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LEONARDO RUIZ PINEDA: A CASE STUDY OF A
VENEZUELAN AGRARIAN REFORM SETTLEMENT

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with

Ricardo Alezones, Ramon Pugh and John Mathiason

Preliminary
Version

For Review and
Comments Only

CIDA
c/o Pan American Union
~~Washington, D.C. 20006~~

PREFACE

This is the second case study report from the research on agrarian reform and current tenure problems in Venezuela. (The first, the Caicara de Maturín settlement, was issued as Research Paper N° 1 in this series.) The Venezuelan study is part of a comprehensive research program which is also being undertaken in Bolivia and Mexico under the sponsorship of the five member agencies of CIDA in cooperation with national research institutions and government agencies.

The Venezuela country study is a joint undertaking of CIDA and the Centro de Estudios del Desarrollo (CENDES) of the Central University of Caracas, under the directorship of Ing. Luis Lander. The study has been generously and enthusiastically supported by the Ministry of Agriculture, the Instituto Agrario Nacional and the Banco Agrícola y Pecuário.

The field work for this case study was undertaken in 1966, under the guidance of the late Dr. Michael Sund -- the first international Co-director of the Venezuela research project -- by Ingeniero Agrónomo Ricardo Alezones, an agricultural economist, and Dr. Ramón Pugh (Professor of Social Organization, School of Sociology, Central University of Caracas), both of the staff of CENDES, and by Dr. John R. Mathiason, currently Assistant Professor at the School of Communications of the University of Washington. Messrs. Alezones and Pugh also drafted first versions of the case study analysis. The following personnel of CENDES also participated in the initial phases of the investigation: Dr. Héctor Rosas (Economist), Ingeniero Agrónomo Salvador Maman and Miss Mireya López (Sociologist). Messrs. Omar Marante and Rafael Longa assisted with the data tabulations.

Professor William C. Thiesenhusen of the University of Wisconsin Land Tenure Center was subsequently contracted to complete the analysis and the report when it became clear that other priorities of the project personnel would not permit their devoting sufficient time to this task. He spent six weeks in Venezuela in 1967, during which he visited the asentamiento to gain first-hand acquaintance with the project site and consulted with the co-authors. Assistance in the preparation of this version was rendered by Dr. Luis Ratinoff, current international Co-director of the Venezuela project, Ing. Pompeyo Ríos, its national Co-director and Ing. Gustavo Pinto Cohen, Coordinator. Acknowledgements are also due to Mr. Lawrence Lynch of the University of Wisconsin, who assisted with much of the tabulations. Peter Dorner, Emily Hany, Fr. José Martínez commented on earlier drafts of this study.

The conclusions presented reflected the joint views of the co-authors,

modified here and there by Eric B. Shearer, who edited the manuscript, and by my own observations.

This study is based on detailed interviews with 28 asentado families in 1966. These constitute 24 per cent of the total number of families on the settlement in that year. In Tables 2-4 these are treated as individual cases. The sample has been stratified, however, according to family size and pre-interview subjective information and relative income. Beginning with Table 6 (unless otherwise indicated) the data represent the entire settlement; the sample has been expanded to represent the universe.

Acronyms are spelled out and defined upon their first use in the text.

The reader is urged to communicate his critical remarks and suggestions to us so that they can be taken into account in the final review and publication of the study.

Washington, D. C.
December 1968

Thomas F. Carroll
Chief, Land Tenure and
Agrarian Reform Study Program

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INTRODUCTION

Five years after its founding, the agrarian reform settlement of Leonardo Ruíz Pineda illustrates that the process of agrarian reform can bring with it perplexing problems for economic planners and beneficiaries alike. And solutions take more than reform-mindedness, liberal ideas, and sympathy for the plight of the campesino. Formulating a policy to cope with the complex issues implied in structural reforms involves understanding the socio-economic forces at work in the community and the institutions through which they are channeled.

This study suggests that even though reforms may precondition economic advancement, altering tenure status may not, of itself, bring marked and immediate tangible progress to a rural community. Change has come slowly for many on Ruíz Pineda and advances have tended to partially backslide; progress has been difficult, even arduous. Yet there has been change; the net effect of reform has been a response to new opportunities and some improvement in living conditions. And one bottleneck to progress has been broken with the granting of land rights, some services, and overhead capital. One can foresee sustained development of Ruíz Pineda in the long run given adequate government policies and a revitalized campesino organization.

I. THE BACKGROUND

1. The Founding of an Asentamiento

The asentamiento Leonardo Ruíz Pineda is carved from 10,000 hectares of former ejido land belonging to the municipalities of Barbacoas, the district seat of Urdaneta (state of Aragua). Barbacoas, a town with a population of 3,150 (1961 census), is located at the gateway to the llanos in the tierra caliente (hot country) about 140 kilometers south of Caracas. The municipio acquired its ejido property when, at the founding of the republic, title to Indian land passed to the government.

In 1960 the municipio ceded 8,000 hectares^{1/} of this territory to the Instituto Agrario Nacional (IAN -- the principal agrarian reform agency of Venezuela) for an asentamiento; this led to the founding of Ruíz Pineda. Unlike the situation in some other parts of the country, there was no real campesino pressure for an asentamiento in this area of low population density. Indeed, at that time, the Barbacoas ejido land was quite vacant; only 200 hectares had been deforested and were being worked by 30 farmers. Eight were recent (early fifties) Spanish immigrants (from the Canary Islands) who were given temporary permission by the town council to farm an average of 10 hectares per family. Native Venezuelans (criollos) farmed the remaining 120 hectares as conucos which averaged about 5 hectares. Except for the fact that shifting agriculture of the "slash and burn" type was quite rare in the area, the conucos were of the traditional type in Venezuela, i.e., tiny farms on which subsistence crops (like corn and beans) are grown. Some of the conuqueros made a small cash rental payment for their plots to the town council.

The isleños (as the Spaniards are called) grew crops with a higher unit value than the criollos -- crops which require fertilizer and usually irrigation, like melons, peppers, and tobacco. They had been used to cultivating minuscule plots in their homeland -- indeed, fragmentation forced their emigration. Thus they found 10 hectares of contiguous land a sizable and efficient farm when cultivated intensively. Increased acreage more than compensated for the fact that only two harvests (only one of which could be noncereal cash crops) were possible in this area of Venezuela while they may have obtained three or even four at home.

The crucial person in bringing reform to Barbacoas was a town councilman who was an active member of Acción Democrática (the party elected to

^{1/} A hectare equals approximately 2.47 acres.

power with Rómulo Betancourt in 1958). He later became president (or secretary general, as this office is usually called in Venezuela) of the local peasant sindicato (union), a position he holds to this day. Although not a campesino himself, he was observant as well as astute and he came to know a great deal about the technical and social aspects of agriculture in the Barbacoas area. In addition to a sincere belief in the inherent justice of agrarian reform, the sindicato president also visualized it as one way of increasing his prestige in the community.

At this time IAN, still a fledgling agency, was facing campesino pressure on the land in various parts of the country which it was not always possible to satisfy. Some campesinos were squatting on already crowded public lands and bargaining for ownership under the newly enacted agrarian reform legislation. Some grants were made; in other cases, especially in hilly country, the government felt that land should be conserved by planting trees -- or at least preserving those which had not been destroyed by conuqueros who had invaded and established squatter plots many years before. At other pressure points, land was inappropriate for farming for other reasons. The solution in these latter cases was inevitable: resettlement of some campesinos in relatively vacant areas where the demand for land was less acute.

With the help of the remainder of the town council, the secretary general of the local sindicato set about transferring all but 2,000 hectares of Barbacoas' ejido lands to IAN. While this appears on the records as a "donation", in fact, IAN agreed to pay Bs. 100,000 ^{2/} for the largely uncleared property. The council reasoned that this amount, while not an extravagant settlement, would nicely supplement the sparse funds on which the town operates -- the business licenses sold, the few buildings rented, some other fees and fines, and the payment of Bs. 16,000 received fortnightly from the state of Aragua. Most of these monies currently go directly to pay governmental officials; little or nothing is left over to make town improvements. The town council envisioned the sale of ejido lands as one way in which some road improvement could be made in Barbacoas and they had little use for the idle ejido lands from which they collected only a few insignificant rental payments. The 2,000 hectare reserve, it was thought, would be ample to take care of the most optimistic town expansion projections.

Thus, the trade of 8,000 hectares for Bs. 100,00 was agreed upon by the

^{2/} US\$ 1 equals 4.5 Bolívares (Bs.), since 1964. The rate that prevailed at the time of this IAN transaction was about Bs. 3.33 per dollar. No adjustments for this devaluation or price level changes have been made in this study.

The Central Bank of Venezuela shows a rise in the wholesale agricultural price index of about 9 per cent from 1961 to 1965. The general price index increased at a rate of about 4 per cent per year in this period.

town council. What the council and IAN did not completely understand at the time was that the town did not have undisputed title to this ejido land. As in so many cases in Venezuela, the survey lines were not defined on the original title which had been drawn up in 1783. Through the years and without deforesting the property, eight or nine neighbors whose farms border the ejido property grazed their animals on the land which was about to be sold. When they heard that land which had been used by their farms -- some for generations -- was about to be requisitioned for an asentamiento, they raised a public outcry and initiated a court case. In the final analysis, the only land which could be definitely proven as ejido property was 930 hectares, the current size of the asentamiento. Of this, about 860 hectares were subsequently cleared and divided into individual farms. About half of this acreage was bottom land along the Guarico River; the remainder was savanna or at somewhat higher elevation.

There are over 7,000 hectares which could be converted into asentamiento property if the boundaries could be agreed upon. This land continues to be used for grazing by the contending neighboring farmers. Because there is no real, immediate pressure, the court has done nothing on the case recently. Its dockets are jammed with such business since Venezuela has never had a national cadastral survey and faulty titling is an all but universal problem in the country.

As a result, the town council has still not received its Bs. 100,000 from IAN. As the council becomes more adamant in its desire to receive payment and as sons of the original settlers come of age and demand land, this case will probably come into active discussion once again. Under the current agrarian reform law, only one son can inherit the undivided land parcel. As of 1965 there were 411 sons who would therefore be disqualified for landownership on Ruíz Pineda. Most of these are young, with about 75 percent in the 7 to 13 age group. Thus, unless new sources of employment open up or unless younger sons become quietly absorbed into the work force of a brother (a de facto parcel division), there will be a great deal of pressure for the resolution of this case in the future.

As will be shown later, underemployment is a serious problem on the asentamiento. While most of the disputed land is forested, about 2,000 hectares would be suited to intensive cultivation upon clearing; the remainder could be easily converted into grazing area, thereby supplementing incomes of current asentados and spreading labor requirements more evenly than now through the year (see Section 3).

The convergence of three factors thus accounted for the founding of the Leonardo Ruíz Pineda asentamiento: the need for IAN to have lands on which to settle new colonists, the availability of ejido lands in the Barbacoas area, and the desire of one member of the town council -- working through the newly founded sindicato -- for local prestige. Of these, the latter, is most important and we shall return to a more thorough discussion of the sindicato and its leadership in section 3 of this chapter.

2. Early Development of the Asentamiento

In 1960, IAN initiated cadastral surveys on the portion of the ejidal land that could be irrefutably transferred. The survey team appraised the land improvements (like fences, drainage ditches, granaries, shelters) made by the current occupants of the land at Bs. 265,115; this amount was paid to the occupants by the government in 1961. Meanwhile, under the sindicato's direction, the land was split into parcels -- all very nearly the size of the mean -- of about six hectares. And infrastructural investments (shown in Table 1) were made by various public agencies under IAN's general supervision and coordination. Amortization of the total of Bs. 931,794 spent for these purposes by the 119 settlers who occupied parcels in 1965 would amount to Bs. 7,830 per family. However, this expense, as well as the stipulated payment for the land, was entirely assumed by the government; no repayment by campesinos was expected or required.

The eight isleños were asked whether they wanted to leave the asentamiento or whether they would accept parcels which averaged only six hectares as replacements for the larger plots they were farming. Their decision was to remain on the asentamiento since they would be paid for the fixed capital improvements they had made (which were largely destroyed by later subdivision) and they would receive title to their plots. The isleños reasoned that with firm title and without fear of eviction they could plant higher value orchard crops; hence their acceptance of less land would not necessarily mean a reduction in net income. Besides, they had little desire to set out anew to relocate themselves. Seven of the isleños were farming an average of only seven hectares each at the time, so their acreage cut was quite minimal. The isleño who would lose the most land was partially compensated through a generous reimbursement of Bs. 112,000 for fixed capital improvements. Five of the original criollos left at the time of reform, preferring to take up conucos elsewhere. They were given a "severance pay" of Bs. 2,000 which is included in Table 1 as part of the "fixed capital improvement" category.

The first step in the reform process was to deforest the land, divide it, and give clear title to the 30 original occupants who wanted to remain. This group received the best lands on the newly established asentamiento: the sindicato supervised drawings, first for the bottom land parcels near the river.

By the early months of 1960, 200 other petitions had been received by the campesino federation from local campesinos who wanted land on Ruíz Pineda. Of this group, 30 had worked for IAN during the preparation of the asentamiento for subdivision. It was decided that they should remain and draw for parcels. Thirty-four were selected from the list of the remaining applicants by a committee named by the sindicato and IAN. These were personally interviewed and chosen on the basis of their prior experience in agriculture. Like the former residents, this group held several drawings for parcels before all were relatively satisfied with the results.

Table N° 1. PUBLIC AGENCY INVESTMENTS IN ASENTAMIENTO
LEONARDO RUIZ PINEDA, BY TYPE -- 1961-65

	Amount	Percent of Total	Average Per 1965 Colonist (N = 119)
	Bolívares		Bolívares
1) Purchase of fixed capital improvements to land at time of <u>asentamiento</u> organization (fences, drainage, ditches, graneries, shelters, etc.)	265,116	28.45	2,228
2) Topographical surveys	75,247	8.08	632
3) Deforestation	2,609	.28	23
4) Access roads	319,378	34.27	2,684
5) Irrigation works	870	.09	7
6) Fences	647	.07	5
7) Drinking water	720	.08	6
8) Houses (estimated)	151,250	16.23	1,271
9) Other	<u>115,957</u>	<u>12.44</u>	<u>974</u>
<u>T O T A L</u>	<u>931,794</u> =====	<u>100.00</u> =====	<u>7,830</u> =====

Source : All items except (8) based on Balance General del IAN, 1961-65.

The final step was to resettle 50 campesinos from elsewhere in the state of Aragua (25 from Las Trojas and 25 from Turmero) where land pressure was quite severe, but where IAN wanted to preserve a natural forest. They had a separate drawing in their home community for those parcels that remained on Ruiz Pineda. This brought the asentamiento up to capacity -- 144 parcels were occupied.

By 1965, 46 of the originally assigned parcels had been abandoned and 21 new settlers had been moved in to take their places, all selected from

the original Barbacoas area applicants by the sindicato and IAN. Some of these were sons of original asentados who had come of age in the interim. In 1966, there was a land invasion which occupied the 25 remaining parcels and filled the asentamiento to capacity. By 1967, 60 of the original group of 144 had abandoned their parcels.

Of the applicants who did not receive land, 61 have been granted property on other asentamientos. A pool of applicants still remains, in case title to any of the disputed ejido land is finally cleared. And, as pointed out earlier, more sons of asentados will soon become eligible for plots.

Probing into the reasons for abandonment, of the 60 who failed and had left their parcels by 1967, 44 were from Las Trojas and Turmero. These towns are located in the more temperate highlands where the main crops are coffee, celery, avocado and plantains. None of these are grown near Barbacoas, an area which specializes in such crops as bananas, sesame, corn, and upland rice. New settlers were given Bs. 5 a day as a living expense allowance to help them make the adjustment to the new community. When this was suspended, six months after their arrival, some credit was extended to the settlers. Their almost total default on credit for two years bespeaks the difficulty of the adjustment problem they faced. Faced by sagging incomes, all but six of the original 50 from the tierra templada had returned to their places of origin by 1967.

The account of this failure by asentamiento officials lays great stress on the fact that these migrants were not able to make the shift in technology required by a new climate and a new cropping pattern. More investigation of the matter, however, reveals that these peasants were given the poorer land. The highland settlers did not realize until they came that the parcels on the asentamiento had been thoroughly picked over by the original 64 asentados.

Since little technical assistance was available at the time, the poor parcels -- plus lack of technical expertise necessary to adjust to a new system of farming -- contributed to the failure of the settlers from the tierra templada. It was this group of parcels that was largely still deserted in 1965, the year to which the economic analyses below refer. Abandonment of poorer parcels prior to that year makes possible the general assumption of land resource homogeneity of the remaining acreage, discussed in the analysis (see also Table 27).

When these parceleros left their home communities for Ruíz Pineda, they minimized the risk involved in moving by leaving relatives to tend their highland squatter parcels or, in some cases, the land they owned. Some did not even take their wife and children, preferring to explore the new situation on their own. For them, returning home was least difficult. An informal interview in 1966 with six who could be located and who had re-established themselves in their home community revealed a great deal of understandable dissatisfaction with their experience. All said they were better off back home than on the reform project and calculations show they

had more net income than during the period they farmed on Ruíz Pineda. Their general comment, supported by data, was that they made a better income on a smaller acreage in the tierra templada than on Ruíz Pineda. Most now farm 3 or 4 hectares, while they had an average of slightly over 6 at Ruíz Pineda. While some reported petitioning the sindicato with their grievances, they also indicated that the sindicato was not disposed to listen, much less do anything about their plight; when asked "What does the sindicato do?" all replied, "Nothing". All of them had defaulted on major portions of their loans -- which technically they still owe; hence, none received credit beyond the second agricultural year, at which time most returned home.

