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CREDIT IN THE PHILIPPINES

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Volume XIII, February 1973  
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COUNTRY PAPERS

# SMALL FARMER CREDIT IN THE PHILIPPINES



AGENCY FOR INTERNATIONAL DEVELOPMENT  
DEPARTMENT OF STATE  
WASHINGTON, D.C. 20523

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COUNTRY STUDY

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SMALL FARMER CREDIT IN THE PHILIPPINES

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by:  
Orlando Sacay  
The Agricultural Executives, Inc.

Manila  
October, 1972

### Note

Peso conversion presents some problems because of devaluation. To present converted figures at official exchange rate at any given time in past few years would distort reality. Labor and other local costs have only gradually risen since devaluation while fertilizers and other inputs which could have been expected to rise rapidly, have been subjected to price controls. A dollar conversion will make it appear that small farmer loan availabilities declined in the 1970-71 period when in fact they increased. Similarly, dollar conversion would show a decline in pesticide use in 1970 and moderate increase in 1971 when both years are reported to have shown marked increases in usage.

The credit trends appear to us to be more accurately represented in the peso figures than they would be by actual dollar equivalents at the prevailing exchange rates. In order to express these trends in dollars, it might be best to simply convert pesos at the current exchange rate.

Approximate exchange rates are as follows: To February 1962--~~₱~~2.00:\$1.00; February '62 to Feb. '70--~~₱~~3.60:\$1.00; subsequently the peso was allowed to float and currently has stabilized around ₱6.70:\$1.00.

## SMALL FARMER CREDIT IN THE PHILIPPINES<sup>1/</sup>

Next to Japan and Taiwan, the amount of institutional credit supplied to agriculture on a per hectare basis in the Philippines is the highest in Asia.<sup>2/</sup> A few years back, a credit and cooperative marketing scheme initiated to alleviate the credit situation in the rural areas gained widespread attention. Recently, the successful rural banking system of the country has been used as a pattern for similar schemes in other developing countries.

### Philippine Agricultural Credit System

The Philippine agricultural credit system is predominantly in the hands of the private sector. About two-thirds of all credit accommodations for agricultural production and a sizeable proportion of agricultural marketing loans were supplied by private institutions. On the other hand, government financial agencies have been organized for specific purposes which in turn supplies the balance of total credits made available to agriculture.

Although the agricultural credit system is predominantly in the hands of the private sector, the government exercises strict supervision of all financial institutions through the Central Bank of the Philippines. Control measures are aimed at regulating the volume and nature of credit generated by these institutions. Rules are also designed to sustain the confidence of the public on the banking system.

Almost all financing institutions serve agriculture as a part of a broader based credit operation. There are only two institutions which operate primarily in the rural areas and cater to the needs of small farmers.

The financial institutions serving agriculture and their corresponding contributions to total credit volumes (1966-1971) are as follows:<sup>3/</sup>

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<sup>1/</sup>This paper was prepared by Dr. Orlando J. Sacay for the Spring Review of Small Farmer Credit sponsored by the United States Agency for International Development.

<sup>2/</sup>Shigeru Ishikawa, Agricultural Development Strategies in Asia, (The Asian Development Bank, 1970), p. 43.

<sup>3/</sup>For details, refer to Tables 1 and 2.

	<u>Percent of Production Credit</u>	<u>Percent of Marketing Credit</u>
<u>Government Agencies</u>		
1) Development Bank of the Philippines	3.7	1.2
2) Philippine National Bank	25.8	11.2
3) Agricultural Credit Administration	<u>1.1</u>	<u>0.5</u>
Subtotal	30.6	12.9
<u>Private Institutions</u>		
4) Commercial Banks	46.7	87.1
5) Private Development Banks	1.5	-
6) Rural Banks	20.3	-
7) Savings Banks and other Non-banks	<u>0.9</u>	<u>-</u>
Subtotal	69.4	87.1
Total	<u>100.0</u>	<u>100.0</u>

#### Development Bank of the Philippines

The Development Bank of the Philippines, a government-owned and controlled corporation, with 26 branches and 29 agencies, is the leading development and long-term financing institution in the country today. Its guiding philosophy is industrialization and the corollary diversification of the pattern of exports. Promotion of the establishment of private development banks in the provinces and cities has become an added function.

