Case Studies of FARM FAMILIES LAGUNA PROVINCE, PHILIPPINES

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F O R E W O R D

This publication originated from a request to the Department of Agricultural Economics, U. P. College of Agriculture, for case studies to be used for training in agricultural economics, rural sociology, and community development.

This study, as a whole, presents detailed information on the day-to-day activities and conditions of individual farm families. It therefore supplies information different from that which is given by the usual types of Philippine studies on farm people and farming. It should therefore offer added scope, if not depth, to the attempts in understanding farm people and their backgrounds and experiences. Students and persons involved in rural improvement should find its greatest value in helping them know more about the people they serve but whose life's conditions and experiences may be dissimilar in many ways to their own.

We are happy to note that the enthusiasm attending the publication of the original mimeographed volume would spur the second printing of this present book and bring it to the access of more readers. For the printing of this book, we acknowledge our debt to the Agency for International Development and the National Economic Council. We also acknowledge the help of the Office of Extension and Publications in the preparation of the illustrations.

We who will read and find use for this book will of course be principally indebted to the authors and to Dr. A. T. Mosher, of the Council on Economic and Cultural Affairs, who sparked the undertaking of this study. The senior author, Ralph C. Diaz, is now engaged in agricultural extension in Southern Italy while Dr. Horst von Oppenfeld, with the invaluable aid of Mrs. Judith von Oppenfeld, is continuing his excellent service as visiting professor of agricultural economics at Los Baños.

We also express our deep appreciation to the Council on Economic and Cultural Affairs for its grant in support of the cost of the field research for this study.

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D e a n

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THREE TYPICAL FARMS IN SOUTHERN LUZON

Agricultural development is one of the avowed goals of the Philippine government. Frequently the policy measures aimed at development fall short of their targets. Although many new techniques have been discovered through agricultural research the rate of acceptance of innovations by Philippine farmers has been slow. Many students who may become policy makers or administrators do not understand the farmer and his problems. To assist persons unfamiliar with rural life to comprehend what farming really is, case studies were made of three fairly typical farms in Southern Luzon.

Intended as teaching materials, these case studies deal in rather unusual detail with the setting, organization and operation, with resources and their use on each farm. Perhaps they may enhance the understanding of some realities of farm life.

Of course, the limitation of the case study technique is obvious. Not all important problems may be encountered in so few cases. Perhaps personal characteristics of the farmers play too large a part. Nevertheless, it is sometimes easier to discern problems on an individual basis, than en masse. These three farmers were selected so some of their operations, at least, are typical of a larger group.

THE SETTING FOR FARMS A AND B

The Municipality

The two lowland rice farms studied are located in barrio (village) Halang of the municipality (town) of Biñan, situated about 34 kilometers (or 21 miles) from Manila, the capital of the Philippines.

Biñan is an old town, established in Spanish times. From the latter part of the 16th century to the end of the 19th century it was owned by Spanish friars, part of extensive holdings of the Catholic church in the Philippines. At present Biñan is classified as a first class B municipality on the basis of a tax collection (in 1959) of ₱118,198.

Biñan has 24 barrios, of which 5 are not accessible by road. Out of a total area of 3564 hectares 2131 hectares are in farms. The 5426 households average 6.2 persons per household, with a total population of 33,440. Agriculture is the principal occupation, supplemented by cottage industries producing hats, sandals, wooden shoes, rice products (pinipig and puto), etc.

The municipality is fairly well supplied with service. It lies on the main railroad line from Manila to Southern Luzon. Frequent buses, carrying both passengers and produce, travel to Manila on the national highway through the town. In the poblacion (town proper) a large market is maintained where farmers may sell their produce. A Rural Bank, established with government assistance to make loans to farmers, is in operation. A municipal community development officer, whose job is to stimulate rural development, has been assigned there for more than four years. Educational facilities include a public elementary school (through 4th grade) in every barrio; two public elementary schools (through 6th grade) in the poblacion, and three private high schools.

Data on the precipitation pattern in Biñan was secured from the Weather Station At Alabang, Rizal, twelve kilometers northwest of Biñan (figure 1). The average annual rainfall is 72.64 inches (table 1). There are two pronounced seasons, dry from December to April, and wet from May to November. Precipitation reaches its peak in August and its low point in March (figure 2).

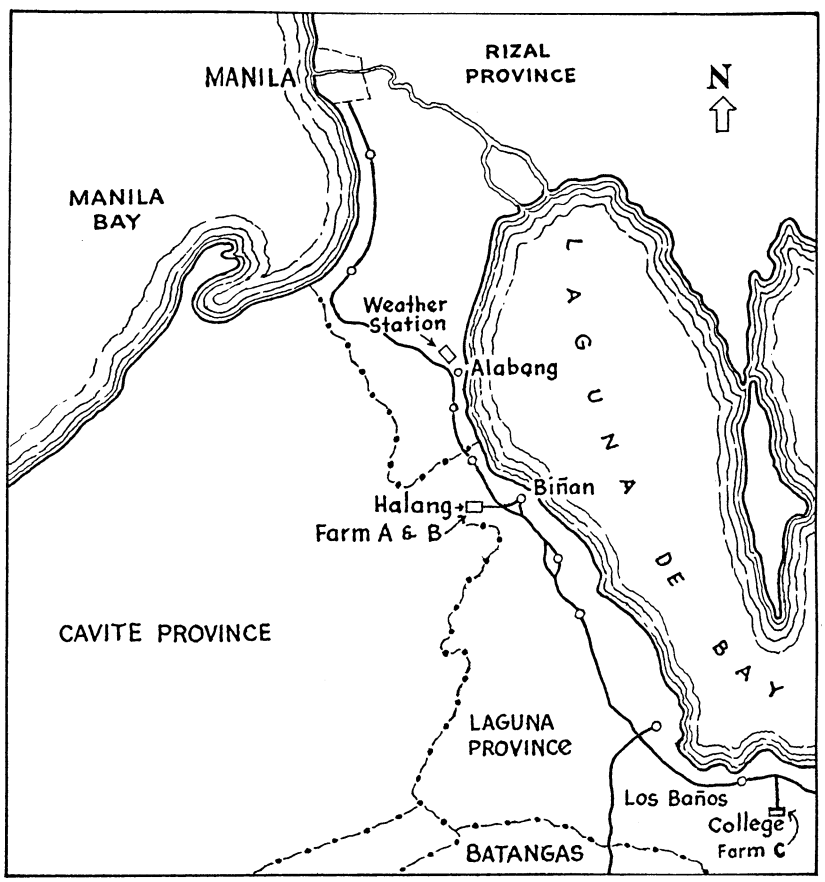


Figure 1. Sketch shows location of Farm A and B in Barrio Halang. Weather station is at Alabang, 12 km. from Halang. Halang is located 36 km. from Manila and 33 km. from College Campus at Los Baños.

TABLE 1. Normal values of climatological data at the Alabang Weather Station

MONTH	RAINFALL	
	Amount	No. of rainy days
	inches	
January	0.52	4
February	0.79	2
March	0.24	2
April	0.80	2
May	5.09	10
June	9.59	16
July	13.84	18
August	17.90	17
September	10.15	17
October	6.40	12
November	5.54	12
December	1.78	10
Annual	72.64	122

Source: Mimeographed tables on "Monthly Average Rainfall and Rainy Days in the Philippines;" prepared under the direction of Dr. Casimiro del Rosario, Director, Weather Bureau, Climatological Division.

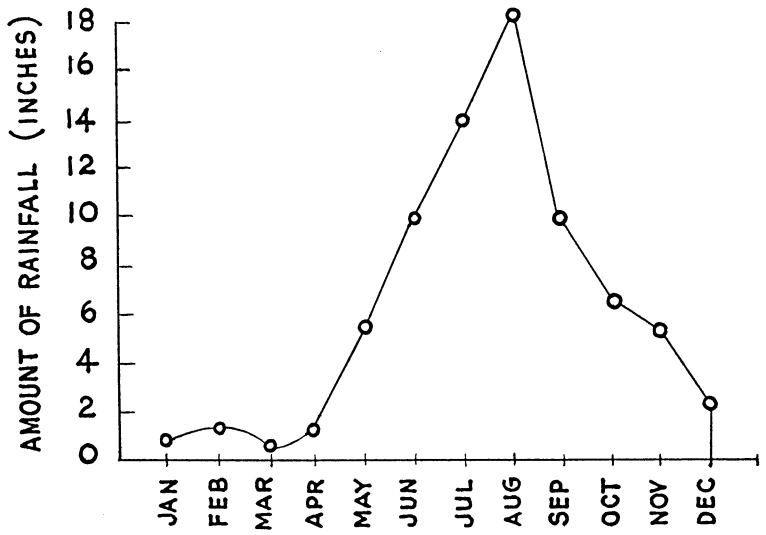


Figure 2. Rainfall pattern in Barrio Halang, Biñan, Laguna, based on Alabang, Rizal weather station rainfall data.

Biñan is unusual in the extent to which normal rainfall is supplemented by irrigation. About 35 per cent of the farm lands are supplied with gravity or deep well pump irrigation. Irrigation was begun by the friars who built canals to secure water from mountain springs. Conditioned to irrigation, farmers readily accepted irrigation pumps where the source of mountain water became unreliable. After the war 15 pumps were introduced by the landlords covering about 7 per cent of the total hectarage.

Biñan was the site of one of the earliest attempts at land reform. Under the friars, the people tilled the land as if it were their own, subject to payments to the church. According to popular opinion, the land was sold to the Americans after the Spanish-American war. Actually, under an agreement between Governor Taft and Archbishop Harty the land was acquired for redistribution to the people. However, the tillers, misunderstanding the proposal and dispairing of peace, showed no interest in gaining title to their lands. The opportunity to acquire land was taken by certain government employees and other "capitalists" who could afford to pay the installments. Gradually the farmlands were acquired by Filipino landlords and the tillers became tenants. The American land reformers did not foresee this.

The Barrio

Barrio Halang lies three kilometers northeast of the poblacion of Biñan. Comprising 320 level hectares, it is bordered on the west by a mountain range, Matang- Tubig. The 96 houses in the barrio line three sides of a small crossroads, with ricefields lying beyond. A most marked characteristic is the sense of isolation in the barrio. This is surprising because of the proximity to the poblacion and the national highway, which is connected to the barrio by a 2-kilometer gravel road constructed in 1956.

Almost all of the inhabitants are farmers. A few supplement their income by (1) making pinipig (pounded rice), (2) operating seven retail stores, (3) driving a calesa (horse-drawn rig) and (4) selling raffle tickets. Seventy-five per cent of the adults have had some schooling. However most of them are not functionally literate as the average year of school completed was Grade 1.

The 510 adults and children in the barrio are closely interrelated. Halang sons and daughters generally marry within the community. The road allowing easy access is only four years old. For many decades the peace and order situation has been bad. Bandits have sheltered in the bordering mountain range. During the four week period of study two separate incidents of violence and theft occurred on barrio farms. Partly in consequence, the villagers draw together and distrust all outsiders. The strong kinship bond promotes cooperation among the barrio folk. No one ever starves and in times of trouble help is freely given.

Although the close community bond has doubtless often been essential for survival it has certain disadvantages. First, it tends to foster lack of ambition. As one man said, "In my present state I do not feel hungry, why work harder?" However, it is not a complete bar to advancement, as several families are noticeably better off than the others. Second, a member of the kinship group rarely makes a decision on his own. Before he undertakes any venture, such as marriage or changes in farming methods, word is passed to the older members, not in Council but via gossip. Often in transmittal the facts may be distorted and erroneous opinion may prevail. Nevertheless the individual normally acts in accordance with decisions of the kinship group.

For most of the barrio folk all economic activities are concentrated in the barrio. Hired labor is recruited in the barrio. Supplies, consumer credit, and market outlets (for vegetables and sometimes rice) are provided by the seven retail stores in Halang. Storeowners act as middlemen and resell produce at the poblacion market. Only if the tenant wishes to secure credit from his landlord or visit some distant relative is he apt to leave the barrio.

FARM A

The first farm to be described in Barrio Halang is a one-crop lowland rice farm, dependent on rainfed irrigation. Mang Miguel, the operator, is a tenant, one of the poorer farmers in the barrio. His operation is not the pattern for all rice growers in the Philippines, but he is typical of a large number of subsistence farmers, the lower half of the range.

Physical Resources

Home Lot

Mang Miguel's home lot is owned by his father. He values it ₱120. The lot measures 16 x 25 meters and provides room for the house (a), a tool shed (b), and a wood shed (c). The sheds are merely shelters with cogon roof, no side walls. Three mango trees, a mud pool for the carabao and a shallow pit privy complete the yard scene. A beautifully trimmed gumamella (hibiscus) hedge separates the house lot from the mud path, the southern extension of the barrio lane.

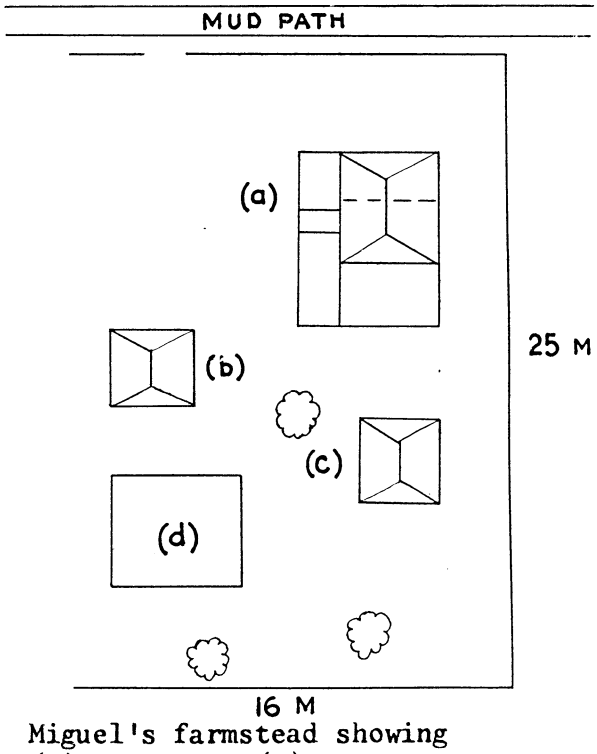


Figure 3. Miguel's farmstead showing (a) dwelling, (b) tool shed, (c) wood shed, and (d) carabao bath.

A visitor, entering thru the bamboo gate, is announced by the rattle of empty tin cans. He faces the entrance of the house, eight by four meters in size. Resting on hardwood posts, its outer walls are made of sawali (woven bamboo), its roof of cogon grass. The living area is about one meter above the ground, accessible over a stair-like ladder. Made of bamboo strips, spaced one centimeter apart, the floor is always neat and clean. The living area consists of two multi-purpose rooms, a living and dining room, which serve as playroom for the children, provide storage for palay, space for entertaining visitors. A clothes cabinet is the only piece of furniture. There are no chairs or tables. The family sits, eats and sleeps on the floor.

A kitchen alcove is attached to the living area (figure 4). The earthen stove is elevated from the floor. Bamboo shelves provide space for storage of clay pots, an iron pot and frying pan, cups and clay jars. A few thin plates, forks and spoons, reserved for visitors, are on the shelf. Mang M estimates the present value of the house approximately ₱133.

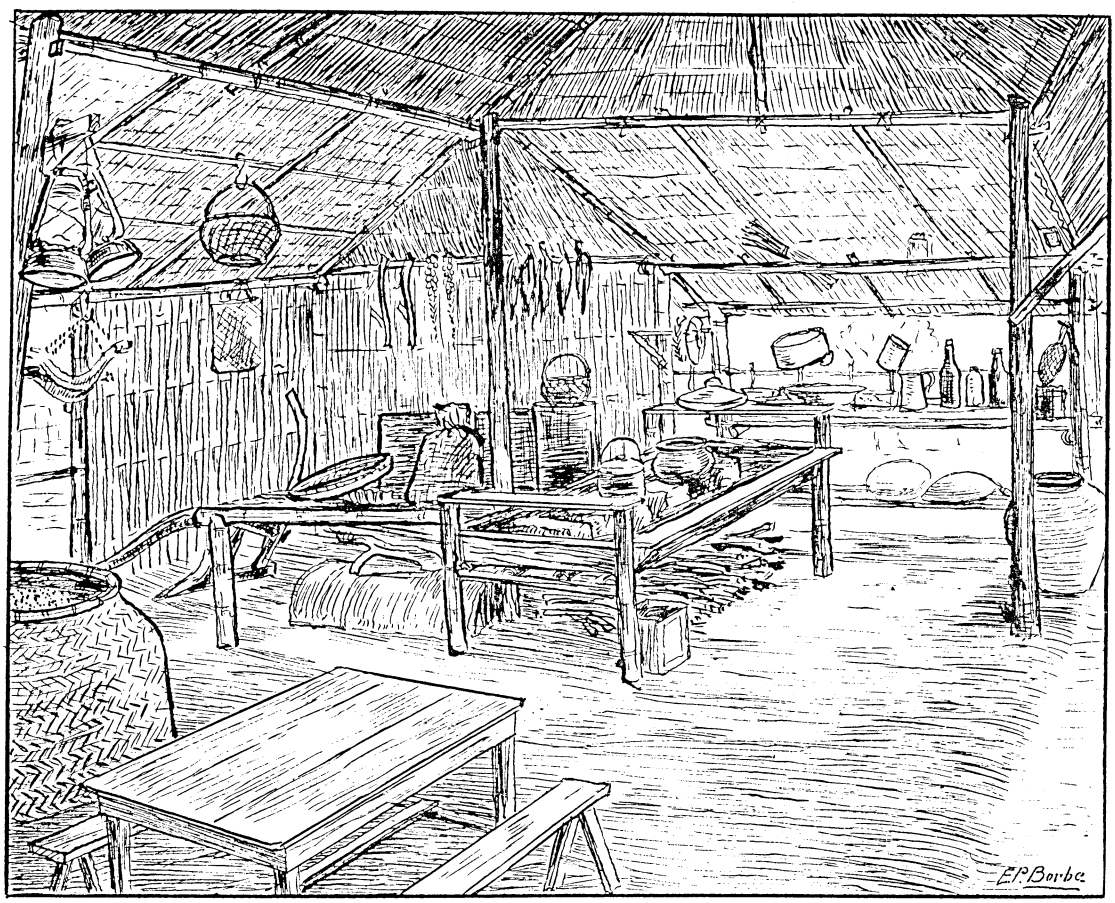
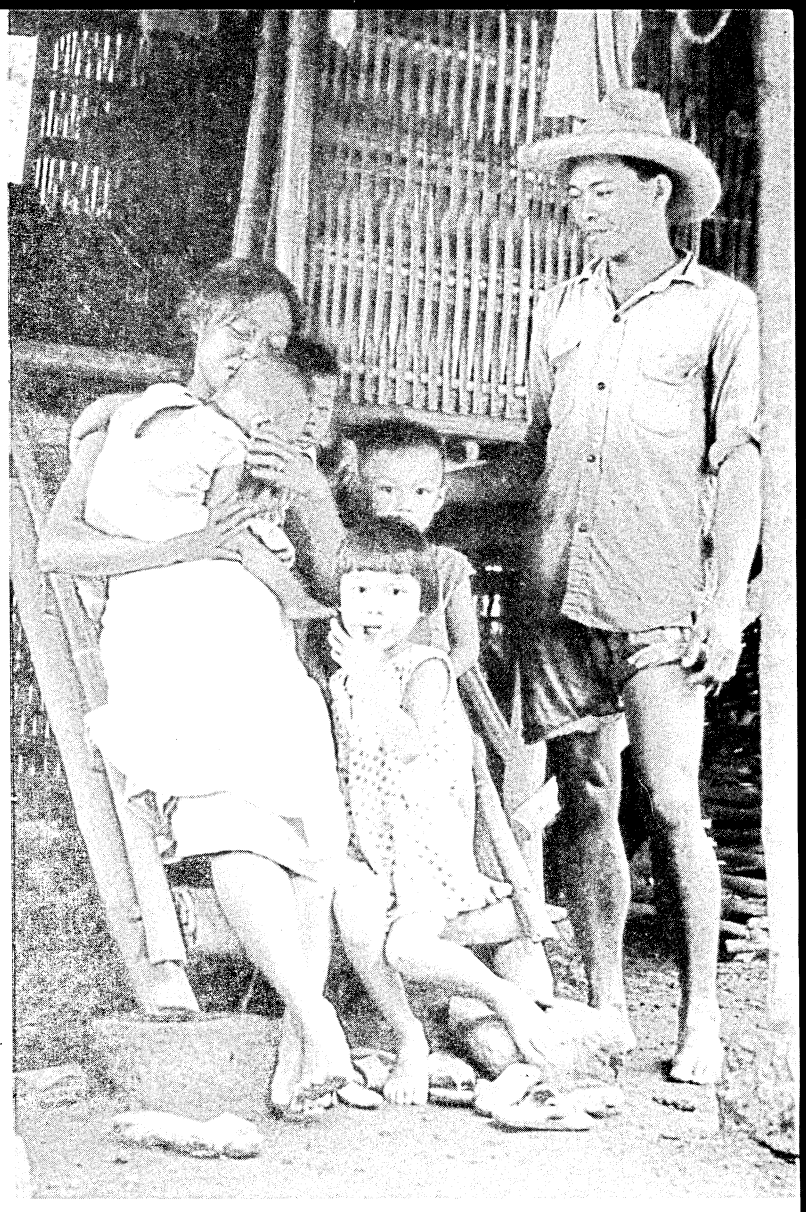


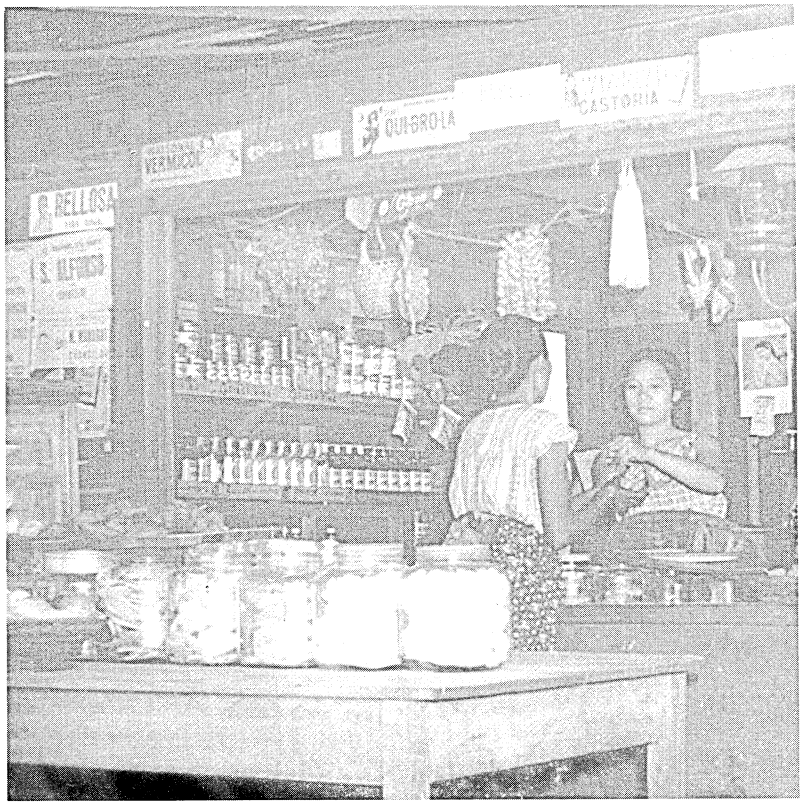
Figure 4. The barrio kitchen - a seed storage room too.



Miguel and his family
on their doorstep

Miguel's farmstead with
left to right, wood shed
house, tool shed.

Ponsang in her kitchen.



A Barrio Store
Halang, Biñan, Laguna

Farm Land

Miguel rents two land parcels, one of 2.3 hectares, flat and saw-like in shape (figure 5) with clay-type soil, terraced into 58 small patches for rainfed irrigation. Here he grows one annual crop of lowland rice, shared 50:50 with the landlord, after setting aside the portion covering expenses. The field is adjacent to the north section of the barrio, barely a five minute walk from the home lot. Actually, the walk takes longer as it is usually interrupted by chats with villagers. Location near the barrio has one disadvantage. Mang M complains about the constant nuisance of human waste and trampling in his field.

A second parcel, only 600 square meters of hillside land is leased from another landlord at a fixed rate of ₱5.00 per annum (figure 5). Miguel plants vegetables here: sitao (Vigna sinensis Fruw.), okra (Hibiscus esculentum Linn.), patola (Luffa cylindrica Linn.) and a few hills of corn. The lease arrangement permits Miguel to plant the crops he chooses, without interference from the landlord. But the slope is too steep for plowing. Vegetables are planted in holes or strips cleared on the hillside. Another disadvantage is the distance from the house, approximately 30 minutes.

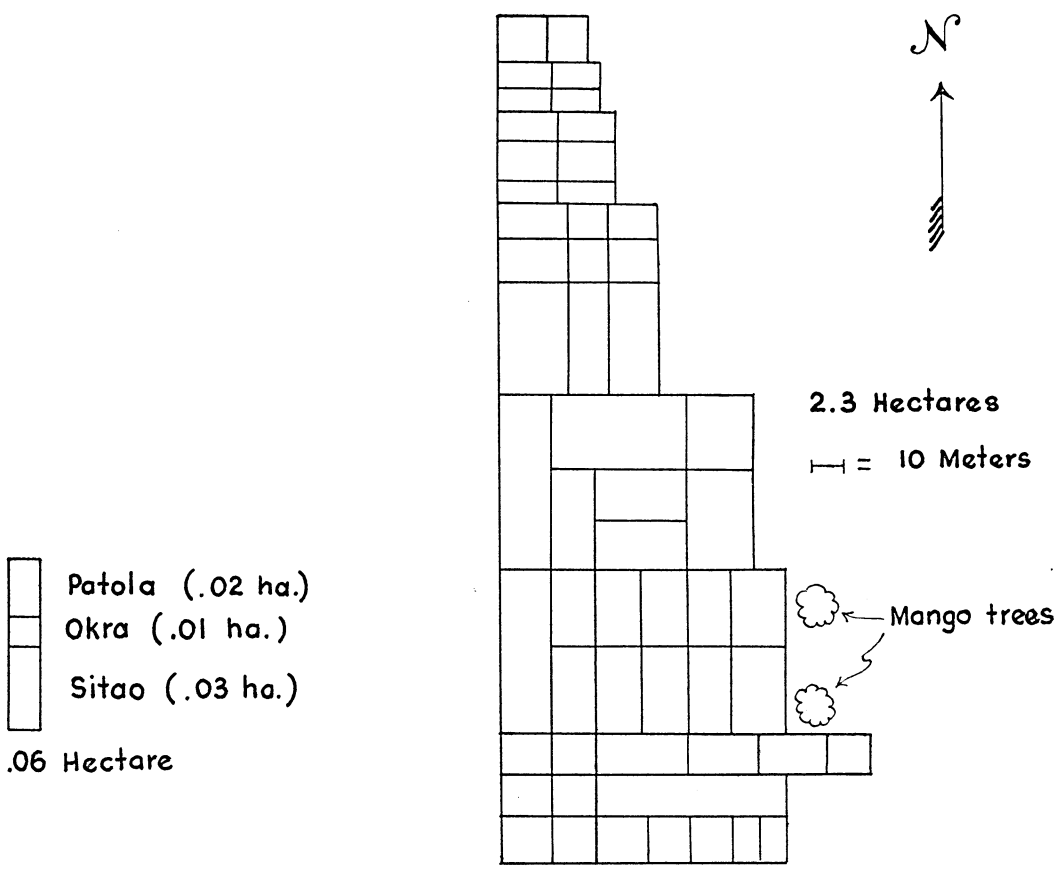


Figure 5. Miguel's rice field and vegetable patch.

Livestock and Tools

Miguel owns one male carabao used mainly for preparing the rice land in the months of July and August. During the rest of the year the carabao is even more seriously underemployed than his master. Other livestock consists of 2 hens, 2 pullets and 2 roosters, for cockfights, 8 chicks and 2 ducks.

TABLE 2. Operator's livestock inventory

ITEM	BEGINNING		ENDING	
	Number	Value	Number	Value
		pesos		pesos
Carabao	1	250.00	1	250.00
Hens	2	7.00	2	7.00
Pullets	-	-	2	3.00
Roosters	2	6.00	2	6.00
Chicks	-	-	8	1.60
Ducks	-	-	2	1.00
Total		263.00		268.60

A list of farm implements, with original cost and estimated span of service follows.