While it may show what should not be done, this particular aspect of the Ruíz Pineda experience does not give the resettlement planner many positive guidelines. It does, however, illustrate the common sense proposition that planned migration can only be successful if the new situation is perceived by the settlers as better than the one left behind. If it is not, and the campesinos have taken precautions to make their decision reversible (which they often seem to do), they will most certainly return home.

3. Social Structure and the Sindicato

As a group, the campesinos on Leonardo Ruíz Pineda are not greatly different from peasants on other asentamientos in Venezuela. Their education level is about the same as the general norm: 41 percent are illiterate, 35 percent have three years or less of primary education -- not sufficient to produce functional literacy -- while 24 percent have from four to six years of primary schooling. The low educational level is to some degree a function of the fact that the heads of families in Leonardo Ruíz Pineda tend to be slightly older than the national norm; the average is about 50 years, compared to a national asentamiento average of 43.

The extra-family social structure on Ruíz Pineda is largely defined by the sindicato, to which almost all of the asentados belong. Having been founded in 1958, the sindicato is a relatively new form of social organization in Barbacoas.

Prior to the sindicato, there was little community organization here. As in most of Venezuela outside of the coffee and cacao areas, the hacienda system never developed in the Barbacoas area. About half of the present parceleros were conuqueros before the reform. The rest were day laborers and their relationship to the large farmers was based on occasional hired work. There were no long-term tenure or labor arrangements. Rather, the hired men worked for whichever large farmer needed labor; though subservience did, no paternalistic dependency developed in this milieu. Likewise, the church is not strong in Barbacoas and did not provide a nucleus for a community social structure. Geographical mobility is extremely common among Venezuelan peasants and in Barbacoas village loyalties and traditions had not developed at the time the asentamiento was founded. Even the local government did not provide a nexus for social organization. The local town council

was in the hands of large landlords and storekeepers from the town. It concerned the campesinos only insofar as they paid nominal rent for plots of the town's ejido land. Although they resided in the town of Barbacoas, there was no strongly articulated social structure in which the peasants moved prior to 1958. No groups, loyalties, or common experiences bound the local peasants together.

The lack of resistance to the sindicato from traditional elements in the social structure was due not only to this situation but also to the absence of persistent sindicato pressure for obtaining the remaining ejido land for the asentamiento.

Nationally, the peasant union movement was used by political parties as a vehicle for mobilizing the peasantry to support the reformist government which followed the fall of the dictator Pérez Jiménez. For the peasants, the sindicato was appealing because it promised land and other benefits and they joined en masse. Asked why they joined the sindicato, two thirds of the present members of Ruiz Pineda responded, "to obtain land or other physical benefits".

The preeminence of the sindicato is shown by the responses of the campesinos to a series of questions asking to whom they would go for assistance in a variety of problem-solving situations. Over half of the asentados on Ruiz Pineda indicated a heavy reliance on the sindicato or its leaders. Conspicuously absent were the traditional leaders of Latin America: large landowners and priests. This is not to say that other social organizations are totally absent, but it does underline the paramount position of the sindicato on Leonardo Ruiz Pineda.

The Sindicato Agropecuario de Barbacoas was one of the first founded in Aragua state. The initiative came from the state "seccional" of the Venezuelan Campesino Federation (Federación Campesina de Venezuela -- FCV) in Maracay, which sent organizers to Barbacoas. At that time Acción Democrática (AD) was in the process of rebuilding its peasant base of support (first developed during 1945-48) in preparation for the national elections which named Rómulo Betancourt as President. The vehicle for this was the FCV, which the party largely controlled. The organizational pattern in Barbacoas was similar to that in other areas of Venezuela. ^{3/} The organizers sought out local political leaders of AD and enlisted their cooperation in calling together the peasants to found a union. It then

^{3/} Cf. John D. Powell, The Politics of Agrarian Reform in Venezuela, unpublished Ph. D. dissertation, University of Wisconsin, 1966 and The Role of the Federación Campesina in the Venezuelan Agrarian Reform Process, 1968, Washington, D.C. and Madison, Wisconsin: CIDA Research Paper No. 5 and LTC Report No. 26; John R. Mathiason, Political Mobilization of Venezuelan Campesinos, unpublished Ph. D. dissertation, Massachusetts Institute of Technology, 1968.

entrusted local party officials with overseeing the nascent organization.

As indicated earlier, in Barbacoas the state organizers utilized a local party leader who had extensive dealings with the peasants around town. The chosen leader was relatively young; the son of a campesino, he had prospered to the extent of acquiring a small general store; he had also picked up a rudimentary primary education and had a fairly cosmopolitan out look on life. In addition he was a dynamic and forceful natural leader. Furthermore, his party loyalty could not be questioned; even prior to the founding of the sindicato he was on the AD list of candidates for the town council.

Some 375 area campesinos were induced to join the sindicato^{4/} by promises of improvement of the deplorable conditions in which they lived; especially via land reform. After a provisional period of six months of tutelage by supervisors from the state FCV, the sindicato formally elected its first board of officers. The first secretary general was the local party leader through whom the sindicato was first promoted. Although he was no longer a functional campesino, he was the obvious choice. By this time he had been successful in his bid for election to the town council, thus giving him a ready-made position of influence in the community. Furthermore, he had been named by AD as agrarian secretary for the district. This combination of positions, from the peasants' point of view, gave the man invaluable connections; his storekeeping did not impose great demands on his time and he was able to devote considerable time to union and party activities.

More importantly, he had a great deal of ideological motivation and personal capacity for union and party work, and was a "natural politician" to the extent that he was content with rewards in terms of his status with the peasants and with the delights of power itself. Campesinos appear dutifully in his office to ask advice on day-to-day matters -- whether he would counsel cutting a tree on their property and what he would recommend for the solution of a neighborhood dispute, for example. At the same time, he also concerned himself -- with considerable ingenuity and initiative -- with greater issues and problems. For instance, he picked up irrigation pumps that were not functioning from nearby asentamientos at a low price and saw to their repair. Since he was never wholly in favor of the resettlement scheme for outsiders promoted by IAN, it was the secretary general who basically decided to turn a deaf ear to the grievanc \u00e9 s of the asentados from the highland areas and who apportioned abandoned parcels, as "summer farming" plots without collecting rental payments. Thus, it is impossible to separate the functions of the sindicato on Ruíz Pineda from the personal functions of its secretary general.

^{4/} By 1965, the number of active members had dropped to 196. While some of this may be due to disillusionment, it reflects mostly the breaking up to the original sindicato into several smaller units.

The better farmers on Ruíz Pineda usually ignore sindicato meetings but maintain generally positive relations with it to obtain summer farming plots, rent equipment, such as tractors, to other members, or perform remunerative marketing services for a group of asentados.

The sindicato's charismatic and paternalistic secretary general is supported by the community mostly because of his success in obtaining favors from the governmental agencies concerned with agrarian reform. While a strong and almost dictatorial leader may be useful -- even essential -- to a sindicato in its early stages, it matures as a viable institution only through shared power, developed responsibilities, and member participation. It is this process of "democratization" which has not occurred to any appreciable degree on this asentamiento. And the observer is led to the uncomfortable query, "What will happen to the local union if the secretary general achieves a higher political position to which he aspires and of which he is apparently capable?"

With these caveats in mind, it is possible to list the responsibilities and functions of the sindicato on Ruíz Pineda. After bargaining for the land, it made the decisions about who was to receive it, how much each would receive, and who would receive which plot. Because of the boundary dispute and because the sindicato succumbed to the pressure by the FCV and the IAN to include settlers from the highland areas, not all of those who joined could be settled on the land. The process of selection of beneficiaries described earlier obviously left the sindicato leadership ample opportunity to reward militancy and castigate apathy. As a next step the sindicato, in consultation with the IAN, determined that all plots would be approximately six hectares in size. It seems unlikely that technical criteria (other than perhaps the fact that most of the isleños were successfully farming plots of about 6 hectares) were used in arriving at this figure. Experience on other settlements indicates that 6 hectares was probably a compromise between the sindicato and the technicians with the result that a maximum feasible number of settlers were accommodated on parcels which were large enough to potentially provide an adequate family income.

With the number of plots available established and with the beneficiaries selected, the sindicato then went into the involved process of allocating the plots among the selected beneficiaries. Here again, it was possible for the sindicato to mete out rewards and punishments.

With the establishment of the asentamiento, the sindicato emerged as an organization to which the peasant came to owe loyalty. Through the years the local union evolved from an organization which focused on the consignment of land to practical matters which confronted the farming community.

Today, the sindicato and its latter day forms (to be described later) the Empresa Campesina and the Unión de Prestatarios, occupy middlemen positions which link the government to the community by petitioning for and apportioning official credit, asking for technical assistance, planning cropping patterns (with the help of the extension personnel) and supervising

the collection and sale of corn and rice which are purchased by the government.

Most importantly the sindicato became the vehicle for administering government operating credit. This was a natural step since half of the beneficiaries are illiterate and unable to fill out the required forms without help. And the individual campesinos did not know the proper procedures for obtaining credit: which office to approach and how much credit to request. The sindicato, with its leaders trained in getting favors from the government, took charge of credit petitions and made the crucial decisions about how much to request, the number of payments, the recipients, and the amount to be paid in cash and in kind. Since there was much default on individual accounts, the government later stipulated that only group credit could be obtained. This gave the sindicato leadership a powerful weapon. Obviously, campesinos who had fallen out with the sindicato leadership had a harder time receiving credit than those who supported them. In fact, the sample data show a strong relationship between participating in sindicato activities and receiving credit; in general, those who are not active do not receive government credit (Table 2).

Therefore, in addition to providing a channel for transmitting demands from the grassroots, the sindicato has also become the vehicle through which all government programs must work. In fact, there is little direct contact between the individual parcelero and the government agents which deal with the settlement. Rather, the Ministry of Agriculture extension agent and the agent of the Agricultural Bank work through the secretary general, who later arranges meetings and dispenses their advice. This is convenient for government officials as well as politically prudent, but means that only those parceleros who are sindicato activists benefit from the services. In practice, contact with the extension agent is strongly related to the frequency with which a peasant has contact with the sindicato officers. Those who have little to do with the sindicato are less likely to receive technical assistance than those who participate.

Likewise, access to collective benefits, such as technical inputs in the form of mechanization of parts of the farming operation and chemical products (fertilizer, insecticides) has tended to be based on activism in the sindicato and interaction with sindicato leaders. In 1965, having used mechanized seeding tends to be related to sindicato participation (Table 3).

Active participation in the sindicato is thus the sine qua non for participating in special programs, that is, passive members have less opportunity to benefit from sindicato favors than the activists. Active participation in sindicato meetings is strongly related to membership in Acción Democrática. (Table 4).

Table N° 2. ATTENDANCE AT SINDICATO MEETINGS
AND RECEIPT OF GOVERNMENT CREDIT^{a/}

		Attend Sindicato Meetings		
		Yes	No	Total
(P e r c e n t)				
Have received credit since settlement on <u>asentamientos</u>	Yes	100	33	86
	No	-	67	14
N -		(22)	(6)	(28)
P < .01, significant				

a/ The Fisher Exact Probability test has been utilized to determine significance in Tables N° 2, 3, and 4. This nonparametric test is utilized when two independent samples are small and when the scores from two independent random samples all fall into one or the other of two mutually exclusive classes, so that 2 x 2 contingency tables can be constructed. The exact probability of the observed occurrence is found by taking the ratio of the product of the factorials of the four marginal totals to the product of the total of all frequencies multiplied by N factorial.

Therefore:

	-	+	Total
Group I	A	B	A + B
Group II	C	D	C + D
Total	A + C	B + D	N

$$P = \frac{\binom{A+C}{A} \binom{B+D}{B}}{\binom{N}{A \cdot B}}$$

$$= \frac{\left(\frac{(A+C)!}{A! C!}\right) \left(\frac{(B+D)!}{B! D!}\right)}{N! (A+B)! (C+D)!}$$

$$\text{and thus } p = \frac{(A+B)! (C+D)! (A+C)! (B+D)!}{N! A! B! C! D!}$$

See: Sidney Siegel, Non-Parametric Statistics for the Behavioral Sciences, McGraw Hill Book Company, New York, 1956, pp. 95-104.

Table N° 3. ATTENDANCE AT SINDICATO MEETINGS
AND MECHANIZED SEEDING OF CROP

		Attend Sindicato Meetings		
		Yes	No	Total
(P e r c e n t)				
Used mechanized seeding	Yes	75	50	70
	No	25	50	30
N .		(22)	(6)	(28)
P < .05, significant				

Table N° 4. MEMBERSHIP IN ACCION DEMOCRATICA
AND FREQUENT ATTENDANCE AT SINDICATO MEETINGS

		Member of AD	Member of other or no party <u>a/</u>	Total
(P e r c e n t)				
Attend sindicato meetings	Frequently	87	17	60
	Infrequently or not at all	13	83	40
N .		(17)	(11)	(28)
P < .01, significant				

a/ Most are apolitical.

It is worth emphasizing that in the five years of its operations, the main thrust of the functions of the sindicato has undergone continuous change. Its first focus, of course, was obtaining and granting land. Its

second became obtaining houses for the asentados. It then concentrated on improving irrigation facilities and obtaining credit. In 1967, it was working to convince the Ministry of Agriculture (MAC) to assign a full-time technical assistant to the colony. (Its present perito agrícola -- an agricultural technician with the rough equivalent of a high school education in vocational agriculture -- currently advises several projects.) As problems have come up, the sindicato has attempted to grapple with them. The secretary general, in exchange for support, has accepted the challenge of brokerage and mediation with governmental agencies.

Several important positive accomplishments have marked the sindicato's first years:

1. The asentamiento has received a large amount of government investment, both of a social and economic nature. Since agrarian reform expenditures in Venezuela tend to go preferentially to settlements with strong sindicatos, the political connections of Ruíz Pineda's secretary general have doubtless been a major factor.

2. Because of the strong sindicato and the demonstrated political capacity of the sindicato secretary general, the asentamiento has been continually selected for special government credit programs. Like most beneficiaries of the agrarian reform, the Ruíz Pineda campesinos are in debt. But most have not lost access to government credit.

3. Campesinos have been induced to use technical improvements they might not have adopted otherwise. This has been a mixed blessing for, as we shall see later, some of the new technology has not had a positive effect on farm income.

There are also several negative aspects:

1. While there has been wide participation in the sindicato, this has not included the best farmers on Ruíz Pineda. Among the 15 percent of parceleros who do not participate in any sindicato activities are the isleños and the best criollo farmers. The cordiality they maintain toward the sindicato does not stem from their interest in building it into a viable institution, but rather to individual interests, as explained earlier.

2. There seems to be a degree of favoritism and inefficiency built into the system. While the declared motives of the secretary general are laudable, he has tended to castigate defiance by withholding credit. At the same time, loyal supporters have occasionally been rewarded by larger than normal credit payments.

3. The sindicato on Ruíz Pineda is a personalistic organism. Members have not learned to take responsibility. If they have problems with their farm operation, they have come to rely on the power of their elected leader to obtain the credit they need for subsistence. Personal self-reliance has not had a chance to develop in this climate.

Thus, the system operates on unstable bases. The key man, for good or bad, is the sindicato secretary general. Should he, for any reason, leave the leadership there is little evidence that the system would maintain itself. There have been few efforts to delegate authority or train other campesinos for leadership; in fact, since grooming a possible successor would challenge the secretary general's predominant position, it has been discouraged. Furthermore, the secretary general's evident effectiveness has been largely predicated on his political capacity and connections, which in turn depend heavily on the ruling party of the moment. If Acción Democrática were to lose its dominance, it seems doubtful that the same techniques would be possible, or even that the secretary general could retain his role of leadership.

4. Production Experience Through 1964

Since land was given out in June of 1961, it was too late to plant corn. 5/ But IAN prepared the soil for sesame, which was to be seeded in October or November, and gave each parcelero a credit of Bs. 150 for each hectare to be planted. (Nearly all of this credit was in fact used for subsistence expenses during the first year).

In 1962, cotton and corn were planted. For each hectare of cotton, a parcelero was loaned Bs. 500; for each hectare of corn or sesame he planted, he was granted a credit of Bs. 300. Even though the year was quite productive, a total of Bs. 16,000 of outstanding loans remained uncollected.

In 1963, IAN again assumed responsibility for soil preparation with machinery, but since it experimented with different varieties of rice during that year on Ruiz Pineda, it did not charge the asentados for this service. Based on the results of these experiments, it was decided in 1964 to seed rice of variety number 501 on 312 hectares of savanna land. Seed was purchased and dispatched to a private drier, a practice aimed at promoting good germination. When the seedbed was ready, the IAN extensionist who went to fetch the seed from the drier found that it had been sold. He immediately ordered seed of a different variety -- no more of the 501 variety was available. But this seed arrived too late for planting and it was returned. Thus, the "rice farmers" were forced to leave their parcels idle and live from the subsistence payments which the government supplied.

When proper agricultural research information is not available, on-farm and, hence, high-cost experimentation is the only real alternative for problem solving. If the specific inputs suggested by this research for optimal yields are then unavailable, the already expensive research counts

5/ In this area, "winter", the rainy growing season, runs from April or May to September or October. "Summer", the dry season, encompasses the remainder of the year.

for naught in terms of private accounting.