Of the total value of approved loans during 1965-71, 21.6 per cent were for agriculture. However, due to the precarious financial position of the bank, actual releases declined from 22 per cent in 1967 to only 5 per cent in 1971.<sup>4/</sup> This unfavorable development was brought about by a considerable drain in loanable funds to large advances on guarantees made by the bank on foreign loans.

Agricultural Loans. Agricultural loans may be classified as ordinary (straight) or special. Special loans are loans which are granted through a special

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<sup>4/</sup>Melisa Agabin and Verden C. Dangilan, "Development Bank of the Philippines," Agricultural Credit Report, April 15, 1972, Table 2 and 3.

financing program, of which there are 30. Priority for the granting of loans under these has been given in the financing of rice, coconut, and livestock production.

Small loans constitute 78 per cent of the number of agricultural loans and 24 per cent of the value of loans approved from 1965-66 to 1969-70. These loans averaged ₱2,210 while loans over ₱5,000 averaged ₱42,430.<sup>5/</sup> The strict collateral requirements precludes tenants and lessees from using the loaning facilities of the bank. It is in no way a small farmers' bank.

#### The Philippine National Bank

The Philippine National Bank with 142 branches and agencies is the oldest government credit institution. Assuming a wide range of activities in the past, this agency has finally settled to perform a commercial banking function. It grants mainly short-term loans although it holds equity in an investment and development corporation and was drawn into guaranteeing foreign long-term loans to build sugar centrals.

The bank has also been used to finance government corporations engaged in price stabilization. Past due loans from government corporations, which have little chances of recovery, constitute two-thirds of the total past due loans comprising 34.4 per cent of loans outstanding. The bank now suffers from a liquidity problem as a result of overextending its financial resources.

Financing for the Sugar Industry. About 30 per cent of PNB loans during the past 5 years (1967-71) went to agriculture. Of this volume, 78 per cent went to financing sugar producers. The share of sugar, however, has been increasing. In 1971, 93 per cent of all agricultural loans went to sugar production.<sup>6/</sup> This high percentage is caused by the necessity faced by the PNB to protect its guarantees on foreign loans for the construction of sugar centrals.

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<sup>6/</sup>Manuel Soliven, "The Philippine National Bank," Agricultural Credit Report, April 15, 1972, Appendices D and E.

The PNB is by no means a small farmers' bank. Production loans are primarily secured by real estate. While there are no available statistics on loan recipients, the average size loan of ₱4,166, as compared to DBP's ₱6,950 average, is indicative that borrowers are the relatively larger farmers.

### Agricultural Credit Administration

The Agricultural Credit Administration is the only government agency exclusively preoccupied with serving the needs of small farmers. Funds are continuously pumped into the system with direct government appropriations. Its operation is not financially viable due to its perpetually poor collection performance.

Once responsible to promote the organization of farmers' cooperative marketing associations, its powers have been trimmed to registration and financing of cooperatives. Loans to farmers are extended through 295 agricultural cooperatives which have remained active out of 668 previously organized.

Lending Operation. ACA's lending operation has kept many of these cooperatives alive. A major source of income is the cooperative's share of interest payments discounted in advance and also spent for operator before these are even collected from farmers.

Of the loans granted during the past 6 years (1966-71), 72 per cent were extended to farmers to finance production.<sup>7/</sup> The rest were loans for marketing purposes granted to farmers and cooperatives.

Loans are extended to small farmers on a non-collateral basis. The average size during the past 6 years was ₱618. It is held certain that the loan recipients of ACA belong to the lowest stratum of farmers.