TABLE 3. Operator's farm implements

ITEM	ORIGINAL PRICE (Pesos)	SPAN OF SERVICE (Years)
Land preparation equipment		
Plow	35.00	5
Harrow	25.00	20
Halabas (large knife)	7.00	5
Bolo (large knife)	3.50	2
Hoe	2.50	10
Weeding equipment		
Pangarit (scythe)	0.40	1
Kulawit (curved knife)	0.40	1
Pandacan (sickle)	0.70	3
Harvesting & threshing equipment		
Lingkao (cutting tool)	0.75	2
Bilao (winnowing basket)	0.75	2
Yatab (cutting tool)	0.50	3
Bithay (sifter)	0.75	2
Walis (broom)	0.20	4 months
Other equipment		
Panghila (carabao harness)	0.70	6 months
Panleeg (carabao collar)	0.30	1
Pamitik (reins)	0.50	1
Buliligan (basket container)	9.00	2
Banig (mat)	2.00	3

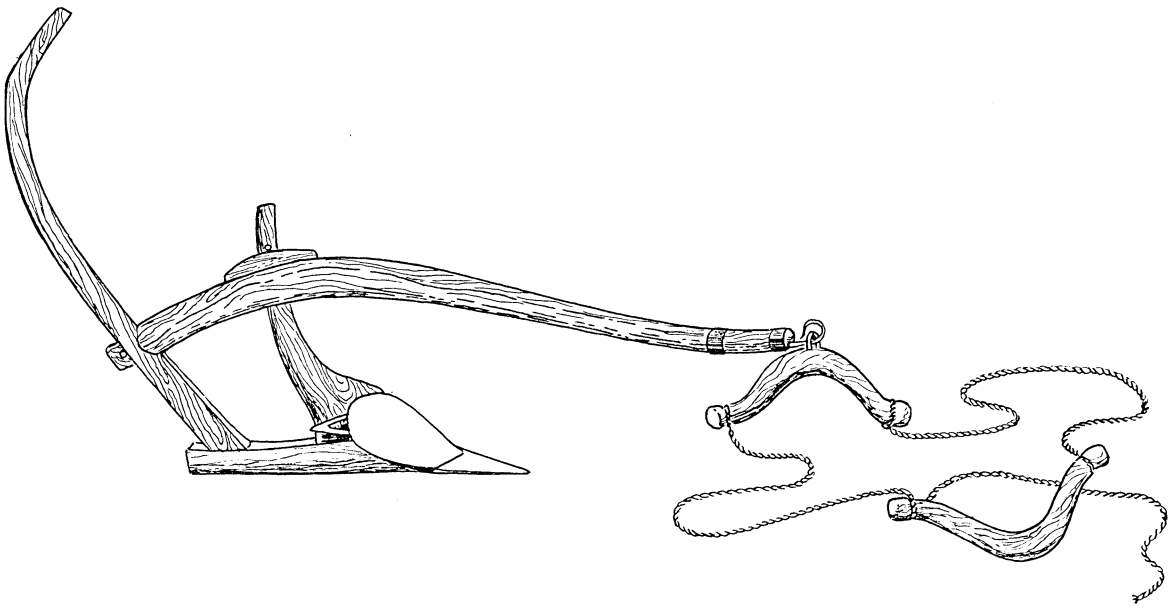


Figure 6. Moldboard plow and Accessories

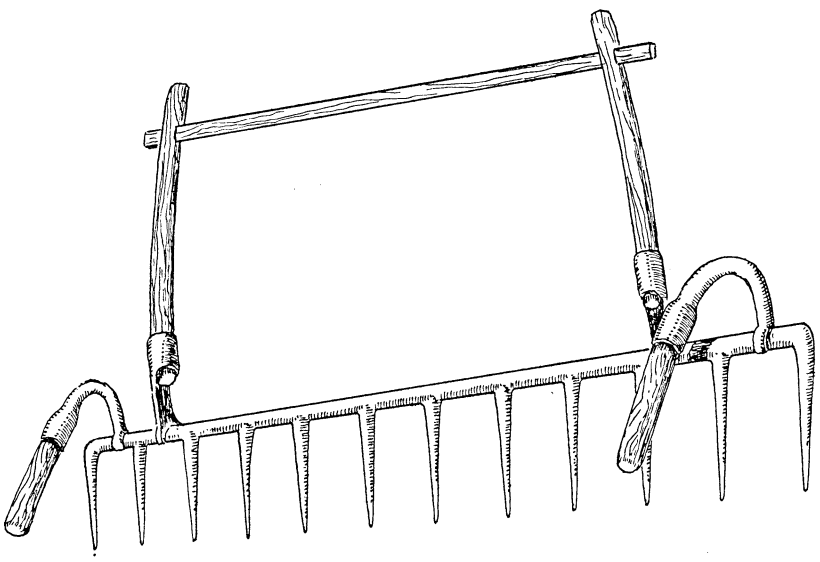


Figure 7. Harrow

Of the total farm resources valued ₱7,683 (table 4), Mang Miguel owns only ₱473 or 6 per cent. His share may increase to 8 per cent if and when he inherits the house lot from his father. Major possessions are house and carabao. The house can easily be maintained, even replaced with native, inexpensive materials. But can the carabao ever be replaced from current earnings?

TABLE 4. Farm Resources

OWNER - ITEM	VALUE	PER CENT
Landlord	pesos	
Land (2.36 hectares)	7080	92
Seeds	10	a/
Landlord's capital	7090	92
Operator's father		
Land (.04 hectare)	120	2
Operator		
Work animal	250	3
Other animals	13	a/
Dwelling	134	2
Other buildings	20	a/
Tools and equipments	29	1
Seeds	27	a/
Operator's & father's capital	593	8
Total farm investment	7683	100

a/Less than one per cent.

Human Resources

Family

At 37 Miguel is still in the prime of working age. But he complains about a painful ailment in his shoulders, which has plagued him for several years. So far no treatment or medication has given him relief.

Mrs. Miguel, Ponsang, is 32 and in good health until 10 months ago. Now she has a lump in her abdomen. She consulted a neighbor who claimed to know a similar case and the consensus was that an operation may be necessary. Of course, it would be too expensive. So she walks 3 kilometers to see a quack doctor, hoping to find relief. "I only pray to God," she says "that He will let me live long enough to set the children on their feet."

Miguel is usually clad in Bermuda shorts and a Khaki shirt. He goes barefooted. In the field he is never seen without his wide-brimmed buri hat and his sharp bolo (a large sword-like knife). Mrs. Miguel wears wooden slippers and a one-piece, shapeless dress of faded cotton.

The children's ages are 7, 5, 3 and 1 (10 months). So far no child has started school. The public grade school of Halang is less than 5 minutes from the house. Miguel himself has reached third grade of primary school; his wife does not have any formal schooling.

Source and Use of Farm Labor

For the next few years, Miguel cannot expect substantial help from his children on the farm. His wife helps to the extent her physical condition permits. Actually, her father advised her to stay home "because it is unwomanly to work on the farm." Thus the whole burden is on Miguel.

Limited supply of family labor is not a serious limitation on rice farms. The twin labor peaks, planting and harvesting, are generally tackled by hired or contract labor.

Hired labor for planting rice is recruited in the barrio from relatives or friends. Anybody can transplant rice, but special skill is required to pull the seedlings and bundle them for transplanting. Mang M pays ₱4.00 for every 1000 seedlings pulled and bundled and ₱2.00 per person per day in transplanting seedlings. It takes a day to pull and bundle 1000 or more seedlings and 20 men (or women) days to transplant 2.3 hectares of rice. Mang M does not furnish food for the planters.

Harvesting rice, although hard work, is lucrative and there are many potential harvesters. To procure the contract labor, Miguel has only to announce that he will harvest on the morrow. At the appointed time, many flock to the field. One in ten shares goes to the harvester, one in eight shares if reaping and threshing is done by the same contract workers.

With the labor peaks removed by hired and contract labor, only 79 man days are left for Miguel out of a total farm requirement of 128 man work days. Roughly half of Miguel's labor, according to his day-by-day recall, goes to the rice farm; the other half to the vegetable plot. The help of his wife is insignificant.

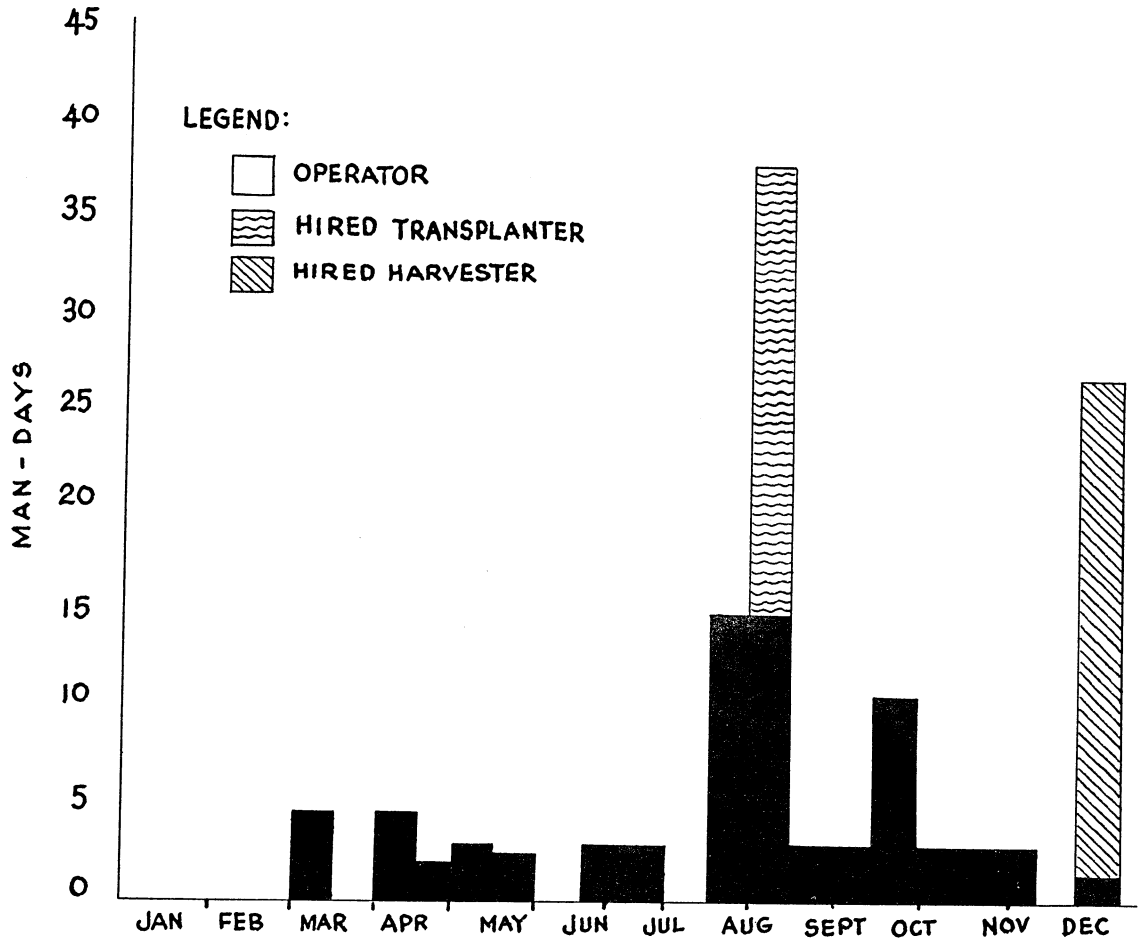


Figure 8. Labor distribution by source and half-months, January 1958 to December 1958.

Accounting for Time of Farmer and Wife

It is one thing to list the labor requirements and corresponding labor inputs on the productive farm enterprises. Such an exercise leads to the conclusion that there is little productive work on the small Asian farm and a tremendous extent of leisure or waste of farmer's time.

It is another thing to give a day-to-day accounting of a single farmer's time. The senior author in his frequent farm visits filled in time sheets for every hour of an entire 4 week period for Mr. and Mrs. Miguel. Results are summarized in tables 5 and 6 for Mang M, in tables 7 and 8 for Mrs. M. We do not learn from this accounting what it takes to produce a crop of rice. Rather we learn what it takes to make a living as a small rice farmer.

TABLE 5. Operator's use of time

ITEM	FIRST WEEK	SECOND WEEK	THIRD WEEK	FOURTH WEEK	TOTAL HOURS
Pasturing and cutting grass feed for carabao	14	12	12	10.5	48.5
Repairing sled		8			8
Harvesting bananas	5				5
Digging edible wild root crops in the mountains	16		9		25
Fishing	16	8	6	7	37
Getting firewood			4	2	6
Harvesting rice (not his own farm)			16	12	28
Drying palay				3	3
Prepared patio				11	11
Threshing				4	4
Cooking and washing dishes		6.5			6.5
Care of children	15	8	17	16	56
Total working hours	66	42.5	64	65.5	238
Out of town		16			16
Guarded house		40			40
Being with barrio friends	11	8.5	19	6.5	45
Other idle time	41	8	34	43	126
Sleeping time	50	53	51	53	207
Total hours	168	168	168	168	672

Everyday Miguel must look after his carabao. He must supplement food from the farm and store with edible wild roots, dug in the mountains, with fish caught in an irrigation ditch, with rice earned by helping others harvest rice. He must gather firewood. Threshing and drying rice take time. Of course, there is house work like care of children. Once he was out of town; another time while his wife visited relatives in another town, he stayed home to guard the house for 40 solid hours. There was time left to visit with barrio friends and even more time to be whiled away without specific purpose.

TABLE 6. Summary of accounting for operator's time, four week period, January, 1960

I T E M	HOURS	PER CENT
Farm work	72.5	15
Off-farm work	60	13
Other work	105.5	23
Other business	56	12
Idle time used	171	37
Total day time	465	100
Sleeping time	207	

Only 15 per cent of M's working hours went into farm labor, another 13 per cent in off-farm labor like harvesting and digging root crops. Miguel spent roughly half of his time working.

TABLE 7. Wife's use of time

I T E M	FIRST WEEK	SECOND WEEK	THIRD WEEK	FOURTH WEEK	TOTAL HOURS
Care of clothing	4	3	13	10.5	30.5
Cooking	21	11	20	21	73
Dishwashing	3.5	2	3.5	3.5	12.5
Cleaning the house and yard	2.5	3	5	3	13.5
Fetching water	7	3.5	7	7	24.5
Purchasing	7	4	7	7	25
Trimming the fence				3	3
Drying the palay			1		1
Milling rice			2.5		2.5
Harvesting (not own farm)				10	10
Harvesting bananas	5				5
Care of children	68	43.5	58	50	219.5
Total working hours	118	70.0	117	115	420
Visiting father		45			45
Sleeping time	50	53	51	53	207

Looking after the children took almost half of Mrs. M's working hours. Next was cooking, generally 3 hours a day, care of clothing, fetching water from the well, and shopping, each at least one hour everyday.

TABLE 8. Summary of time utilization for farmer's wife

I T E M S	HOURS	PER CENT
Household work	182	39
Farm work	6	1
Off-farm work	12.5	3
Other business	45	10
Care of children	219.5	47
Total	465.0	100
Sleeping time	207	

Occasionally, the oldest daughter (7) helps mother sweep the yard, wipe the floor, and lull the baby to sleep. The other children are too young. Until the older children can carry some of her load, mother is likely to be tied up to the house (almost 90 per cent of her time). Little time is left for helping her husband on the farm or in other income-generating activities.

A Typical Working Day - During Crop Season

The setting of this description would be the harvest season.

Early in the morning, about 3:00 a.m., the family woke but was still in bed. At 4:30, Miguel after cleaning himself up, untied his carabao from the mango tree and rode it to the pasture grounds. Ponsang started to prepare breakfast. The children played inside the house. At this time, Ponsang's brother was with the family. He woke up an hour later and helped his sister with the children. In between cooking time, Ponsang fed corn to the few chickens. At 6:00 a.m., she washed the plates and set the "table" (on the floor). Breakfast was served at 6:30. Although they have forks and spoons, they preferred to eat with their hands. After breakfast, the wife breast-fed her baby. From then on, she washed the soiled clothes, cleaned the house, and went to purchase viand for the noon meal.

Miguel, after two hours, came back to eat his breakfast. Then he went back to pasture his carabao and returned after an hour. In the house, he threshed the gleaned rice with his bare feet, bought fish from a fish vendor that passed by, and threshed again. The

children continued to play in and out of the house the whole morning. At 10:30 Ponsang started to cook. Miguel chopped wood, helped in the preparation of the meal. At this hour, visitors came casually to converse. Then the noon meal was served. The visitors were asked to partake but all refused politely. After eating, Miguel and Ponsang brought their palay to dry on a neighboring patio. After an hour they came back and swept the yard. Then both proceeded with the other visitors to harvest rice until sunset. The eldest daughter was now, after stern warnings not leave the house, incharge of her brothers and sister. She lulled the baby to sleep, wiped the floor and swept the yard. When the parents arrived, they found her asleep too.

Miguel, at sundown, amused himself talking with the other barrio men at a neighboring store. Ponsang tidied the house. Then a neighbor announced that they could get their share of the harvest. So she and Miguel rushed to the patio and carried off the day's wage. Miguel went back to the patio where the other men were while the wife prepared the evening meal. After eating, the children were put to bed. Miguel went out to guard the rice of his brother at their patio. At 7:30, the children were asleep; the mother, half-asleep. At 11:00 o'clock, Miguel arrived home, ate some rice, and went to sleep. Throughout the night, all were sound asleep except for Miguel and Ponsang. They sleep lightly for fear of being caught unawares by robbers. Their house is at the edge of the barrio. Only a few weeks ago bandits stole a carabao from a poor barrio neighbor.

A Typical Work Day - During Off-Season

The family woke up before dawn (3:00 a.m.). Miguel and Ponsang played with the children until 4:00. At 4:30, Miguel got up and fed his carabao. Ponsang prepared breakfast. The eldest daughter was asked to feed the chickens, and other children played around the house.

Daily routine for Ponsang is almost the same in any season. After preparing breakfast from 4:30 to 5:30 a.m., she set the "table" (floor) and called the children to breakfast. Dishes were set aside and Ponsang cleaned the yard. After thirty minutes, she fetched water and laundered for an hour. To be near the children she had to carry the water to the yard. It would have been easier to do her laundry work near the source of water. Then she looked after her youngest child and scolded her two sons for getting their clothes muddy. Later she hung the washed clothes on the wire fence and stayed in the house looking after the children. At 9:00 a.m., she purchased viand for the noon meal. On the way, she spent fifteen minutes talking with the other women. After thirty minutes, she came back to the house. She took a five gallon kerosene can and fetched more water. Ten o'clock was a good time to visit Ponsang, for at this time she merely engaged in loud conversation with another woman in the next lot. About 11:00 a.m. Ponsang cooked rice and prepared the bia-an for the noon meal. At twelve, lunch was served without Mang M.

After eating, the floor was wiped and dishes set aside. The children were put to sleep. Ponsang took a one hour nap herself. Then she stayed home with the children. At 3:30 p.m. she fetched water and washed the dishes, went to the barrio store to buy ayungin (dried fish) and other ingredients for viand, and ten centavos worth of gas for the evening light. The remaining time was devoted to the preparation of the evening meal (one hour), supper (thirty minutes), tidying the house for the night (thirty minutes), helping the children to sleep (one hour). By 7 p.m. the children were already asleep.

Miguel's schedule for the day was different. He went to the mountains to dig wild root crops. There were no ricefields to harvest yet and not much to be done on the farm. At 6 a.m., with his wide buri hat and a sharp bolo on his side, Miguel walked barefoot the three kilometers from his home lot to Matang-Tubig. All morning he roamed the mountain digging Keroe, a meter long wild tuber plant. He also looked for Tongo, another tuber plant. These plants supplement their daily diet. At noon, Mang M ate his binalot (rice wrapped in banana leaves). He resumed his search for root crops. Keroe and tongo are not so plentiful; only a third of the jute sack was filled. "Perhaps", he said, "there are more farther in the mountains where I dare not go for fear of bandits". On the way home, Miguel gathered firewood, bundled it, and brought it home. At 5:30 p.m., he reached home, got his cock, and proceeded to the nearby store where other men passed their time. Miguel amused himself with a good cockfight.

Tired from the day's work, Mang M slept with the children early (7:30). Before sleeping, he and his wife talked about the day's affairs. All night the gas lamp burned for fear their poorly constructed house would yield to robbers.

Asked about night activities Miguel related that some nights he would go with other men to hunt frogs near the drainage canals. Having caught a good number of frogs, they proceeded to a house and enjoyed a midnight frog party.

Field Operation

Land Use Pattern

Miguel's crop year begins with ten days of clearing in March and April on the vegetable patch (figure 5), followed by planting of these crops in May. Except for seven days of weeding in May and June and 1.75 days for rice seedbed preparation in July, there is no field work until August. From August on intermittent harvesting is done on the vegetable fields. August is also time for preparing the rice land and for transplanting the rice plants. Replanting rice took some time in October, hardly any weeding was done. Harvesting and threshing of the rice crop occurred in December, all by share (contract) labor. So this took little of Miguel's time.

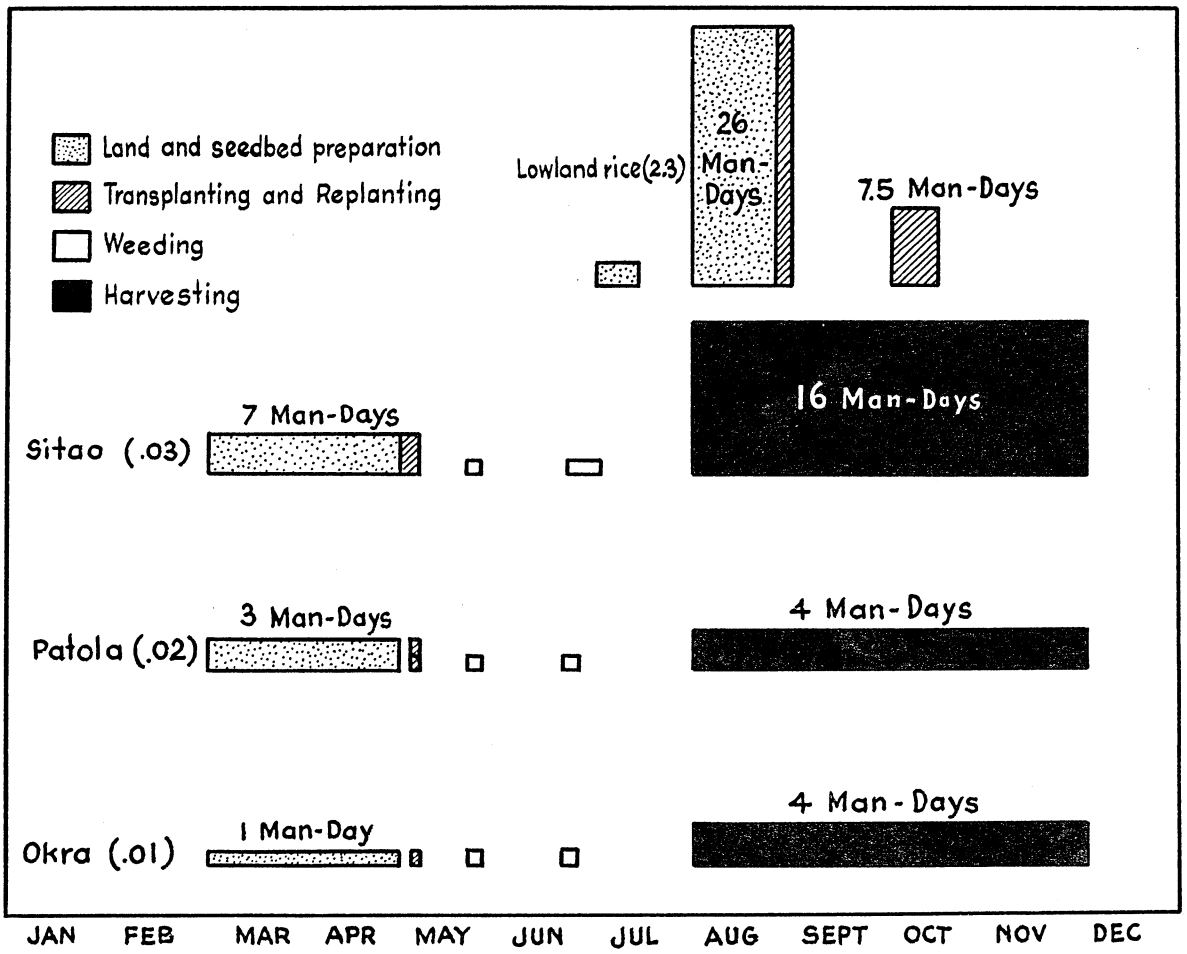


Figure 9. Land-use pattern and distribution of operator's farm labor inputs, January 1958 to December 1958.

Cultural Practices

Sitao (Pole Beans)

Miguel begins work on the vegetable patch in March. With his sharp bolo he cuts cogon grrass and brush. He clears the .06 hectare patch within 3 days. A month later he returns to burn the dried grass. The process is repeated once or twice. With the beginning of rainy season in May he starts making holes with the hoe, 2 inches deep and 6 inches in diameter, spaced 3 feet in and between rows. He drops two seeds in every hole, shoving a thin soil layer on them with his feet. Then he prepares branches of Ipil-ipil (Leucaena glauca), 2 meters long. These he inserts as a trellis for the emerging bean plants. Occasional weeding and clearing of grass around the plants cuts down the competition and reduces the danger of being bitten by poisonous snakes. Miguel does not fertilize nor spray for the control of insects. Sometimes he "smokes the plants to drive away the insects."

Harvesting begins almost 3 months after planting. Early in the morning, "the best time to prevent new flowers from falling", he picks the green long pods. Carrying them home, he leaves it to Ponsang to sort and bundle them in bundles of 100 pods. She sells them to the barrio store at ₱0.15 per bundle. Harvesting is done twice a week, for a period of 4 months. Selected pods are stored and dried for seed.

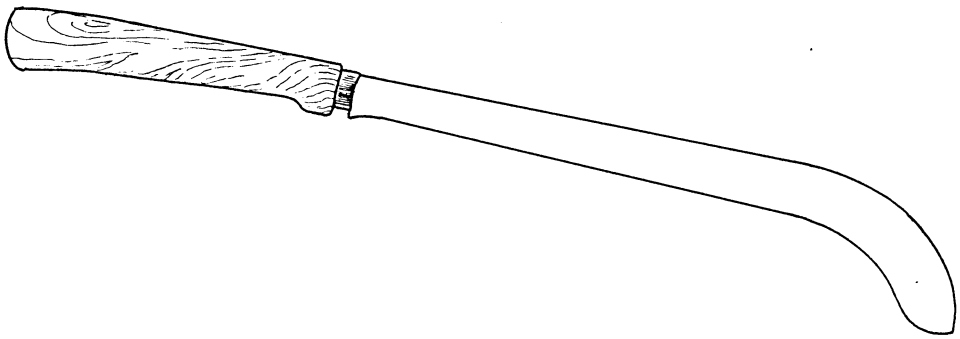


Figure 10. The kulawit, a small tool used for cutting itchy or thorny weeds.

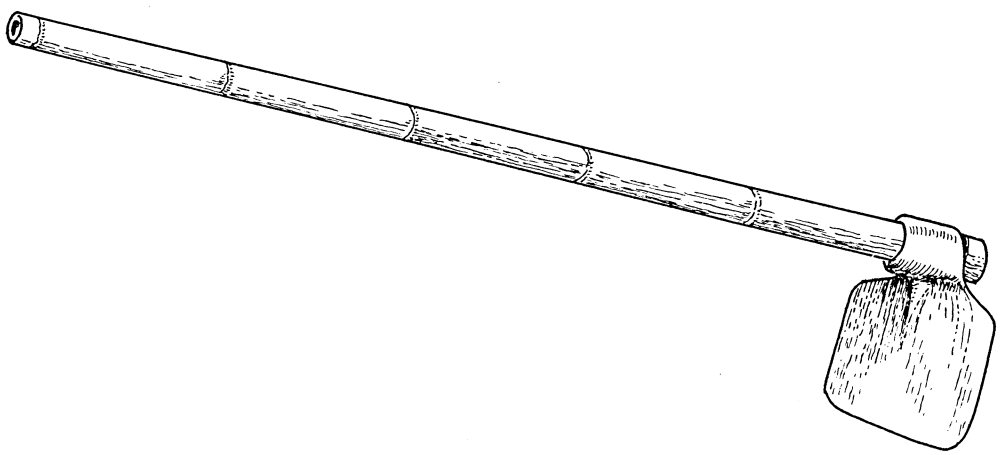


Figure 11. The hoe with an iron blade and a bamboo handle.