This brief background sets the stage for the following detailed analysis of the 1965 crop year, during which weather conditions, according to extension men, were "normal".

II. THE FACTORS OF PRODUCTION

1. Labor Use

Table 5 indicates that there were about 165 total man-years of labor available for utilization on the 119 farms making up the asentamiento Leonardo Ruíz Pineda during 1965. This includes the potential work force of the parceleros and the labor that can be supplied by their sons 15 years of age or older who live in the parcel, are not in school, and depend on their parents for support. Average labor availability was 1.4 man-year equivalents per farm. ^{6/}

But during 1965 parceleros and their families spent a total of only about 25 man-years, or about 15.2 percent of the total labor available, working on their own farms (assuming a 300 day work year and an eight hour day). Indeed, they worked more off their farms for wages than on them. As Table 6 demonstrates, they spent approximately 32 man-years hiring out: as agricultural day laborers, as tractor operators transporting crops, and in petty commerce and construction; nearly two-thirds of this labor was in agriculture (column 1 plus 2, Table 6). Between 30 and 40 percent of the off-farm labor represented wage work on the parcels of neighbors when their labor demands corresponded to a slack period at home.

Considering labor use on and off the farmer's own land, then, Table 5 indicates that only 57 man-year equivalents of the 165 total available were spent in remunerative employment. This means that only 35 percent of the labor available within the asentamiento in 1965 was used; 65 percent was idle.

Expressed in slightly different terms, the average family on Ruíz Pineda worked on their farm an equivalent of about 64 eight-hour work days during 1965. They worked elsewhere for approximately 80 days and were idle for the remainder of the year -- an average of 156 days in addition to Sundays and main holidays.

The average farm operator worked on his farm about 45 days. He worked elsewhere for 78 days and was idle an equivalent of 177 days.

Viewed against this backdrop of a rather alarming amount of parcelero family idleness, it appears at first glance rather odd that the average farmer on Ruíz Pineda hired 56 days of labor (Table 7). In fact, 47 per

^{6/} The "farm" includes the official parcel plus any additional lands the parcelero and his family may rent or "use". This distinction is explained later in the discussion.

Table N° 5. TOTAL AVAILABLE AND UTILIZED LABOR, 1965
(Man-years^{a/})

	Parcelero		Sons ^{b/}		Total	
	Total	Mean/ family	Total	Mean/ family	Total	Mean/ family
A. Available	119.00	1.000	45.75	.40	164.75	1.400
B. Used (on parcel)	17.55	0.150	7.44	.06	24.99	0.210
C. Used (on additional land) ^{c/}	0.29	0.002	0.00	.00	0.29	0.002
D. Used (on total land) (B + C)	17.84	0.152	7.44	.06	25.28	0.212
E. Used (other remuner ative activities)	30.56	0.260	1.20	.01	31.76	0.270
F. Total labor used (D + E)	48.40	0.412	8.64	.07	57.04	0.482
G. Labor not utilized (A - F)	70.60	0.588	37.11	.33	107.71	0.918
Percent of available labor not utilized		59		82		65

^{a/} A "man year" in this study assumes 300 days and 8 hours per day.

^{b/} Row A, "available labor", considers only sons 15 years of age or older who live on the parcel, are not in school, and depend on their parents for support.

^{c/} As will be explained later, some asentados farm land which is not formally part of their official parcel.

Table N° 6. TOTAL OFF-FARM EMPLOYMENT BY PARCELEROS
AND THEIR FAMILIES BY ACTIVITY, 1965

	(1)	(2)	(3)	(4)	Total
	Agricultur al day labor	Operation of tractor	Transport of crops	Petty com merce and construction	
Number of man- years	13.2	6.7	8.2	3.7	31.8 ^{a/}
Percent of total off-farm employ ment	41.0	21.0	26.0	12.0	100.0

a/ Equals Row E, Table N° 5.

Table N° 7. AVERAGE LABOR INPUT ON FARMS, PER FAMILY
AND PER CULTIVATED HECTARE, 1965

	Eight-Hour Work Days			
	Parce lero	Other fami ly members	Hired Labor	Total
<u>Parcel</u>				
Average per family	44.26	18.76	46.44	109.46
Percent	41.00	17.00	42.00	100.00
Average per hectare	7.93	3.36	8.33	19.62
<u>Additional land</u>				
Average per family with additional land	3.90	0.00	48.93	52.83
Percent	7.00	0.00	93.00	100.00
Average per hectare	0.75	0.00	9.35	10.10
<u>Total land</u>				
Average per family	45.00	18.76	55.69	119.45
Percent	37.00	16.00	47.00	100.00
Average per hectare	6.85	2.86	8.47	18.18

cent of the labor utilized on farms was hired, usually at the going rate of between Bs. 10 and Bs. 12 per day.

As will be shown, the rationale behind this apparent anomaly stems from the peculiarities of seasonal cultivation in the area and the cropping and management pattern used on Ruiz Pineda.

2. Land Use

In winter there is ample rain during the growing season so that irrigation in the Barbacoas area is not necessary. But during the summer or dry period -- from November to April in this part of Aragua -- cropping is impossible without irrigation. While there is more unused land in summer than in winter, the amount of idle land in both seasons is substantial (Table 8).

While 600 hectares were divided into parcels on Ruiz Pineda, 196 hectares had been idled through desertion by 1965. Thus, the 119 parcel holders in 1965 owned parcels whose area totaled 664 hectares. Of this, 614 hectares were usable for agriculture and about 275 hectares are irrigable with shallow wells (two or three meters deep); these latter can be cropped in both summer and winter. Only 195 hectares were irrigated in 1965, however, and only 138 hectares of this were actually utilized the year-round. (Of these 138 hectares, about 84 are planted to permanent orchard crops; 54 are double-cropped). Nearly half of the total area farmed in 1965 -- 306 hectares -- was planted in winter only. Considering merely the land in farms in 1965 -- but including the double-cropping capability of the irrigated area -- 307 hectares were idle in that year. The inclusion of land potentially irrigated with existing deep wells and land idled by desertion in 1965 (which, as explained earlier, was in fact re-occupied in 1966), would raise this figure even higher.

Of the 614 hectares available for use in winter, 170 were unutilized in 1965; of the 275 irrigable hectares available in summer, approximately half were unutilized. Thus, problems of idle land and, hence, idle labor, appear to be more serious in summer than in winter.

Some asentados utilized deserted but irrigable parcels on the asentamiento in summer in 1965. Table 9 reveals that about 172 hectares are planted to annual crops in the dry season; only 54 hectares of assigned and unalienated asentamiento land are used for this purpose, however. This indicates that a certain number of asentados "borrowed" about 117 hectares of idled land for summer farming in 1965.

The reason why summer farming is not more common on Ruiz Pineda, even though irrigable land is available, is that irrigation is a fairly expensive capital addition; there is currently no gravity flow irrigation here and water must come from wells. Initial costs are approximately Bs. 1,000 for drilling a shallow well and from Bs. 3,000-4,000 more for the pump and

Table N° 8. LAND USE ON THE 119 OCCUPIED PARCELS, 1965
(Hectares)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Total area	Usable area	Area irri- gable with shallow wells	Total irriga- ted	Irrigated area actu- ally used	Total usable area	Area used in winter only <u>a/</u>	Area actu- ally uti- lized <u>b/</u>	Unused land resource (Col. 6 - 8)
664	614	275	195	138	389	306	362	307

a/ Column 2 + 3, taking account of double cropping potential of irrigable area.

b/ Column 7 + (2 x Column 5).

Table N° 9. UTILIZATION OF ALL CROPPED LAND, 1965

		Total acreage utilized	Corn	Sesame ^{a/}	Beans	Rice	Millet	Other grains	Tobacco	Vegetables	Fruits	Bananas	Other Fruits	Natural Pasture
Rainy (invierno) season crops	Hectares	359.75	155.82	109.75	36.43	26.50	21.75	9.50	-	-	-	-	-	-
	Percentage	100.00	43.30	30.50	10.10	7.40	6.00	2.60	-	-	-	-	-	-
Dry (verano) season crops	Hectares	171.63	37.50	52.50	7.50	-	-	-	1.13	5.25	67.75	-	-	-
	Percentage	100.00	21.80	30.60	4.40	-	-	-	0.70	3.10	39.50	-	-	-
Permanent crops ^{b/}	Hectares	83.77	-	-	-	-	-	-	-	-	-	44.43	31.09	8.25
	Percentage	100.00	-	-	-	-	-	-	-	-	-	53.00	37.10	9.80

^{a/} Sesame is planted in the "Norte" -- the last rain of winter and grows and matures in summer. After germination, sesame needs no further watering. Thus the division of the sesame crop into invierno and verano is a bit arbitrary. Likewise, corn and beans may be grown in both invierno and verano, even though they are usually rainy season crops; the division was made according to when the interviewee claimed to have planted his crops.

^{b/} For purposes of land use evaluation, acreage in "permanent crops" should be multiplied by two since this land is utilized in summer and winter.

motor. ^{7/}

Sixty-three wells were originally dug on the asentamiento. Farmers own about 30 pumps that can be moved from well to well. This explains how deserted land can be utilized in summer. A farmer who has a pump simply moves it to an available well.

Even so, 57 irrigated hectares were unused in the summer in which this study was conducted; this implies that the lack of wells was not the only factor limiting summer crops. In fact, all pumps were not in operating order. For lack of technical follow-up, the majority of them were not maintained correctly, and are now all but useless. Furthermore, truck crops face a complex of other problems as serious as lack of water. The Banco Agrícola y Pecuário (BAP) earmarks most of its credit for winter cereal crops and will purchase the crop from borrowers at preannounced prices. (The BAP is also in charge of administering official farm price support programs. But no official credit is available for truck crops and they must be marketed through unstable and monopsonistic channels. ^{8/} Thus, summer truck farming on Ruíz Pineda is essentially limited to the "agricultural specialists", primarily the émigrés from the Canary Islands who brought with them some experience and a great deal of ingenuity for this type of farming. Besides, and perhaps as important, they have access to private sources of operating capital and usually market their own products.

3. Labor and Land Use

The dry season, then, accounts for a great deal of the idleness reported in the last section and is the period of the year when most parcel holders and their families who do not have proper skills, operating capital, a pump, or a well (in some combination) must attempt to hire out. If their land is irrigated they may perform whatever other menial work they can find in the community and/or hire out both their land and their labor to the isleños.

a. The Summer Season. This latter is usually a "sharecropping-in-reverse" arrangement initiated by a parcel holder who is anxious to "summer

^{7/} This situation is about to change, however. A dam is being constructed on the Guarico River near Camataguas (about 50 kilometers upstream). When complete, in several more years, gravity flow irrigation will become possible provided the farm is properly leveled. This will also solve some of the drainage problems (to be alluded to later) which currently plague farmers on the asentamiento.

^{8/} BAP stands ready to buy cereal crops after granting production credit, but asentados may sell to other buyers to avoid repayment deductions. For example, asentados on Ruíz Pineda sold BAP only 40 percent of their winter crop in 1965, even though most of it was financed with BAP credit.

farm" a larger acreage. The land-borrowing isleño usually has the pump, capital, and know-how, and he contracts with a criollo parcel holder to be his sharecropper (medianero) on the criollo's own land. The isleño entrepreneur supplies the inputs, mechanical services, and technical expertise. The criollo parcel owner supplies his land and half of the labor. The harvest is then divided 50-50. Unlike the usual medianería, in which the cropper is not the landlord, this arrangement can be canceled whenever the owner of the parcel so desires. One effect of this system is that it teaches the parcelero certain farm management practices. While it could be assumed that, when parcel holders have learned the technology of summer farming, this curious tenure arrangement may cease and both parties may be better off for the experience, this had not yet occurred in any of the cases by the end of 1965. Yet, there are elements which make this situation more exploitive than it first appears. The tutelage of the entrepreneur does not extend to teaching the asentado how to enter the fruit and vegetable market in Caracas where all truck crop harvest must be sold. Rather, the entrepreneur transports the merchandise (in his truck) and sells it. The criollo peasant has no knowledge of the market mechanism and no check on the honesty of the entrepreneur once the marketing procedure is complete. Thus, many medianero arrangements are about as old as the settlement itself and there are no signs of termination. Without possibly encompassing a cooperative marketing system, it is doubtful that the nascent "extension" qualities of the relationship will ever mature into economic independence for the parcel holder.

Only 23 of the 1965 asentados farm additional land in summer. While eight utilized the sharecropping arrangement described above, the other 15 used the land free of charge, compliments of the sindicato secretary general who took over parcels after their original occupants had failed. This favor seems to have been used to get the support of some of the more well-to-do asentados for the sindicato.

Through these mechanisms the size of the average farm is, in effect, becoming larger. Table 10 shows that under the original parcel assignment 80 percent (534 hectares) of the original 664 hectares (see Table 8) was allocated units of over six hectares. In 1965, because of the incorporation of "additional summer-farmed lands", 83 percent (652 hectares) of the total of 782 hectares farmed, was in units of over six hectares. Prior to the incorporation of additional lands there were no farms over 10 hectares. In 1965, 32 percent of all land farmed was in units of over ten hectares. As some of the more successful parceleros took over "additional lands" representing abandoned parcels of the "deserters", average farm size for the 119 parceleros remaining in 1965 had risen from the original 5.6 hectares to 6.6 hectares in 1965. 9/

9/ As mentioned earlier, the original assignment for all parceleros was in units of slightly over six hectares. Abandonment of the larger (and poorer) parcels accounts for the 5.6 hectare figure in the case of initial assignment of present occupants.

On the average, farmers with additional lands use more mechanical power than those who merely work the basic parcel. There is also a tendency for farmers who have acquired additional lands to use chemical weed killers.

Summer truck crops still utilize more labor per cultivated hectare than winter cereals, but much otherwise heavily labor intensive weeding is accomplished by machine and chemicals. This, coupled with the fact that the summer-farmed land is only about 20 per cent of the winter-farmed land, makes for serious unemployment problems in the summer on Ruiz Pineda.

Table N° 10. DISTRIBUTION OF ORIGINAL PARCELS AND TOTAL LAND FARMED IN 1965, ACCORDING TO SIZE GROUPS

	Size Groups			Total
	2 - 4 hectares	4 - 6 hectares	Above 6 hectares	
Original parcel assignment (Hectares)	17	113	534	664
Original parcel assignment (Percent)	3	17	80	100
Total land farmed in 1965 (parcels plus additional land) (hectares)	17	113	652	782
Total land farmed in 1965 (parcels plus additional land) (Percent)	2	15	83	100

b. The Winter Season. But rainy season labor needs are also far from consistent over the period and seem to be becoming more irregular as operations are increasingly mechanized. Soil preparation begins with the first rains. Even though hand seeding would utilize family labor (whose opportunity cost is low at this time under the current system) and save on machinery rental expenses, soil preparation and seeding must be worked in between showers (much the same as in an area like the Midwestern United States). Mechanization speeds the process. Delays at this time of year are costly in terms of harvest. While seeding employed a total of 1,513 man-days of work (not counting the time of the driver of the rented tractor), about two-thirds of this labor is for the summer period, in which truck crops are seeded and transplanted by hand (Table 11). Family labor use during the winter season

consists primarily of supervision of the machine work by the parcel holder or a member of his family.

In contrast to the period of soil preparation and seeding, Table N° 11 shows that the weeding and harvesting operations absorbed nearly three times the labor used for seeding. In the rainy season the labor use peak in weeding and harvesting operations becomes even more pronounced. In "winter", only about 500 man-days were used in soil preparation and seeding, but about 2,300 in weeding and 1,600 in the harvest. There is great idleness in the winter planting and the post-planting period, and in the period between weeding and harvest.

c. Rationality of the Labor Use Pattern. In order to discern whether there is over-utilization of labor in the various tasks performed over the year, an attempt was made to estimate the number of man-days required for the work, assuming (1) the same cropping patterns, (2) an average harvest, and (3) the current level of technology on the asentamiento. Since no ready coefficients existed which would meet the requirements of these assumptions, two ingenieros agrónomos who were familiar with Ruíz Pineda were asked to supply approximate calculations based on their experience with the asentamiento and the region. 10/

On the basis of these estimates, it appears that only in weeding and harvesting are labor requirements out of line with use. Moreover, in these operations, the data indicate that theoretical needs are somewhat higher than actual use. Given the rough nature of the estimates, precise conclusions are impossible. But one important fact is clear from this comparison: labor use during the crop year is more or less according to need. It is probable, in other words, that all the labor that was used in 1965 was needed. Indeed, peak labor tasks could perhaps have been even more labor intensive than they were, with positive results. Chart I helps to clarify this point.

But at this point another intensive question arises: could family labor

10/ One of them had worked on technical assistance in the zone for three years; the other had participated in the early administration of the questionnaires on which this study is based. For each crop grown on Ruíz Pineda, they were asked to estimate -- given the stated assumptions -- how many days of work would be needed for soil preparation and seeding, application of agricultural chemicals, weeding, harvesting, miscellaneous tasks, and irrigation. They also supplied coefficients for permanent crops and the livestock enterprises (this latter was more difficult and, certainly, less accurate than for crops).

These coefficients were then multiplied by the acreage planted to each crop on Ruíz Pineda (taken from Table 9) and the results are displayed in row 5, Table 11.

