MONTHLY RECORD OF TRACTOR USE

Objectives:

a. To summarize monthly use by job.

b. To determine the combination of jobs for which each tractor is used.

c. To provide the information needed for planning and conducting preventive maintenance on all units.

NAME OF THE ENTERPRISE _____

MONTHLY RECORD OF TRACTOR USE

YEAR _____ MAKE AND MODEL _____

TASK	MONTHS												TOTAL
	J	F	M	A	M	J	J	A	S	O	N	D	
TOTAL HOURS													

Contents: The first column gives the type of job, i.e., soil preparation, planting, cultivation, transporting (products, supplies, people, construction materials, etc.). This is followed by the months of the year, and Column Fourteen gives the total. The final total appears on the bottom line.

Operational control: This record is kept by the Mechanized Services Committee, on the basis of daily machinery use reports. The monthly summary per tractor (or mechanical harvester) is reported to the Secretarial and Accounting Committee, and/or through the manager, to the Administrative Council.

FUEL CONSUMPTION RECORD
(DIESEL)

Date	Vehicle or equip.	Quantity in liters	Requisitioned by:

APPENDIX 4

PROGRAM MODEL FOR DEVELOPING COURSES ON FARM MANAGEMENT WITH AN EMPHASIS ON ASSOCIATIVE ENTERPRISES

PROGRAM MODEL FOR DEVELOPING COURSES ON FARM MANAGEMENT WITH AN EMPHASIS ON ASSOCIATIVE ENTERPRISES*

JUSTIFICATION

On the specific level of an agricultural production unit of any kind, it is necessary to pay close attention to the proper functioning and execution of administrative tasks, for this is the source of so many technical, physical, and economic deficiencies. The associative enterprise as a production model incorporated on a large scale into this hemisphere's rural sector is no exception. Extensive experience has shown that these enterprises, like all others, are subject to numerous administrative flaws that should be studied and corrected in the interest of integrated development.

There is thus an urgent need to promote an ongoing training process in the area of farm management, thereby upgrading programs for supporting production units that, as in the case of associative enterprises, seek to attain clearly defined technical, economic and social objectives.

This course was planned for augmenting the professional development of technical groups and for providing ongoing efforts to further the progress of associative agricultural production enterprises. It is based on training programs and on the application of administrative methods needed for making better use of production resources on the enterprise level and expanding them toward regional and national contexts.

The course will be based on a clearly defined approach implementing the principles learned in associative enterprises. Traditional managerial sciences will be avoided to the extent that they constitute an isolated concern for indices of physical and economic efficiency. Rather, they will be integrated into an overall social and humanistic approach.

(*) By Hector Murcia .

OBJECTIVES

In accordance with these considerations, the completion of this course chould provide participants with the ability to:

a. Apply the concepts and principles of integrated planning to any associative production enterprise, maximizing the use of available resources and providing enterprise members with an improved standard of living.

b. Recognize the importance of agricultural enterprise management as one of the tools needed for formulating and implementing any development program for associative enterprises in particular, and the rural sector in general.

APPROACH

a. **Duration and intensity:** This program has been designed to cover approximately 40 to 45 hours of class time.

b. **Classroom method:** Lectures will cover the theoretical elements of the various subject areas. They will then be complemented with practical exercises in each area and a discussion in which all class members share ideas concerning the real-life problems affecting enterprises in their own countries and throughout the hemisphere.

In addition, field trips will be made to pre-selected associative enterprises. Case studies of these enterprises will be written, and the visits will give students an opportunity to practice data collection, agricultural accounting, diagnosis and, finally, planning exercises based on the information acquired.

Participants will be expected to give classroom reports on these activities and make their recommendations, and a final written report will be required on the planning of each associative enterprise. These reports will be discussed during the final classroom sessions.

PROSPECTUS

a. Introduction (Class 1)

1. The place of agricultural enterprise management in the rural sector. The macro and microeconomic approaches.

2. The definition and objectives of agricultural enterprise management.

3. A description of the agricultural enterprise in the Americas. Types of agricultural enterprises. The associative agricultural production enterprise. Real-life application of managerial principles.

b. Administrative aspects of agricultural enterprises (Class 2):

1. General managerial principles. Methods used for administration and organization on the enterprise level.

2. Administrative features of associative enterprises. Exercises, discussion, examples.

3. Study of organizational models for various types of associative enterprises. Bylaws, regulations, organizational charts, etc.

c. Managerial procedures on the agricultural enterprise (Class 3)

1. Managerial procedures. The planning phase and the execution phase. A model for agricultural production.

2. The decision-making process and its impact on methods for planning agricultural enterprises.

d. Concepts, principles and economic relationships (Classes 4 and 5):

This section provides essentially a rapid review of the economic concepts that are most useful for administering agricultural enterprises.

1. Basic concepts: supply, demand, prices, etc.

2. Factor-product, factor-factor, and product-product ratios.

3. Production costs on different types of farms.

4. Practical exercises.

e. Tools for the administration of agricultural enterprises (Class 6):

1. Data collection. Surveys for enterprise planning. Field trips to associative production enterprises.

2. Farm accounting. Principles, objectives, inventory, balance sheet, statement analysis, production records, exercises.

f. Measurements for evaluating physical and economic performance (Class 7):

1. Measuring size. Criteria for accurately calculating the size of the agricultural enterprise. The case of associative enterprises.

2. Measuring productivity and yield.

3. Measuring economic performance for the activity, the enterprise, and the agricultural project. Exercises.

g. Criteria and methods for planning agricultural enterprises (Classes 8, 9, and 10):

1. Methods for developing and analyzing alternative plans.

2. Physical, economic and social criteria for planning the associative production enterprise.

3. Specific analysis of planning methods.

4. Total budgeting. Partial budgeting.

5. Ideas on linear programming and programmed planning.

6. Group analysis and comparative studies.

7. Exercises.

h. Farm management in an integrated economic development program (Classes 11 and 12):

1. Consolidation of enterprise studies on the project level.

2. Specific areas: marketing in associative enterprises, agribusiness programs, employment policies, etc.

i. Presentation and discussion of specific cases (Class 13 through end).

Presumably, the individual projects will have been conducted as the course proceeded, and specific features will have been discussed. These final sessions are used for group discussion of the projects and for presenting conclusions.

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This work by Mr. Hector Murcia is a compendium of basic and specialized information concerning associative enterprises for agricultural production, covering the historical and sociological trajectory of this type of rural enterprise, from the training required for optimum performance, to specific accounting procedures, physical planning criteria, employment, management and case studies. Mr. Murcia, narrating with didactic simplicity, methodically expounds the most important technical and informative data available to date on this type of enterprise, furthering agricultural development in the Americas.

Mr. Murcia is a native Colombian who graduated as an agronomist from the National University of Colombia and was awarded a Master of Science degree (M.S.), with a specialization in Agricultural Economics, from the State University of Oklahoma in the United States. He is one of Latin America's most renowned authorities on the subject of agricultural production and organization through associative enterprises. Boasting a wealth of teaching experience at the university level, Mr. Murcia has also sat on the Board of the Colombian Agricultural Economics Association and has lectured at several national and international courses in his field. Mr. Murcia was a regular member of IICA's professional staff until 1984.