Patola (Gourd)

Land preparation, planting and weeding for patola follow the same pattern and timing as for sitao. Ipil-ipil branches are likewise used for a make-shift trellis. Miguel does not bother to make a permanent wire trellis. Nor does he fertilize or spray this crop.

Harvesting once a week begins in August. Green fruits cut with a bolo are carried home in a jute sack. One fruit is left for home consumption, the rest are sold at ₱0.01 per fruit. Some damaged or mature fruit are given away to neighbors as pig feed. Some dried gourds are suspended under the roof for seed in the next planting season.

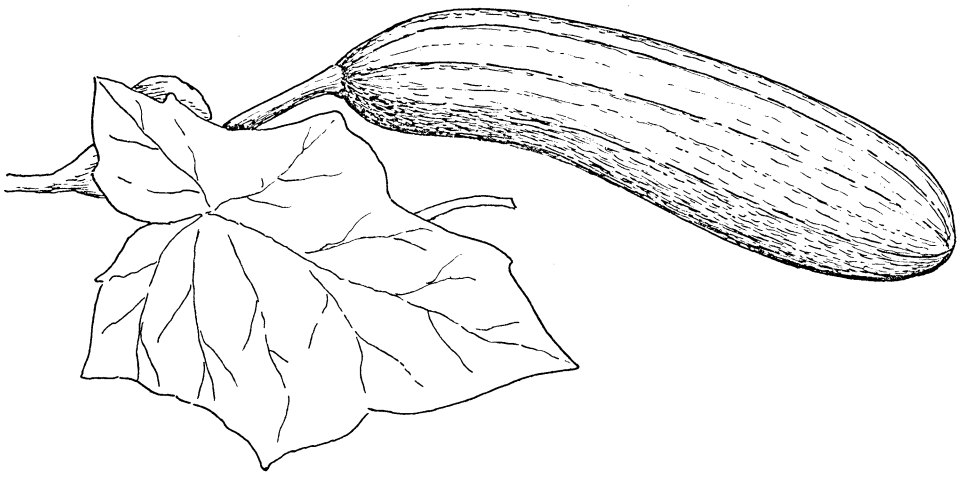


Figure 12. A patola fruit.

Okra

The size of the okra patch is less than one hundredth of a hectare. Land preparation, planting, weeding and harvesting follows about the same pattern as for sitao and patola. According to Miguel, this plant receives even less care. It is easy to grow and, consequently, there are times when it cannot be sold in the barrio store. When the market is good it fetches ₱0.10 per 100 fruit. No bundling or sorting is necessary. Miguel saves his own okra seed.

Rice

Growing Seedlings

Two rice paddies (about 120 sq. meters) are prepared in July for the rice seedbed. After a heavy rain the paddy is plowed. Three successive harrowings, at intervals of

about 2 days complete the task of breaking the clods and killing the weeds. Then the paddy is leveled and smoothed with a board. When about two inches of rainwater have accumulated, Miguel broadcasts rice seed. A day later he drains the water to prevent the seeds from being "cooked." The water is replenished by rain. Thirty to forty days later the seedlings are ready for transplanting.

Land Preparation

Early in August preparation of the rest of the 2.3 hectares begins. The timing depends on availability of rainwater as the field must be thoroughly soaked before it can be plowed. Now Miguel mends the dikes by scooping clay soil from the paddy and dumping it on the dikes. He tramples soil into the dike and pads the surface by hand. After the first and second harrowing he trims the dikes with the halabas (figure 13) to make them "beautiful and clean." After the third and fourth harrowing the field is ready.

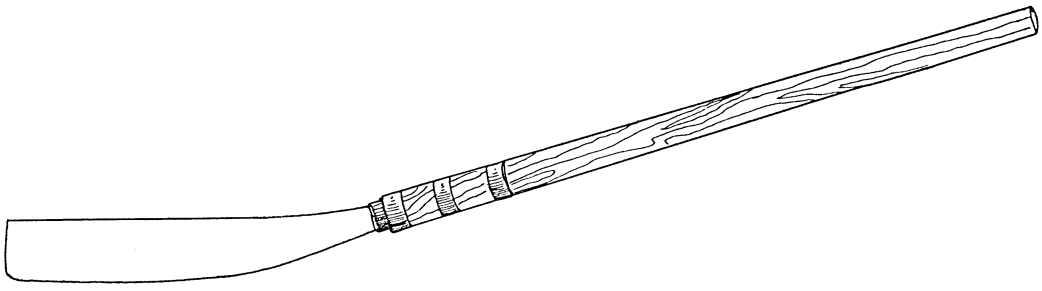


Figure 13. The halabas, a large bolo operated by both hands. It is used to trim the dikes.

Figure 14. The itak, a bolo smaller than the halabas. It is operated with one hand to trim the edges of the dike.

Transplanting

First, the seedlings are pulled and bundled by skilled persons. Bundles of 30-50 seedlings are carried to the field and stored on the dikes. Transplanting is done by men and women on a piece rate basis.

The planters line up facing the dike at one side of the paddy, each planting 3 to 5 rows covering about a meter. In the left hand is a bundle of seedlings. With the right hand 2 or 3 seedlings are stuck in the mud with rhythmical motion. The planter works bent at the waist and walking backwards. As needed, a new bundle of seedlings is thrown from the dike to the planter. Time passes with teasing, joking and contests on who can plant the fastest.

Field Care

When the planting is completed, Miguel says the field is "closed," meaning little work is needed from now until harvest. He does not apply fertilizer. He does not spray against insects and disease as it is "not within my means." He has "no time to weed". All he does is visit the field occasionally and replant where carabaos have trampled the rice.

Harvesting and Threshing

A day or two before he plans to harvest, Mang Miguel prepares a 15 square meter piece of land as a threshing floor or patio. He cuts the rice and flattens the area by hand with a board fastened to a piece of log for weight. Then he mixes carabao manure and water into a thick paste and spreads it evenly over the ground. When dried, the patio is almost as solid as cement.

At this point Miguel tells the landlord the field is ready for harvest. The landlord provides jute sacks to contain his harvest share. Miguel announces to his friends that he will harvest tomorrow. The news spreads like grass fire and at the appointed hour a crowd of men and women appear.

Harvesters work fast as the more one reaps the greater his share. The stalks are cut with small hand tools. With the many helpers the 2.3 hectares are harvested within three hours. Harvesters receive 1/10 of what they reap. If they also do the threshing their share is increased to 1/8.

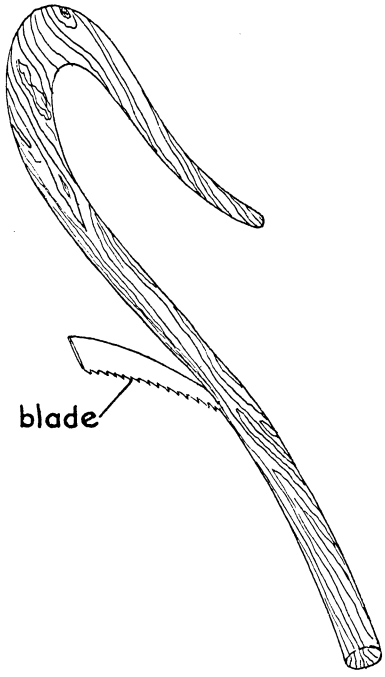


Figure 15. The lingkao, a rice harvesting tool.

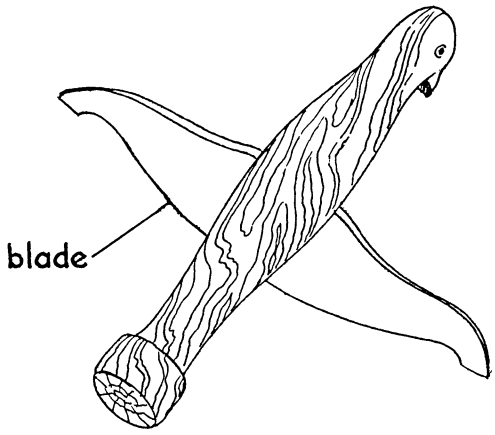


Figure 16. The yatab, also a harvesting tool. It cuts only one stalk of rice every single close-open motion of the fingers.

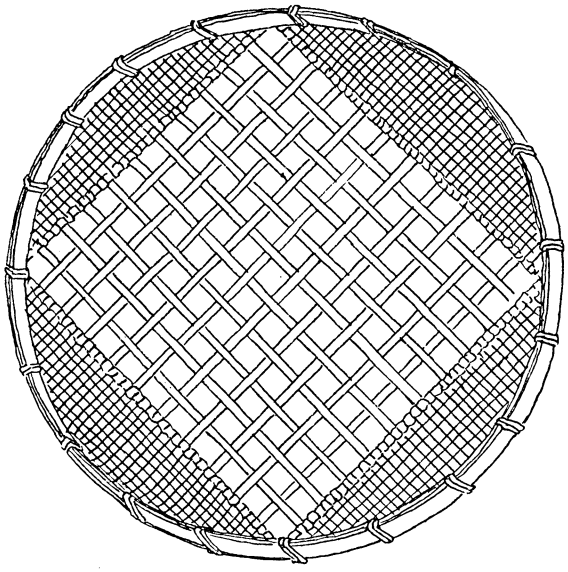


Figure 17. The bithay is used as a sifter to segregate the rice grains from its impurities.

Threshing is done in bare feet on the patio floor. Men and women step on the panicle end of the rice bundles and shuffle about, dislodging the grain from the straw. The straw is discarded and the grain is thrown into the bithay (figure 17).

In winnowing the bithay is raised, shaken and grain is sifted from the impurities. The process is repeated with a small-mesh bithay. During the winnowing chaff is blown away by the wind. Threshing is generally done at night by kerosene lamps. As soon as it is completed the harvesters, threshers, and landlord receive their share. Creditors also come to demand what's due to them. Mang Miguel is lucky if he has any grain left to feed his family.

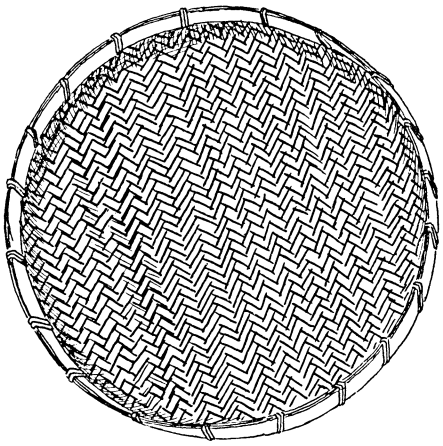


Figure 18. The bilao (winnowing basket)

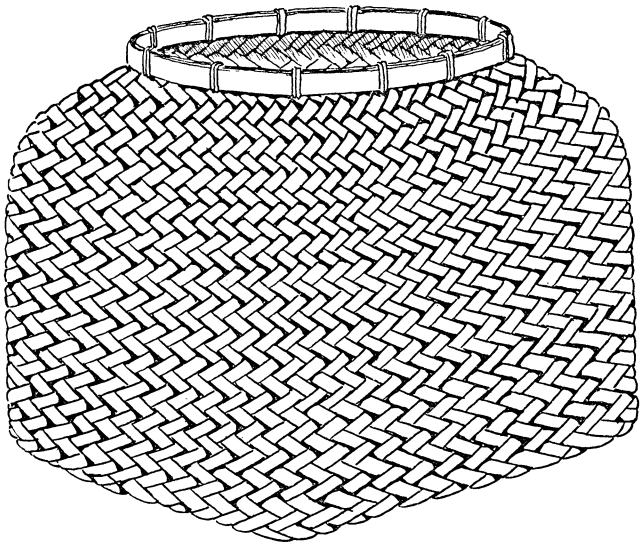


Figure 18a. The buliligan, a container for storing rice or corn grains, lined with carabao manure.

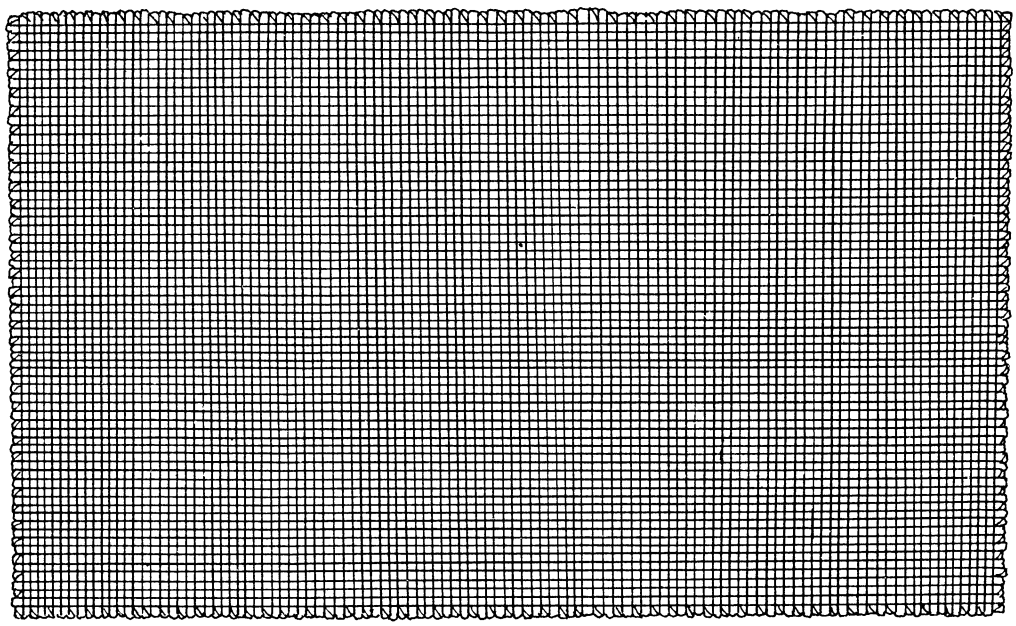


Figure 18b. The banig (mat) used for drying palay under the sun.

Money Side of Farm and Household

Farm Output

Miguel sells neither chickens nor pigs nor other livestock products. His income flows only from his farm crops. Occasionally he renders services to other farmers planting and harvesting their rice. What did he get from these activities?

TABLE 9. Disposal of lowland palay from 2.3 hectares and off-farm palay income

I T E M	CAVANS	PER CENT
2.3 hectare farm		
Landlord's share	15	31
Planters' share (advanced by landlord)	9	19
Harvester's & thresher's share	7	15
Seeds	2	4
Operator's share		
To creditor	14.5	30
Home use	.5	1
Total Yield	48	100
Off-farm harvest earnings		
Sold	16	80
Home use	4	20
Total Off-farm	20	100

When landlord, planters, harvesters and creditors had received their share from the 2.3 hectares, there was one half cavan palay (22 kilos of rough rice) left for his own family. Fortunately, he and Ponsang earned some additional palay as harvesters. From this they sold 16 cavans to raise some badly needed cash and retained 4 cavans for home consumption. Needless to say that this amount would be equivalent only to one adult's annual rice needs. Perhaps they could earn some more as harvesters; otherwise they would have to buy or live on borrowed rice before the start of the new harvest.

Receipts and Expenses

For a subsistence farmer like Miguel, conventional farm business analysis has limitations. First, he does not operate a farm business; second, because of his chronic indebtedness, the so-called farm receipts consist largely of money values which he had obligated before the grain was separated from the straw. Landlord, planters, harvesters and creditors took possession of their share right in the threshing patio. Their portion never reached his farmstead.

A monetized account of his receipts and expenses is shown mainly for three reasons. First, that even a subsistence farm family's consumption has monetary value. Second, to discover possible errors and omissions. Third, to understand better how Miguel and Ponsang make ends meet.

TABLE 10. Farm and Off-Farm receipts

	LANDLORD	OPERATOR	FARM
		pesos	
Farm Receipts			
Cash:			
Crops sold: Rice	175.5	172.5	348
Vegetables	-	30	30
Total Farm Cash Receipts	175.5	202.5	378
Non-cash:			
Harvesters' & threshers' share	49.5	49.5	99
Seeds (Rice & vegetables)	10	21	31
Crops used at home		23	23
Livestock used at home		1	1
Charge for use of dwelling		13	13
Total Farm Receipts	235	310	545
Off-Farm Receipts			
Cash:			
Sale of 16 cavans rice @ ₱9		144	
Wage as hired laborer		16	
Non-cash:			
Rice for home use		40	
Wild root crops		104	
Fish		29	
Total Farm and Off-farm Receipts		643	

TABLE 11. Farm expenses

	LANDLORD	OPERATOR	FARM
Cash			
Hired man labor	42	42	84
Other cash expenses (rent of vegetable patch)		5	5
Total cash	42	47	89
Non-cash			
Shares in kind for services	49.5	49.5	99
Decrease in inventory	10	11	21
Total non-cash farm expenses	59.5	60.5	120
Total farm expenses	101.5	107.5	209

Rather than computing various measures of farm income we may ask two questions. What net return did Miguel obtain from his farm business? How much net cash income did he receive to pay his debts and living expenses for the next year?

Net Returns from Farming

Operator's farm receipts	₱310.0
- Operator's farm expenses	107.5
Net to operator's labor and capital	₱202.5
- Charge for use of operator's capital @ 6%	28.0
Net Return to Operator's Farm Labor	₱174.5

Net Cash Farm and Off-Farm Income

Cash Farm Receipts	₱202.5
- Cash Farm Expenses	47.0
Net Cash Farm Income	₱155.5
+ Cash earned in Off-Farm Harvest	160.0
Net Cash for Debts and Living	₱315.5

Household Expenditures

Day-to-day living expenses were obtained from Ponsang for a four week period. Frequent visits were made to shorten the recall period.

TABLE 12. Family cash living expenses

I T E M	FIRST WEEK	SECOND WEEK	THIRD WEEK	FOURTH WEEK	TOTAL AMOUNT
Viand					
Fish	1.70	1.30	1.75	1.73	6.48
"Salting"	.98	.39	.62	.71	2.70
Other ingredients	.59	.29	.78	.55	2.21
Lard	.63	.19	.54	.67	2.03
Coffee	.35	.15	.50	.35	1.35
Sugar (refined)	1.05	.25	.65	.70	2.65
Milling rice	1.20				1.20
Gas	.70	.70	.70	.70	2.80
Soap	.50	.50	.50	.50	2.00
Medicine	.15				.15
Personal (Betel nut)	1.40	.60	1.40	1.40	4.80
Bus fare		4.40			4.40
Soft drinks		1.20			1.20
Total	9.25	9.97	7.44	7.31	33.97

In like manner, the non-cash items were recorded and values were assigned.

TABLE 13. Family non-cash living expenses

I T E M	FIRST WEEK	SECOND WEEK	THIRD WEEK	FOURTH WEEK	TOTAL AMOUNT
Products from farm					
Rice	5.25	4.30	5.25	5.25	20.05
Others					
Root crops	2.50	2.66	3.50	3.50	12.16
Fish			1.95	.50	2.45
Papaya			.20		.20
Banana			.10		.10
Coconut				.15	.15
Mongo				.20	.20
Charcoal	.80	.80	.80	.80	3.20
Total	8.55	7.76	11.80	10.40	38.51

Rice was the only farm product. Vegetables would not bear fruit until next August. Hence Miguel made regular trips to gather wild root crops. He also caught some fish, got banana, papaya and coconut from neighbors.

Making Ends Meet

According to our computation, Miguel had ₱315.50 for paying debts and living expenses; from this we must deduct 172.50, value of 14.5 cavans palay to creditors. ₱143 are then available for cash living expenses.

But Ponsang and Miguel spent ₱33.97 during the four week period of our visit. Granting that ₱4.40 bus fare is an exceptional expense, we may deduct this and we may assume that ₱30 is the average cash living expense per month, or ₱360 per year. At harvest time Miguel and Ponsang had less than half this amount, ₱143. The rest would have to be borrowed.

In addition Miguel will have to borrow about 10 cavans of palay to feed his family. Home consumption may range from 12 to 15 cavans, but so far they had only 4.5 cavans for home consumption. Of course there is a chance that they might earn some more as harvesters. Even then they will have to borrow to finance the planting of next year's rice.

Credit Practices

Having little or no security, Miguel and Ponsang must get their credit where no collateral is required. Fortunately, they have two good sources, the landlord and the storeowner, a relative. The landlord advances palay for subsistence and pays for the planters. He may help in emergency. He charges no interest. When he advanced palay at planting time, Miguel was charged ₱10 per cavan. When Miguel paid at harvest time he was credited ₱9 per cavan. Considering seasonal price fluctuations, Miguel has no reason to complain.

Mrs. C, the storeowner, has a charge account for Miguel and Ponsang. She has an interesting method of accounting. In her notebook she reserves one page for each debtor (see figure 19).

Figures must be read from right to left. The first two digits from the right are centavos, the third, fourth, etc. would indicate pesos. If a line is drawn around the numbers, the account is paid or "closed". In our illustration, ₱4.05 and ₱3.10 were paid, ₱0.90 were current open account. The amount of ₱34.95 has been brought forward from another page during the "last fiscal period."

No record is made of the date or the item purchased. Miguel and Ponsang keep no record of their credit purchases. Miguel's vegetable sales to the store are credited to his account. He must accept whatever price Mrs. C is willing to pay. Nor can he buy where groceries are least expensive. Others will not give him credit. But Mrs. C is fair, she is Ponsang's cousin. She does not charge interest on the unpaid balance.

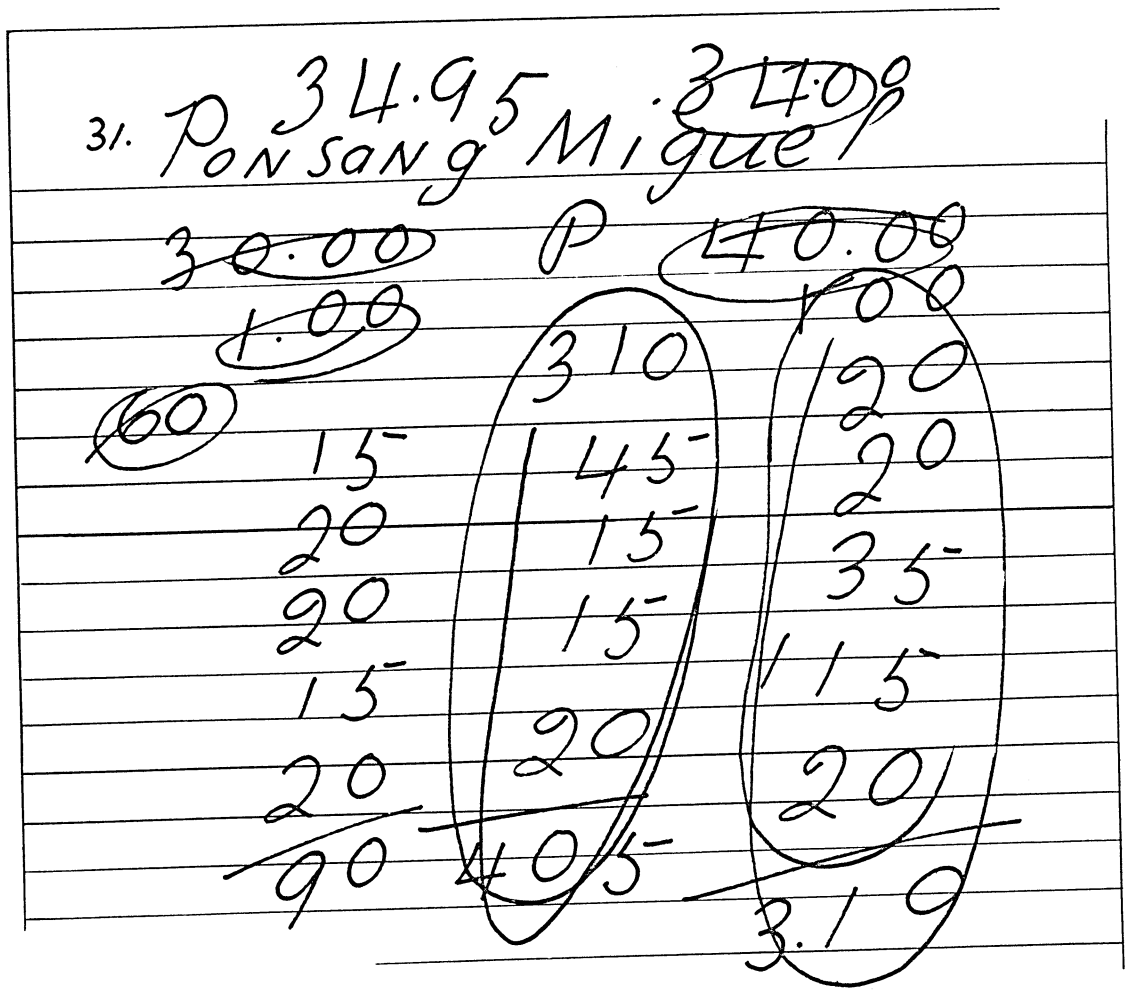


Figure 19. An illustration of the storekeeper's accounting system. Taken from Mrs. C's 1957 credit book.

Family Ties

Miguel and Ponsang are related to 76 families out of tne 96 in the barrrio. Aside from this consanguinity, they have especially close ties with 23 households (figure 20). These families supply their rice planters. A more intimate contact is maintained with five households with whom Miguel exchanges gifts. They share a slice of squash, a couple of dried fish, a bunch of bananas, etc. Sharing is mutual, not a one-way traffic. It is in this informal, unbusiness-like arrangement, this unconscious mutual concern that barrio people share the daily ills and fortunes.

Two Final Questions

Having sketched Miguel's farm and family resources we may pose two questions. First, given his resources and the technology available to farmers in his country, are there alternatives that would enable Miguel to farm more profitably and to enjoy more material goods?

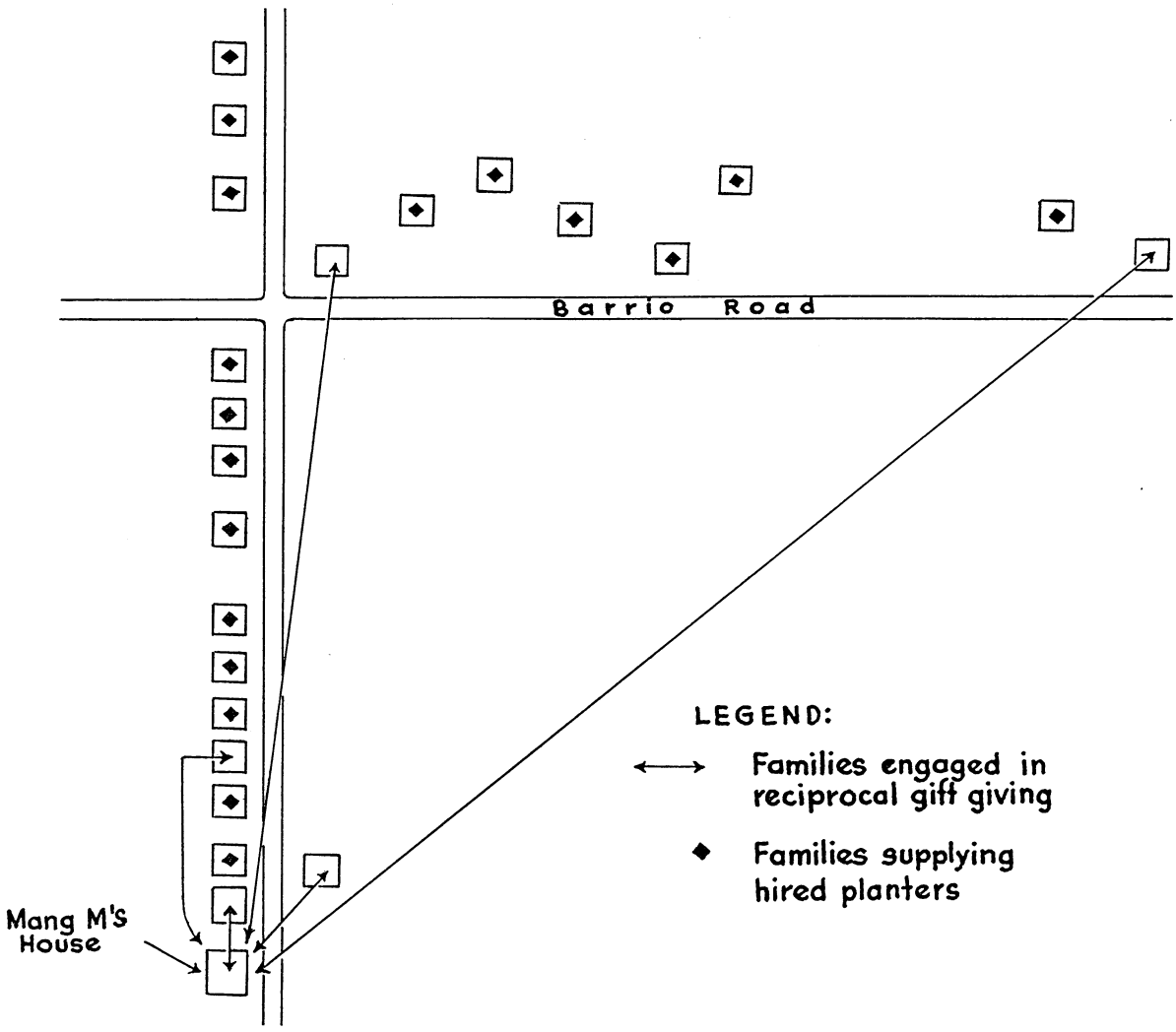


Figure 20. A diagram showing the concentration of Mang M's economic activities in the barrio from point view of association.