Table N° 11. NUMBER OF MAN DAYS UTILIZED ON TOTAL LAND FARMED IN 1965 COMPARED WITH AGRONOMISTS' ESTIMATES OF NECESSARY MAN DAYS FOR THE SAME CROPPING PATTERN^{a/}

		Soil preparation and seeding	Applica tion of insecti cides	Weeding	Harvest ing	Other miscel laneous tasks	Irriga tion	Perma nent crops	Livestock	Total
1. Parcelero labor used	Man days	763	229	1,560	1,358	189	72	752	432	5,355
	Percentage	14	4	29	26	4	1	14	8	100
2. Other family members labor used	Man days	185	28	210	349	47	3	134	1,278	2,234
	Percentage	9	1	9	16	2	-	6	57	100
3. Salaried labor used	Man days	565	152	1,750	2,015	302	810	981	52	6,627
	Percentage	9	2	26	30	5	12	15	1	100
4. Total labor used	Man days	1,513	409	3,520	3,722	538	885	1,867	1,762	14,216
	Percentage	11	3	25	26	4	6	13	12	100
5. Agronomists' estimates of labor needs	Man days	1,342	382	4,887	5,787	1,319	858	1,886	1,500	17,961
	Percentage	8	2	27	32	7	5	11	8	100

^{a/} Estimates assume an average harvest and current technology used on Rufz Pineda.

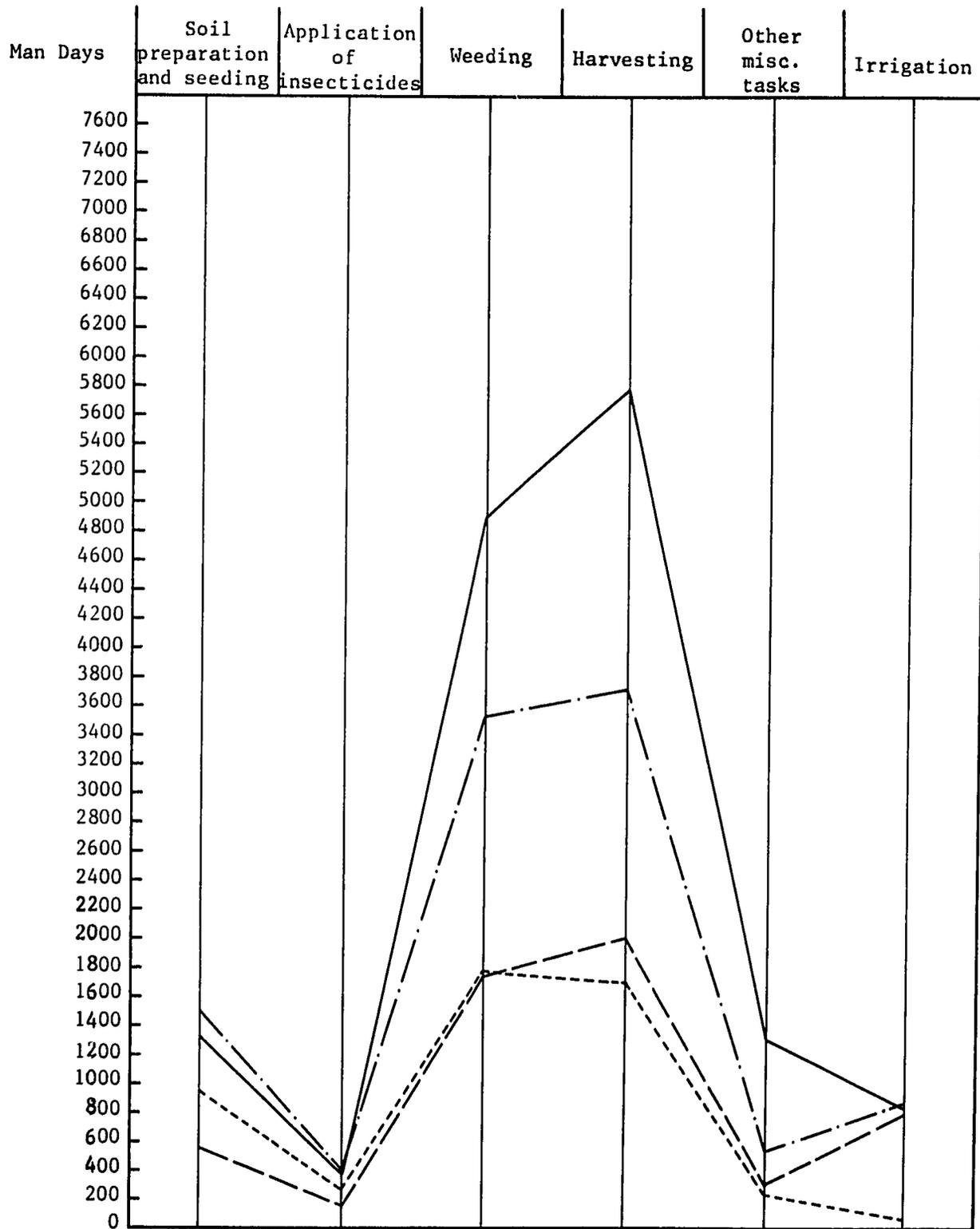
have been utilized more fully, thus reducing the need for hiring over half the required labor? In responding to this question, it must be remembered that it concerns a farm management problem at the micro-economic level. In considering the macro-economic aspects, it could be assumed that all hiring of local labor where employment is scarce redounds to the benefit of the community. Considered in terms of macro-economics, labor hiring among parceleros and non-parceleros is one manner in which the effects of the agrarian reform can be spread from the more successful to the less capable beneficiarios and even to non-beneficiaries.

As observed previously, Table N° 5 shows that each working day the average parcelero has 1.4 man-days of labor available to him. Labor requirements of permanent crops and livestock (which are spread relatively evenly around the year) reduce the available labor supply to about 1.3 man-days each day during the year for seasonal tasks. During the winter weeding period, a total of approximately 1,100 man-days of family labor and 1,200 man-days of salaried labor are used. This means that between 19 and 20 man-days (2,300 ÷ 119) of weeding must be accomplished on the average farm. About three-quarters of this (or about 15 days) must be done at about the same time (weeding of beans, others grains, and winter corn falls in roughly the same time period). The average family could get the peak weeding done in 11 days (15 ÷ 1.4). Yet, instead of doing it all with family labor, about half the work is done by hired labor, which runs up cash operating costs and reduces net family income.

The reason for speed in weeding is not immediately apparent. Why do asentados and their families not spend 11 days weeding instead of only, presumably, 5.5 days, thus reducing their cash costs? On Ruíz Pineda, faulty drainage dictates a need for rapid weeding. If weeding is not accomplished speedily, sudden rains may leave the fields impassable for days. Thus, when viewed superficially, high labor costs in crop weeding seem unnecessarily wasteful of family labor. But further analysis indicates rationality.

A peak labor period similar to weeding -- with large amounts of hired labor -- exists at corn harvest time, too. Superficially, speedy corn picking seems unnecessary. Corn is usually not damaged by allowing it to stand in the field unharvested while fully mature. But certain institutional arrangements on Ruíz Pineda peak the labor requirements during this season. The asentamiento has a husker-sheller, but it operates only during a specific period. Corn is picked by hand while the machine makes the rounds of the parcels. And trucks are dispatched by the asentamiento to carry away the sacks of shelled corn to BAP depositories as soon as possible after the corn of all parceleros is shelled. Accounts are settled when all corn from Ruíz Pineda is dispatched to BAP granaries. The quicker all corn is trucked, the sooner the asentados will receive their payments. Thus, there is pressure on the late harvesters by the early ones. Furthermore, even though weather is usually less of a problem at this time than in the period of soil preparation, seeding and weeding, it does play a role. In this area there is some tendency for an October dry spell to be followed by a few final November rains (called the "Norte"). This leads to an effort to harvest before

CHART 1. LABOR USE IN 1965 COMPARED TO AGRONOMISTS' ESTIMATES OF NECESSITIES
(MAN DAYS)



L E G E N D

- Agronomists' estimates of labor requirement
- . - . - Total labor use (1965)
- — — — Hired labor use (1965)
- Family labor use (1965)

Source: See Table 11.

these showers, which are unpredictable and tend to be more prolonged in some years than in others. These pressures add up to harvest as soon after maturity as possible; hence, the need for hiring workers.

The above analysis might be supplemented by several other observations. The age of the labor force may also dictate a necessity for hired labor. As we mentioned earlier, agrarian reform on Ruíz Pineda seems to have benefited older farmers more than younger ones: 61 percent of the parceleros are older than 42 years, while 39 percent are older than 56. Because a number of asentados are older men who are past their working prime, it is possible that they would need to hire more labor than younger men.

One factor which might modify the general conclusion (based, as it were on an "average" situation) is the obvious fact that family size does vary. The smallest family in the sample has one man-year of labor available while the largest has four. Even so, there is a marked tendency for unmarried sons 15 years old or over to want to earn some spending money. Thus, while three parceleros in the sample each had three sons that were counted as part of the available labor force, all three farmers contracted some labor for the weeding and/or harvested period while their sons periodically hired out to a neighbor. Meanwhile, these sons continued to depend on their fathers for their subsistence, but they do not get paid for work performed on the family farm.

d. Improving Labor Use Through New Cropping Patterns. There seems to be a good deal of rationality in the current labor pattern on Ruíz Pineda, given the existing cropping pattern and techniques of farming. In economic terms, the marginal productivity of labor is not zero. Ceteris paribus, withdrawing labor would lower production. But this academic argument is rather irrelevant, for some very inexpensive changes in the winter cropping pattern might make farm operations on the asentamiento more labor intensive and raise production and incomes. For example, a greater variety of crops per parcel would spread out the weeding and harvesting peak period somewhat throughout the season. Perhaps this suggestion is too glib, however. Little research on crop adaptability in the zone exists. While the ingeniero agrónomo from MAC who works regularly in the zone feels that plantains, usually grown at higher elevations, could be grown here to diversify the cropping pattern, he is not certain they would flourish or even survive. He plans a demonstration plot some time in the future. Likewise, cotton could be grown; indeed, cotton was planted in the early years of the asentamiento. But because various diseases and insects have plagued this crop, technicians -- and campesinos -- are reluctant to rely heavily on it. Sesame, which is planted with the last winter rains and does not need water through its growing period, might be attempted. But since sesame planting tends to coincide with corn harvest, those who grow corn usually do not plan on planting sesame. Yet, with judicious corn harvesting practices, sesame might afford one manner to spread labor requirements into the dry period. This multiple-cropping, however, places a premium on rapid seedbed preparation.

When titling problems are solved and it is possible to utilize more

ejido land, more livestock should also become practical. Another apparently promising alternative is in the process of experimentation on Ruíz Pineda -- the planting of orchard crops. The most successful of the isleños has planted his entire parcel to bananas (topocho) and obtains land for annual crops in summer on the medianería basis described earlier. The most successful of the criollos on Ruíz Pineda has also switched to permanent crops. Five of his six hectares are already planted to lemons and guanabanas (soursop). The final hectare will be planted as soon as he gets the necessary capital. He takes the fruit to Caracas in his own truck and knows the market well. On a trial-and-error basis, he has successfully formulated his own mixture of insecticides and fungicides and grows his own nursery stock. Since data does not exist on proper tree spacing, he is conducting his own experiment. He planted the vast majority of the trees close together and then spaced several farther apart. Since those trees he planted close together are doing as well as those few he planted far apart, he does not plan to thin his orchard. But he will do so later if the far-spaced trees overtake the others in production.

There is one important social benefit in this type of orchard crop. The peak labor season for the harvest falls in the post-cultivation slack period in winter. More operations of this type would eventually be able to absorb underemployed community labor. Other orchard crops could also be important from a labor-use standpoint. Some fruit -- like certain varieties of bananas -- can be harvested throughout the year, thus utilizing a more or less steady supply of work. It was the successful experience of innovating farmers on Ruíz Pineda that encouraged the government to promise some assistance to fruit tree growers. A medium term loan for 30 hectares of citrus and 15 hectares of bananas (cambur) to be allotted to the individual farmers is now in process.

Most parcel holders seem convinced that growing tree crops is one answer to their agricultural problem. They feel that they would like to plant at least two or three hectares of orchard crops when credit is available for buying nursery stock.

However, only 84 of the parcel holders on Ruíz Pineda have land titles. Those who do not have clear rights to their land have no intentions of making this investment.

e. Better Labor Use Under Present Pattern. Even with the present winter cropping pattern there are ways in which peak labor requirements might be evened off. These involve using more (rather than less) labor than currently, but distributing it more evenly over the growing season. Table N° 11, line 5 indicates the strong possibility that more rather than less labor in peak seasons would improve yields. Because it occupies such a high percentage of the winter cropping area, corn again can be our case in point.

During harvest, more flexibility in the machine operation could even off the labor peak. Accounts for early harvesters could, presumably, be settled ahead of the remainder. And the husker-sheller could operate more days than

currently. Or even better, corn varieties with differing maturity dates could be planted. Indeed, this might also help encourage more farmers to plant sesame (see section (d) above).

The typical asentado on Ruíz Pineda chop-weeds his corn -- using a machete and garabato (hook) -- only once during the growing season. With one chop-weeding -- a process which does not kill the plant (although campesinos often argue incorrectly that the dead plant material placed on the stubble rots the remaining stem and the roots of the weed) -- the height of the weeds usually equals that of the corn at harvest. Besides the fact that competition from the weeds makes for a scanty corn yield, labor costs rise -- picking corn is slow work when there is a rank growth of weeds. Further more, tractor costs for seedbed preparation for the following planting season are unnecessarily high because of the rank vegetation through which the machine must make its way. One solution to this problem is to weed corn at least twice, as demonstrated successfully by the best farmers on the asentamiento. This tends to even out the labor peak for weeding. And although each weeding takes less time, more total labor is used. Two weedings improve the harvest markedly and lower field preparation costs for the next crop.

There is, however, an increasing tendency for another problem -- a distortion in the factor market -- to complicate this picture. Although there is no minimum wage legislation for farm laborers in Venezuela, conventional wages in the Barbacoas area do not change much with labor demand over the year. Currently, they vary from about Bs. 10 during the major part of the year to about Bs. 12 in the seasons of peak demand. No one will accept wages below Bs. 10 and would rather be idle than do so.

Meanwhile, underemployment grows more serious each year. While in 1965 most weeding was accomplished by hand, by 1967 machine cultivation had become more common. The number of equipped tractors owned by parceleros and available to the rest of the community on a rental basis had risen from five in 1965 to eight in 1967. Because tractors are available to asentados at a subsidized rate -- with a small down payment and low interest on the unpaid debt -- mechanical power is relatively cheap when compared to wages. And wages do not move appreciably downward with slack demand, while machinery owners seem to be willing to rent out machinery at fairly low rates for cultivation since it would otherwise be idle in midseason. In 1967 those parcel owners who hired laborers to chop-weed a hectare of corn paid twice as much in wages (assuming Bs. 10 a day) to get the job done as those who rented a tractor and cultivator to do the job. Besides, since it breaks the soil, tractor cultivation results in a cleaner field and a faster operation. The price of labor -- which is artificially high -- and the price of capital -- which is artificially low -- promote substitution of capital for labor, and more days of idleness result.

There are other practices which are wasteful of labor on Ruíz Pineda and which, moreover (unlike the above example), are uneconomic in terms of private accounting. Rice weeding is one example. In 1966 and 1967 more rice was planted than in 1965. Post emergence herbicide spraying eliminates

most weeds and the clean stand during the growing season contributes to a good harvest. Ruiz Pineda's perito agrícola pointed out the importance of a clean rice stand early in the season to asentados in 1966 and again in 1967. However, in both years helicopter application of herbicide was promised if the asentados waited. And in both years contracting a helicopter to spray the small parcels delayed the process since no duster was anxious to undertake such a small job until his larger contracts were completed. The net result was that weeds and rice were of approximately equal height upon the arrival of the helicopter in midseason. Besides its tardiness, which had already endangered the yield, helicopter spraying substituted a very expensive operation (about Bs. 192 a hectare) for a cheaper one. If parceleros had used the available back-pack sprayers ^{11/} combined with a little of their own labor (whose opportunity cost does approach zero at this time of the year since there are few competing jobs to do after planting) they would have at least halved their per-hectare costs for the operation. Even so, only a few colonists of the approximately 40 who grew rice during 1967 elected the less expensive alternative. Because of late spraying, 12 per cent of the land planted to rice was unharvestable in both 1966 and 1967. And yields, as will be shown in the next section, were not satisfactory.

Experience has shown that the technical efforts on Ruiz Pineda should center on attempting to diversify winter cycle production on each parcel as well as on utilizing practices that attempt some evening-off of labor peaks.

A second step, of course, would be to make it possible for more asentados to utilize lands in summer. This involves a rather large infusion of capital and careful teaching of a number of fairly complex irrigation techniques. Besides, it implies the establishment of a marketing cooperative so that parceleros could have the countervailing power they need to face the highly irregular market for summer truck crops. More concrete suggestions have to do with the following analyses of credit, productivity, and incomes on the asentamiento.

4. Farm Capital

The mean value of capital per farm in 1965 was Bs. 13,109 per parcelero (less than US\$300). This includes orchards, barns, fences, farm implements, vehicles, livestock, input inventories and irrigation systems but not land and infrastructural improvements made at the time of parcelization. Asentados did not pay for their land or infrastructural improvements and are not permitted to sell their parcels. Were a value assigned to "land plus improvements" it would increase the mean per farm by about Bs. 9,579 (or US\$2,152).

Since this small average capitalization includes the plantations and vehicles owned by a small number of the parceleros, the value of capital owned by the majority is insignificant. This skewed distribution of capital is in part reflected in income distribution (see Chapter III, Section 3).

^{11/} They ingenuously came to call these "manicopteros" (hand-copters) because their first experience with spraying was more streamlined.

5. Operating Credit

a. Ordinary Credit and the Empresa Campesina. As lack of land ceased to be the major factor impeding agricultural development for the settlers on Ruíz Pineda, operating capital and management skills seem to have become the principal bottlenecks. Through the years since the agrarian reform law was passed, BAP has sought to remedy the shortage of capital by means of a large credit program for campesinos. Since 1960 the amount of credit available for loans to campesinos has grown at a rate at least as fast as that of campesino settlement. From 1960 to 1963 none of this credit was supervised. But in 1963 an AID loan of Bs. 45 million, matched by the Venezuelan treasury, introduced supervised credit to the campesino sector. Supervised credit now accounts for about one-third of the total loans to campesinos each year. But supervised credit is available to only a small number of hand-picked campesinos on selected asentamientos who have demonstrated their farming abilities and, hence, are the best credit risks (no asentado on Ruíz Pineda was receiving this credit in 1965). Selection of campesinos and rather effective supervision have resulted in a rather high rate of credit repayment -- estimated at 75-85 percent; repayment of non-supervised credit seems to average only about 40 percent each year. In both programs, when campesinos default on a high percentage of the loan they are dropped from the program unless they can adduce adverse weather conditions or other extenuating circumstances.

Most parceleros who are dropped from the credit program are unable to seed major portions of their parcels for want of inputs. When they plant, they have little hope of obtaining even average yields since lack of operating capital means using seed saved from last year's crop and little or no pesticides and fertilizer. In this credit situation the successful are allowed to progress, but little latent management is developed among the majority. And the income gap which separates the successful and the unsuccessful on each asentamiento grows wider each year.

If BAP were to have continued its policy of giving short-term production credit to only those who had little or no prior debt, as it has on most other asentamientos in the country, very few asentados on Ruíz Pineda would now be able to obtain credit. Indeed, only 12 parceleros were free of debt at the beginning of 1966 -- largely because they run their farms with their savings and do not depend on borrowed funds. Of the remainder, the vast majority would not have had enough capital even to enable them to plant their winter crops.

But BAP attempted to soften its policies somewhat in the mid-sixties. "Empresas campesinas" were founded among the best credit risks on some asentamientos -- only the above-mentioned 12 on Ruíz Pineda -- to "take the responsibility" for the credit program. But "responsibility" was strictly limited and whatever the nebulous term meant, it did not mean that the good credit risks would pay if their neighbors could not. Nonetheless, this "innovation" brought more credit to the asentamiento in 1965 than in the past (and, as mentioned previously, strengthened the hand of the sindicato

president). Furthermore, some of the credit came in kind; only with great difficulty could this portion be transformed into cash for consumption.

However, even this program was beset by difficulties. Credit for corn, the main crop planted in winter in 1965, came in three installments to correspond with the three periods of peak labor needs (seeding, weeding, and harvest). But each payment was too small to allow all normal costs to be covered. Of the 119 parcel holders, 95 received production credit in 1965. They borrowed an average of Bs. 1,146, or Bs. 260 per corn-seeded hectare, which represented little more than half the normal cash production costs for corn in Venezuela of about Bs. 500 a hectare (not including the operator's and family labor -- see Table 12). Since the majority of campesinos had little or no savings to finance the remaining input costs, they had to cut corners, omitting most yield-increasing inputs (fertilizer, for instance, was not provided in kind). There was little room for real supervision in this type of program. Since the needs for covering family expenses were great and about half of the total credit of Bs. 108,876 arrived in cash, some of the funds that were to be utilized for inputs were again channeled directly into consumption. One further difficulty was that the credit installments frequently arrived too late to serve the production needs for the moment. Because of low yields, the asentamiento was unable to repay Bs. 70,015 of its total credit at the end of the 1965 crop year. This low repayment rate (about 36 percent) would have again made most parcel holders ineligible to receive credit in 1966.

The asentamiento had an outstanding BAP debt of Bs. 221,819 at the end of 1965 for prior production credit received. (Twenty-three parceleros had long-term debts with government agencies -- which currently give few long-term loans -- totaling Bs. 631,398.) BAP does not write off delinquent loans; hence, past debts -- even though obviously uncollectable -- are carried over each year and it is impossible to determine at any time how much of the accrued debt is really "bad".

b. The CIARA Directed Credit Program and the Unión de Prestatarios. In 1966 the "directed credit" program promoted and supervised by CIARA (Centro de Capacitación e Investigación Aplicada en Reforma Agraria -- a semi-autonomous public foundation), was introduced on Ruíz Pineda. The CIARA program operates with BAP funds which are loaned to groups of parceleros on the basis of a detailed plan developed for each participating farm on the asentamiento. It is able to mobilize the resources of the bank even on asentamientos with poor payback records, primarily because of the high rate of loan repayment which the first two years of "the CIARA plan" showed. Founded in 1964 with one asentamiento in its charge and expanded in 1965 to several more, official figures demonstrated that about 88 percent of the loans for production purposes were paid back by the campesinos at the end of the year. In 1966, the program was expanded to Ruíz Pineda and 19 other asentamientos. IAN, meanwhile, began a program on the CIARA model in an additional 29 asentamientos in 1966.

CIARA chose for its program only asentamientos which appeared to have

Table N° 12. CORN: CASH PRODUCTION COSTS PER HECTARE ON RUIZ
PINEDA COMPARED WITH ESTIMATED NATIONAL AVERAGES
(Bolívares)

	Machinery use <u>a/</u>	Seed	Fertilizer	Pesticides and Herbicides	Other Services	Hired Labor	Total cash costs per hectare
Ruíz Pineda (1965)	110	20	0	18	21	86	255
Ruíz Pineda (1966)	135	40	66	64	21	85	411
Country coefficients ^{b/}	149	36	70	144	27	73	499

a/ Seedbed preparation and shelling.

b/ Coefficients from Consejo de Bienestar Rural, Present Status and Possibilities of Agricultural Development in Venezuela, March 1967, Caracas, Table 47, p. 99 and Table 48, p. 100. These estimates are based "on commercial-type farming operations from which better than average yields are obtained." (p. 101).

a fairly strong local organization and a demonstrated potential for agricultural development. Under this scheme a Unión de Prestatarios (Borrowers' Union) is founded which, in most cases, is a reincarnation of the empresa campesina.

On Ruíz Pineda, most asentados, regardless of past credit record, were allowed to join the Unión; only the most delinquent could not get credit. Of the 144 parceleros present in 1966, 111 joined the Unión; and 107 received credit that year. Those who did not join were, in the main, the most credit-worthy, the few who never use credit and/or those who primarily grow summer crops (for which no official credit is available), the squatters (described earlier) who had only recently been incorporated into the sindicato, and those who had fallen out of favor with the sindicato's secretary general. While the legal responsibility of each Unión member for the debt of every other is still as "limited" as in 1965, the Unión implies some moral pressure on members, and there are certain economies in group buying, and selling and borrowing. The banking process was streamlined by having one borrower instead of 107, all input orders were pooled, and trucking costs at harvest time were reduced. And in fortnightly meetings, the Unión discussed production and credit problems and encouraged a certain amount of mutual assistance. Furthermore, the group effort economized somewhat on technical assistance.

Under the CIARA program, a perito agrícola is assigned to each asentamiento. While BAP utilized its own technicians, CIARA attempted to mobilize technicians from other government agencies who already had some experience in the zone. On Ruíz Pineda the technician (who served part-time) was from MAC. One of CIARA's goals was to train these technicians in supervision and planning, so that by 1968 it could completely phase out its direct supervision on specific asentamientos.

Besides strict supervision and the egalitarian provision that nearly all who wanted credit could receive it, there were other differences between the CIARA and the regular BAP program. The latter issued cash in three pre-defined portions; the CIARA program provided credit as and when needed throughout the growing season mostly in kind. BAP credit did not fill the total normal input needs for a crop; CIARA planned the amounts of the loans so that, by its calculations, they would completely cover expenses from soil preparation to harvest. And when machine work was to be done, the operator was paid directly by the Unión de Prestatarios after the work was accomplished and a signed receipt presented. Cash was loaned directly only when campesinos had to pay labor or when funds were specifically approved for consumption purposes. As mentioned, 47 percent of total official credit was granted in cash in 1965; in 1966, with three times as much credit issued, only 27 percent was in cash.

To decide on the physical inputs needed, a detailed asentamiento cropping plan was prepared. Officers of the sindicato (primarily the secretary general) and the perito agrícola discussed possible alternative cropping plans for each farm with its owner well in advance of the planting season. In accordance with CIARA's one-step-at-a-time policy, the cropping alternatives

open to the farmers in the first year were quite circumscribed, however; parceleros who wanted to grow non-traditional crops, were invariably turned down. CIARA's first priority was to close the wide gap between current and potential productivity in the traditional crops in which all campesinos had prior experience and which would not entail learning a new technology and pattern of work. (It was estimated that, given proper management and a satisfactory input mix, corn yields could be pushed to an average of 2,500-3,000 kilograms per hectare on the settlement, from the 1965 and 1966 levels of 749 and 1,282 kilograms, respectively.) As before, only rainy season crops would be financed. For Ruíz Pineda this meant upland rice in the savanna and corn in the lowlands near the river. Those who had prior experience or special interest in this crop were permitted to grow sesame.

After each farm plan was completed, the perito agrícola combined the plans of all farms on the asentamiento. The master plan went to the ingeniero agrónomo for the zone who had 20 asentamientos in his charge. With the help of CIARA and the peritos, he combined all of the asentamiento plans in the state. Then the technicians decided what inputs would have to be supplied, how much tractor work would be needed, how much day labor was to be financed, and (allowing for some flexibility) the amount of cash subsistence payment that was needed. When changes in the farm plans designed at the asentamiento level had to be made, these were discussed with the perito who took up the matter with the sindicato and the farmers. The complete plan with the necessary inputs was finally discussed with the farmers and approved at a meeting with them.

The BAP issued to the Unión de Prestatarios the total amount of credit called for; the ingeniero agrónomo ordered all inputs in truck loads and they were delivered promptly to each asentamiento. (Unlike the situation in 1964, when the seeds failed to arrive on time). At the same time a local bank account in the name of the Unión de Prestatarios was opened. The Unión would draw checks on it -- which had to be signed by two of its elected officials -- to pay for machinery rental for land preparation, for paying day labor, and for subsistence payments. To avoid delay in availability of cash, BAP and CIARA signed an agreement (which appears to have worked successfully in 1966) providing that BAP must supply funds to local banks within five days after a lump sum request is filed.

Plantings corresponded closely to plans for 1966 on Ruíz Pineda. In 1966, 198 hectares on the asentamiento were planted to corn; because of drainage problems 15 of these were lost. Of the 264 hectares of rice that were planted 34 were lost due to the late application of herbicide (see 3-e above). Thirty hectares of sesame were also planted.

The total credit which BAP made available for this cropping pattern was Bs. 300,167, an average of Bs. 3,086 per borrower, or Bs. 745 for each harvested hectare. (This was about three times the previous year's level). Interest at 3 percent per annum (the rate provided by the agrarian reform law), was discounted for the six-month growing period. The 107 borrowers paid back a total of Bs. 232,19¹ or Bs. 524 for each harvested hectare.

This repayment record can hardly be considered a resounding success. While the rate of repayment was 68 percent (compared to 36 percent in 1965), the campesinos had an average debt per harvested hectare of Bs. 221, up from Bs. 167 in 1965. Thus, as the BAP tried to recover some of the accrued debt, at the end of the 1966 crop year, only 12 of the 107 borrowers received any payment for their produce, over and above input and subsistence loans during the growing season, and the average of their proceeds was but Bs. 1,140. The remaining 95 had an average debt of Bs. 1,031 from their 1966 operation (compared to an average debt for defaulters of Bs. 588 in 1965). Administrative costs were not charged to the campesino. Because of the experimental nature of the CIARA program, the 1966 repayment performance of the asentamiento did not prevent the BAP from authorizing total credits of Bs. 353,900 in 1967, or even more than in 1966. Slightly fewer acres -- again mainly corn and rice -- were planted in 1967 than in 1966.

III. THE RESULTS

1. Credit and Productivity

Gross figures such as those above help reveal the general performance of the credit program, but do not permit an analysis of its strengths and weaknesses. Above all the first year of a novel highly planned and directed program such as the one which CIARA sponsors is likely to have its initial difficulties. And only by way of close scrutiny of past mistakes and accomplishments can the income position of the campesinos be strengthened in terms of increased production. In order to permit a more penetrating analysis of the credit program in 1966, one might look for improvements in production over time and at various cost relationships.

a. Corn. An analysis of the accounts of 25 asentados who grew 114 hectares of corn (over half the total acreage) and the accounts of 20 asentados who grew 112.5 hectares of rice (slightly under half the total acreage) in 1966, allowed determination of production and expenses per hectare for this group of parceleros who seem to be representative of the remainder. ^{12/} For this group, corn grossed Bs. 513 per harvested hectare, including both corn that was sold and held for use at home. Rice grossed Bs. 570 per harvested hectare.

As Table 12 shows, an average of Bs. 411 per hectare was spent in cash ^{13/} for producing corn, leaving Bs. 102 a hectare to pay for returns to family labor, management and the small amount of farm capital (see II-4 above). While not an outstanding performance, the result in 1966 is certainly much better than the previous year's, when cash production costs were Bs. 255 and gross income per average hectare planted to corn was Bs. 300, leaving a margin of only Bs. 45 per hectare.

Weather conditions in 1965 and 1966 were similar; when data for these years were grouped into three strata (Table 13), progress made in corn production in 1966 becomes a bit clearer. The entire yield spectrum moved up

^{12/} All settlers who appeared in the 1965 stratified sample (see preface) were selected first; to make up the remainder of this sample every settler was taken in the order in which he appeared in the asentamiento's record book, until the total was reached.

^{13/} Use of the accounting term "cash cost" is not related to whether the credit was issued in cash or in kind.

in 1966 when compared to 1965 and the gap between the best producers and the poorest narrowed somewhat. In 1965, the gross yield per hectare of the top group was six times that of the bottom stratum; the comparable gap in 1966 was 3.5 times. The average of the upper group in 1965 was

Table N° 13. CORN: YIELDS AND CASH COSTS OF YIELD-INCREASING INPUTS PER HARVESTED HECTARE, BY YIELD STRATA. a/

Corn production strata	1965		1966	
	Yields (kilos/ha.)	Input costs (Bs./ha.)	Yields (kilos/ha.)	Input costs (Bs./ha.)
Lowest third	200	117	496	232
Middle third	992	123	1,033	306
Upper third	1,255	128	1,728	316

a/ Includes those yield increasing inputs prescribed by the plan over the use of which campesinos have little discretion: soil preparation, fertilizar (1966 only), improved seed, insecticides, and herbicides.

approximately at the point of the overall average for 1966 (of Table 17). In 1966, the average yield of the lowest group was up by 150 percent, while that of the top stratum increased 40 percent. The record average yield achieved by one farmer in 1965 was 1,500 kilos per hectare; in 1966, it was 2,181 kilos.

Some clues to the differences in per-hectare production among the three strata are found in the amount of yield-increasing inputs used per hectare (Table 13). Little fertilizer was used in 1965. Yield-increasing direct costs per hectare were relatively stable through a wide range of yields. Since the soil on this part of the asentamiento is relatively homogeneous and amount of owned capital is similar, differences in yields can be thus attributed to management practices of the farmer himself.

The directed credit program resulted in a doubling of costs for yield-increasing capital in 1966 over 1965. Larger quantities of fertilizer were used in 1966. Again, yield-increasing inputs used by the middle stratum were very similar in composition and value to the input pattern of the upper stratum. Yet there is a difference of 700 kilos in yield per hectare between these strata. This again points to the breadth of the management problems still faced on Rufiz Pineda. While overall average

yields per hectare were substantially higher in 1966 than in 1965 and the productivity gap narrowed, an inescapable conclusion is that a wide unexploited margin of productivity still remains. Without any substantial further increase in costs, but with proper knowledge of how to use inputs, this gap should eventually become even narrower. For example, farmers with the best yields weeded more often than neighbors who used about the same amount of capital and got a lower yield. This helps to corroborate a tentative conclusion of the preceding chapter that more labor use at weeding time might result in higher yield.

As the highly directed CIARA credit program on Ruiz Pineda seems to indicate, introducing good management practices involves more than one year's experience and undoubtedly is a slow process. Apparently when land, capital, and credit are no longer limiting factors to agricultural progress, management skills-extremely difficult to supply-become bottlenecks to progress.

b. Rice. The situation of rice on Ruiz Pineda in 1966 was still serious (see II-3-e). Average gross returns in 1966 did not even cover average operating costs per hectare. While total direct operating costs were Bs. 735 per hectare (Table 14), the harvest grossed only about Bs. 570 a hectare. This leaves the average asentado who grew rice on Ruiz Pineda

Table N° 14. RICE: CASH PRODUCTION COSTS PER HECTARE ON RUIZ PINEDA COMPARED WITH ESTIMATED NATIONAL AVERAGE IN 1966.