Undoubtedly, Miguel could do better in his rice farm. His yield, now below the national average, could be improved by a change in variety, perhaps by fertilizing and insect control, certainly by better care through weeding and more regular water supply. Possibly Miguel could raise his seedlings on a neighbor's irrigated field earlier in the season. He could then transplant earlier, to take full advantage of rainfall for the growing crop. This would avoid drought periods.

Other tenants, only a short distance from his field, operate small irrigation pumps supplied by the landlord. Their fields produce more than twice Miguel's yield per hectare. Some have shifted to early maturing varieties and grow a second rice crop. Others produce pole beans and other secondary crops in the dry season.

The second question is, to what extent is Miguel aware that these alternatives exist for him? To what extent does he make conscious

choices? On his rice land he has never planted anything but rice. He prepares the land when the neighbors do, uses the variety provided by the landlord, goes to fish when the wife asks for viand, gathers tubers when she is short of rice, has not made any effort to keep more chickens or pigs in his yard. If he sees neighbors farming more progressively he says "that is beyond our means." He seems prompted to action by circumstance, not conscious decision.

Nevertheless, Ponsang and Miguel hope to earn more some day and have clearly defined wants to satisfy with the extra income. Ponsang wants a more permanent house and a good kitchen; Miguel would like to own a piece of land. For their daughters they aspire to grade school education, good clothing and husbands of good character. For the sons the goal is high school education, so they can "work for government and have a salary."

These are their expressed motivations but they don't seem to affect their behavior. They are fatalistic, saying to everything "bahala na sa Dios" (leave it to God). What can really motivate them to work for more than they need to get by?

Just across the barrio lane from the farmstead of Mang Miguel stands the house of Mang Juan, a relative. Mang Juan is more fortunate. His rice farm, the second to be described, has been provided with pump irrigation which enables him to grow a second crop of rice on part of his land. Some of his operations give evidence of the use of new agricultural techniques.

Physical Resources

Home Lot

Mang Juan has the use of a 21 by 29 meter home lot (figure 21). It is valued at ₱180. The owner (not his chief landlord) asks no rent but is unwilling to sell the lot. The only building is the 7 by 9 meter house. The yard contains a mango tree, a star apple tree, 3 tamarind trees, a trellis of squash and an untended eggplant patch. A crude fence converts the area into a pen for the pig and two carabaos. Firewood is stacked in the yard. A shallow hole in the far corner of the lot serves as a latrine.

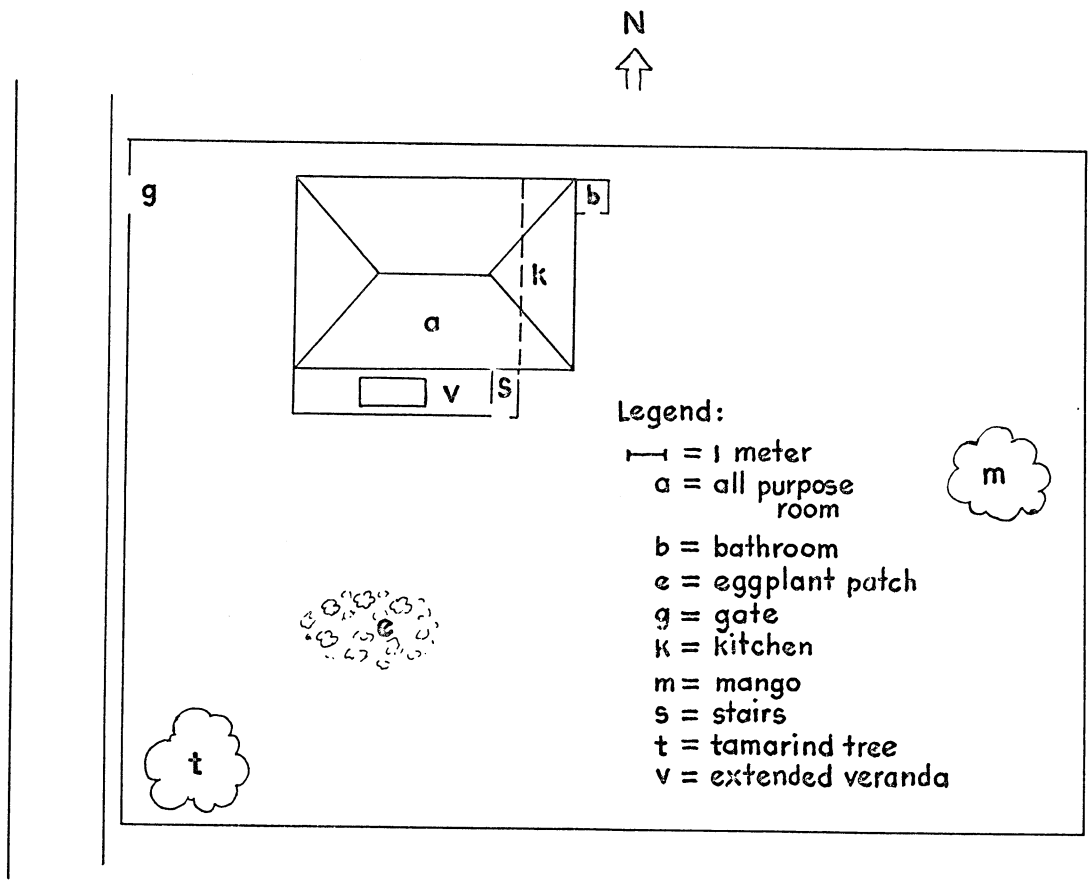


Figure 21. Mang J's .06 hectare homelot. This diagram shows the location and partitioning of the house, and the plants found in the yard.

The house conforms to a common pattern. Raised on hardwood posts, its walls are sawali (woven bamboo) its roof cogon grass, its floors bamboo strips placed one centimeter apart. It contains one large multipurpose room, a small combined kitchen and dining room, an unwalled veranda for siesta purposes and a bathing enclosure. The space under the house is used to store farm implements and provide shelter for the chickens and pig in case of rain.

Household equipment is simple. A well-varnished clothes closet, a chair and a crude table are found in the main room. At night, mats, pillows and thin blankets are spread on the floor for sleeping. On the veranda in front a bamboo bed is used for daytime siestas.

The kitchen contains the usual elevated clay stove and a few bamboo shelves to store clay pots, galvanized laundry basins, a few aluminum plates and cups, forks and spoons. Mang Juan values his house at approximately ₱176.

Farm Land

Juan rents a roughly L-shaped piece of land of 2.78 hectares (figure 22) with clay-type soil, terraced into 108 small patches. As it is situated among other rice fields, the boundaries are not easily discerned by an outsider because there are no lines of demarcation. The farm is about 500 meters from the home lot.

To supplement rainfed irrigation Juan uses a three horse power pump installed by his landlord. Water flows from the pump along a canal dug at the eastern edge of the farm. It is admitted from paddy to paddy through a hole chopped in the dikes. The pump irrigation system is shared with four adjoining farms, operated by other tenants.

The 2.78 hectare field is divided into three parts. On two of them (marked Panahon) Juan raises one crop of rice, dependent primarily on rain. In the middle section of .7 hectare (marked Palagad) Juan is able to raise two crops of rice with the help of pump irrigation. Juan is restricted to .7 hectare of double-cropping by the scarcity of irrigation water. The pump does not supply enough water to permit rice to be grown on the total hectarage of the five farms during the dry season. Juan shares all his rice crops 50:50 with his landlord.

In addition to his rice farm Juan has taken over .18 hectare of land at the northern edge of the field as a vegetable plot (figure 22). The land belongs to his landlord but is unsuited to rice. Hence the landlord makes no charge for its use. Here Juan raises .12 hectare of sitao beans and .06 hectare of eggplant. This vegetable project is relatively new. Just two years ago Juan and his wife observed the profit other farmers were obtaining from vegetables and decided to try it themselves.

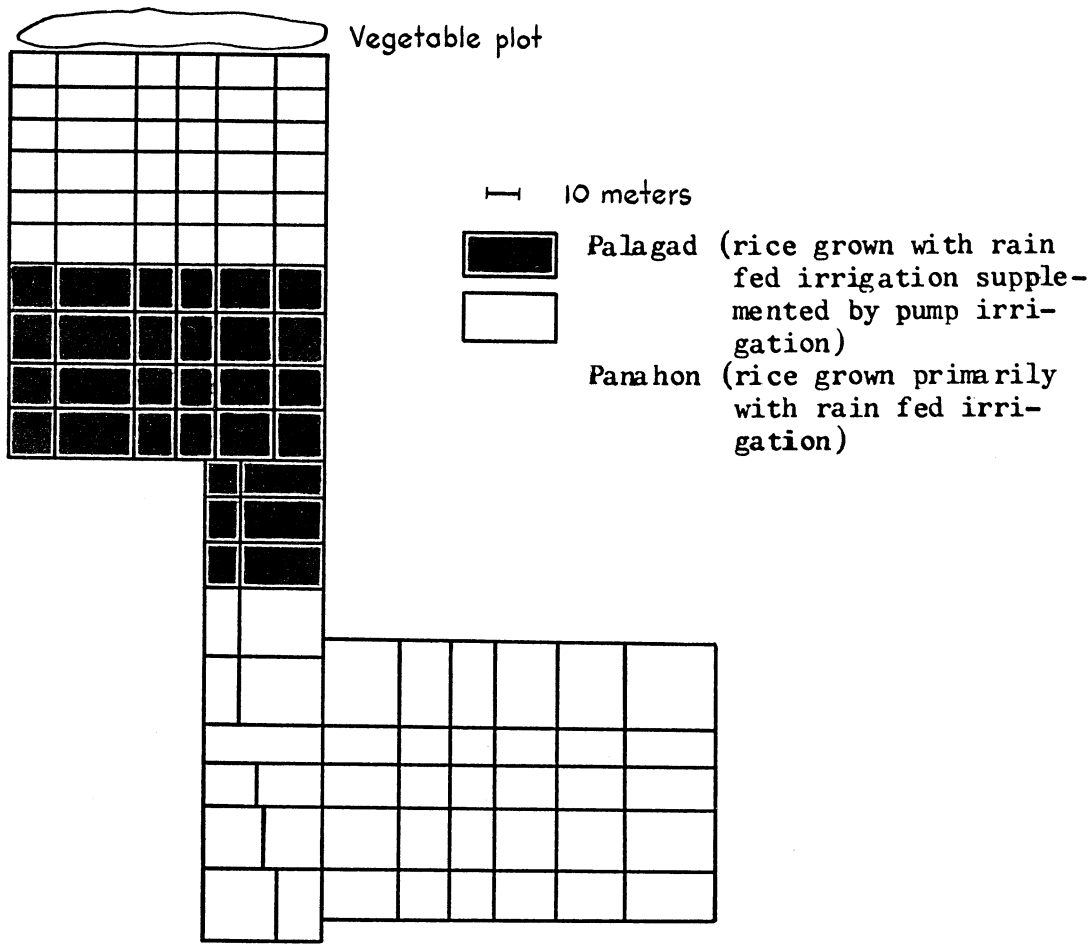


Figure 22. Mang J's rice farm and vegetable patch.

Livestock and Tools

During the crop year under study Juan owned two working carabaos used mainly for preparing the rice land. Other livestock consists of a pig, 3 hens, 1 pullet and 4 chicks. Subsequently, just two months ago, Mang Juan was forced to sell one of the carabaos to pay for a doctor and medicine when he got sick. It was his only asset easily convertible to cash.

A list of farm implements with present values and estimated span of service follows.

TABLE 14. Operator's livestock inventory

ITEM	BEGINNING		ENDING	
	Number	Value	Number	Value
		pesos		pesos
Carabao	2	500	2	500
Pig	1	42.5	1	85
Hens	2	5	3	7.5
Pullets	4	6	1	1.5
Chicks	14	2.8	4	.8
Total		556.3		594.8

TABLE 15. Operator's farm implements

ITEM	NUMBER	PRESENT VALUE (Pesos)	SPAN OF SERVICE (Years)
Land preparation equipment			
Plow	1	30.50	5
Harrow	1	7.00	2
Halabas (large knife)	1	3.00	2
Hoe	1	2.50	10
Weeding equipment			
Pangarit (scythe)	1	0.50	2
Harvesting and threshing equipment			
Pitchfork	1	5.00	5
Lingkao (cutting tool)	3	6.00	2
Bilao (winnowing basket)	1	0.75	2
Bithay (sifter)	1	0.75	2
Walis (broom)	2	0.30	4 months
Other equipment			
Paragus (sled)	1	10.00	3
Banig (mat)	1	2.00	2
Panghila (carabao harness)	1	0.70	6 months
Panleeg (carabao collar)	1	0.30	1
Pamitik (reins)	1	0.50	1

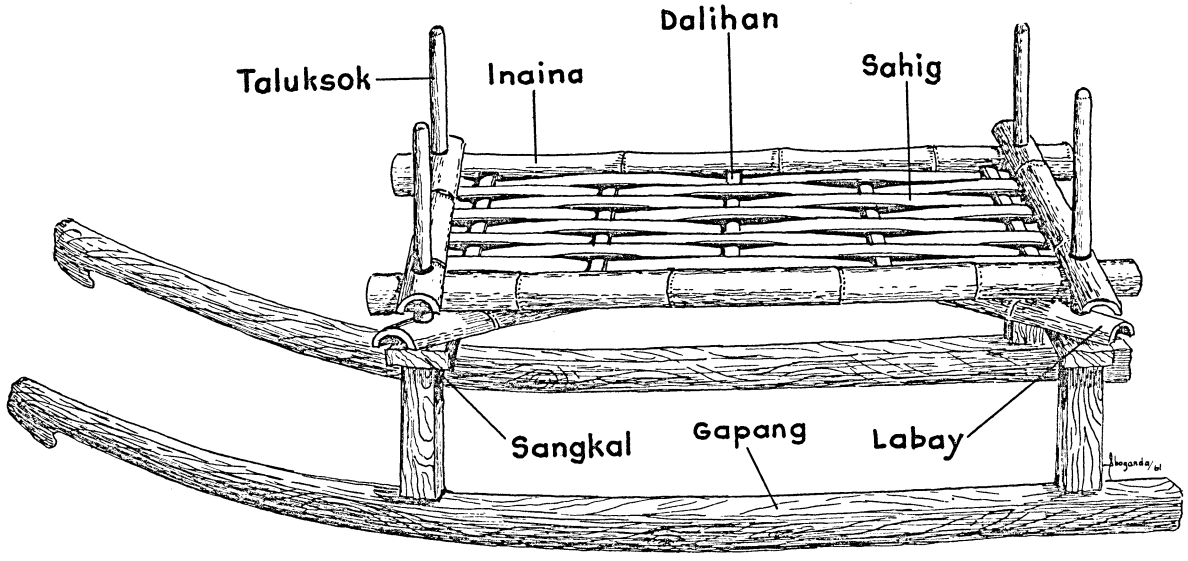


Figure 23. The paragus (sled) - fitted for mud paths.

Of the total farm resources valued at ₱10,378 (table 16) Mang Juan owns only ₱842, or 8 per cent. Major possessions are his house and carabaos. His house can easily be repaired or replaced with native, unexpensive materials. But now that he has been forced to sell one carabao he owns even less. How will he ever replace it from current earnings?

TABLE 16. Farm resources

OWNER	ITEM	VALUE	PER CENT
		pesos	
Landlords			
	Farmstead (.06 hectare)	180	2
	Rice paddy (2.78 hectares)	8340	80
	Vegetable field (.18 hectare)	500	5
	Machinery (1/5 share of pump and engine)	500	5
	Seeds (2 cavans)	16	a/
	Landlords' capital	9536	92
Operator			
	Work animals	500	5
	Other animals	75	0.5
	Dwelling	176	2
	Tools and equipment	67	0.5
	Supplies (seeds and sacks)	24	a/
	Operator's capital	842	8
Total farm investment		10,378	100

a/Less than .5 per cent.

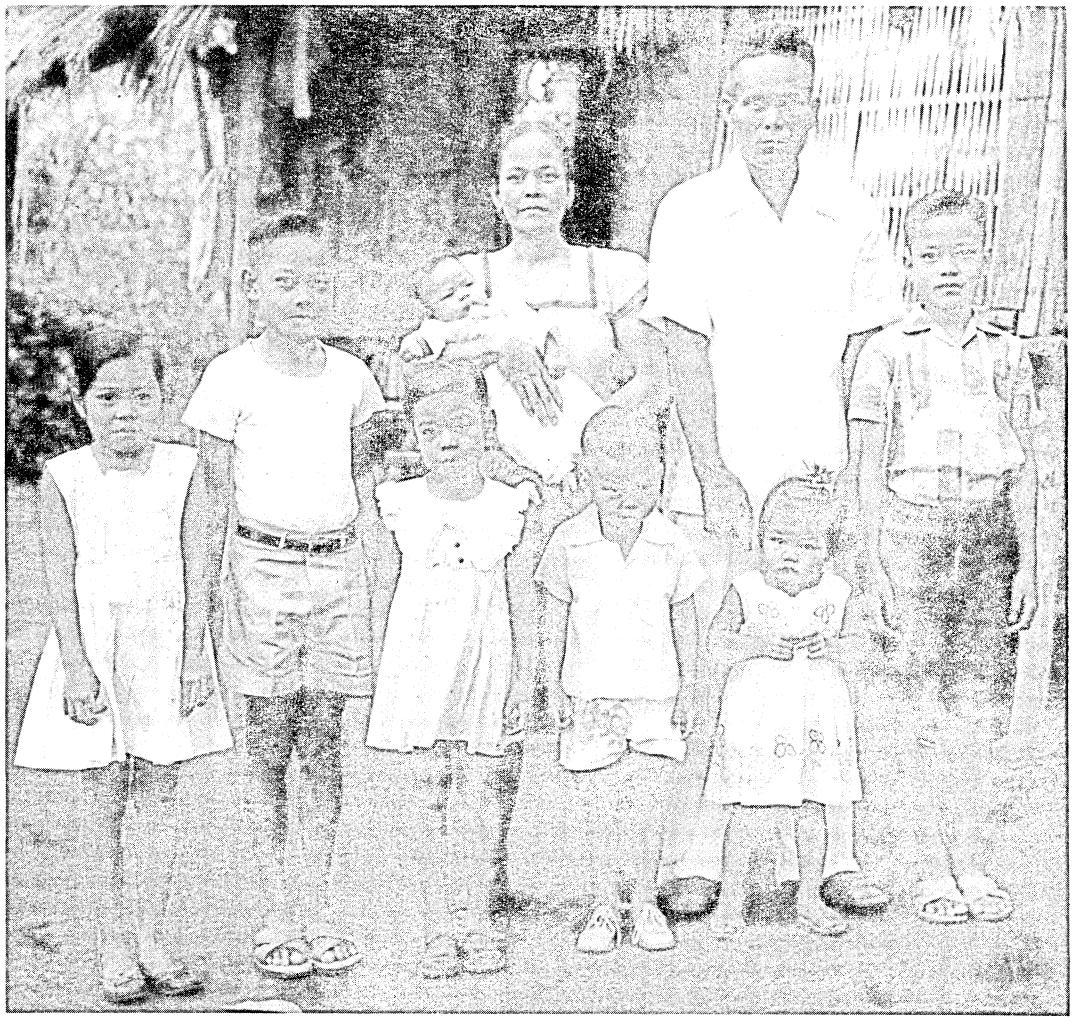
Human Resources

Family

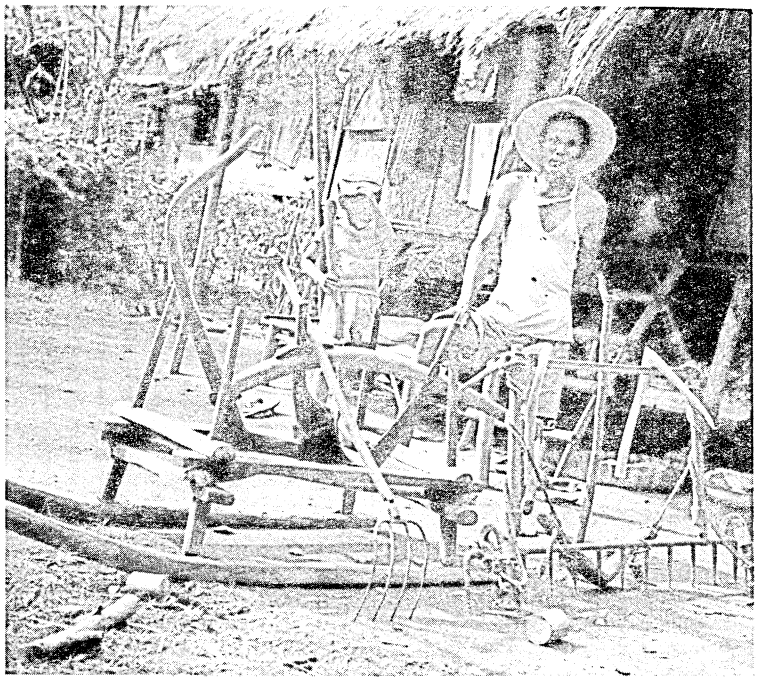
Mang Juan at 45 has always enjoyed good health. Just recently he took sick, a severe blow to the family finances. However, with proper care, he is fully recovered.

Mrs. Juan (Sopia) is 38 and has never had a serious illness. The children also have been well. Only the baby has minor skin eruptions. There are seven children; four boys aged 12, 11, 4 and two months, three girls of 9, 7 and 2 years.

The four older children are in school. Francisco (12) and Elino (11) walk three kilometers to attend 5th grade in the poblacion (town). Florencia (9) and Teodora (7) attend the Halang Barrio School just five minutes from the house. Already the three older children have surpassed their parents in formal education. Both Juan and Sopia stopped school after completing second grade. In consequence they are just barely able to read and write a few words in the vernacular.



Juan and his family in their Sunday clothes.



Juan and his son with the farm implements outside their house

Source and Use of Farm Labor

Juan's three older children are big enough to lend a hand with the farm and household chores. Of course they are all in school and their time is limited. They do help out occasionally. Juan and his wife do not ask very much of them. Juan says they will have to help him earn a living when they are older.

Sopia did not participate in farm work this year. She was pregnant and had her hands full with care of household and children. She did, however, join in off-farm harvesting. With her brood of small children she will have to spend most of her time at home for the next few years.

As on Miguel's farm, the limited supply of family labor is not a handicap. Planting and harvesting rice, the labor peaks on any rice farm, are handled by hired or contract labor. Juan has his customary arrangements for recruiting planters from other barrio families. Anyone and everyone may harvest rice. When Juan's 2.08 hectare ricefield was ready for harvest 100 harvesters appeared at the appointed hour.

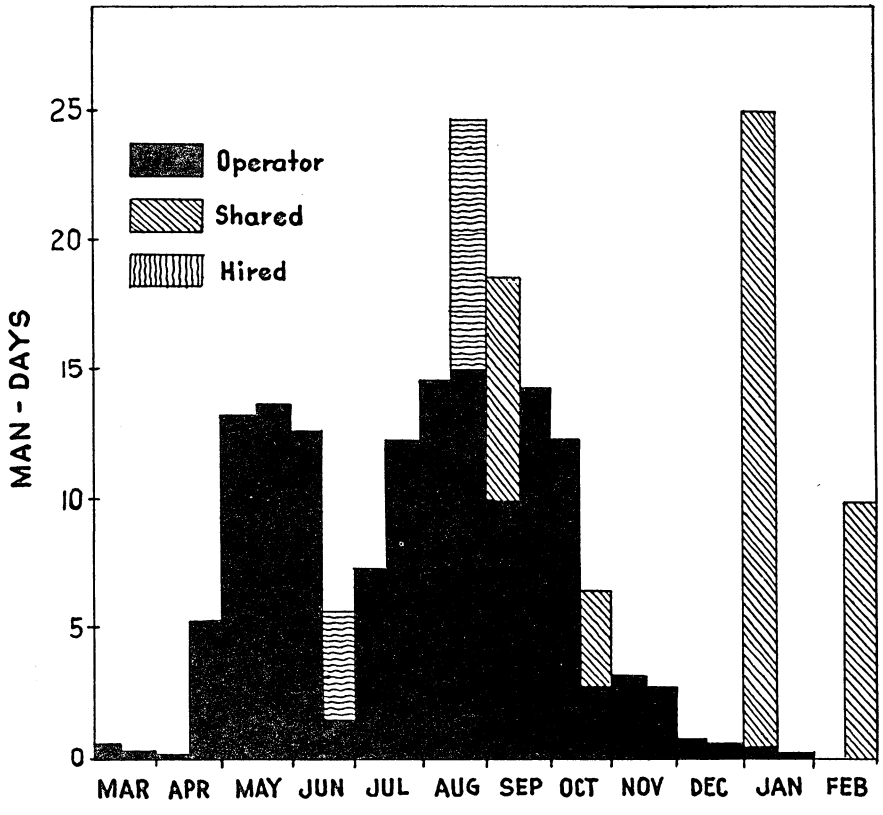


Figure 24. Labor distribution by source and half-months, March 1958 to February 1959.

With three separate rice crops, plus his vegetable patch Juan puts in almost twice as many man work days as Miguel. Out of 205 man work days on the farm, Juan works 144. The rest is provided by hired or contract labor. Over two thirds of Juan's labor goes to the rice crops, less than one-third to the vegetable plot.

Accounting for Time of Farmer and Family

Although Juan actually performed only 144 days of productive labor on his rice and vegetable enterprises it must not be assumed that he was idle the rest of the time. To find out how Juan and his family make a living the senior author filled in time sheets for every hour of a 4-week period for Juan, his wife and the older children. The results are summarized for Juan in tables 17 and 18, for Sopia in tables 19 and 20.

TABLE 17. Operator's use of time

ITEM	FIRST WEEK	SECOND WEEK	THIRD WEEK	FOURTH WEEK	TOTAL HOURS
Pasturing and cutting grass feed for carabaos	27	26	15	12	80
Repairing sled	10	8			18
Weeding rice		4	12	4	20
Irrigating rice			4	10	14
Replanting rice seedlings			4		4
Fencing rice field	3				3
Digging edible wild root crops in the mountains	10	8			18
Picking tamarind fruit		1			1
Harvesting rice (not own farm)			11	17	28
Milling rice				2	2
Getting firewood	2				2
Borrowing rice and money from landlord		4.5			4.5
Total working hours	52	51.5	46	45	194.5
Attending school program			2		2
Being with barrio friends	31	30.5	34	32	127.5
Eating time	21	21	21	21	84
Siesta time	11	15	13	15	54
Sleeping time	53	50	52	55	210
Total hours	168	168	168	168	672

With irrigation water permitting production of a second crop of rice, Juan has more work in his rice paddy than Miguel. In addition, prodded by his landlord Juan takes more care of the growing plants. Of course Juan must take care of his carabaos. He too may supplement his diet with edible wild roots dug in the mountains, with rice harvested on other farms. Juan's wife is vigorous, his girls old enough to help in the house so Juan spends little time in house work. Periodically he journeys to town to borrow from his landlord against the next harvest.