(Bolivares)

	Machine use <u>a/</u>	Seed	Fer- tili zers	Pesti- cides and herbi- cides	Machine use(for harvest)	Other ser- vices	Hired labor	Total cash costs per hactare
Rufiz Pineda	276 <u>b/</u>	116	63	78	142	50	10	735
Country coefficients <u>c/</u>	103	125	105	56	49	105	82	625

a/ Seed bed preparation.

b/ Includes operator's wages

c/ Source: See Table 12.

in 1966 with a cash deficit of Bs. 165 for every hectare harvested.

Operating costs for a hectare of rice for all of Venezuela (assuming a better than average harvest) are also displayed in Table 14. The country cost coefficient is Bs. 625 while that of Ruiz Pineda was Bs. 735 in 1966. Costs for field preparation and seeding, for harvest, and for herbicides seem high, while the most important yield-increasing input, fertilizer, was quite low by comparison on Ruiz Pineda. This probably indicates that CIARA and MAC may have made some errors in the amounts of inputs prescribed. (On the other hand, Table 12 shows national operating cost coefficients for corn, again, assuming better than average yield, quite close to those on Ruiz Pineda).

The yield of rice per hectare for the upper production stratum was three times that of the lower third (Table 15), while yield-increasing

Table No. 15. RICE: YIELDS AND CASH COSTS OF YIELD-INCREASING INPUTS PER HARVESTED HECTARE, BY YIELD STRATA, 1966. a/

	Yields (kilcs/ha.)	Input costs (Bs./ha.)
Lowest third	613	493
Middle third	1,148	479
Upper third	1,837	604

a/ See Table 13.

production costs differed by only one-third. Since the soil is relatively homogeneous and amount of owned capital is similar, this again indicates a wide margin for improvement in management practices.

c. Effect of cash credit. On farms with low gross production, the ratio of credit delivered in cash to gross production was high (see Table 16). This would indicate that there is some advantage to delivering credit in kind or in services, rather than in cash that can be readily channeled to consumption needs, at least until the campesinos become more production oriented. Campesinos in the lowest production stratum seem to rely a great deal on what they regard as cash subsidies. Perhaps, bad and obviously uncollectable debts should be written off, since they seem to be a disincentive to further production. Since these debts are so large, campesinos reason that if they produce more they will simply have to forfeit more in repayment of old debts.

Table N° 16. CASH CREDIT AS A PERCENTAGE OF GROSS VALUE OF FARM PRODUCTION, BY GROSS PRODUCTION STRATA. a/

	Top production stratum	Middle production stratum	Low production stratum
BAP credit (1965)	27	37	42
CIARA corn credit (1966)	36	70	128
CIARA rice credit (1966)	11	29	14
Simple average	24	45	61

a/ Data refer only to settlers who received credit.

And their position will be unchanged: they will still have to await the cash advance to carry them through the next agricultural year.

Cash credit was more severely circumscribed in 1967 than in 1966 and 1965. But this is having some unexpected side effects. In addition to using the cash for consumption purposes, campesinos paid hired laborers with this money. There is a tendency now to hold consumption constant and move to more mechanized processes, not only because of the cost of the operations (mentioned in the previous section), but because credit can be obtained for these operations.

2. Corn and Rice Yields

To date gains in marketable surplus on Ruiz Pineda seem to have come primarily from bringing unused land into production rather than increases in yields. Yet, considerable progress has been made at the intensive margin. Corn was the major crop grown on the asentamiento both in 1965 and in 1966. In 1965, yields averaged 749 kilograms per harvested hectare; in 1966, 1,282 kilos per harvested hectare; in 1966, 1,282 kilos per harvested hectare were produced (Table 17). This latter figure compares quite favorably with the national average of 1,128 kilos per hectare and the state average of 1,079 kilos per hectare, but is still far from the 2,500-3,000 kilogram-per-hectare yield which local agronomists estimate as a realistic potential for this settlement.

In 1965, too little rice was planted to allow a realistic yield calculation. In 1966, rice yielded only 1,118 kilos per harvested hectare, compared to a national average of 1,902 kilos and a state average of 1,698 kilos.

Table No. 17. AVERAGE YIELDS ON LEONARDO RUIZ PINEDA COMPARED TO STATE AND NATIONAL DATA

	Corn	Upland Rice
	(Kilograms per hectare)	
Ruiz Pineda (1965)	749	n.a.
Ruiz Pineda (1966)	1,282	1,118
Aragua State average	1,079	1,698
National average	1,128	1,902

3. Income and levels of living

a. Before and After Reform. Most of the analysis of results of the reform refers to incomes of asentados in 1965. The foregoing data indicate that the income picture improved somewhat in 1966, and that further gains were probably made in 1967. Mean disposable family income of a family on Ruiz Pineda in 1965 seemed to have exceeded pre-reform income by Bs. 750 (Table 18). But large differences between mean and median incomes indicate a highly skewed pattern of income distribution. These inequalities have become accentuated since the reform, as a few asentados are taking advantage of new opportunities to improve their position markedly while the majority are not. In 1965, the mean disposable family income was Bs. 4,112 while the median was Bs. 1,568. The median was Bs. 1,432 less than the pre-reform estimate.

Two-thirds of the asentados assert that they earned less disposable family income in 1965 than before the reform. However, the 1965 data are based on detailed income analysis, while the pre-reform figures represent subjective estimates of the asentados. It is quite possible -- even probable -- that pre-reform figures were overestimated. Recollection of many past situations is doubtless biased by a "halo effect" which is unwarranted by the facts.

Table No. 18. DISPOSABLE FAMILY INCOMES^{a/} BEFORE THE REFORM
AND IN 1965 (MEASURES OF CENTRAL TENDENCY)
(Bolivares)

	Before the reform ^{b/}	1965	Difference
Mean	3,542	4,112	570
Median	3,000	1,568	-1,432

a/ Net farm income plus income earned off the farm.

b/ Estimates.

Table 19 gives some idea of differences in material levels of living between pre and post-reform. It is impossible, of course, to estimate how much of this improvement would have taken place even in the absence of reform. On the other hand, the increased use of technical inputs is directly related to the reform program. While it is clear from the preceding chapter that purchased inputs have not always been rationally used, the reform has produced a new demand for such inputs.

b. Income distribution. Table 20 shows the inequalities between asentados in both net farm income and disposable family income more clearly. Incomes are displayed in quartiles. There is considerable skewness even within the first quartile of both net farm income and disposable family income.

The drop-off of net farm and disposable family income between the first and second quartiles considering both means and medians, is very marked. Mean net farm income for the second quartile is less than 10 percent of the top quartile, and median income is also markedly inferior. In the fourth quartile, which shows negative values for both mean and median net farm incomes and disposable family incomes, asentados paid for the privilege of working -- their labor literally pushed them into debt.

If the net mean farm incomes in the fourth quartile are considered as zero, about 90 percent of the total net farm income generated on Ruiz Pineda in 1965 accrued to the upper 25 percent, or about 30 farms. This situation is somewhat improved when disposable family income is considered: the upper quartile produced about 70 percent of the total mean disposable family income.

If the eight Spanish immigrant families are not counted in the measures of central tendency the mean net farm income falls from Bs. 2,194 to Bs. 1,354, while the median falls from Bs. 382 to Bs. 133 (Table 20). This indicates the economic success of the Isleños, who represent only about seven percent of the asentados, farmed only 13 percent of the total cultivated land but earned about 50 percent of all the net farm income on Ruiz Pineda in 1965. Criollos were more apt to turn to off-farm sources to supplement their incomes than the Spaniards, however, and the Isleños earned only 40 percent of all disposable family income.

Table No. 20. NET FARM AND DISPOSABLE FAMILY INCOMES, 1965
(MEASURES OF CENTRAL TENDENCY).

	Net Farm Income (NFI)		Disposable Family Income (DFI)	
	Mean	Median	Mean	Median
First quartile	11,178	5,188	13,476	7,752
Second quartile	1,028	902	2,990	3,324
Third quartile	38	30	1,060	1,220
Fourth quartile	- 965	- 576	- 771	- 216
Overall	2,194	382	4,112	1,568
Overall without Spaniards	1,354	133	2,734	1,322

c. Labor Income. How did the average farm operator's labor returns compare with wages for non-farm employment in 1965 (see Table 21). A median net farm income of Bs. 382 (Table 20), and assuming a nominal charge for the use of farm capital of Bs. 66 (5 percent of average capital), leaves a family farm labor income of Bs. 316. ^{14/} Thus, the labor income of the median operator is Bs. 210. Since the average operator worked 45 days on his farm (Table 7), ^{15/} his daily labor income was Bs. 4.6.

The median farm family earned Bs. 1,186 off the farm of which Bs. 18 by dependents and Bs. 1,168 by the operator. The median operator (who worked an average of 78 days off the parcel - Table 5) thus had a wage for off-farm work of Bs. 15. Considering that the average asertado on Ruiz Pineda worked 123 days during the year (45 days on the farm and 78 days off the farm), the median farmer had an overall wage per day worked of about Bs. 11.6. This is reasonable: as mentioned previously, the standard wage for a hired laborer is Bs. 10-12 in the region.

^{14/} The term "labor income" is used broadly to also include returns to management. The interest rate of 5 percent is very arbitrary. Three percent is charged on campesino operating credit. Because the amount of owned capital is so small, the interest rate would not appreciably affect the conclusions.

^{15/} All data for "average number of days worked" used in this analysis are means; it was not possible to obtain the corresponding medians but it is believed that the two measures do not differ greatly in this case.

Table No. 21. CALCULATION OF AVERAGE RETURNS TO OPERATOR'S LABOR AND
MANAGEMENT, 1965

	Mean net income as base (Bs.)	Median net income as base (Bs.)
A. Net farm income	2,194	382
B. 5 per cent of average capital per asentado	66	66
C. Farm labor income (A minus B)	2,028	316
D. Value of dependents' work	120	106
E. Labor income of operator (C minus D)	1,908	210
F. Labor income of operator per day he worked (45 days)	42.4	4.6
G. Family earnings for off-farm work	1,918	1,186
H. Dependents' work	22	18
I. Operator's income for off-farm work (G minus H)	1,896	1,168
J. Income of operator per day he worked off-farm (78 days)	24.3	15.0
K. Total disposable labor income of operator (E plus I)	3,804	1,434
L. Average labor income per day operator worked (123 days)	30.9	11.6
M. Average labor income per day (365 days)	10.4	3.9

Although he worked only 123 days, the asentado had to feed and clothe his family for 365 days. The median asentado had about Bs. 3.9 a day for this subsistence -- slightly under a dollar a day. Of course, the lower half of all asentados on Ruiz Pineda had less than this amount on which to live.

A similar calculation using the mean income as the basic measure, instead of the median (Table 21), gives considerably higher results. But because of the skewness of the income distribution, this calculation tends to understate the severity of the problem. (For a summary presentation of these data, see Table 22).

Table No. 22. RETURNS TO THE OPERATOR'S LABOR AND MANAGEMENT, 1965
(Bolivares)

	Per day for on farm work	Per day for off farm work ^{a/}	Total per day worked	Total per calendar day
Mean net income as base	42.4	24.3	30.9	10.4
Median net income as base	4.6	15.0	11.6	3.9

^{a/} The reader is referred to Table 6 and reminded that only 41 percent of the off-farm work is wage labor for which the going wage is between Bs. 10 and Bs. 12.

d. Where do Poorest Farmers Obtain their Subsistence? The more unsuccessful a farmer on Ruiz Pineda is, the more he must rely on government credit.

Table 23 has been constructed by quartiles of net income to clarify this point. It shows that the average farmer in the two lowest net income quartiles borrowed more than twice as much from BAP than the average farmer in the top quartile. As would be expected, the repayment rate of the top quartile was far better than that in the bottom quartile (Table 24). The unpaid balance due to BAP matched the net farm income deficit rather closely on the average.

Table N° 23. SHORT TERM BAP CREDIT OBTAINED DURING THE 1965 AGRICULTURAL YEAR, BY INCOME QUARTILES

Mean net farm income		Short-term credit	Mean disposable family income		Short-term credit
Quartile	Bs.	Bs.	Quartile	Bs.	Bs.
1	11,178	465	1	13,476	420
2	1,028	612	2	2,990	931
3	38	1,023	3	1,060	1,196
4	- 965	1,096	4	- 771	856

Table N° 24. DEBT TO GOVERNMENT LOANING AGENCY (BAP) DURING THE 1965 AGRICULTURAL YEAR BY INCOME QUARTILES

Mean net farm income		Unpaid debt to BAP	Mean disposable family income		Unpaid debt to BAP
Quartile	Bs.	Bs.	Quartile	Bs.	Bs.
1	11,178	144	1	13,476	360
2	1,028	425	2	2,990	515
3	38	559	3	1,060	731
4	- 965	965	4	- 771	714

While the bottom quartile of net income earners defaulted on government borrowing to support their family, it becomes more difficult to see where those with a negative disposable family income get enough money to survive through the year (Table 24). While the lowest quartile of mean disposable family income showed an average deficit of Bs. 771, their unpaid BAP debt was only Bs. 714. The data do not permit on exact determination of where subsistence originated during 1965, but the practice of borrowing from relatives and padrinos and buying at local stores on credit with high interest rates is strong in the community. Certainly the bottom quartile is entangled in a web of borrowing from which it will find it extremely difficult to extricate itself.

Table 25 is an elaboration of Table 24 and again indicates the strong tendency for those who default most on their BAP credit to have low incomes (or vice-versa). The half of the parceleros with the largest unpaid debt averages a net farm loss of Bs. 170. The half of the parcel holders with the smallest unpaid debt to BAP average a net farm income of Bs. 4,426. A hard core group, apparently, receives low incomes and defaults on loans year after year.

Table N° 25. INCOMES RELATED TO UNPAID DEBT ON OPERATING CREDIT FROM BAP AFTER ACCOUNTS WERE SETTLED AT THE END OF 1965.

(Bolivares)

Level of Debts incurred as of 1965	Mean unpaid debt to BAP	Corresponding mean net farm income	Corresponding mean disposable family income
Top half of parceleros	1,127	- 170	1,690
Bottom half of parceleros	72	4,426	5,735

e. Implications of Income Levels for the Economy. Income levels of asentados have repercussions far beyond the farm gate of each asentado. When incomes are low, farmers tend to participate little in the market--they supply few goods to the urban consumer and demand small amounts of purchased goods. Rather than being interdependent, they are self-sufficient units except to the extent that they can obtain favors and de facto subsidies. This may be illustrated on Ruiz Pineda with reference to Table 25. When gross incomes are high, mean consumption in kind of products grown on a farm on the asentamiento makes up a small percentage of gross. On Ruiz Pineda the mean of the gross income for the top quartile was Bs. 15,917 and the value of products consumed in kind was Bs. 796, i.e., barely five percent of the gross. When gross incomes are low, a high percentage is consumed to sustain the family. In the bottom mean gross income quartile, 46 percent of an extremely small gross, averaging Bs. 329, was withheld for family consumption. The top gross income quartile supplied about 86 percent of the total marketings from Ruiz Pineda in 1965.

Several generalizations can be made from our discussion of incomes on Ruiz Pineda thus far. A few people make most of the net income earned on Ruiz Pineda and account for most of the marketings. The most successful farmers (those in the top quartile) count on off-the-farm employment for a small percentage of their disposable family income through the year. Generally labor income accruing to asentados is low, but potential for higher earnings exists. The farmers in the bottom three quartiles count on earning half or more of their total disposable incomes off the farm and combining this with government loans,

which are not repaid at the end of the year, to supply their families with living expenses.

Table N° 26. ON-FARM CONSUMPTION AND MARKETINGS, BY GROSS INCOME QUARTILE.

	A	B	C	D
	Mean gross income	Mean consumption in kind	Mean marketings (A minus B)	Consumption in kind as pro- portion of gross income. (B/A) Percent
- B o l i v a r e s -				
First quartile	15,917	796	15,121	5
Second quartile	2,121	446	1,675	21
Third quartile	1,011	433	578	42.8
Fourth quartile	329	152	177	46.8

These points raise new questions, however. If some farmers do well on Ruiz Pineda while others do extremely poorly--so poorly they cannot live without government welfare--what bottlenecks must be overcome so that range can be narrowed by moving up some of the least successful? What factors are associated with success in farming on Ruiz Pineda?

In a prior chapter we isolated "management" as a crucial variable in the following section we will attempt to expand on this issue.

4. Factors Associated With Successful Economic Performance on Ruiz Pineda

The problem is not simply discerning one or two critical factors which are keys to success for some asentados. One complication is the impossibility of weighting, or even the exact makeup of, the complex of factors that seem to influence production and, hence, performance of the asentados. The variables are elusive, their relative importance is unclear, and direction of causation ambiguous. We can establish, however, some of the independent variables associated with economic success on Ruiz Pineda. And we will be able to reject some which do not seem to be related to the dependent variable --income-- which is the preferred indicator of economic performance in this study. Average data tend to hide part of the true picture, but for purposes of generalization the first section of this discussion is organized around measures of central

tendency.

a. Land capability. It was mentioned earlier that there was some heterogeneity of soil types on Ruiz Pineda -- some parcels were given out in the highland savanna and some in the bottom land. It is to be expected that bottom land is more suitable for agricultural production on Ruiz Pineda than savanna. Yet, prior and subsequent discussion in this study assumes a basic homogeneity. This assumption has some basis in fact. Parcels of poorest land quality were abandoned in 1965. (See Chapter I-1). Among those parcels in the current sample, net farm and disposable family incomes were, in fact, higher in the savanna than in the valley in 1965 (Table 27), though the differences were not significant.