TABLE 18. Summary of the operator's use of time four week period, November, 1959

I T E M	HOURS	PER CENT
Farm work	139	30
Off-farm work	47	10
Other work	4	1
Other business	4.5	1
Eating time	84	18
Idle time used	183.5	40
Total day time	462	100
Sleeping time	210	

Thirty per cent of Juan's working hours went into farm labor. Another 10 per cent went into off-farm labor, harvesting and digging root crops. Juan worked less than half of his time.

Looking after the children took about one-third of Mrs. Juan's working hours. Next was cooking and cleaning. With many hands to run errands she spent much less time than Ponsang in fetching water and buying groceries at the barrio store (tables 19 and 20).

Although the four elder children are old enough to help out they are not asked to do very much. The boys may pasture the carabaos, fetch water, sweep the yard. According to the records each one averages about 3 hours work per week. Of course, they are in school in the poblacion (town proper) so five days a week they leave home early in the morning, carry their lunch, and return late in the afternoon.

TABLE 19. Wife's use of time

ITEM	FIRST WEEK	SECOND WEEK	THIRD WEEK	FOURTH WEEK	TOTAL HOURS
Care of clothing	9	7	7	6	29
Cooking	21	21	21	21	84
Dishwashing	7	7	7	7	28
Cleaning house and yard	8	7	13	12	40
Fetching water	2	1	1	1	5
Purchasing	2	1	4	2	9
Trimming the fence		2			2
Harvesting rice (not own farm)	6	22.5	1	9	38.5
Care of children	32	24.5	35	31	122.5
Total working hours	87	93	89	89	358
Visiting neighbors	7	4	6	3	20
Eating time	21	21	21	21	84
Sleeping time	53	50	52	55	210
Total hours	168	168	168	168	672

TABLE 20. Summary of time utilization for farmer's wife

ITEM	HOURS	PER CENT
Household work	197	43
Off-farm work	38.5	8
Care of children	122.5	27
Eating time	84	18
Idle time used	20	4
Total	462	100
Sleeping time	210	

The girls do more to help their mother. They often watch the baby and younger children and scrub the floor. The nine-year old may go to glean rice in harvest fields. The girls are in school nearby and have more time at home than their older brothers. Still, they are not overworked. According to the records each girl averages about 6 hours work per week.

A Typical Working Day - During Crop Season

The setting of this description is the harvest season.

The day started early at 2:30 a.m. when the two-months old baby woke up. The mother lulled him to sleep. At 3:30 a.m. she had to tend him again. Finally at 4:30 all the family awoke except the three youngest children. Juan sent his oldest daughter to see if the carabaos were still in the yard. Mrs. Juan started to cook. At 5 o'clock Juan went to the barrio store to get bread, canned milk and coffee. The children rolled up the bedding and put it away. At 6 o'clock breakfast was ready. After breakfast Juan went out to pasture his carabaos. Sopia cleaned the kitchen and tended the baby. The older boys went to get a haircut. The other children played in the neighborhood.

Three hours later Juan came back with the carabaos and winnowed rice for 30 minutes. Then he left to pasture the carabaos again. Sopia puttered about and tended the baby until 9 o'clock. Then she cooked mongo beans for lunch. After nursing the baby again, she went to the yard at 10 o'clock to wash clothes. While she worked a traveling vendor came to chat with her.

At 10 o'clock the two older girls came in from play to take the rice they had previously gleaned to the barrio storekeeper for sale. After the sale they returned home and tended the baby for their mother.

At 12 noon lunch was served. Juan had returned and, after several loud calls from mother, the dirty children came in from play. After lunch the children went out to play again and Juan took an hour siesta on the veranda. Sopia swept the floor and fed the dog and chickens. Then she bought vinegar at the store and prepared fish for the evening meal.

Siesta over, Juan first fetched water from the well and then went off to the harvest field with his oldest son and daughter. Sopia stayed home with the younger children. At 4:30 neighborhood women came to spend an hour visiting. At 4:30 also the eldest son came home from the ricefield, followed at 5 o'clock by his father and sister. While the children played in the yard with their friends, Juan threshed the rice they had brought home.

Supper was served at 6 o'clock. After supper Juan helped his wife tidy the kitchen. The girls spread the beddings in the main room and lulled the baby to sleep. The older boys went out to play. At 7:30 p.m. Juan and his wife lay down with the younger children to persuade them to sleep. By 8 o'clock the children slept and Juan quietly slipped out to spend an hour with his friends at the barrio store. At 9 o'clock both he and the boys returned. Juan brought with him a Tagalog daily newspaper to discover whether or not his sweepstake ticket won. It hadn't. By 9:30 everyone was asleep.

A Typical Day - During Off-Season

At 4 a.m. Sopia arose and began to prepare coffee. Juan and the older children were awake but disinclined to get up. At 4:30 Juan went down to check on the carabaos. A few minutes later the children got up. The eldest daughter tended baby brother. Other children rolled the bedding and scrubbed the floor. At 5 o'clock coffee with milk was served, followed by breakfast 15 minutes later.

After breakfast the four school children washed their faces, combed their hair and put on neat clothes. Mother prepared the binalot (rice wrapped in banana leaves) for the two boys to carry for lunch. At 6 o'clock the boys left to hike the three kilometers to school. The girls wiped the floor and fed the chickens. Sopia nursed her baby.

At 7 o'clock the two girls left for school to play with their classmates until the teachers arrived. Juan took his carabaos to pasture. The younger children played in and out of the house until mother scolded them for dirtying the floors. At 7:30 Sopia started to sweep the yard - a two-hour job. Then she tended the baby again.

Juan returned with his carabao at 10 o'clock and lounged around until 11. Then he fetched water for his wife and took over the baby while she went to the store. Returning with fish in a few minutes Sopia cooked lunch. At 11:45 the girls returned from school and took over the baby from father.

After the lunch at 12:15 the children played in the yard, Mrs. Juan cleared the floor while Juan sat on the stairs. At one o'clock the girls returned to school, Juan took a siesta and Sopia tended the baby. Getting up at 3 Juan took one carabao and sled to a neighboring sugarcane plantation to cut tops for feed. As this was harvest season for sugarcane Juan was free to gather the tops for his animals.

At 4 o'clock Sopia gathered up the baby to go neighboring. First she visited her sister, then a friend across the road. At 5 o'clock she tore herself away to buy fish at the barrio store. Soon home, she started to prepare supper. Now the girls came home from school, having dawdled on the way. By 5:45 the two school boys were home. Fifteen minutes later Juan appeared with a sled loaded with sugarcane tops.

Fish and rice were served for supper at 6:30 p.m. After supper Juan went to the store to buy kerosene for the lamp. The children laid out the mats and blankets. Mrs. Juan washed the dishes. At 7 o'clock the younger children were abed. The older ones followed and were asleep by 7:30. Juan, as usual, slipped off to the barrio store. Returning at 8:30 he was soon asleep. Then Sopia fell asleep too. The lamp was kept burning throughout the night to "frighten prowlers away."

Field Operation

Land Use Pattern

Juan starts his crop year in March by preparing the seedbed for eggplant. Watering the seedlings takes a few minutes per day for the next month. At the same time he spends 2.5 days clearing the rest of the vegetable patch. In mid-April he transplants the eggplant seedlings (2.5 days) and continues watering and weeding (2.7 days) until June (figure 25).

In May he plants the sitao (5 days) and starts land preparation for the first rice crop. Trellising of the sitao and transplanting of rice take place in June. July sees preparation of the rice seedbed for the main crop (1.4 days) and weeding and fertilizing the first rice crop (3 days). The end of July and first half of August involve land preparation for the main rice crop, with transplanting in the third week of August.

Harvesting eggplant begins the first of August and continues intermittently through October. Sitao is harvested from the last week in August through the first week of October. As soon as the first crop is off the land the end of August, land preparation for the succeeding crop begins. In September also Juan weeds and fertilizes his main crop.

Juan plants the third crop of rice the middle of October and weeds and fertilizes it in November. Now the only work is irrigating the rice field as needed until the harvest in January and February.

Cultural Practices

Eggplant

Just like Miguel, Juan work on his vegetable patch in March. His first operation is preparing the eggplant seedbed. He carefully weeds a small area two meters square and pulverizes the soil with his bolo. Then he sprinkles it with water until the earth is wet to a depth of 3 inches. Next he scatters the eggplants seeds and covers them with a thin layer of soil. Twice every day, morning and afternoon, the seedbed is watered.

While waiting for the seedlings to develop, Juan clears the rest of the .18 hectare plot. He cuts the grass and weeds with his bolo, piles them at the side of the field and burns them.

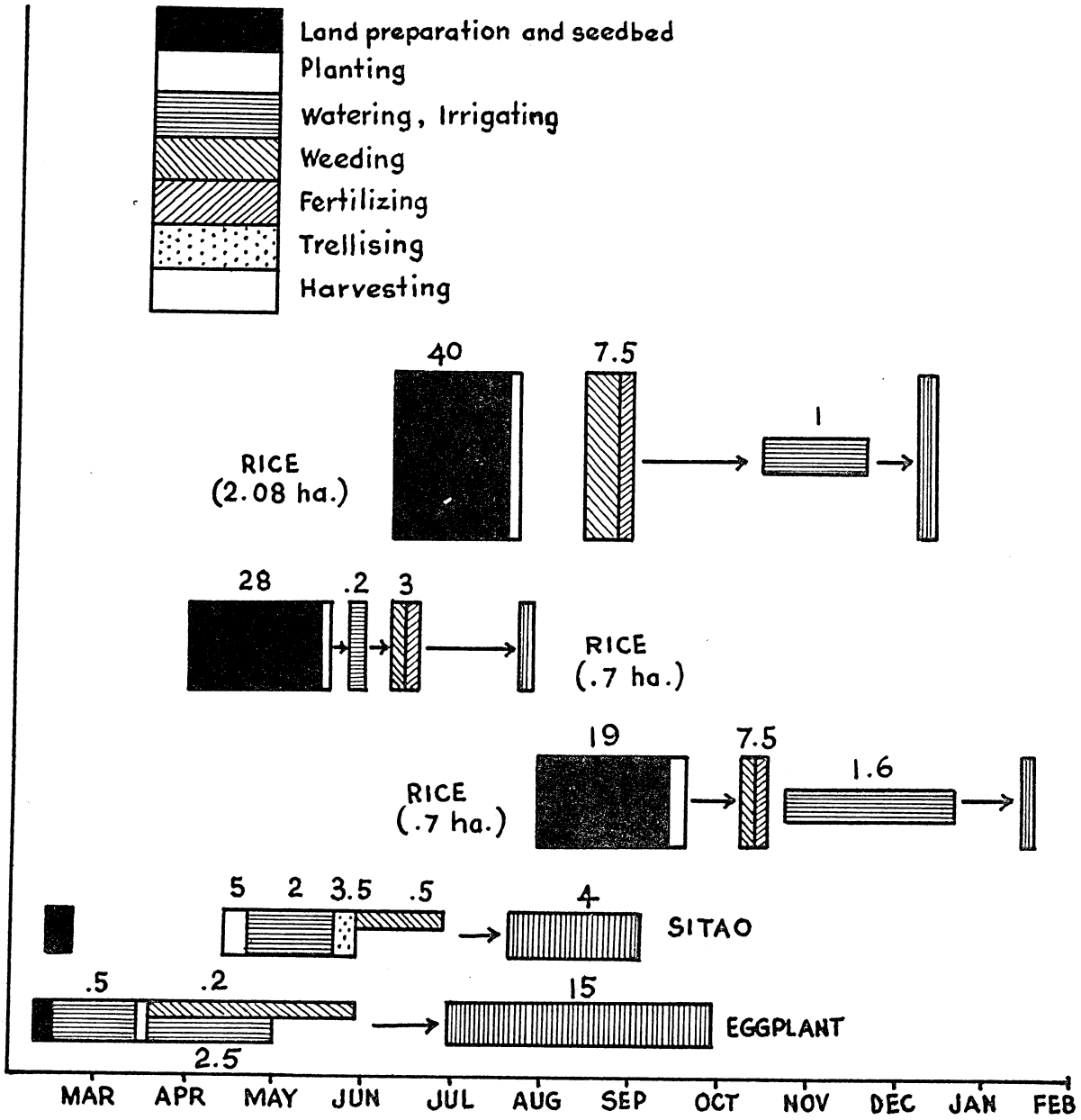


Figure 25. Land use pattern and distribution of operators farm labor inputs, March 1958 to February 1959.

A month after sowing the eggplant seedlings are ready for transplanting. Juan uses his hoe to dig a series of holes 4 inches deep and 6 inches in diameter, spaced 2 feet apart. Transplanting is done in the late afternoon to keep the seedlings from wilting in the hot sun.

First, water is poured in each hole. Then, by hand, a bit of soil is scopped out and a seedling set upright in the hole. The soil is replaced over the roots and pressed down to set the seedling firmly. Next to each seedling a foot-long section of banana bract is placed, slanted over the

plant to protect it from the sun. About 400 seedlings are used in the .06 hectare plot. After three days, when the seedlings are rooted, the banana bracts are removed.

Care includes watering twice daily until the rains begin. Twice a month for the first three months the weeds are cut around each plant with the pangarit (scythe). After the plant begins to fruit the weeding stops. In event of aphid infestations (a likely occurrence) the eggplant leaves are washed with water and the aphids scrubbed off by hand. No fertilizer or insecticides are used due to "lack of capital."

After $3\frac{1}{2}$ months the first fruits are ready for harvest. Harvesting is done twice a week for the first two months, then at longer intervals as production declines. After three months few fruits are produced. The plants are left until they die. Some survive for almost a year producing an occasional eggplant for home consumption.

The harvester moves from plant to plant plucking the ripe eggplant fruits by hand and placing them in the basket he carries. When the basket is full it is emptied on a piece of cloth. After all fruits are gathered they are wrapped in the cloth and taken directly to the barrio store. There they are credited against Juan's account at the rate of one centavo per fruit.

Five of the largest fruits are left to mature completely. Then the seeds are removed and dried in the sun. The dry seeds are wrapped in newspaper and stored under the roof for the next planting.

Sitao (Pole Beans)

Juan plants his sitao in May. In general his practices are the same as those of Miguel but his area is larger. He had 1000 hills of sitao. Since the canal is handy, he supplements the rain, carrying water from the nearby canal in a kerosene can. First, he wets down the seeds to hasten germination. Then he carries water to each plant as needed. All in all he spent about 2 days watering his sitao. The vines bear after three months. Seeds are saved from some of the longest pods.

Rice

As mentioned above Juan's rice paddy of 2.78 hectares is essentially divided into two parts. On .7 hectare irrigation water is sufficient to raise two crops. On 2.08 hectares Juan must depend primarily on rain. These differences are reflected in his operation.

Palagad Rice (.7 hectare)

Growing Seedlings

The principal differences between Juan's palagad and panahon rice operations are (1) timing and (2) method of growing seedlings. For his palagad field Juan raises his seedlings by the "Dapog" method. Early in June a small area is irrigated to soak the soil. Then it is plowed and harrowed once. Two days later two plots about 3 feet by 12 feet and 8 inches high are formed by hand. The surface of these plots are carefully leveled with a board as any uneven spot would permit stagnant water to remain. Then whole banana leaves with midribs removed are placed on the plots. About a half-inch of ashes or rice hulls are spread on the banana leaves as a medium to hold the seeds. Over this the seeds are thickly spread. Now the seeds are sprinkled with water, morning and afternoon, for three days. After each sprinkling the whole plot is pressed with a board to level it. Four days after sowing the area is flooded with water one inch above the beds. The water is kept moving as stagnant water would "cook" the seeds. After 8 to 12 days the seedlings are ready for transplanting.

The chief advantages of the "Dapog" method are: (1) the area used for a seed-bed is small, minimizing the need for irrigation water; (2) the seedlings are ready in 8 to 12 days instead of 30 to 40 days; and (3) the whole plot of seedlings can be rolled up like a carpet and carried to the field. No skilled seedling pullers are needed. Each planter receives a small bunch of seedlings pulled off from the "carpet."

Land Preparation and Planting

Juan uses the same methods as Miguel for land preparation and planting. Instead of waiting for rain, the land is flooded by irrigation water. Thus Juan starts land preparation of the .7 hectare plot in April and plants in June.

Field Care

Encouraged by his landlord Juan takes more care of the growing plants than Miguel. Two or three weeks after planting the rice field is weeded by hand. Juan estimates he spent about 3 days weeding this first crop of rice. Then the crop was fertilized with ammonium sulphate. Juan floods the field to the depth of two inches. Then, standing on the dikes, he broadcasts the fertilizer all over the paddies. For the first crop he broadcast 2 bags

of fertilizer, 90 kilograms, on the .7 hectare plot - an application rate of about 128 kilograms per hectare. After the fertilizer is applied, the field receives little attention until harvest. Juan's harvesting and threshing operations are the same as Miguel's.

Second Palagad Crop

In September, as soon as the first crop of rice is off the field Juan begins land preparation for the second crop. He follows the same method as before. The rice is planted in October and harvested in February. As the rains have begun to decline, Juan must spend more time irrigating this crop. He irrigated it 8 times from the middle of November to the middle of January. Juan has no clear idea of the water requirements of his rice plants nor of the output of his pump. He runs his pump until there is "enough water", a depth of two or more inches. He tends to run the pump somewhat more than necessary.

A second difference is the rate of fertilizer application. For this second crop Juan applies ammonium sulphate at a rate of approximately 65 kilograms per hectare, the same rate as he uses for his panahon rice.

Panahon Rice

Essentially Juan's operation on his 2.08 hectare is the same as that of Miguel. He prepares the seedbed in July, then prepares the land and plants the latter part of August. However, Juan is not as dependent on rain. He can spare enough water to soak the seedbed and even the field if rain doesn't come just when he wants it. It takes about one day per hectare to irrigate the field.

Juan differs from Miguel in his methods of field care. He follows the same practices of weeding and fertilizing as for his palagad crop. He irrigated the field 5 times from the middle of November to the middle of December. His fertilizer application is approximately 65 kilograms per hectare.

Rice Variety Planted

One additional factor in Juan's rice operation is the variety he planted this year. Traditionally all rice farmers in Halang planted "Wagwag", a variety of good eating quality but long maturity. Two years ago extension personnel of the College of Agriculture promoted the use of "Intan", a variety recommended by the National Seed Board. "Intan" is of good quality, with good yield and a much shorter maturity period. The shorter maturity period is important in double-cropping.

When the farmers were first urged to change they were suspicious and refused. Then the extension men approached the landlords. Quick to see the advantage of early maturity, the landlords accepted the innovation. When Juan applied to his landlord for seeds he was issued "Intan". During the growing period Juan and his fellow tenants were

favorably impressed with Intan. Come harvest time they changed their minds. The stems of Intan, they say, are much weaker than Wagwag and tend to shatter when cut with a lingkao. Thus the gleaners gain a larger share of the harvest. Of course, other harvest tools used in other barrios (notably the yatab) would not shatter the stems. But harvesters in Halang are used to the lingkao and don't want to change. Juan wants to go back to Wagwag. It depends, however, on his landlord.

Money Side of Farm and Household

Juan sells a few chickens and some fruits from the trees in his yard. His chief income comes from his farm crops. Occasionally he assists other farmers in plowing or harvesting. What does it amount to?

TABLE 21. Disposal of lowland palay from 3.48 hectares (including second crop) and off-farm palay income

I T E M	CAVANS	PER CENT
3.48 hectares planted		
Landlord's share	46.5	31.5
Share for planters, fertilizer, gasoline and oil (advanced by landlord)	28	19
Harvesters' and threshers' share	22.1	15
Seeds (stored by landlord)	4	3
Operator's share (all to landlord as creditor)	46.5	31.5
Total yield	147.1	100
Off-farm harvest earnings		
To creditor (store)	10	65
Sold	.3	2
Home use	5	33
Total off-farm	15.3	100

Juan depends on his landlord to provide all inputs except his own labor, work animals and tools. In addition, the landlord advances subsistence in terms of rice and money in as far as he deems advisable.

As a result, from all three harvests Juan came home without a ganta of rice. Nothing to start the new year. All except the harvesters' and threshers' share was carried off in the landlord's truck. By working as harvesters Juan and his family earned 15.3 cavans more. Five cavans they consumed at home, 10 cavans were turned over to the barrio store in payment of debt. The third of a cavan sold was gleaned by the oldest daughter who proudly carried it to the store herself. Needless to say, the family will be forced to live on borrowed rice another year.

Receipts and Expenses

For a subsistence farmer like Juan it is futile to attempt a conventional farm business analysis. Nevertheless a monetized account of his operations will give a clearer picture of how the family lives (table 22).

It is very difficult to set forth a picture of the farm expenses. Certain items, i.e. hired planters, fertilizer, gasoline and oil for the pump, require a cash outlay. However, as far as Juan is concerned it is not cash. He goes to his landlord and signs a note for whatever he needs. He keeps no records himself. The landlord also issues the seeds. Then at harvest time palay to cover all expenses is deducted before the harvest is shared. Theoretically, of course, all expenses except repairs to the irrigation pump are shouldered 50-50. The landlord agrees to keep the pump in running order.

Juan has no expenses for his vegetable plot other than the seeds he saves from year to year. His carabaos are pastured free on waste land at the edges of fields or along the roads. His chickens and pig feed from the family consumption. If Juan needs some small tool or repair part he gets it at the barrio store where it is charged along with the daily food purchases. Expenses of this kind would not bulk large except when he replaces a major piece of equipment. This year he spent ₱30.50 for a plow.

The most convenient way to show that returns Juan and his family receive from their activities is to exclude the portion of the crops paid for farm advances from the portion paid to creditors for goods and money advanced for subsistence. Then cash income and the value of crops and privileges used at home can be added to determine the amount available for family living (table 23).

TABLE 22. Farm and off-farm receipts

		LANDLORD	OPERATOR	FARM
			pesos	
Farm Receipts				
Cash:				
Crops sold:	Rice	372	372	744
(or to creditor)	Vegetables	-	250	250
	Fruits	-	35	35
Livestock sold:	Chickens	-	30	30
Total Farm Cash Receipts		372	687	1059
Non-cash:				
Share to cover expenses for fertilizer, planters, gasoline and oil (advanced by landlord)		112	112	224
Harvesters' and threshers' share		88.4	88.4	176.8
Seeds (Rice and vegetables)		16	21	37
Crops used at home		-	28	28
Crops given away		-	18	18
Livestock used at home		-	1	1
Rental value of dwelling		-	17.6	17.6
Total Farm Receipts		588.4	973	1561.4
Off-Farm Receipts				
Cash:				
Sale of 10.3 cavans rice @ ₱8		82.5		
Wage as hired laborer		12		
Non-cash:				
Rice for home use		40		
Wild root crops		9		
Fish		10		
Total Farm and Off-farm Receipts		1126.5		

TABLE 23. Value received by operator's household

SOURCE	ITEM	VALUE (Pesos)
From the farm:		
Cash		
	Crops to creditor	657
	Livestock sold	30
Non-cash		
	Crops used at home	28
	Livestock used at home	1
	Rental value of dwelling	17.6
	Total returns from the farm	733.6
From off-farm:		
Cash		
	Rice to creditor	80
	Rice sold	2.5
	Wage for plowing field	12
Non-cash		
	Rice used at home	40
	Wild root crops	9
	Fish	10
	Total off-farm income	153.5
Amount available for family living		887.1

Household Expenditures

Day-to-day living expenses were obtained from Sopia for a four-week period. Sopia is the purser of the family. All money, including what the children earn, is turned over to her. She decides how it should be spent.

TABLE 24. Family cash living expenses

ITEM	FIRST WEEK	SECOND WEEK	THIRD WEEK	FOURTH WEEK	TOTAL AMOUNT
			(pesos)		
Viand					
Fish	4.20	3.00	4.90	2.90	15.00
Other ingredients	2.10	2.12	1.22	3.05	8.49
Lard	.70	.80	.55	.95	3.00
Bread	3.50	1.75		1.50	6.75
Coffee	.70	.70	.70	.70	2.80
Sugar (refined)	.70	.70	1.00	.95	3.35
Milk	.05				.05
Beverage		.15			.15
Soap	1.18	1.18	1.18	1.18	4.72
Gas	.70	.70	.70	.70	2.80
Cigarettes	.70	.70	.70	.70	2.80
Aspirin			.05		.05
Pomade and clips				.45	.45
Wooden shoes				1.45	1.45
Shoes				3.70	3.70
Socks				1.00	1.00
School children's allowance	4.25	4.20	4.20	4.20	16.85
Total	18.78	15.00	15.20	23.43	73.41

The non-cash items were also recorded and values were assigned.

TABLE 25. Family non-cash living expenses

ITEM	FIRST WEEK	SECOND WEEK	THIRD WEEK	FOURTH WEEK	TOTAL AMOUNT
Rice	8.70	8.70	8.70	8.70	34.80
Root crops	.50				.50
Fish			.50		.50
Total	9.20	8.70	9.20	8.70	35.80

None of the goods consumed during November came from the farm. The rice was borrowed from the landlord. Vegetables were not producing. With an income higher than Miguel's Juan does not feel the spur of necessity to exert himself to supplement his living with products of mountain and stream. Therefore he spends little time in gathering root crops and fishing. He prefers to borrow rice since his credit is good.

Making Ends Meet

According to our computations Juan had ₱887.10 as the net result of the year's activities. Of course, almost all of this went to his creditors to pay for the year's living expenses. In fact, after all his crops had been turned over he still owed ₱100 to his landlord and ₱60 to the barrio store. Juan will have to borrow again to live during the next year.

In spite of the debt situation Juan and Sopia show no tendency to economize. They frequently used bread for breakfast, a luxury which, according to consumption studies, is enjoyed by only 16 per cent of barrio families. Their cash living expenses were ₱73.41 for the four-week period. As their rice was also obtained on credit, its cost should be added to the total. Of course, shoes and socks are not monthly expenses. They are often bought only once a year. Even deducting them the average cash living expense is around ₱100 per month. Just how long can outgo exceed income?

Credit Practices

Actually Juan and his family live on credit the year around. The primary source of credit is the landlord. He loans Juan the money needed in farm operation as well as rice and money for subsistence purposes. He asks no interest but expects to be paid at harvest time. He has first call on the crop. The price Juan pays is the 50-50 sharing arrangement. The legal sharing of 70-30 is only for tenants who provide all inputs except the land. Whenever Juan wishes to borrow from his landlord he must go to the poblacion and sign a note for the amount received. This year the proceeds of the rice crop fell short of the amount borrowed by ₱100. The landlord will not be as generous in the coming year. Thus, when Juan took sick a few months ago, he had to sell a carabao.

The second source of credit is the barrio store, the same store where Miguel trades. The storeowner is Juan's relative as well. Thus credit is liberal. If Juan has money he pays; if he does not Sopia gets her daily requirements on credit. Of course, they sell their vegetables to the store at the price set by the storeowner.

In certain respects the store functions like a bank. With four children in school Sopia needs a small amount of cash each week to give the children spending money. Sometimes, of course, Juan borrows cash from the landlord. Sometimes he has none. If

she needs a few pesos Sopia can go to the store and borrow the money. It is entered in her account as a regular sale.

Sopia and Juan keep no record of their debts. They depend on the signed notes in the landlord's possession and the account book of the barrio storekeeper. Even the storekeeper keeps no record of items purchased or date. Figures indicate the amount charged. If they are circled the account is paid, if not the account is open (figure 26). When a page is full, the unpaid balance is transferred to the top of the next page. Juan and Sopia grew up with this credit system. To them it is the normal way of life.