This does not imply that agronomists are incorrect in their land capability assessment, but rather that most farmers both in the valley and in the savanna operate their parcels so far under potential that land quality has not yet become a limiting factor. (For simplicity, those partenidos of the sample who farm land in addition to their parcels have been omitted from Table 27).

b. Technical Assistance. All settlers in the sample were asked whether they had received technical assistance in 1965. Nine responded positively and 19 negatively. The mean net farm income of the two groups was virtually the same and the median was actually higher for those who did not receive any assistance (Table 28). It thus appears that technical assistance -- defined as visits by an official extension agent -- was not related to relative levels of farm incomes of the asentados on Ruiz Pineda in 1965.

This result does not imply that technical assistance is unnecessary. It may, however, indicate (1) that short visits -- the kind most generally practiced by the extension service in this area -- or the type of technical assistance given, are not sufficient for the job at hand; (2) that the colony ought to have one full-time extension man if his advice is to be reflected in higher net incomes; or (3) that the extension people have not fully gained the confidence of the asentados and that, although they may be giving helpful advice, it is not being heeded.

Table N° 27. INCOME ON THE SAVANNA AND IN THE VALLEY, FROM "OFFICIAL" PARCELS, 1965. ^{16/}(MEASURES OF CENTRAL TENDENCY)

(Bolivares)

The Valley (N = 13)				The Savanna (N = 10)			
Net farm income <u>a/</u>		Disposable family income <u>b/</u>		Net farm income <u>a/</u>		Disposable family income <u>b/</u>	
Mean	Median	Mean	Median	Mean	Median	Mean	Median
381	69	2,201	1,800	2,998	985	4,394	1,728

a/ NF1 (P > .05, not significant).

b/ DF1 (P > .05, not significant).

^{16/} The Mann-Whitney U test was utilized to determine whether the two independent groups were drawn from the same population. See Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences, McGraw-Hill Book Company, Inc., New York, Toronto, London, 1956, pp. 116-27; 247; 271-77.

A nonparametric test has been utilized because of the skewed nature of the income data. Siegel claims that the Mann-Whitney U test "is one of the most powerful of the nonparametric tests, and it is a most useful alternative to the parametric t test when the researcher wishes to avoid the t test's assumptions..." (p. 116) See also Robert G.D. Steel and James H. Torrie, Principles and Procedures of Statistics, McGraw-Hill Book Company, Inc., New York, Toronto, London, 1960, p. 405.

Whenever probabilities are given in following tables, the Mann-Whitney U test has been applied. One-tailed tests are used.

$$U = n_1 n_2 + \frac{n_1 (n_1 + 1)}{2} - R_1 \quad (1)$$

Where: n_1 = the number of cases in the smaller of two independent groups

n_2 = the number of cases in the larger of two independent groups

R_1 = the sum of the ranks assigned to the group whose sample size is n_1

$$\text{Or alternatively, } U = n_1 n_2 + \frac{n_2 (n_2 + 1)}{2} - R_2 \quad (2)$$

Where: R_2 = the sum of the ranks assigned to the group whose sample size is n_2

Formulas (1) and (2) yield different U's. The smaller of the two is U, the larger is U^1 . To check for U:

$$U = n_1 n_2 - U^1 \quad (3)$$

The results of this technique were checked by setting up a correlation matrix in which each variable was set against each other variable. Since this technique merely corroborated the finding in the following tables the results will not be elaborated.

Table N° 28. NET FARM INCOME RELATED TO WHETHER PARCELERO RECEIVED TECHNICAL ASSISTANCE IN 1965.

	Net Farm Income	
	Mean	Median
	(Bolivares)	
Received technical assistance (N = 9)	2,261	133
Did not receive technical assistance (N = 19)	2,249	413

NFI (P > .05, not significant).

c. Directly Productive Capital Owned. This discussion has tended to assume that the amount of capital owned is relatively homogeneous throughout the asentamiento and does not affect production markedly. This is only partially true. But if directly productive capital is somewhat arbitrarily separated from the capital which is not directly productive and those who own this capital are separated from those who do not (Table 29), the basic assumption seems nonetheless justified: production levels do not change markedly between those who own directly productive capital and those who own only the most rudimentary of hand tools.

This suggests that only certain types of relatively high-cost individual farm capital may be crucial in raising incomes; mechanized services are performed on a contract basis for the majority and, as was brought out earlier, implements required for cultivating and harvesting of traditional crops are limited to machetes and back-pack sprayers. However, distribution of directly

Table N° 29. INCOMES RELATED TO DIRECTLY PRODUCTIVE CAPITAL OWNED IN 1965. *

	Mean net farm income ^{a/} (Bs.)	Mean disposable family income ^{b/} (Bs.)
Own directly productive capital (average value in 1965: Bs. 831 (N = 14))	2,048	3,834
Own only simple implements (N = 14)	2,547	3,794

* Includes orchard, fences, tractor, plow, drag, drill, cultivator, corn sheller, fumigator, truck, bicycle, trailer.

^{a/} NFI (P > .05, not significant).

^{b/} DFI (P > .05, not significant).

productive capital is highly unequal among those who own it. When those asentados who own the directly productive capital are arranged in rank order, the half which owns the most possesses a mean amount of Bs. 16,512. The mean net farm income of this group is Bs. 3,532, higher by Bs. 1,484 than the average for all owners of directly productive capital. Disposable family income for this upper half is also much higher -- Bs. 6,266 -- as against Bs. 3,834 for the whole group, probably a reflection, in part, of earnings from tractor rental and trucking. Moreover, certain kinds of directly productive capital may be associated more closely than others with high incomes. The seven parcel holders in the sample who have a well and a pump in working order have a mean net farm income per hectare of total land nearly ten times that of the pump-less parceleros; their total mean net farm income was quite acceptable, while the average for those without was below subsistence level (Table 30). Medians are much lower, however, indicating some tendency for those who own a pump and well to distribute themselves quite randomly throughout the income range; consequently, differences in incomes between those who have and do not have a pump and well are not statistically significant.

As assumed above, the data seem to show that owning a tractor is closely associated with having higher disposable family incomes, since the tractor owner tends to use his implement for custom work and these earnings are accounted for in off-farm income (Table 31). But the five tractor owners are again distributed rather randomly through the range of net incomes.

Table No. 30. INCOMES RELATED TO OWNERSHIP OF PUMPS AND WELLS, 1965
(Bolivares)

	Net farm income per hectare of farm land <u>a/</u>		Net farm income <u>b/</u>		Disposable family income <u>c/</u>	
	Mean	Median	Mean	Median	Mean	Median
<u>With pump, well</u> N = 9	777	178	6,053	1,068	7,874	5,188
<u>Without pump, well</u> N = 19	79	22	389	133	1,724	1,336

a/ P > .05, not significant.

b/ P > .05, not significant.

c/ C > .05, not significant.

Table N° 31. INCOMES RELATED TO OWNERSHIP OF TRACTORS, 1965.

(Bolivares)

	Net farm income per hectare of farm land a/		Net farm income b/		Disposable family income c/	
	Mean	Median	Mean	Median	Mean	Median
<u>With tractor</u> (N = 5)	524	117	6,119	351	11,068	3,651
<u>Without tractor</u> (N = 23)	271	83	1,573	413	2,460	1,022

a/ P = .4641, not significant.

b/ P = .4641, not significant.

c/ P = .0089, significant.

d. "Additional" Land. Those asentados who farmed additional land in 1965 are not always the entrepreneurs of Ruíz Pineda (Table 31). Some who acquired additional lands in 1965 did not farm them well and fell into the bottom income quartile. While mean income for those who farm additional lands is high in relation to the over-all mean, their median income is close to the over-all median; thus, there is no significant statistical difference in either net income or disposable farm income between those who have and those who do not have additional land. It may be significant that in some cases, no rental payments were involved (see chapter I).

This does not negate the earlier conclusion that the trend toward mechanization on Ruíz Pineda may result in larger farms through land being rented, or sharecropping-in-reverse arrangements in the future. But it also indicates that it is possible to make an adequate income by farming only the basic parcel. One parcelero who owned no additional lands, for example, earned a net farm income of Bs. 13,737 by farming his 6 hectares intensively in summer and winter. Most farmers in the top net income quartile did not farm additional lands.

Table N° 32. INCOMES RELATED TO FARMING OF "ADDITIONAL" LAND, 1965.

(Bolivares)

	Net farm income a/		Disposable family income b/	
	Mean	Median	Mean	Median
Those with additional land (N = 5)	5,685	536	6,492	1,336
Those without additional land (N = 23)	1,660	351	3,273	1,800
All asentados (N = 28)	2,194	382	4,112	1,800

a/ P = .4641, not significant.

b/ P = .3707, not significant.

e. Land Titles. The 17 parceleros in the sample who held title to their farms had a mean net farm income of Bs. 2,237, while the six who had not yet been awarded titles had a mean net farm income of only Bs. 318 (Table 33; those who farm additional land are omitted from this comparison). But median net farm income was again rather similar and, the difference in income is not statistically significant.

Table N° 33. INCOMES RELATED TO POSSESSION OF LAND TITLES, 1965.

(Bolivares)

Titles (N = 17)				No titles (N = 6)			
Net farm income a/		Disposable family income b/		Net farm income a/		Disposable family income b/	
Mean	Median	Mean	Median	Mean	Median	Mean	Median
2,237	413	4,040	2,133	318	138	1,488	596

a/ P > .05, not significant.

b/ P > .05, not significant.

f. Education. Amount of education of the asentados also seems to have some bearing on performance, but the relationship is not statistically significant.

While the 18 best educated parcel holders (from three to six years of education) in the sample showed a much higher mean income than the more poorly educated group, they were quite randomly distributed along the range of net incomes and the medians were quite similar. The same relationship occurs in the case of disposable family income (Table 34).

Table N° 34. INCOMES RELATED TO YEARS OF EDUCATION PARCELERO HAS COMPLETED.

(Bolivares)

	Net Farm income <u>a/</u>			Disposable Family Income <u>b/</u>	
	N	Mean	Median	Mean	Median
0-2 year	18	327	713	1,647	1,728
3-6 years	10	5,662	700	7,464	1,450

a/ P > .05, not significant.

b/ P > .05, not significant.

g. Canary Islanders vs. Criollos. As was pointed out earlier, Canary Islanders earn significantly higher incomes on the average than Criollos. Indeed the Canary Islanders' mean net farm income was nearly ten times that of the Criollos and their disposable family income was about six times as great as that of the "natives".

Table N° 35. MEAN INCOMES OF CANARY ISLANDERS AND CRIOLLOS, 1965.

(Bolivares)

	Net farm income <u>a/</u>	Disposable family income <u>b/</u>
Canary Islanders (N = 3)	12,430	15,219
Criollos (N = 25)	1,354	2,734

a/ P = .0401, significant.

b/ P = .0096, significant.

Table N° 36. INCOMES RELATED TO LAND USE PATTERNS, 1965.

	(1)	(2)	(3)	(4)	
	Natural pasture only (N = 3)	One- season cropping (N = 13)	Two-season cropping (N = 9)	One- or two- season croppin combined with fruit trees (N = 3)	All asentados (N = 28)
- B o l i v a r e s -					
Mean net farm income <u>a/</u>	785	- 457	4,724	10,619	2,194
Mean net farm income per hectare of farm land <u>b/</u>	131	- 51	774	914	309
Mean disposable family income <u>c/</u>	2,548	1,001	5,852	13,204	4,112
Net farm income as percent of disposable family income	31	0	81	81	53

a/ (1) + (2) compared with (3) + (4): $P < .01$, significant.

b/ (1) + (2) compared with (3) + (4): $P < .01$, significant.

c/ (1) + (2) compared with (3) + (4): $P < .05$, significant.

h. Intensity of Land Use. Intensity of land use significantly influences income (Table 36). Those parceleros who do not crop any of their land but rather allow livestock to graze on the "natural pasture" earned an average of Bs. 785 in net farm income (Bs. 131 per hectare). They turned to off-farm sources for more than two thirds of their total incomes, earning a mean disposable family income of Bs. 2,548. Devoting the parcel to cropping in only one season of the year (winter or summer but usually winter) actually resulted in a negative mean net income for the 13 cases in this category in the sample. Their mean disposable income was only Bs. 1,001. Thus, this group relied on off-farm sources not only to cover the deficit resulting from their farm operation, but to provide all the subsistence needed by their families during the year.

The twelve most successful farmers on Ruiz Pineda in 1965 planted annual crops in both winter and summer or they grew a permanent orchard-type crop in combination with one or two-season field crops. These asentados were well above the mean net farm income for all farmers. In view of the high statistical significance of these relationships the figures demonstrate clearly the crucial economic importance of full land resource use.

i. Purchased Inputs. Inputs of labor, improved seeds and pesticides (fertilizer was not used on Ruiz Pineda in 1965), and contracted machinery work seemed to affect production and, hence, incomes, quite markedly. The mean labor input for the top half in the labor use scale was four times as great as among the lower half, whose average net farm income was virtually zero. (Table 37). Moreover, farmers who spent more on hired labor per hectare of land were likely to have larger incomes (Table 38).

Table No. 37. INCOMES RELATED TO TOTAL LABOR INPUT
(Bolivares)

	Mean labor input per farm (Man Days)	Mean net farm income	Net farm income per hectare	
			Per farm	Total farm land
Top half of parceleros <u>a/</u>	182	4,631	639	659
Bottom half of <u>a/</u> parceleros	44	0.9	18	0.2

a/ Ranked according to first column (labor input)

Table N° 38. INCOME RELATED TO HIRED LABOR INPUT
PER HECTARE OF TOTAL LAND

(Bolivares)

	Mean hired labor input per hectare	Mean net income per farm	Net farm income per hectare	Disposable income per family
Top half of parceleros <u>a/</u>	201	5,189	702	6,834
Bottom half of parceleros <u>a/</u>	22	- 168	5	1,362

a/ Ranked according to first column (hired labor input).

Table N° 39. INCOMES RELATED TO YIELD INCREASING
INPUTS PER HECTARE OF TOTAL LAND a/

(Bolivares)

	Mean yield increasing input per hectare	Mean net income per farm	Net farm income per hectare	Disposable income per family
Top half of parceleros <u>b/</u>	96	4,039	573	5,559
Bottom half of parceleros <u>b/</u>	5	280	42	1,920

a/ See Table 11 for definition of yield increasing inputs.

b/ Ranked according to first column (yield increasing inputs).

Table N° 40. INCOMES RELATED TO MACHINERY COSTS
PER HECTARE OF TOTAL LAND.

(Bolivares)

	Mean machinery contracting costs per hectare	Mean net income per farm	Net farm income per hectare	Disposable income per family
Top half of parceleros <u>a/</u>	115	3,639	501	4,553
Bottom half of parceleros <u>a/</u>	24	618	106	2,899

a/ Ranked according to first column (machinery costs).

Even though fertilizer was not used in significant amounts in 1965, the level of use per hectare of other technical inputs did seem to be influential in yields (Table 39). This conclusion is apparently at variance with the observations in an earlier section III (1a), where it was shown that expenditures for yield-increasing inputs did not vary much through a wide range of corn yields. However, the present data include all crops grown on Ruiz Pineda in 1965.

In subsection (c) above it was indicated that the amount of directly productive capital owned by a parcel holder was not associated clearly with his income. However, the amount of machinery work for which he contracts seems to reveal a different picture. When the asentados are ranked according to the expenditures per hectare for hiring machinery it is noted that the top half spent five times as much, and their farm income was nearly six times as the bottom half (Table 40).

5. Association of Factors: A Modified Case Study Approach

We have sifted through a number of factors which might have had some bearing on the economic performance on Ruiz Pineda in 1965. Some, like land capability; the kind of technical assistance offered in 1965; education; ownership of certain kinds of capital; utilization of additional lands, and possession of titles have been rejected as not being clearly related to income in the year under examination. But in the case of intensity of land use, the use of certain inputs, and national origin we were able to establish a fairly clear relationship to economic performance.

We still do not know, however, whether any of these factors are associated in specific cases. Chart II represents a somewhat novel effort to group a manageable number of the factors which seemed most important in the previous analysis into descriptive categories and determine into which category each of the 28 sample cases fits. Classifying all cases and inserting corresponding mean incomes into each category cell should give an indication of which group of factors is associated with various degrees of economic performance.

The first two major columns of the chart list net farm income and the second two list disposable family income. The first and the third columns enumerate those families who devote less time than the average to off-farm work. The second and the fourth columns list those families who devote more time than the average to off-farm work. Each major column is divided into two sub-columns which show those parceleros who use yield-increasing inputs (i.e., who are in the top quartile of yield-increasing input users), and those who use negligible quantities of yield-increasing inputs (i.e., who are in the bottom three quartiles of yield-increasing input users).

The rows represent permutations of the following three characteristics:
1) works 64 days or over on the farm; 2) has an intensive cropping pattern; and

3) hires labor or uses machinery. Definitions of these terms are found in the footnotes for Chart 2.

The following are some general, at times overlapping, conclusions that may be drawn from this factor grouping exercise, which can be regarded as a modified case study approach:

1. Only two parcel holders devote more than the average number of man-days to work on and off their parcels. But because of their extensive cropping pattern and lower than average yields their work seems to come to naught and leaves them with very low net farm incomes (Bs. 902 and Bs. 133) and, hence, with very low labor productivity. Forced to work off the parcel to support their families, these parcel holders raised their disposable family incomes to Bs. 4,622 and Bs. 2,133 respectively.