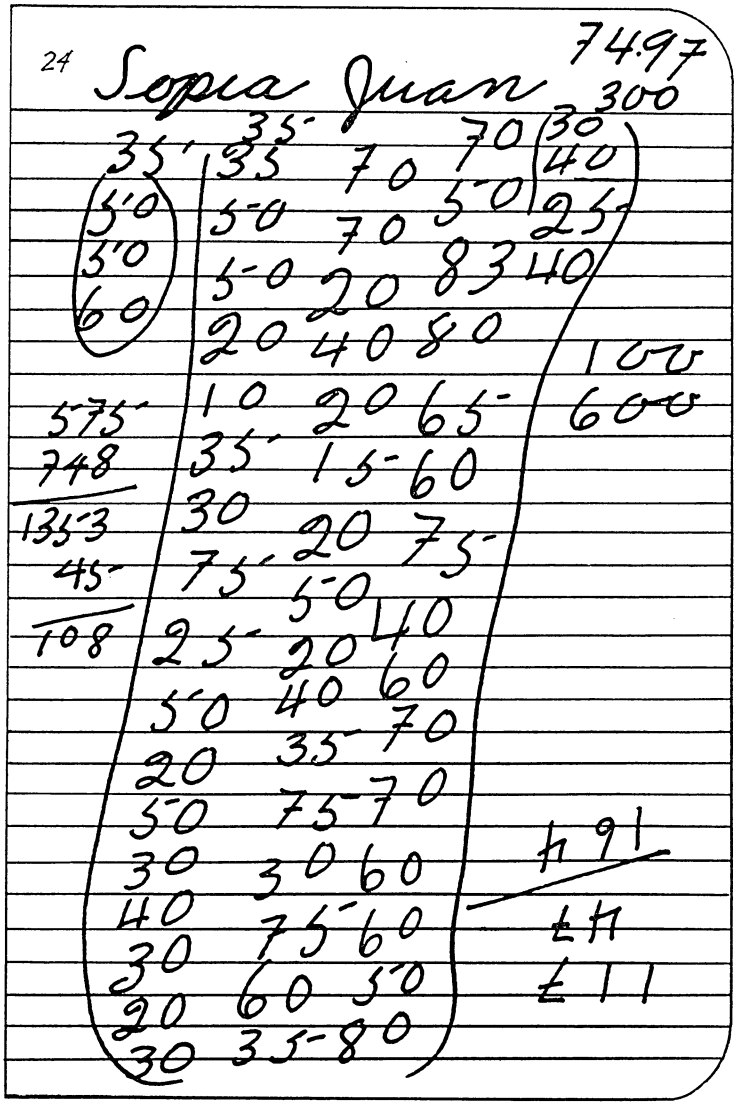


Figure 26. A page from the 1957 credit book of the storekeeper indicating the debts of Juan and his wife.

Is this liberality of credit good in the long run? Juan's income last year was more than twice that of Miguel but he is just as far in debt. Without records he doesn't know where he stands. Only in an emergency, when suddenly the landlord refuses to advance needed credit, does the situation strike home. Then he can but bewail his plight. Sopia makes no effort to economize. She buys little luxuries as long as credit is good. Juan, who could ask the help of his boys on weekends, doesn't bother to fish or gather rootcrops as does Miguel.

Family Ties

Juan and Sopia belong to the same circle of consanguinity as Miguel and Ponsang. They too are related to 76 of the 96 families in the barrio. Their closest business relationships are with the nine families who supply their rice planters (figure 27). Their closest personal ties are with the nine families with whom they exchange gifts. Interestingly, five of the families, including that of Miguel, fall into both groups.

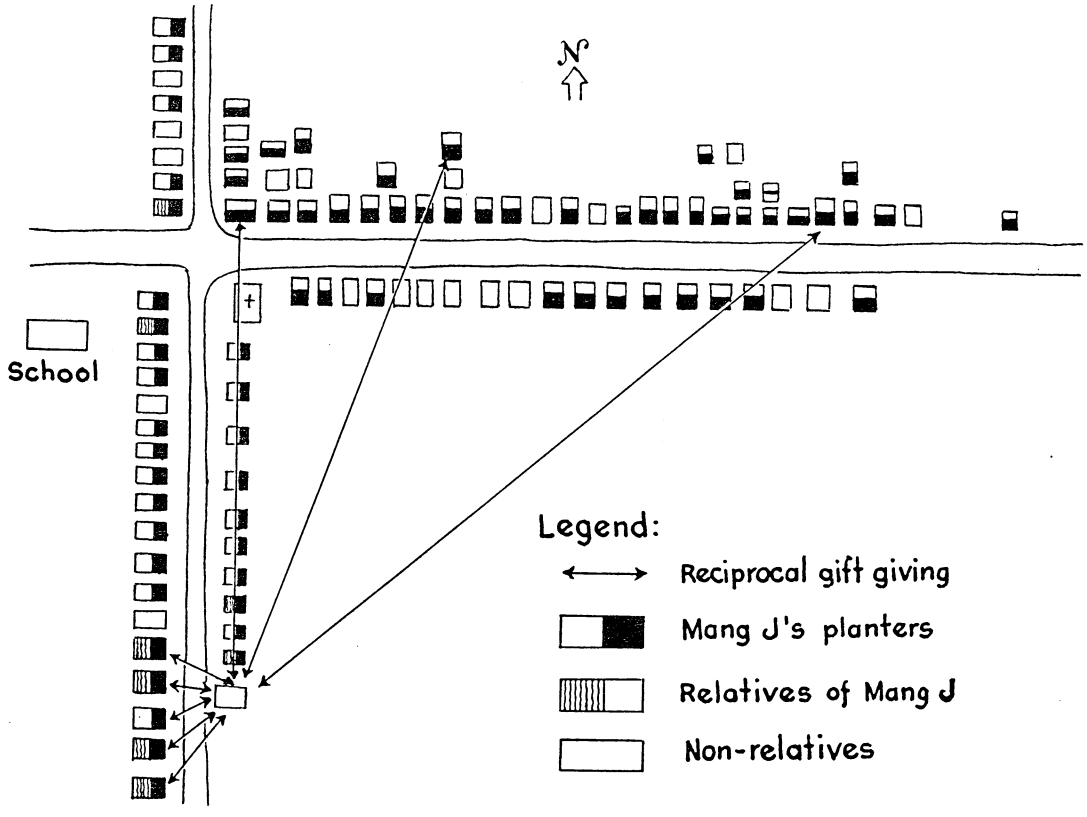


Figure 27. Mang Juan's associations with other barrio households.

Relationships With the Landlord

Mang Juan's landlord is an enterprising operator who rents a large parcel of land in Halang from its legal owner. Paying a set rent, he installed an irrigation system and sublet to a number of share tenants like Juan. To keep the irrigation system running and to look after his interest he has hired an overseer (katiwala). He has instituted many innovations - double-cropping, weeding, fertilizing, new varieties. He has the final word in all decision-making. Normally, he leaves the running of the farm to Juan. Within the limits set forth Juan decides when to prepare the land, what planters to hire and so forth. Juan, however, could not decide to raise vegetables instead of rice or to change the rice variety.

The landlord is very business-like in his arrangements with Juan. He requires Juan to sign notes for advances and has first claim on the harvest. Always during harvesting the overseer is present, and the landlord's truck stands ready to carry away his share as soon as it is threshed. Juan has no set obligation beyond the rice. If one harvest doesn't pay his debts they will be carried over to the next. The landlord will, however, be much less generous with subsistence money. The one obligation Juan does feel is to vote for the landlord's party at election time.

Concluding Considerations

Summarizing our study of Juan's farming operation we may pose three questions. First, how do Juan's farm resources compare with those of Miguel? Including his vegetable plot Juan is farming an area of 2.96 hectares, substantially larger than Miguel's. Possibly the land is of better quality. Certainly the vegetable plot is superior because (1) bordering his ricefield, it is near at hand, (2) it is close to water and (3) it has less slope. In addition, Juan's rice field is provided with irrigation which makes him less dependent on rain for timing his operations, and permits him to raise additional crops.

Second, does Juan make good use of his resources? Certainly better than Miguel. He uses improved methods of cultivating rice. He employs more productive man work units on his farm, and greater capital inputs (i.e. fertilizer). He practices multiple cropping. His yield, 42.3 cavans per hectare, is twice that of Miguel (20.9 cavans per hectare). He raises more vegetables.

Third, what are Juan's prospects for getting ahead? Can he improve his income through better management? As far as his rice crop is concerned Juan is already employing many of the recommended practices - improved varieties, weeding, fertilizer. Perhaps there is room for some intensification. Probably more attention to pest control would improve yield. Possibly with a more intelligent use of water, Juan could increase his area double-cropped.

With improved practices his vegetable patch would probably be more profitable. Some fertilizer and insecticides might more than pay for themselves. One possibility is to plant vegetables on the panahon rice area before or after the rice crops. Juan planned to do this in the coming year but his illness prevented him. It seems his best bet for increasing income.

However, Juan probably will not get ahead financially unless he and Sopia change the household management practices. Availability of credit is not the problem but use of credit is. They should learn to use credit as an aid, not a trap. They should keep records of their debts. They should plan and budget household expenditures, trying to keep them within current income. Until they can increase income in other ways, they might be advised to make more use of products of mountain and stream. The two big boys could learn to fish or catch frogs on weekends. If Juan could free himself from his dependence on the barrio store, he might be able to sell some of his vegetables in the poblacion market where prices are higher.

Chances that the couple will change their habits are remote. They believe they were destined to be what they are. Perhaps, with more education their children will be better managers.

FARM C

The third farm in the study is located in barrio Tungtungin of the municipality of Los Baños. Los Baños, stretching from Laguna de Bay, a large lake, to Makiling mountain, was named "The Baths" by the Spaniards because of the hot sulphur springs which are utilized for medicinal and recreational bathing. Ranked as a second class municipality on the basis of a 1959 tax income of ₱56,490, Los Baños has an area of 5,100 hectares and a population of approximately 16,500. All 10 barrios are connected by road.

The principal means of livelihood is agriculture. Because of the predominantly hilly terrain only 683 hectares are planted to rice, out of 1853 hectares in agricultural use. Most of the land (1069 hectares) is devoted to coconuts, citrus and bananas. Duck raising and chicken raising are important enterprises.

The College of Agriculture and Forestry and the Forest Products Institute of the University of the Philippines located here provide additional job opportunities - both directly and indirectly through services furnished to staff and students. Los Baños is a favorite site for excursionists from Manila and the swimming pools, restaurants and vendors cater to them. A provincial stone quarry is in operation and a new pulp and paper factory is under construction.

Los Baños lies on the main railroad line from Manila. Frequent buses travel the national highway to the capitol, 65 kilometers away. There are two loosely organized markets; one in the morning at the poblacion (town proper) and one near the railroad junction in the afternoon. A rural health center with attendant doctor and nurse is maintained in the poblacion. A Rural Bank, to make loans to farmers, has been organized this year.

Public elementary schools are maintained in six barrios and the poblacion. Children from barrios where facilities are not available attend adjacent schools. In two barrios and the poblacion education is provided through the sixth grade. One barrio school provides for first and second grade only. The others have classes through the fourth or fifth grades. Two private elementary schools are maintained; one on the College campus and the other in the poblacion. One high school exists on campus and another in town.

South of the College of Agriculture campus, Barrio Tungtungin nestles between Mt. Makiling and one of the foothills. It is accessible by road through the Animal Husbandry Compound. Barrio houses are scattered, connected only by footpaths. Two bridges provide access to the elementary school in Putho, an adjacent barrio. Children can complete 5th grade there. Then they may transfer either to the private school on campus or to the public school in a more distant barrio.

Tungtungin is relatively new, being settled only in 1926. Most of the 230 people are migrants from other towns or the neighboring province of Batangas. The farm lands in the barrio are owned by absentee landlords. Areas on Mt. Makiling taken over by various farmers belong either to the Bureau of Forestry or Makiling National Park. Farmers there are not tenants but squatters on national preserve. The principal crops are upland rice, corn, eggplant, sitao (pole beans), pineapple, bananas, coconuts, ubi and gabi (root crops).

Farmers sell their produce either at the town market or to middlemen who come to the Animal Husbandry Compound to buy. The barrio women, owing to the convenience of jeepney transportation, buy most of their supplies in town. The lone barrio storekeeper depends chiefly on the sale of cigarettes and wine.

According to the College of Agriculture weather station the average annual rainfall is 77.9 inches with 169 rainy days (table 26). The wet season lasts from May through November (figure 28).

TABLE 26. Normal values of climatological data at the College of Agriculture Weather Station

MONTH	RAINFALL	
	Amount (inches)	No. of rainy days
January	2.16	11.5
February	1.11	6.5
March	0.94	6.6
April	1.44	5.4
May	6.50	12.1
June	8.01	16.9
July	11.39	20.5
August	11.14	19.4
September	9.62	19.3
October	10.18	17.3
November	10.97	17.4
December	4.48	16.6
Annual	77.94	169.5

Source: University of the Philippines, College of Agriculture Weather Station.

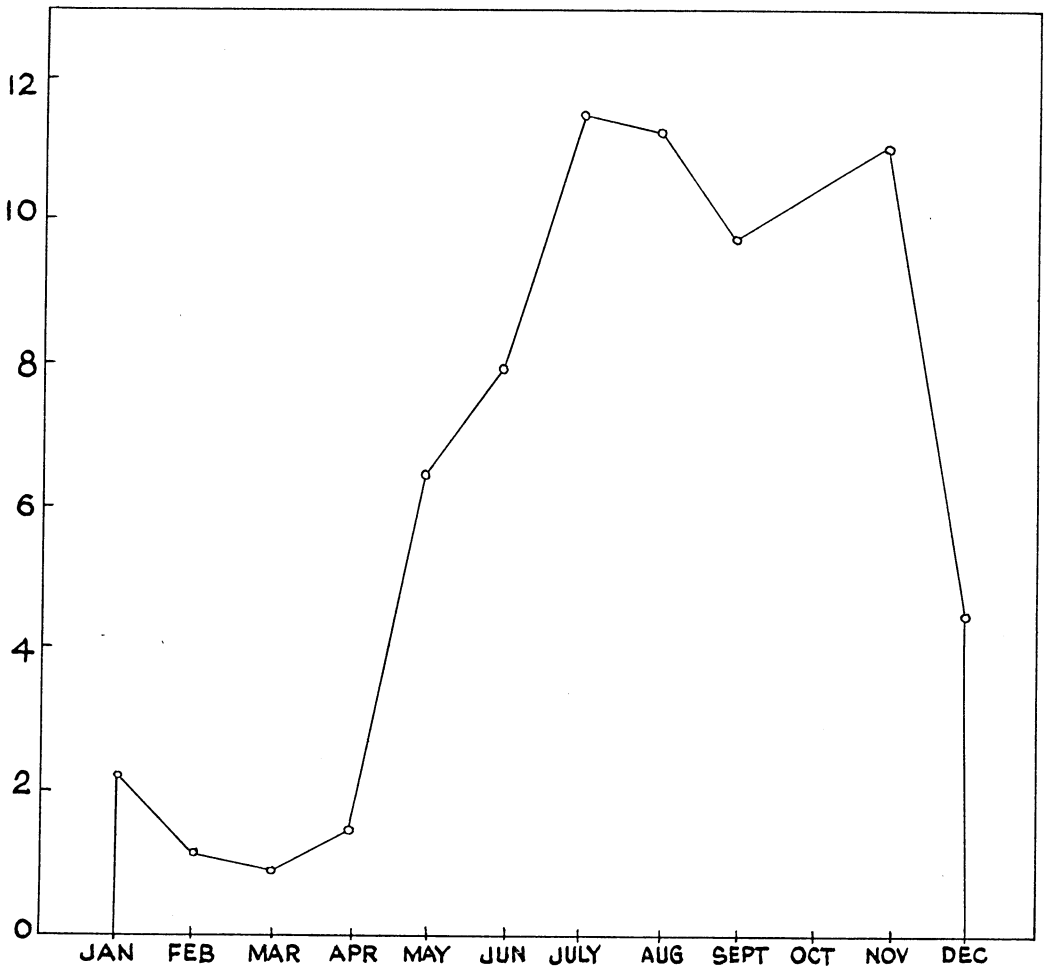


Figure 28. Rainfall pattern in Barrio Tungtungin, Los Baños, Laguna, based on University of the Philippines, College of Agriculture Weather Station rainfall data

Mang Daniel, the operator of the upland farm studied, is a cash tenant with a supplementary kaingin (squatter) operation on public land. He enjoys an income somewhat above average, about sixty per cent of which comes from the farm. Both he and his wife are literate. He has absorbed some new ideas, i.e. use of fertilizer. However, his farming operation is duplicated time and again in the upland barrios. Similarly, wherever employment opportunities permit, many Filipino farm families depend on off-farm employment for their cash requirements.

Physical Resources

Home Lot

Daniel makes use of a 19 x 16 meter home lot, valued at ₱90. The lot is owned by an absentee landlord, to whom he

pays no rent. The only stipulation is that the five coconut trees shall not be touched. The sole building is the 8 x 8.5 meter house. Livestock and farm implements share the space under the house. At the side is a 5 x 6 meter patch of lima beans and one or two squash vines. There is no fence (figure 29).

The three-room house stands on 10 hardwood posts. Floor and sidewalls are made of bamboo; the roof of cogon grass and flattened kerosene cans. At the kitchen corner an open enclosure walled with coconut leaves serves as the bathroom. The house is valued at ₱145.

The kitchen corner contains the usual clay stove, elevated from the floor, and a few bamboo shelves providing storage for the equipment - iron pots, a basin, wash tub, kerosene cans for fetching water, two large earthen jars for storing water, some spoons, forks, tin plates and pineapple juice cans to drink from. Additional equipment is an ironing board, charcoal iron, market baskets and a gas lamp.

The only living room equipment is two long benches for visitors and three shelves. The family sits, eats and sleeps on the floor. To add color to the home Mrs. D grows flowers in pots on a bamboo stand in front of the house and raises crimson and green foliage plants (codiaeum variegatum) in the front yard.

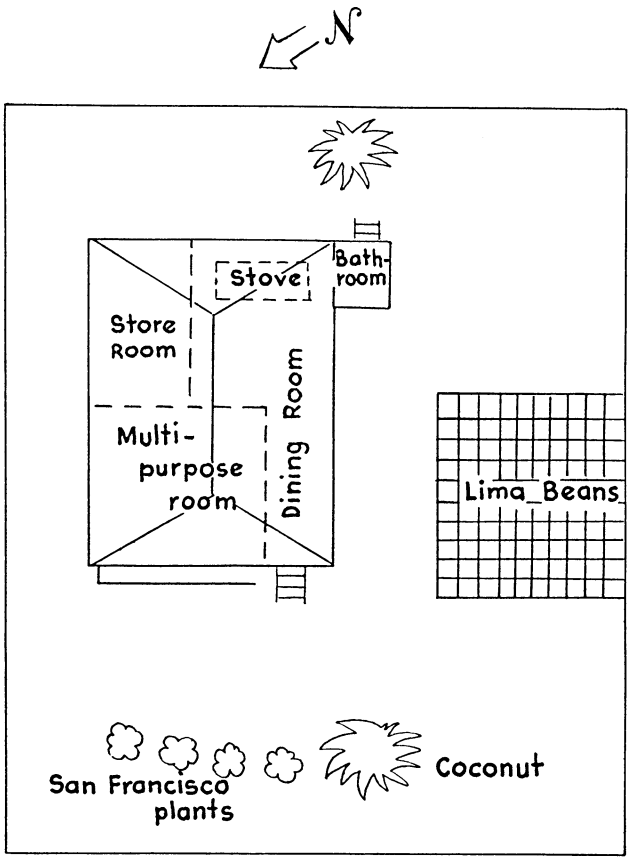


Figure 29. The farmstead of Mang D.

Farm Land

Daniel pays ₱22.76 a year in cash rent for an irregularly shaped parcel of land totalling .4 hectare (figure 30). The land is level, silty loan, bordered by a creek but with no gravity irrigation as it is somewhat elevated from the creek and from surrounding farm lots. On two-thirds of the area 40 coconut trees are growing. In addition to the coconuts, Daniel plants the land to a succession of annual crops. During the wet season, May to September, he planted the whole area to upland rice. After the rice harvest he planted corn in two of the fields and mungo beans in the third. Two small patches at the end of the field were planted by Mrs. D to sitao (pole beans) and mustard for home use.

At two sides of the parcel Daniel has planted a few bananas which have not yet come into bearing. The plot is about 500 meters from the farmstead.

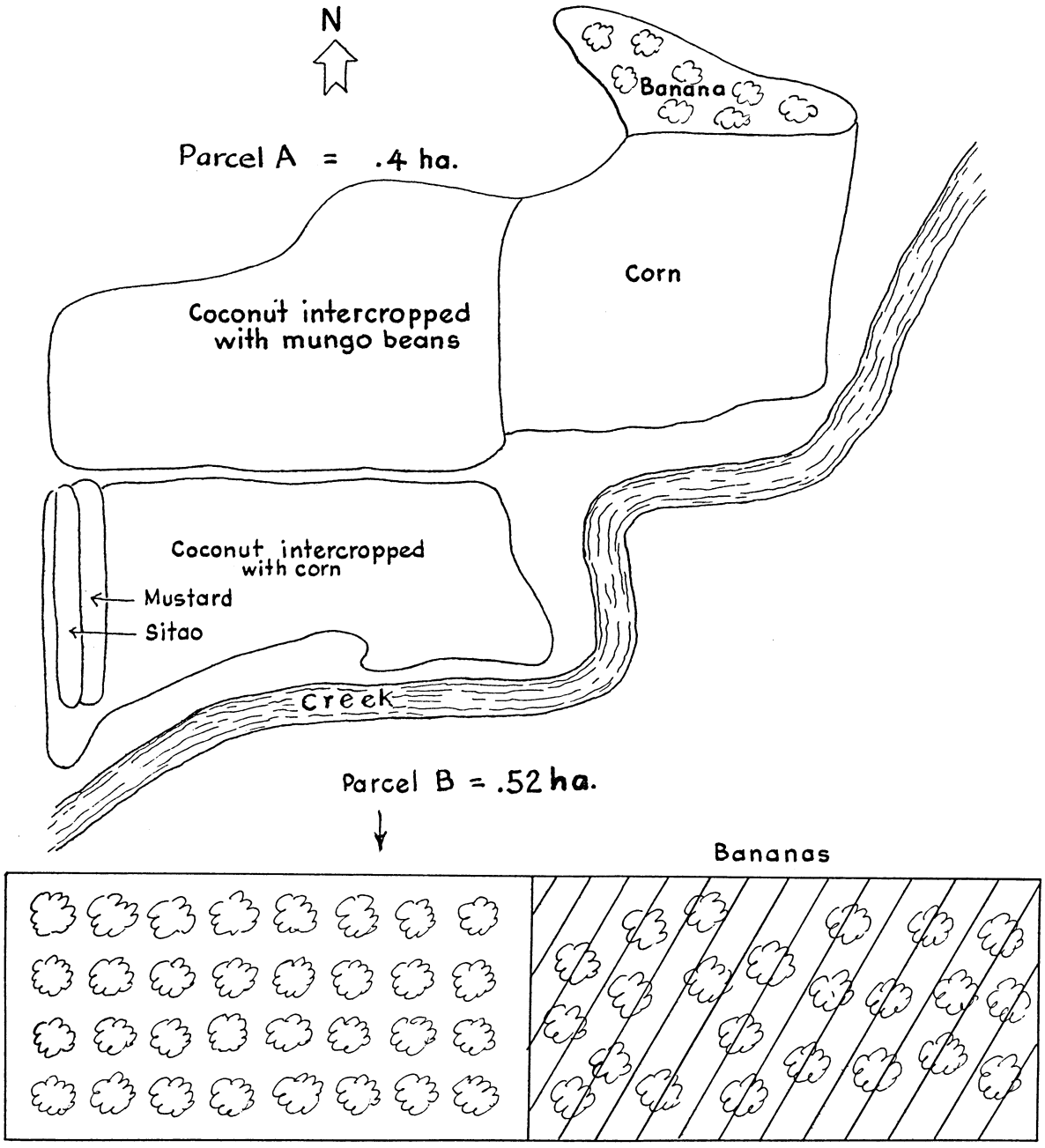


Figure 30. Daniel's farm lands, in the barrio and on Makiling mountain.

In addition, Daniel has taken over a .52 hectare lot on Makiling mountain where he produces bananas and ubi (root crop). This rectangular field of silty clay has a considerable slope (30°) and could not be profitably plowed as heavy rains would wash away

top soil and seedlings. As a squatter on National Forest Preserve Daniel has no dealings with park officials and pays no rent. To reach this field he must climb 1.5 kilometers of steep, muddy mountain trail.

Early in the season Daniel negotiated for another .5 hectare parcel of land in the barrio. After the first plowing Daniel became disgusted with its waterlogged condition and gave it up. It was not his land; he had paid no rent and it would not have occurred to him to attempt to drain the area.

Livestock and Tools

Daniel owns two carabaos which he uses for land preparation on his .4 hectare field and for harvesting from his mountain lot. In addition Daniel rented his carabao and sled to his counsin for 105 days. At the start of the year Daniel had a boar, chickens and geese, amounting to ₱170, many of which he sold.

TABLE 27. Operator's livestock inventory

ITEM	BEGINNING		ENDING	
	Number	Value	Number	Value
		pesos		pesos
Carabao	2	400.0	2	450.0
Boar	1	78.0	-	-
Young pig	-	-	1	30.0
Hens	5	17.5	8	24.0
Pullets and cockerels	7	14.5	3	9.0
Rooster	3	12.0	-	-
Chicks	-	-	10	2.5
Gander	8	24.0	1	5.0
Geese	3	12.0	2	6.0
Gooslings	17	12.0		-
Total		570.0		526.5

Daniel's farm implements are the same type as those used by his father 30 years ago. A list of these implements, with original cost and estimated span of service follows.

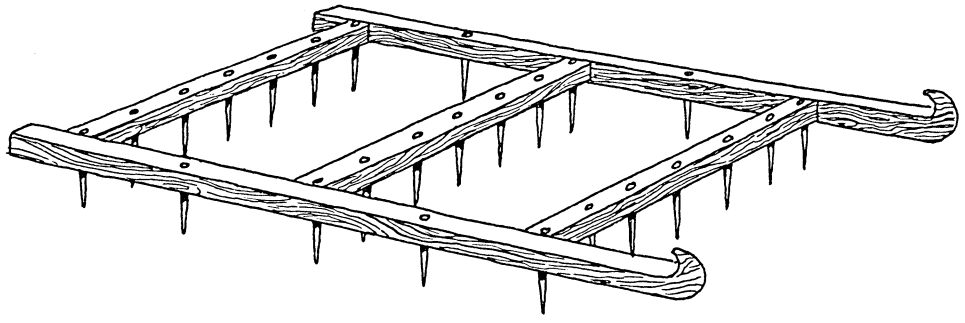


Figure 31. Kalmot (harrow) with metal teeth and hardwood frame.

TABLE 28. Operator's farm implements

ITEM	ORIGINAL PRICE (pesos)	SPAN OF SERVICE (years)
Land preparation equipment		
Plow	50.00	5
Harrow	40.00	5
Panudling (furrower)	45.00	4
Bolo (large knife)	3.00	3
Hoe	2.50	3
Weeding equipment		
Lilik (sickle)	1.60	1
Dulus (small sickle)	2.00	3
Harvesting and threshing equipment		
Takuyan (sowing and harvesting basket)	0.80	1
Pang-ani (sickle)	0.35	1
Jute sack	0.60	3
Pukyot (large buri basket for storing palay)	5.00	8
Other equipment		
Paragus (sled)	20.00	5
Paud (rope fastener for sled)	1.50	6 months
Panghila (rope harness)	1.00	6 months
Paleta (rope harness)	1.00	6 months

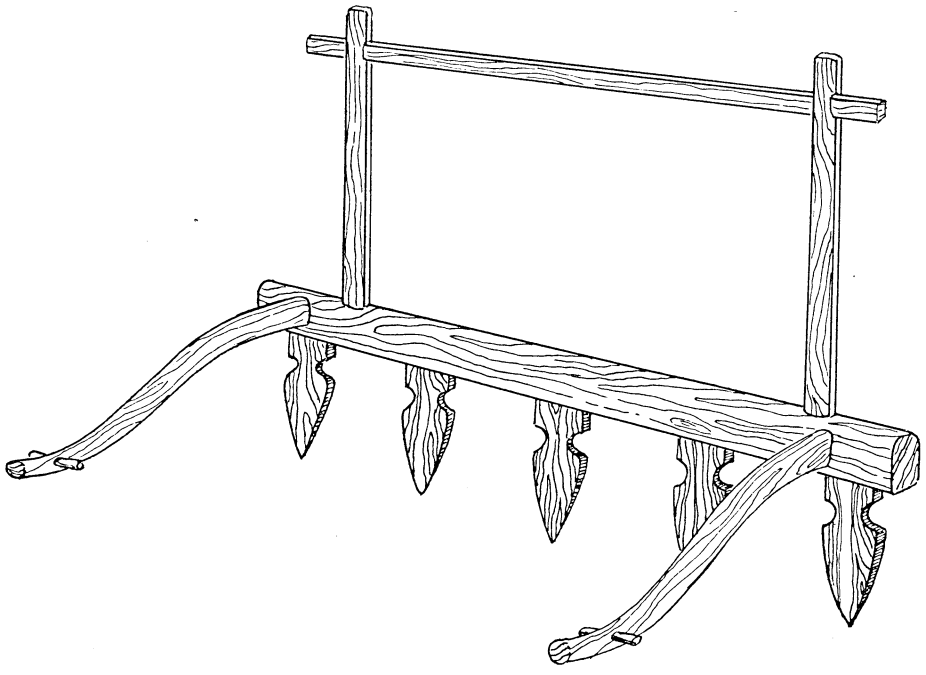


Figure 32. The panudling (furrow opener).

Of the total farm resources Daniel owns half, ₱849. He does not have a large stock of implements or animals, but land values are relatively low. He stores his seed for rice, corn and ubi.

TABLE 29. Farm resources

I T E M	VALUE	PER CENT
	pesos	
Landlord		
Home lot (.03 hectare)	90	6
Farm lot (.4 hectare)	400	25
National Forest Preserve (.52 hectare)	260	16
Landlord's capital	750	47
Operator		
Work animals (2 carabaos)	425	27
Other livestock (average inventory)	123	8
Dwelling	145	9
Tools and equipment	101	6
Planting materials (seeds and tubers)	55	3
Operator's capital	849	53
Total farm investment	1599	100

Human Resources

Family

Daniel, 29 years old and in good health, realizes that he must work to improve his economic position. His preference would be to secure a laborer's job at the College of Agriculture, but unless or until this happens he tries to utilize his small rented plot as well as he can and to expand his squatter operation. To supplement his income he secures some work as a coconut harvester on his uncle's plantation. Having completed elementary school (6th grade) he can understand and adopt some of the recommended practices, i.e. weeding and use of fertilizer.

Mrs. D, 25, is pregnant and has young children to look after. Nevertheless she cares for the animals and the vegetable rows and occasionally helps her husband in the field. Although she has completed 4th grade she retains her belief in fortune-tellers and prefers her quack doctor to the rural service available in town.

The children, two daughters 7 and 5, two sons 3 and 2, are too young to work on the farm. The oldest girl can help mother a little, but she is attending second grade and has little free time.

Source and Use of Farm Labor

From his immediate family Daniel can expect little help. The children are too young. His wife has much to do with the children and the household. However, he can call on relatives who live in the barrio. His father, who is too old to work on the farm, occasionally relieves Mrs. D as babysitter so she can help her husband in the field. In addition a cousin helps Daniel without pay whenever it is necessary.

Daniel can depend on relatives or neighbors to help with the rice harvest for a share of the crop. There is no difficulty in securing labor as the harvester-thresher receives one share in five for his efforts. Daniel may also contract his coconut harvesting. Lack of available labor, is not a problem on this farm.

Of the total 192 days of labor on the farm Daniel shouldered 107, or 56 per cent. His wife worked for 40 days, his cousin for 28; family contract labor accounted for 35 per cent of the total. Share or contract labor was 9 per cent of the total; 15 days for rice harvesters and 2 days for coconut harvesters.

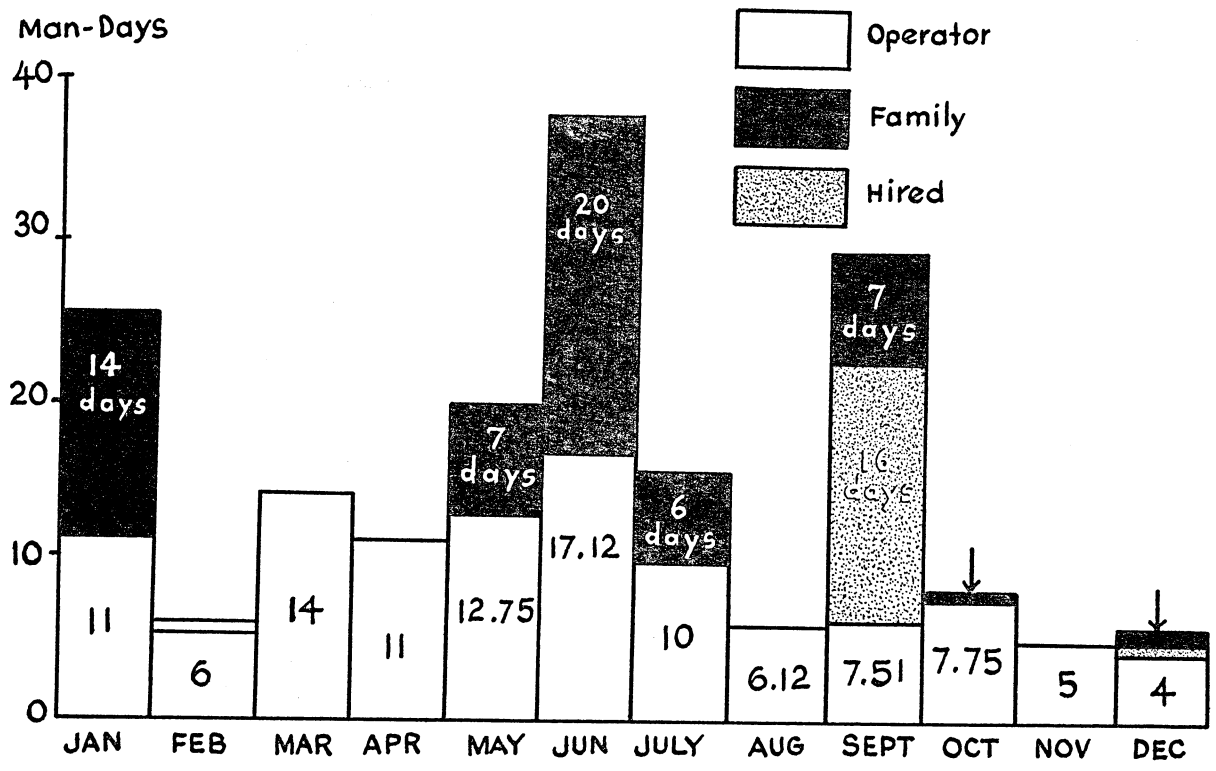


Figure 33. Labor distribution by source and month January 1959 - December 1959.

Daniel's house, sheltered
by coconuts.

Daniel and his family.

Daniel, then, worked on the farm only about one third of his time. In addition he spent 51 days in off-farm labor - plowing and harvesting palay and coconuts.

Accounting for Time of Farmer and Wife

In contrast to the two rice farmers studies, Daniel and his wife were able to complete the Time Utilization Booklets themselves. They cheerfully undertook to maintain a complete accounting of their time for 6 weeks. The list of activities does not indicate manpower requirements for the various crops grown. It shows how Daniel and his wife make their living on a small upland farm.

TABLE 30. Operator's use of time

I T E M	FIRST WEEK	SECOND WEEK	THIRD WEEK	FOURTH WEEK	FIFTH WEEK	SIXTH WEEK	TOTAL HOURS
				hours			
Pasturing and cutting grass feed for carabaos	6	10.5	7	6	8	6	43.5
Repairing sled			7				7
Plowing and fertilizing			4				4
Harvesting coconuts (own farm)	5						5
Harvesting bananas						4.5	4.5
Selling bananas	4						4
Plowing (off-farm)	5						5
Harvesting coconuts (off-farm)		36		49.5	19	14	118.5
Getting firewood						4.5	4.5
Care of children	14	15	54	14	14	26	137
Purchasing x'mas clothing						5	5
Total working hours	34	61.5	72	69.5	41	60	338.0
Recreation	5	5	9	5	21	3	48
Idle time	74	48.5	30	36.5	50	48	287
Sleeping time	55	53	57	57	56	57	335
Total hours	168	168	168	168	168	168	1008

Everyday Daniel looks after his carabaos. He must keep his equipment in repair. He works intermittently on his own farm, plowing, fertilizing, harvesting and selling. He gets off-farm work when he can. Of course, he helps his wife with the children. He regularly attends the movies once a week and any nearby fiestas. During his "idle time" he visits friends and relatives or spends hours at the barrio store.

TABLE 31. Summary of use of operator's time
6 week period - November-December 1959

I T E M	HOURS	PER CENT
Farm work	68	10
Off-farm work	123.5	18
Other work	146.5	22
Idle time	335	50
Total day time	673	100
Sleeping time	335	

Only 10 per cent of Daniel's working hours went into farm work, another 18 per cent into off-farm labor. He spent about half of his time working.

TABLE 32. Wife's use of time

I T E M	FIRST WEEK	SECOND WEEK	THIRD WEEK	FOURTH WEEK	FIFTH WEEK	SIXTH WEEK	TOTAL HOURS
			hours				
Care of clothing	33.5	17	8	15	8	14.5	96
Cooking and dishwashing	21	21	21	22	19	21	125
Cleaning house and yard	15	8	16	15.5	13	16	83.5
Fetching water	7	7	7	7	7	7	42
Marketing		5		2	3	6	16
Feeding pig and poultry	3.5	3.5	3.5	1.5	1.5	1.5	15
Gardening (vegetables and flowers)	10	4	8	5	4	3.5	34.5
Harvesting vegetables					.5	.5	1
Care of children	23	49.5	47.5	38	42	36	236
Purchasing x'mas clothing						5	5
Total working hours	113	115	111	106	98	111	654
Trip to Quack Doctor				5			5
Attending town fiesta					14		14
Sleeping time	55	53	57	57	56	57	335
Total hours	168	168	168	168	168	168	1008

Looking after the children took more than a third of Mrs. D's working hours. Next was cooking and dishwashing - about 3 hours a day, then care of clothing. Mrs. D goes to the creek to wash her clothes. Cleaning the house and yard and fetching water are other time-consuming activities.

TABLE 33. Summary of time utilization of farmer's wife

I T E M	HOURS	PER CENT
Household work	362.5	54
Gardening and livestock chores	50.5	8
Care of children	236	35
Other business	10	1
Idle time (Recreation)	14	2
Total day time	673	100
Sleeping time	335	

Although the oldest daughter (7) can help mother a little she is too busy attending school. The other children are too young. Normally the grandfather helps out if a babysitter is needed. As Daniel and his wife expect to send all their children to school it will probably be some years before mother can be relieved of household duties to spend more time in farm work.

A Typical Working Day - During Crop Season

At 5 o'clock in the morning the family woke. Daniel took the two carabaos to pasture. Mrs. D prepared breakfast while the girls folded the blankets and rolled the sleeping mats. An hour later Daniel returned and the family had breakfast. Daniel kept an eye on the children as Mrs. D washed the dishes, wiped up the kitchen floor and dressed each child. At seven o'clock Mrs. D gave five centavos to the oldest girl who skipped off to school. Then Mrs. D swept the yard and wiped up the stairs and the other floors. At 8 o'clock Daniel went out to sell his pig to a resident middleman. The transaction took an hour and a half. Mrs. D took the children and went to the creek with a neighbor to wash clothes. She worked there until 11:00 o'clock. Washing clothes is a form of entertainment as the women gather together to gossip and joke as they work.

Then Mrs. D returned home to cook rice and vegetables for the noon meal. The daughter returned from school. Lunch was served at 12 o'clock. Then the daughter returned to school. Mrs. D took a siesta from 1 to 2 o'clock. Then she swept the yard again, tidied the kitchen, and tended the children.

At one o'clock Daniel went to the field. He had had some ammonium sulfate fertilizer purchased in Calamba so he proceeded first to fertilize the sitao plants. The soil was cultivated; then a spoonful of fertilizer was applied at the base of each plant. His nephew helped in the operation. Then with plow and carabao Daniel plowed the rest of his field in preparation for planting corn.

At 5 o'clock Daniel returned, washed and changed his clothes and took care of the children while Mrs. D prepared supper. Supper was served at 6 p.m. Then the children washed their feet and spread the mats and blankets. Mrs. D set up the mosquito nets and the children crawled under them to play. Scolded for disarranging the bedding, the children lay still and were asleep by 7:30.

Daniel, who had left after supper to visit his brother, came back before 8. By 8 p.m. all were asleep. The gasoline lamp was left burning. All doors and windows were closed. Ventilation came from the cracks in the bamboo floor.

A Typical Working Day - During Off-Season

At 5 o'clock the nephew who was staying in the house got up, rolled his bedding, and went out to pasture the two carabaos. The rest of the family slept until 5:30. Then Mrs. D got up and prepared coffee. The children rolled up the bedding. By 6 o'clock coffee was ready and everyone had coffee, including the nephew who had returned with the carabaos and the grandfather who had come to borrow rice for his meal.

Then Daniel fetched water from the village well. Mrs. D cooked and wiped the benches and the floor. The children swept the yard and fed the chickens. Breakfast was served at 7 a.m.

After a few minutes rest Daniel went off to his job of harvesting coconuts. Mrs. D washed the dishes, swept the floor and tended the children. She put some palay out to dry. The oldest girl went off to school. Grandfather came to watch the children. Then Mrs. D took her youngest son and visited various neighbors. After returning home about 10, other neighbor women came over to borrow charcoal or to chat.

At 10:30 Mrs. D gathered lima beans and started to cook lunch. At 11 o'clock the children came home from school or play. Grandfather in the meantime had left. At 12 o'clock Mrs. D took a dish of cooked food to a neighbor. At 12:30 all the family had lunch.

Daughter returned to school. Other members of the family rested until 2 p.m. Then Daniel returned to his harvesting, accompanied by the nephew. The younger children went out to play. Mrs. D gathered up the dried palay and prepared to go to market. Calling grandfather to watch the children, she left for market at 3 p.m. She took with her some papayas and macapuno coconuts (abnormal coconuts with soft meat filling the shell instead of hard meat plus coconut milk) to sell. With the returns from her sale she would buy fish, coffee and other things.

She returned from market at 5:30 just as Daniel and his nephew came from work. Mrs. D prepared supper and served it at 6 p.m. The nephew went to the barrio store to talk and listen to the radio. The children were in bed by 7 and Daniel laid down with them. He and wife now talked over the day's events and what should be done tomorrow. By 9 o'clock all were asleep, except the lizards, the mice and the mosquitoes.

Another Typical Day - Off Season

At five o'clock Daniel and his wife awoke. Daniel went out to pasture his carabaos. Mrs. D prepared coffee, rice and fish. At 5:30 the children got up. The girls folded the bedding while the little boys played.

By 6 o'clock Daniel returned with the carabaos and two bunches of green grass. Breakfast was served immediately - coffee, sugar, rice and dried fish. Right after breakfast Mrs. D washed the dishes and fed the pig and chickens. Daniel tended the children. At 7 a.m. grandfather arrived to see the children and talk for an hour. The daughter left for school. All morning Daniel stayed home, looking out of the window. He chatted with everyone who went by and reprimanded the children when they quarreled.

Mrs. D left by 8 to do her washing at the creek. At 11 she came back and hung the clothes on wire lines in the yard. Then she cooked the noon meal. As soon as she got back Daniel went off to visit his brother for 30 minutes. The lunch of rice, dried fish and lima beans was served at 12:15.

At one o'clock the oldest girl went to school; the other children went out to play. Daniel watched as Mrs. D tidied the kitchen. At 2 p.m. she left to visit a neighbor, taking along the youngest boy. Daniel had a siesta until 3. Then Grandfather came and the two men went to the barrio store to buy cigarettes and chat.

By 4 o'clock Mrs. D was home tending the children and preparing supper. Daughter came home from school with a perfect score on an Arithmetic test. The paper was immediately pinned to the wall for all visitors to admire.

About 4:30 Daniel untied his carabaos from the coconut tree and took them to pasture for an hour and a half. At 6 supper was served and at 6:30 Daniel left for the movies. Mrs. D lighted the lamp and prepared the children for bed. They were asleep by 7:30 and Mrs. D laid down with them. At 10:30 Daniel came home and went to sleep.

Field Operation

Land Use Pattern

Daniel has some crops on his land all years around. Bananas are a perennial crop requiring some cleaning and harvesting every month. Every three months (March, June, September, December) the coconuts are harvested, preceded by cleaning of the area around the trees.

For crops which must be replanted every year the crop year begins in March, with the first plowing and harrowing for upland rice. Successive plowing and harrowing is done in April. In May both upland rice and ubi are planted. In June both crops are weeded. Fertilizer is applied to the rice. Another rice weeding is done in July; another fertilizing in August.

September sees the harvest of the rice and the first plowing and harrowing for succession crops. In October final land preparation is made and corn and mungo beans planted. In November the corn is cultivated. December is harvest month for mungo beans. In January both corn and ubi are harvested. With the perennial crops Daniel's land is never idle. The quietest month is February, with only bananas and coconut requiring any attention (figure 34).

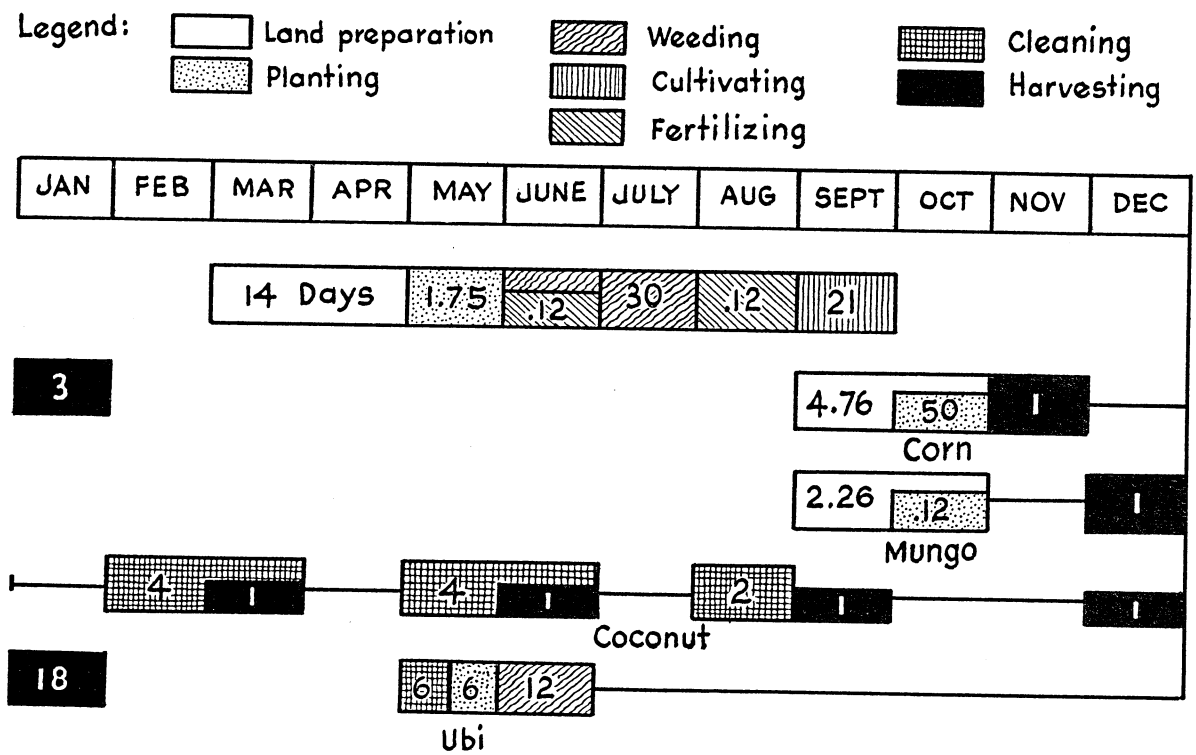


Figure 34. Land Use Pattern, 1959.

Cultural Practices

Upland Rice

Land Preparation

Starting in March Daniel plows the .4 hectare rice field. On two-thirds of the field where coconuts grow, this involves plowing around the trees. It takes him about three days to complete the field. As soon as the plowing is completed the field is harrowed to break the clods and remove weeds. Each

time the harrow reaches the side of the field the weeds wound around the harrow teeth are removed. When the operation is completed the weeds are piled together and burned after they have dried. About a week later a second plowing and harrowing is done in like manner. This past year Daniel plowed and harrowed four times waiting for the rains. After the final plowing and harrowing the land "settles" for ten days. Then the "panudling" is used to make small furrows. If the first furrowing is not satisfactory, Daniel may harrow and furrow again. He prides himself on his straight furrows.

Planting

On a windy afternoon in May Daniel winnows the rice seeds. The heavy seeds fall on the mat at his feet, are gathered and placed in the takuyan, sowing basket (figure 35). The lighter seeds, falling further away, are used for consumption.

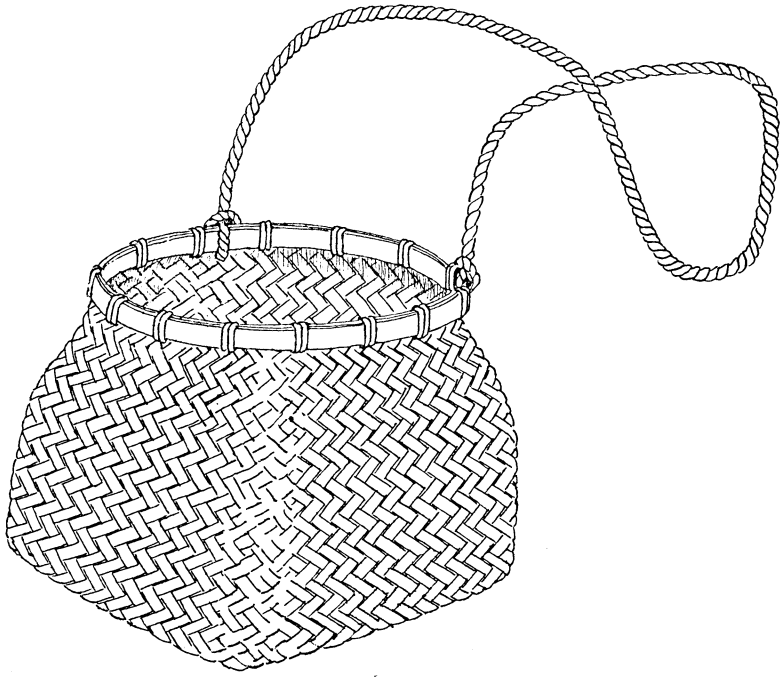


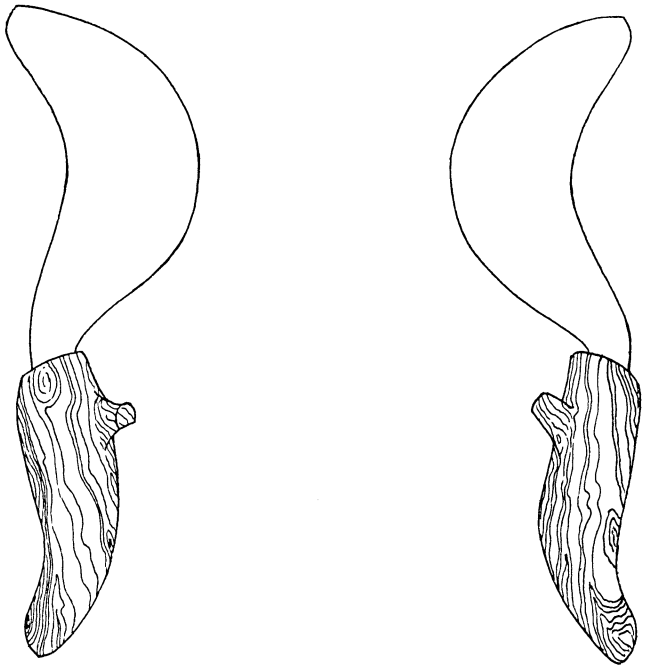
Figure 35. The takuyan.

On the field Daniel first plants a bamboo cross in the center beside which is buried a coconut shell full of rice seeds. Aside from being a prayer for a good harvest, the cross tells others not to walk on the field because it has been planted. Now Daniel traverses the field, broadcasting seeds in a manner similar to pitching a ball. To distribute the seeds evenly a constant rate of pitching is maintained.

Care of Plants

After 4 days the coconut shell of seeds is dug up and brought to the house for safekeeping. After 8 days the panudling (furrower) is passed between the rows to kill the weeds and hill-up the rice seedlings. Four days later the harrow is used for the same purpose.

In June Daniel weeds the rice for the first time, digging up the weeds with a dulus (figure 36). With the help of his wife and cousin this weeding takes about 6 days. Then half a bag of ammonium sulphate is broadcast over the field. In July Daniel weeds once more in the same manner. In August he broadcasts the other half bag of fertilizer.



Right handed Left handed

Figure 36. The dulus - a tool used for cutting short grass and weeds.

Harvesting

Daniel harvested in September with the help of his wife and five relatives. It took 3 days to clear the field. Harvesters use the yatab to cut the panicles one at a time. The harvested panicles are placed first in the takuyan, tied to the harvester's waist, then emptied into a jute sack. Finally the sacks are emptied on mats laid out in the yard and threshing is done with bare feet. Normally the harvester-

thresher receives one part in five for his labor. Four-fifths are retained by the farmer. As the harvesters were relatives, Daniel was not exact in his computations. Perhaps the two cavans they received were a little more.

Ubi (Root crop)

Land Preparation and Planting

On his .52 hectare mountain plot Daniel raises ubi and bananas. First, he girdles all trees to kill them. The dead trees are not removed but retained as trellis for ubi. The weeds and brush are cut. The end of May, holes for ubi are dug with a hoe around each tree. Into each hole a cut piece of ubi tuber is placed and covered with a thin layer of soil. About 250 kilos of ubi tubers were used for planting the field.

Care of Plants

After the germination the plants are hilled-up. Once in June Daniel "weeds", cutting the grass around the hill. The foliage cut provides a natural mulch to keep the soil moist. No other care is given.

Harvesting

Six or seven months after planting, the ubi tubers are ready for harvest. Daniel harvests intermittently for 6 days in January with the help of his wife and cousin. Daniel drives his carabao and sled over the steep trail. Lining the sled with banana bracts to keep the tubers from being scratched, he digs up the ubi tubers with a hoe and fills the sled. As soon as Daniel has managed to bring a sled load down from the mountain to the barrio, middlemen meet him and buy the tubers. With a harvest of 2100 kilos at 20 centavos per kilo this is Daniel's most profitable crop. He plans to expand production and has reserved 300 kilos for planting, 50 kilos more than last year.

Bananas

Bananas are perennial plants taking about 18 months from planting to harvest. Beside each old plant one or more new stalks appear and follow the same cycle. Once established, the banana does not have to be replanted (unless or until the hill heaves out of the ground). Bananas triumph over most weeds. Each year Daniel plants some additional area to bananas.

Land Preparation and Planting

As for ubi Daniel merely girdles the trees and cuts weeds and brush. With a shovel he digs holes about 2.5 feet in diameter and one foot deep. In each hole a rhizome, taken from some old banana plant, is placed and the base covered with soil. He has at present about 150 hills of bananas.

Care of Plants

Every month Daniel spends about three days cutting weeds and brush in his .52 hectare patch. At the same time he is clearing for further planting.

Harvesting

Once a month Daniel harvests bananas. He cuts the mature bunches with a bolo, places one bunch on each end of a bamboo stick and carries them over his shoulder to the barrio. If more bunches are maturing at the same time he may bring his carabao and sled for transportation. A middleman, resident in the barrio, buys the fruit at 70 centavos per 100 bananas.

Coconut

Two thirds of Daniel's .4 hectare plot is planted to coconuts - 40 trees. The use of these trees is included in the rent. Daniel does no planting and most of the care is incidental from the work done on other crops on the land. However, he estimates he spend about 10 days per year cleaning out dead fronds, climbing vines, etc. His chief concern is the harvest.

Harvesting

The coconuts are harvested once every three months. Except for the 50 nuts used for eating, Daniel harvests mature nuts. By means of a knife on a long pole the stems are cut and the nuts fall to the ground. Each nut is then struck against a sharp knife set in a block of wood to break off the husk. The husks are piled and later burned. The nuts are loaded into the sled and taken to the main road at the Animal Husbandry compound where they are transferred to a dealer's truck and hauled to a desicating factory in San Pablo City, about 30 kilometers distant. Daniel receives 6 centavos per nut delivered to the truck.

Daniel followed two different methods in harvesting his coconuts last year. Two harvests he did himself. Two harvests were performed by contract labor.