2. Least successful farmers on Ruiz Pineda worked less than 64 days on the farm, had an extensive farming pattern, raised costs by hiring labor or utilizing machinery and did not compensate for their lack of expertise on the farm by doing much off farm work. Three farmers, whose average net farm income and disposable family income was a negative Bs. 1,407, fell into this category and certainly represent "hard core poverty" and perhaps chronic incapacity to earn a living. Two more with an extremely low mean net farm income (Bs. 382) also fall into this category; their farm income was higher simply because they did not raise their costs by contracting for inputs that replaced their own labor.

3. Another two families who worked less than 64 days on the farm had an extensive cropping pattern; hired labor or machinery replaced their own labor. But they compensated for the negative net incomes on their own farms by working off the farm and earning disposable family incomes of Bs. 9,090 and Bs. 1,220 respectively. Another six fell into this category except for their decision not to contract for much machinery or labor, or use yield-increasing inputs. Their net farm incomes averaged only Bs. 255, but their disposable family incomes averaged Bs. 1,976.

4. The performance of the 13 families who worked less than 64 days on their farm and had an extensive cropping pattern was little different from the five who worked more than 64 days and had an extensive cropping pattern. The chart indicates that misuse of the land resource spells failure regardless of the number of days the asentado says he devotes to his operation. In order not to be dependent on borrowing or subsidies, if a farmer elects to have an extensive farming operation, he must, as a minimum, work off the farm, as 10 of those with extensive cropping patterns did in 1965. The eight asentados who had extensive farming patterns and did not work off the farm had negligible incomes.

5. Even though fertilizer was little used in 1965, the yield-increasing inputs that were used had an important bearing on performance. In the five categories which varied internally only by the use of yield-increasing inputs,

users showed larger net farm incomes than nonusers.

6. If a farmer has an intensive cropping pattern, he may substitute hired labor and machinery for his own labor, but he should use yield-increasing inputs for best results. The three cases which had an intensive cropping pattern, hired labor and machinery, and worked less than 80 days off the farm had an average net farm income of Bs. 18,492. Two more cases which fell into this category, except that they worked more than the average number of days off the parcel, appear in the top quartile of disposable family income.

CHART 11. ASSOCIATION OF FACTORS WITH INCOMES, 1965

	Net Farm Income (Bs.)				Disposable Family Income (Bs.)			
	Under 60 days of off farm work ^{a)}		60 days or over of off farm work		Under 60 days of off farm work		60 days or over of off farm work	
	Uses yield-increasing inputs ^{b)}	Uses negligible yield-increasing inputs	Uses yield-increasing inputs	Uses negligible yield-increasing inputs	Uses yield-increasing inputs	Uses negligible yield-increasing inputs	Uses yield-increasing inputs	Uses negligible yield-increasing inputs
Works 64 days or over on farm; intensive cropping pattern; hires labor or uses machinery ^{d)}		N = 1 3,324 3,324 ^{e)}				N = 1 3,324 3,324 ^{e)}		
Works 64 days or over on farm; intensive cropping pattern; hires little labor or machinery	N = 2 5,201	N = 2 198 2,258			N = 2 5,201	N = 2 378 2,364 ^{e)}		
Works 64 days or over on farm; extensive cropping pattern; hires labor or uses machinery		N = 1 -66 -66				N = 1 234 234 ^{e)}		
Works 64 days or over on farm; extensive cropping pattern; hires little labor or machinery		N = 2 598 598	N = 1 902	N = 1 133 300		N = 2 490 490	N = 1 4,622	N = 1 2,133 2,933
Works less than 64 days on farm; intensive cropping pattern; hires labor or uses machinery	N = 2 25,851	N = 1 3,776 18,492	N = 1 13,737	N = 1 351 6,362	N = 2 25,851	N = 1 3,776 18,492	N = 1 19,137	N = 1 5,651 13,743
Works less than 64 days on farm; intensive cropping pattern; hires little labor or machinery								
Works less than 64 days on farm; extensive cropping pattern; hires labor or uses machinery		N = 3 -1,407 -1,407	N = 1 -510	N = 1 -1,700 -906		N = 3 -1,407 -1,407	N = 1 9,090	N = 1 1,220 6,139
Works less than 64 days on farm; extensive cropping pattern; hires little labor or machinery		N = 2 382 382		N = 6 255 255		N = 2 462 462		N = 6 1,976 1,976

a/ The average asentado family, it will be remembered from an earlier discussion, works 64 days on the farm and 80 days off the farm.

b/ Asentados are considered as falling into this category if they are in the top quartile of those who use yield-increasing inputs (see Table 13 for definition of yield-increasing inputs).

c/ Asentados have an average-sized farm (approximately 6 hectares), and/or have additional lands and do not leave more than .75 hectare idle besides having two-season cropping or one- or two-season cropping and permanent orchard crops, they are considered to have an intensive cropping pattern. This is a broader definition than considered in section 4-h above.

d/ Asentados are considered as falling into this category if they meet one of the following qualifications: 1) own a tractor; 2) are in the top quartile of those who contract for custom machine work; 3) are in the top quartile of those who own directly productive capital; 4) are in the top quartile of those who hire labor.

e/ The figure under the arrow is the mean for both halves of each cell when there are cases in both halves.

IV. CONCLUSIONS AND POLICY IMPLICATIONS

Conclusions

The case of Ruíz Pineda, which is believed to have some general validity for settlements with similar conditions and problems, illustrates principally the following points:

1. Agricultural production on the land area now encompassed by the asentamiento -- and marketings -- rose substantially after reform. Considering double-cropping of irrigated land, nearly 90 per cent of the land is now farmed, compared with only 20 per cent prior to reform.

2. Disposable family income of settlers on Ruíz Pineda was at least 20 per cent greater in 1965 than before the reform. Higher incomes are closely related with intensive land use and the application of yield increasing inputs. Since the reform, the effective demand for both light consumer goods and purchased farm inputs has also risen. There has also been improvement in certain measurable living levels.

3. The income distribution on the asentamiento is highly skewed. About 90 per cent of the net farm income generated on the asentamiento in 1965 -- and about 70 per cent of the disposable family income -- accrued to the upper 25 per cent of the farmers. The top gross income quartile supplied about 86 per cent of the total marketings from Ruíz Pineda in 1965. Eight recent immigrants from the Canary Islands figure importantly in the economic life of this colony. They all fall into the top quartile of disposable family income earners.

4. Although in any agricultural community there is a range separating the best from the poorest farmers in terms of productivity and income, the problem on Ruíz Pineda is that this spectrum seems inordinately wide. Indeed, the results of this study seem to imply that with increasing technological progress and market involvement the productivity and income differences between families have become accentuated. On balance, the reform seems to have allowed the most innovative to progress and has increased employment, and probably the savings and investment potential, in the colony as a whole. To date, this project has not been particularly successful, however, in vesting those in the lower half of income receivers with the skills they need for economic advancement.

This case may be conceptualized as a series of bottlenecks with differing widths. Granting of land allowed those with capital and some management skill to progress. Others, who lacked credit but had some management skill had to await the credit program to advance. For the

bottom groups, through they have access to land and credit, management is still the limiting factor.

5. Recent immigrants from abroad have supplied an element of economic vitality to the community. But the kind of entrepreneurship they brought to Ruíz Pineda has not, to date, diffused among the native Venezuelans in the settlement.

6. Attempts to resettle asentados on Ruíz Pineda from a cooler climatic zone of the country failed mainly because the settlers were assigned a poor land base, but also because they did not know the crops and techniques of the area, and were probably deprived by the sindicato of an adequate channel for voicing their grievances. Perceiving their situation at home as better than the new one, and having made adequate provision to make their decision reversible (by leaving family members to tend their plots) all but a few returned home. By 1965, nearly one-third of the originally assigned parcels had been abandoned, but one-half of these had been re-occupied by new local settlers.

7. The problems of underemployment are serious but the situation is undoubtedly not as critical as those which campesinos would face in the absence of a reform. At least reform is assuring to all farmers a higher level of subsistence on their plots, and the foundations have been laid for incorporating an increasing number of the settlers into the market economy as they are being reached by institutional services. While the average parcelero on Ruíz Pineda is unemployed for the equivalent of half the year, he nevertheless hires about as much labor (much of it from the settlement) as he utilizes from his family resources, and the average parcelero family works more days off the parcel than on it. But these figures hide the fact that because of the nature of the farming operation on Ruíz Pineda, labor needs are far from even over the year. And in peak labor seasons -- at least in weeding and harvesting of cereal crops -- more labor could probably be utilized with positive results.

8. Asentados who do poorest on their own parcel seem most apt to search for off-farm employment to sustain their families throughout the year. A small "hard core" group, however, do poorly on their parcels, do not find work elsewhere, and live in hand-to-mouth fashion on official operating credit which they have come to regard as a subsidy and on which they default year after year. While the comprehensive credit program that came to Ruíz Pineda in 1966 lowered the default rate, it does not appear to have changed the habits of this hard core substantially.

9. Average farm size is increasing somewhat on Ruíz Pineda as a few asentados take advantage of the fact that many others do not cultivate their plots in summer when crops need irrigation, when high per unit value crops are grown, and when marketing problems are severe. Considering the factor prices in the area, more widespread mechanization seems likely in the future and this will increase for larger farms. To date, farm enlargement has taken the form of land borrowing or sharecropping-in-reverse. The

sharecropping-in-reverse procedure could work to the benefit of both the parcel owner and the "capitalist" because the latter also supplies the agricultural expertise that the owner desires, thus apparently removing the threat of economic exploitation by the strongest party to the bargain. But the tutelage by the entrepreneur does not extend to the marketing process. He markets the total crop and share payments depend on these sales. In this system the parcel owner neither learns the marketing process nor has a check on the honesty of the partner.

10. The unplanned and largely unsupervised granting of production credit through 1964 helped the more enterprising settlers to consolidate their positions of pre-eminence, but it also provided the others with a kind of subsistence allowance. Increasing indebtedness of a large number of the campesinos led to the introduction of slight modifications in the credit program in 1965 -- which did not materially affect the pattern -- and to a thoroughly planned and directed program in 1966. While results available at this writing are inadequate for a sound judgment, production results indicate that it is a step in the right direction, even though average indebtedness increased during the first year.

11. Even when operating credit is supplied in abundance there is a wide range of yields in traditional cereal crops (the only crops for which credit has been available on the asentamiento). In conjunction with point 7 above, this suggests that there is ample unexploited potential for increasing the yields of these crops.

12. The founding and continuance of the sindicato on Ruiz Pineda has been largely the responsibility of one man -- its perpetual secretary general. The sindicato has shown flexibility of function. It has turned from its original purposes of petitioning for and assigning land to supplying the inputs and services needed to improve farming on the asentamiento. The smoothness of this transition can be attributed to the secretary general who realizes that by responding to the community's felt needs he can maintain its support. His efforts have tended to vary with the desires of the community which naturally changed from receiving land to obtaining houses, technical assistance and credit. The secretary general is highly effective in bargaining with government agencies in the community's behalf.

There is little doubt that a charismatic leader who is able to inspire confidence and win favors from the government can serve a useful -- and probably necessary -- function from any colony's point of view. But when a campesino union remains dominated by a single personality, individual responsibility, community democratization and broad-based development of individual responsibility may not ensue; they have not on Ruiz Pineda.

Policy Implications

1. The results of this study point up the importance of searching for

ways to diversify and intensify these farm operations to promote fuller employment and increased incomes in the Venezuelan agrarian reform context. As a minimum on Ruiz Pineda, some low cost changes in farm practices are certainly possible. For example, two weedings of corn would reduce competition from weeds and, hence, increase yields. This could also reduce the peak labor need somewhat and spread the labor requirement more evenly over the growing season, thus promoting fuller employment on the asentamiento. The net result would tend to be a generalized rise in incomes.

The complications inherent in this recommendation should be recognized, however. While changing a few techniques would make the traditional winter cereal farming more labor intensive, mechanization is offering an individually profitable alternative to greater labor use on Ruiz Pineda. Farm implements can be purchased by asentados at a subsidized rate, with low interest, and with small down payments. Meanwhile, wage rates are sticky and seem to range from Bs. 10 a day during the slack season to Bs. 1½ a day during the busy period. Thus, underpriced machinery and overpriced labor are fostering the substitution of machinery for labor. Asentados can cultivate their corn with a rented machine at half the cost per acre of hired labor. This reflects another fact: there is some tendency for farmers who have purchased machinery especially for the planting season to hire it out more cheaply for cultivation since otherwise it would stand idle. Also, since the coming of the comprehensive credit program in 1966, services such as tractor work may be secured on credit while cash for subsistence and to pay workers is becoming more difficult to acquire.

Not all mechanization used on the asentamiento is cost reducing. Helicopter spraying of rice with herbicides doubles the per-hectare cost of this operation, considering that back-pack sprayers and ample labor are available. It would thus be advisable to "cost out" all technological innovations before adoption on Ruiz Pineda. But in this area some machinery operations that may be considered primarily as labor-replacing capital also have important yield-increasing functions: corn must be planted quickly so that rains do not slow the process and cut into yields, and tractor cultivation breaks the soil and eliminates weed competition more effectively than the traditional machete and garabato system.

2. The analysis suggests that improving the productivity per hectare of the traditional crops is probably not an adequate long-range policy by itself. A more intensive cropping pattern which utilizes much of the currently idle land and labor resource in summer and winter is needed. This will call for the planting of summer crops and the provision of irrigation water and other purchased inputs (especially fertilizer) for more plots. It will also require more knowledge of the summer fruit and vegetable market in Caracas where these commodities are sold (or some major market reforms) and the provision of credit for the summer growing season. In turn, a need for more summer cropping management skills is also indicated. There are several alternatives to more annual summer crops. One is planting more permanent fruit trees which do well in this tropical area. The other is expanding livestock -- and even crop production -- on the large land area that is

still in dispute. A large part of this is suitable only for livestock grazing; through the sindicato, members ought to be able to arrive at some arrangement for common grazing. Intermediate-term credit will become important at this stage. Before this, however, the legal problems holding up transfer of this land must be resolved. Considering the large number of sons who will be coming of age in the next 10 years, it would be a mistake to divide the remaining ejido land in permanent fashion among the current asentados if and when it becomes available. Rather, it might be used in common or on a cash-rent basis until sons come of age and can receive their own grants.

3. In 1966, the absolute amount of credit reaching the asentamiento was greater, and credit defaulted per hectare harvested was higher in 1966 than in 1965.

How credit costs can be effectively reduced without leaving the campesinos destitute is a central concern to planners working with the Venezuelan reform and this issue remains unresolved. Rather than choking off credits, better planning and administration might allow capital and land to yield a higher product (as is being demonstrated) and, hence, higher incomes for reform beneficiaries. The data justify some pessimism regarding the possibility of tangibly raising the net farm incomes of all reform beneficiaries. This suggests consideration of direct income subsidies to the small, hard-core poverty group as perhaps the most practical -- and the cheapest -- manner to tie this small group closer to the market economy. This implies, however, that most of the new landowners can and must become more self-reliant; a policy which allows a large group to become perpetually dependent on services that the state currently supplies will be self-defeating in the long run.

4. The sindicato has played a key social role on Ruiz Pineda. The case may indicate that at the outset of an agrarian reform settlement, when experimentation with new forms of social organization is occurring, a strong, almost autocratic organization like the sindicato may be necessary to give the peasants cohesiveness in the struggle for a share of agrarian reform benefits. At the same time, this may provide a solid base for later collective efforts more directly related to the farming operation. But it is equally evident from the case that such an organization may become dysfunctional as the organizational requirements for the asentamiento become greater. A different type of leader is required for the administrative tasks of a cooperative than for a sindicato. The function of the latter is brokerage, and a leader must be articulate and have political connections. By contrast, the skills required for farming cooperatives are more administrative in nature and call for developing more member self-reliance. When a single leader, whose base of power are his political connections and charisma, attempts to undertake an administrative role as well, the result may well be -- as in Leonardo Ruiz Pineda -- inefficiency, favoritism, and paternalism. Similarly, the political role discourages delegation of authority; on Leonardo Ruiz Pineda there is no actual or potential successor to the present leader.

5. There would appear to be two alternatives for the future: one, a

differentiation of organization function, with political bargaining left to the sindicato and its political leaders, and human development and administrative matters left to another organization with a distinct type of leader; the other would entail the sindicato's taking on the character of a cooperative with genuine member support and participation. One should not, however, understate the difficulties and the strain on the existing social structure that this latter might imply on Ruiz Pineda. Doubtless, this process will take a number of years, but a strong government program in favor of cooperative development -- based, perhaps, on the CIARA-type directed credit program initiated in 1966 - appears essential. For example, there is no reason why the government cannot begin insisting on more member participation; after all it has a certain leverage in the credit sources it possesses. One cannot hope for a full-blown, multi-functional cooperative immediately, but partial steps should be taken in that direction. Members already have experience with a kind of cooperative credit and have purchased some inputs collectively. This is a promising beginning. In time, the cooperative must take up marketing functions and, it would seem, should provide a channel for technical information to be passed from the extension agent to the farmers through a series of selected officers who could be trained to assume roles as para-extensionists. This will necessarily involve some erosion of the power of the secretary general.