During the first harvest Daniel spent one day harvesting, husking and hauling 250 nuts. For the second harvest he spent one day for 320 nuts. For these nuts he received ₱34.20. For the following two harvests the contract workers paid him $4\frac{1}{2}$ centavos per nut. There were 400 nuts the third harvest 280 nuts on the fourth, total 680 nuts. Daniel received ₱30.60, and at 6 centavos per nut, the contract workers got ₱10.20. Daniel did no work but his wife had to be present when the nuts were counted to be sure he received his just return. By permitting contract harvesting Daniel lost his chance to make ₱10.20 for 2 to $2\frac{1}{2}$ days' work.

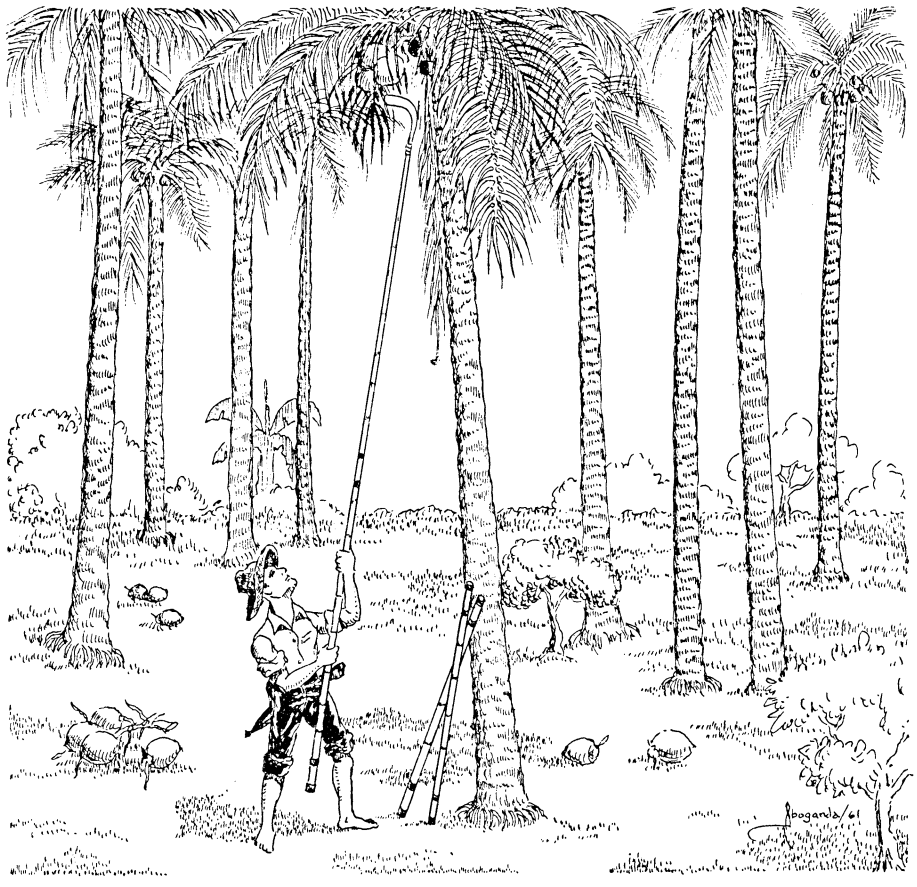


Figure 37. Coconut harvester with sickle on pole.

Corn and Mungo Beans

Corn and mungo beans are minor crops on this farm. Right after the rice has been harvested in September Daniel plows and harrows the field. In October he plows and harrows again. Then Mrs. D plants the 2 gantas of seed corn in hills over approximately two-thirds of the area. Twice in November Daniel cultivates the corn. With the help of wife and cousin Daniel harvested in January, pulling off the mature ears and dropping them in a basket. The corn stalks are cut and brought to the farmstead to serve as fodder for the carabaos in the dry season. No corn is sold. After seeds for the next planting are reserved, the corn is used to feed the pig and poultry.

On the small field not planted to corn Daniel broadcast the half ganta of mungo seeds he bought. No more attention was given until harvest.

This year the harvest was poor. The plants suffered from too much rain. In December Mrs. D harvested the one ganta produced and used it to feed the family.

Money Side of Farm and Household

Daniel, with a farm area much smaller than average for the Philippines, tries to maximize his income in every way he knows. He produces a succession of crops, some for home use, some for sale. He keeps a pig, chickens and geese in his small farmstead in addition to his two carabaos. Even his carabaos pay for themselves; when he is not using them he rents them out.

Receipts and Expenses

To show the variety of enterprises which contribute to farm income, a detailed list of Daniel's receipts and expenses are given (tables 34 and 35).

It must be noted that 67 per cent of the farm receipts are in cash. Daniel can hardly be classed as a subsistence farmer although he raises as much of his family's consumption requirements as he can.

There is nothing especially noteworthy about the list of expenses, except to comment that cash tenancy is still rather uncommon. Certainly Daniel pays very little for the use of land compared to share tenants.

TABLE 34. Farm Receipts

ITEM	CASH SALES		NON-CASH	
	Quantity	Pesos	Quantity	Pesos
Upland rice	-	-	11.5 cav.	115.0
Corn	-	-	3.0 cav.	36.0
Mongo	-	-	1 ganta	2.5
Sitao	-	-	-	2.5
Mustard	-	-	-	3.0
Lima Beans	-	-	-	3.0
Squash	-	-	-	.6
Ubi	1790 kilos	358.0	310 kilos	62.0
Coconut	1080 nuts	64.8	220 nuts	13.2
Banana	-	170.0	-	25.0
Total Crop Receipts		592.8		262.8
Boar	1	67.5	-	-
Chicken and eggs	-	27.5	-	75.0
Geese	-	32.8	-	-
Total Livestock Receipts		127.8		75.0
Rental Value of Dwelling		-		14.5
Total Farm Receipts		720.6		352.3

TABLE 35. Farm expenses

ITEM	CASH EXPENSES		NON-CASH	
	Quantity	Pesos	Quantity	Pesos
Rent of land	-	22.76	-	-
Planting materials				
Rice	-	-	-	4.00
Corn	-	-	-	1.00
Ubi	-	-	250 kilos	50.00
Mongo	½ ganta	1.25	-	-
Share or contract labor				
Rice	-	-	15 days	20.00
Coconut	-	-	2 days	10.20
Fertilizer (for rice)	1 bag	8.20	-	-
Livestock bought	1 pig	30.00	-	-
Tools bought (rope and moldboard)		19.80	-	-
Decrease in inventory	-	-	-	43.40
Total Farm Expenses		82.01		128.60

To supplement the income from his own farm Daniel secures off-farm work when he can. Luckily his uncle owns a coconut plantation and is willing to hire him part-time. Daniel receives about 60 per cent of his net income from the farm; 40 per cent from other sources (table 36).

In this type of operation it seems unnecessary to refine the analysis further. Daniel pays nothing for his farmstead, nothing for the mountain plot but they are essential to his enterprises. To bother computing a capital charge on what he does own seems unrealistic.

A similar situation exists with regard to family labor. Whenever Daniel wants help he calls for it free of charge from his relatives. But, as is shown in the account of daily activities, Daniel and his wife lend or give rice, cooked food and charcoal to relatives and neighbors. They feed any relatives who happen to visit at meal time. There is no way to estimate how much is spent in this fashion. It is a part of family living. Certainly, however, it has a bearing on the ease with which Daniel gets help.

In terms of available farm resources Daniel would be considered a subsistence farmer. However in terms of resource use and income Daniel has risen above his class. He takes part in the market economy and can be ranked as a semi-commercial operator.

Household Expenditures

Daniel and his wife kept an itemized account of day-to-day expenditures for six weeks.

TABLE 36. Net farm and off-farm receipts

	CASH (Pesos)	NON-CASH (Pesos)	TOTAL (Pesos)
Farm Receipts and Expenses			
Receipts			
Crop receipts	592.80	262.80	855.60
Livestock (sold or eaten)	127.75	75.00	202.75
Rental value of dwelling	-	14.50	14.50
Total farm receipts	720.55	352.30	1072.85
Expenses			
Land rent	22.76	-	22.76
Crop expenses	9.45	85.20	94.65
Livestock bought	30.00	-	30.00
Tools bought	19.80	-	19.80
Decrease in inventory		43.40	43.40
Total farm expenses	82.01	128.60	210.61
Net Returns from Farming	638.54	223.70	862.24
Off-Farm Receipts			
Share of palay harvested (4.5 cav.)	-	45.00	45.00
Wages as coconut harvester	278.00	-	278.00
Wages for plowing field	5.65	-	5.65
Rental for carabao and sled	240.00	-	240.00
Total off-farm income	523.65	45.00	568.65
Net Return to Family Labor & Capital	1162.19	268.70	1430.89

Mrs. D also kept track of the non-cash items used and assigned values to them. However she did not itemize the vegetables and fruits. She evidently forgot to list firewood. So this list may well be somewhat under-enumerated. It serves to round out the consumption picture.

Making Ends Meet

According to our computations Daniel had a cash income of ₱1162.19. His average weekly expenditures, excluding the Christmas clothing bought, were ₱16.50 or about ₱858 per year. In most barrio families clothing is bought two or three times a year. Therefore, it would be unrealistic to average the clothing cost per week for the six week period. Certainly the ₱300 difference between cash income and computed household expenditures will cover several shopping expeditions.

TABLE 37. Family cash living expenses

ITEM	FIRST WEEK	SECOND WEEK	THIRD WEEK	FOURTH WEEK	FIFTH WEEK	SIXTH WEEK	TOTAL SPENT
				pesos			
Fish (plus "salting" and oil)	3.60	5.30	5.10	7.10	7.10	12.00	40.20
Meat	2.40	3.60	4.20	2.20	-	-	12.40
Vegetables	-	-	3.10	1.50	1.20	-	5.80
Coffee and sugar	.90	.80	-	-	-	-	1.70
Milk	.70	-	-	-	-	-	.70
Gas (for lamp)	.45	.45	.45	.45	.45	.45	2.70
Soap	.43	.43	.43	.43	.43	.43	2.58
Starch	.20	.20	.20	.20	.20	.20	1.20
Jeepney fare	-	.40	-	-	.20	-	.60
Cigarettes	2.35	2.90	4.25	4.25	3.50	4.90	22.15
Movie admission	.50	.50	.50	.50	.50	.50	3.00
Fiesta	-	-	1.50	-	3.00	-	4.50
School girl's allowance	.25	.25	.25	.20	.25	.25	1.45
X'mas clothing	-	-	-	-	-	45.00	45.00
Total	11.78	14.83	19.98	16.83	16.83	67.73	143.98

After paying the harvesters and reserving palay for seed Daniel had about 9 cavans to feed his family. To this must be added the 4.5 cavans earned as harvesters. This may be sufficient for the family. However Mrs. D recorded a rather high rice consumption for the six week period. If this is normal, she may have to buy some rice before the next harvest. With the high cash income enjoyed by the family this will pose no problem.

Daniel prides himself on being able to stay out of debt. All of his transactions are for cash. However, he usually spends his money as it comes in and keeps little in reserve. Thus when emergency strikes he is not prepared. When his youngest son became ill Daniel had to have ₱60 immediately to pay for doctor and medicines. This he borrowed from a relative. The loan has not been repaid but it bears no interest. Certainly he can liquidate it during the year.

Other Factors

Barrio Ties

Daniel and his wife are related to about one fourth of the people in the barrio. His closest ties are with his relatives. However the neighborhood affinity is strong. Everybody knows everyone else. Every event in the barrio, birth, death, baptism, is attended by everyone, invited or not. If any celebration, such as a baptism, is to take place a group of men go from house to house to collect money. Another group will decorate; another group will help prepare the food. If anyone in the barrio needs rice he may ask it of any other resident. Neighbors come to each other's aid (figure 38).

TABLE 38. Family non-cash living expenses

ITEM	FIRST WEEK	SECOND WEEK	THIRD WEEK	FOURTH WEEK	FIFTH WEEK	SIXTH WEEK	TOTAL AMOUNT
				pesos			
Rice	8.40	8.40	10.40	11.20	9.40	9.40	57.20
Vegetables and fruit	1.40	2.00	2.60	1.60	3.60	1.00	12.20
Total	9.80	10.40	13.00	12.80	13.00	10.40	69.40

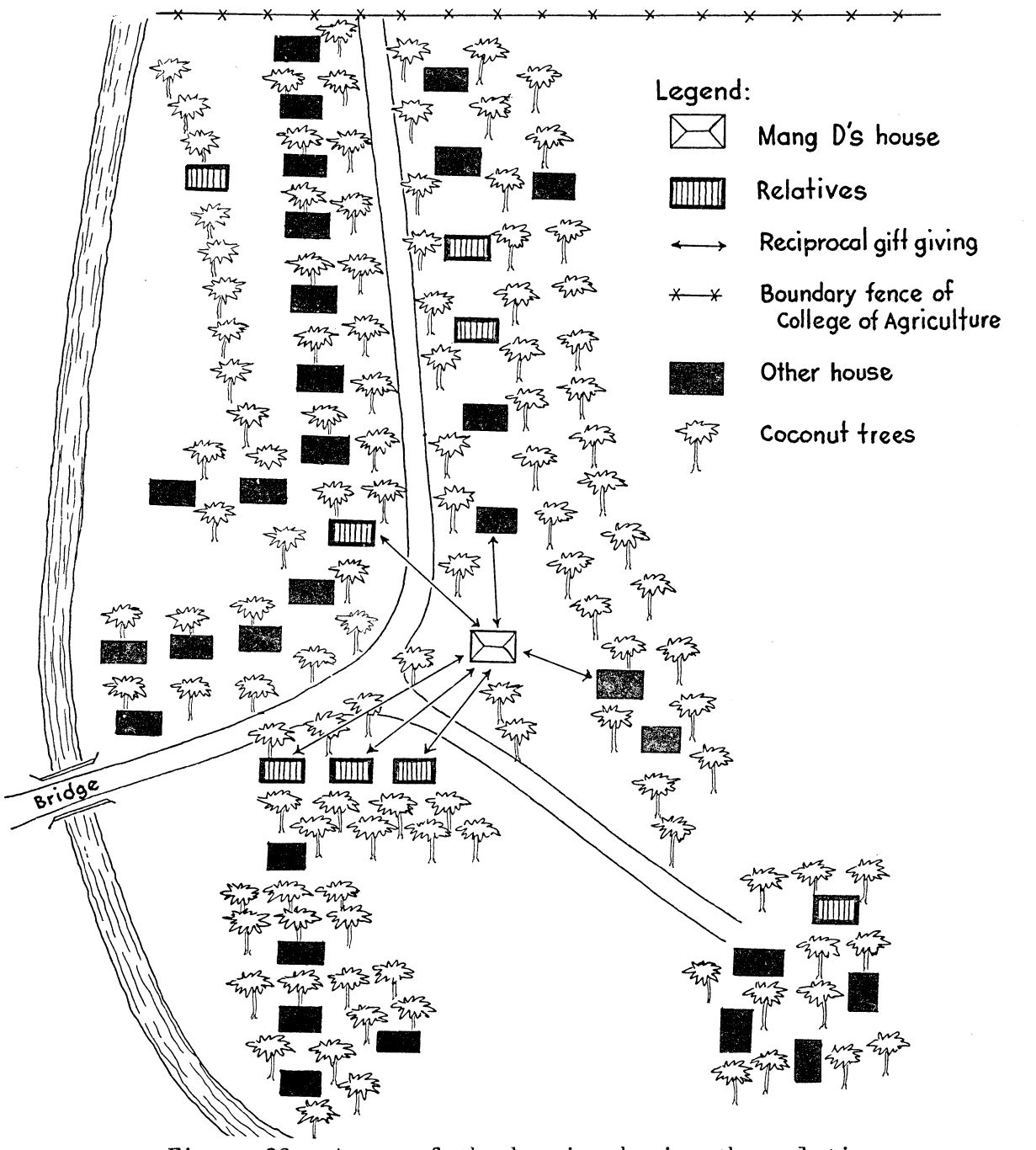


Figure 38. A map of the barrio showing the relatives and social activities of Mang D's family.

Modern Influences

Just beyond the boundary fence Daniel is exposed to a more sophisticated way of life. As Daniel and his wife sell their produce or do their marketing they cannot help but see college faculty and students with higher living standards. Consciously or unconsciously they copy them in matters of dress and recreation. Very possibly Daniel's improved methods of fertilizing and weeding somehow came through the fence too.

Daniel has very little contact with his landlord. He knows little about her. She is a woman, resident in Manila, who comes once a year to collect the rents for her land. All told she owns 13 hectares in the barrio which she inherited from a relative in Calamba. If she receives the same rent from others as from Daniel, she gets about ₱740 a year from the barrio.

Final Questions

Daniel and his wife are ambitious. They want both their sons and daughters to have a college education. Daniel would like to acquire his own land. His wife wants a good home with complete equipment. Daniel believes the best way to accomplish this would be to get a job as a laborer at the College of Agriculture. He continues to hope the opportunity will come.

With such a small area it is difficult to see how Daniel can expand his farm operation very much. Additional land in the barrio is not easily obtained as more and more houses are built and competition becomes keener. Perhaps he could increase his farm income by planting some of the new vegetable crops developed at the College of Agriculture. Daniel is gradually expanding his plantings on Makiling Mountain. However, he runs the risk that a new administration will survey the land and either force him out or require a substantial rent for its use.

To show just how well off Daniel and his family are by Philippine standards, a comparison may be made with data collected in the Philippine Statistical Survey of Households, 1957, by the Bureau of the Census and Statistics, National Economic Council.

In this survey the mean income of families in rural areas was ₱989, the median income ₱737. One half of the families in rural areas had incomes less than ₱750. In fact, 76.8% of families in rural areas had incomes less than ₱1250. Thus Daniel and his family are in the upper twenty-five per cent of the rural income range.

STUDY METHOD AND LIMITATIONS

Selection of Farms

Four principal criteria were used in selecting the farms to be studied: type of farming, size of farm, tenure and income. In a previous study[1/] it was found that 43% of all farms were specialized in one-crop paddy rice production; 14% produced two crops of lowland rice per year. Thus, a rice farm representative of each group was selected. Because much of Southern Luzon is upland, the third farm was an upland farm.

According to the same study, 70 per cent of all farms had less than 3 hectares of cropland. Yearly income of farm families averaged ₱982. Though the high incidence of tenancy (63 per cent) cannot be considered as representative for the country as a whole - - the sample was purposely drawn from high tenancy regions - - the institution of tenancy presents problems to efficient management. According to the 1948 Census of Agriculture, 37 per cent of all farms were operated by tenants.

Two additional factors governed the selection of farms. First, as a practical matter the farms had to be easily accessible to public transportation from the College of Agriculture. Second, to facilitate the work of the interviewer, farms were selected in barrios where Agricultural Economics personnel had been favorably accepted in the past. The two lowland rice farms were located in Barrio Halang of the municipality of Biñan, Laguna. In this barrio, about 30 kilometers from the College, personnel of the Agricultural Economics Farm Development Team has been working for over two years. The upland farm was located in Barrio Tungtungin, of the municipality of Los Baños, Laguna, adjacent to the College campus. Here agricultural economics students had made a survey of farming and housing conditions.

Gathering Data About Municipality and Barrio

To establish the setting for each of the three farms information about the two municipalities, and the two barrios was collected. Information about the municipality of Biñan came from the Municipal Treasurer, the Secretary to the Mayor and the Municipal Community Development Officer. Data were fortunately available from a 1957 survey made by community development workers in Biñan. Information about the municipality of Los Baños was acquired from the Municipal Treasurer and the Secretary to the Mayor. Information about the barrios came from barrio officials, the barrio school teacher and community development workers. In addition, information was available about Halang from the Agricultural Economics Farm Development Team;

1/ von Oppenfeld, et. al., "Farm Management, Land Use and Tenancy in the Philippines" UPCA Central Experiment Station Bulletin 1 (1957),

about Tungtungin from the survey of farming and housing conditions. Information about rainfall patterns was obtained from nearby weather stations. The weather station of Alabang, Rizal is located 12 kilometers northwest of Biñan. The College of Agriculture weather station is adjacent to Barrio Tungtungin.

Gathering Data from Farmers

The principal method of gathering information was direct interview. A visit was made to each of the farms every two days. The visiting hours, to coincide with farmers' free time, were between noon and 2 p.m. or between 5:30 and 6:30 in the evening. At first information was not recorded until the interviewer had left the respondent, but within two weeks it was possible to record data on the spot.

To assist the interviewer the Farm Development Project form on farm organization and resources was used to record inventory, land use and labor patterns. Attractive booklets on (1) receipts and expenses and (2) time utilization were provided to the farmers and their wives. Intended to be completed by the respondents, only Daniel of Farm C was able to do it. Miguel of Farm A and Juan of Farm B relied on the interviewer to complete the booklets at the regular interview.

To gather data on the typical day's activities the interviewer spent an entire twenty-four hours with the farm family, eating and sleeping with them. Data on time utilization was recorded every 30 minutes during waking hours.

The principal problem in securing information was establishing rapport. First, the interviewer was introduced by a colleague already acquainted with the farmers. He was presented as a student who needed their help to complete his training period. Then the interviewer explained the purpose of the study. He was politely accepted, but response to initial questioning was unsatisfactory. The farmers were more interested in the interviewer's background and what reward they might get if they cooperated. Gradually, as the interviewer adapted himself to them, wearing barrio clothes, going barefoot in the mud, and eating their meals, the farmers became friendly and talked freely of their problems. One incident portrays this clearly. Late one afternoon the interviewer reached Daniel's house to find Daniel's father tending the younger boy. While waiting for the farmer to return the interviewer conversed with the father. Soon Mrs. D entered with four slices of papaya for the group. When three slices were eaten the grubby boy grabbed the last piece. With dirty hands the father retrieved the piece and handed it to the interviewer. By now the fruit was quite soiled, but the interviewer forced himself to eat it. At last, after Daniel had returned, the father said, "We consider you a member of the family. I was testing you with the papaya. Many visitors who come to this place cannot take food handled by my naughty grandchild and by my soiled hands."

Achieving this friendly atmosphere was essential. Only after the interviewer was accepted did he find out that Miguel and Juan raised vegetables on additional patches of land. Only then did Daniel admit that he had a kaingin (squatter) patch of .5 hectare on the mountain. After all, kaingin farming on forestry preserve, though common, is illegal.

Limitations

One limitation is the poor time sense of all respondents. It is hard to be certain that the length of time they report for each activity is correct. However, it is approximate and probably sufficiently accurate for descriptive purposes.

A second limitation is the complete lack of records of the year's activities. For the period of study frequent interviewing was a corrective. For the year as a whole, certain things stand out in memory and careful probing can uncover others. There may, however, be some errors.

A third limitation stems from the presence of the interviewer during the typical working day. Naturally the barrio folk are concerned with an outsider and spend time in conversation with him. However, it was felt that the degree of interference was not too high.

A final limitation is inherent in the case study technique. There are not sufficient number of farmers included to average out individual differences. One must not conclude that all Filipino rice farmers operate exactly like Miguel and Juan. Not all upland operations are identical to that of Daniel. However, based on previous farm management studies, it seems clear that these three farmers have many counterparts in Philippine barrios.

APPENDIX

Definition of Terms

Ayungin, a cheap kind of small fish preserved by stringing them on a tiny bamboo stick and drying them in the sun. They are cooked by placing the stick over the fire.

Banig, a Filipino term for mat used for drying palay under the sun; also used as bed spread.

Bamboo, (Bambusa spinosa Roxb.), a woody grass with a big hollow in the center of the internode, reaches a height of 25 meters or more, growing in groves or clumps; has many varied uses among which are house construction, furniture and household pieces like bamboo baskets, water tubes, etc.

Bahala na sa Dios, a tagalog expression of distrust in oneself meaning "leave it to God".

Barrio, a sub-division of a municipality or town, smallest unit of the government.

Bia-an, a simple viand of Filipino farmers composed of small gobies. Gobies are small, spiny-finned fish, widely distributed throughout warm and temperate seas: the ventral fins are modified to form a suction disk.

Bilao, a winnowing basket made of thin bamboo strips.

Bithay, a sifter to segregate the rice grains from the impurities.

Binalot, rice plus viand wrapped in banana leaves or wax paper.

Bolo, a large, single-edged knife for a variety of uses, like clearing the field, harvesting and household work.

Buliligan, a basket container for storing rice or corn grains, lined with carabao manure.

Buri palm,(Corypha elata Roxb.), a tall tree, widely distributed in the Philippines, providing palm wine (tuba), alcohol and vinegar from the sap, materials for hats and mats from the leaves.

Carabao, a water buffalo about the size of an ox, used for plowing and other farm work.

Cavan, a common measure of rice and corn, equivalent to 75 liters or 2.13 bushels; one cavan of rough rice equals 44 kilograms in weight.

Complete fertilizer, a type of fertilizer containing nitrogen, phosphorus, and potassium.

Dulus, a tool used for cutting short grasses and short weeds other than grasses.

Exchange labor, a form of cooperative labor where a farmer has to return the work days done by other farmers on his own farm.

Fiesta, Spanish term for feast, celebrated pompously once a year to honor the patron saint.

Gabi, (Colocasia esculenta Lour. Burkill), in English, taro, a food plant of the Eastern Tropics, prized chiefly on account of its large corms or underground stems. For sweets, the corms are boiled, sliced and sprinkled with sugar, while as a substitute staple, just simply boiled.

Halabas, a large bolo operated with both hands. It is used to trim the dikes.

Hectare, a metric measure containing 10,000 square meters, equivalent to 2.471 acres.

Intermediate school or grades, the fifth, and sixth years of the 6-year elementary school (including the 7th year until 1940).

Itak, a bolo smaller than the halabas. It is operated with one hand to trim the edges of the dike.

Kaingin, the illegal practice of forest cultivation done by cutting down trees and burning them.

Kalmot, a harrow with metal teeth and hardwood frame.

Kilometer, a metric measurement of distance containing 1,000 meters, equivalent to .6214 of a mile.

Lingkao, a rice harvesting tool.

Mang, Mr., used as a sign of respect to an elderly person.

Mango, (Mangifera indica Linn.), most widely grown of all Philippine fruit trees, tastes like peach.

Mayor, head of a town elected by the people and holds office for a period of four years.

Municipality, also known as town, sub-division of a province comprising several barrios.

Municipal treasurer, a person with reputable character appointed by the mayor and the council as the monetary caretaker of the municipality.

Palay, (Oryza sativa Linn.), the rice plant, which bears a staple cereal or the cereal itself unhulled.

Lowland palay, as a culture, refers to paddy planting where the soil is plowed and/or harrowed usually with standing water (rain or irrigation), and soil is puddled when ready for planting. Usually seeds are first grown in seedbeds, then transplanted; also the varieties suited for this culture.

Upland palay, soil is plowed and harrowed usually dry and seeds always planted direct by broadcasting in furrows; also the varieties suited for this culture.

Panudling, a furrow opener made of hard wood.

Paragus, a sled fitted for mud paths.

Patio, a threshing floor made of 15 square meters of land.

Patola, (Luffa acutangula Linn. Roxb.), a coarse, annual, soft-bodied vine, leaves are somewhat rounded and oval in shape, 10-20 cm. long, shallowly 5-lobed, and with a heart-shaped base. The green fruit is oblong-oblanceolate, 20-25 cm. long, about 5 cm. in diameter and with ten prominent, longitudinal, sharp angles.

Pinipig, pounded glutinous rice.

Poblacion, a Spanish word used to refer to the town proper.

Puto, a native rice cake prepared by mixing thoroughly ground rice, sugar, salt and baking powder. The mixture is poured into puto molds and steamed for half an hour or until done. It is served with grated coconut.

Primary school or grades, the first four years of the 6-year elementary school.

Sawali, woven bamboo strips used for walling.

Sitao, pole beans (Vigna sesquipedalis Frew.), an annual, climbing, herbaceous, nearly smooth vine; young shoots and the beans make a good green vegetable.

Takuyan, a woven bamboo basket tied around the harvester's waist used for sowing and harvesting palay.

Ubi, (Dioscorea alata Linn.), the most important of the yam in the Philippines. Like most yams its value lies in its large, edible, underground tubers. The flesh has a coarse texture and is very mucilaginous. One popular ubi preparation is ubi ice cream.

Viand, as used by Filipinos the word means any fish or meat dish (sometimes prepared with vegetables) which is served with rice for a meal. It may also be used to designate the protein component (fish or meat) of the dish.

Yatab, harvesting tool for palay consisting of a curved, single-edged knife attached to a small piece of wood cross-wise. Palay is harvested panicle by panicle.

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