### Commercial Banks

Private commercial banks numbering 37 and operating 426 branches in the country supply a major portion of total credit available to agriculture,

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<sup>7/</sup>C.S. Sarmago, "The Agricultural Credit Administration," Agricultural Credit Report, April 15, 1972, Table 3 and 6.

especially for marketing purposes. However, accommodations to agriculture is only a minor part of their operation, representing only 6 per cent of total credits granted.<sup>8/</sup>

Commercial banks normally keep credit to agriculture at the minimum. Commercial banks derive their income from short-gestation low-risk repetitive transactions with credit-tested permanent clientele. This income opportunity cannot be offered by high-risk agricultural loans and those with a long-term turnover.

Agricultural loans are generally limited to post-harvest activities and relatively stable agro-industrial enterprises. This set-up necessarily shuts off the loan windows of commercial banks to small farmers.

#### Rural Banks

The rural banking system supplies the main bulk of credit to small farmers. Although privately owned, rural banks draw heavy financial support from the Central Bank in addition to assistance they receive in the training of their officers and employees. Initial paid-up capital is matched on a peso-for-peso basis. The rediscounting window of the Central Bank is wide open to rural banks at preferred rates of interest.

There are 539 such banks, not only a few are family-owned. The system, to a certain extent, has channelled landlord capital into the banking business, a development considered favorable to effecting meaningful land reform.

Almost 90 per cent of loans were channelled to agriculture in 1971. About 97 per cent of agricultural loans were short-term loans for production. A significant proportion (42 per cent) of these loans financed rice growing. The average agricultural loan granted by the rural banks for the period 1966-71 was P1,085, an amount somewhat larger than ACA loans although significantly below the DBP and PNB averages.<sup>9/</sup>

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<sup>8/</sup>W. Geonzon, "Private Commercial Banks," Agricultural Credit Report, April 15, 1972, p. 16.

<sup>9/</sup>Zosimo Q. Topacio, Jr., "The Rural Banking System," Agricultural Credit Report, April 15, 1972, Appendix A. 8

Some emphasis has also been placed on coconut (15 per cent) and livestock (13 per cent) production.<sup>10/</sup>

With the financial assistance they receive, rural banks are able to carry on a viable banking operation on the basis of small loans. The cost of lending in 1971 averaged 7.8 per cent, 4.9 per cent representing administrative costs and 2.9 per cent being the cost of money. Repayment too has been good, with only 2 per cent of outstanding loans under litigation, the amount being almost fully covered by reserves for bad debts. Loans, however, had been well secured, 81 per cent being protected by real estate collateral.<sup>11/</sup>

Supervised Credit Scheme. Recognizing the need for rural banks to break away from the traditionally collateral-oriented policies in order to pass on to the lower-rung farmers the financial benefits received by the rural banks, a supervised credit scheme was implemented with the establishment of the Agricultural Guarantee and Loan Fund (AGLF). This program supplied 100 per cent of the funds and assumed 70 per cent of the losses for loans to farmers who had no collateral to offer. However, after 5 years of implementation, the AGLF faced difficulties in expansion. It accounted for hardly 3 per cent of the total agricultural loan volume granted.

Loan Supervision. Loan supervision has been considered a major problem since government technicians were assigned to perform this responsibility. Fortunately, a number of measures have been introduced to offset this. The program has since then been revised to encourage rural banks to hire their own technicians. An Agricultural Loan Fund has replaced the AGLF. From this fund special time deposits earning 3 per cent per annum are placed with rural banks. Loans generated out of this fund can be rediscounted at 3 per cent per annum provided banks hire their own technicians.

To protect rural banks from losses from unsecured loans, the Agricultural Guarantee Fund was established. Recently, the guarantee was raised from 70 per cent to

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<sup>10/</sup> Central Bank of the Philippines, Nineteenth Annual Report of the Rural Banking System, Appendix C.

<sup>11/</sup> Ibid., Appendix B.

85 per cent in order to further encourage these banks to participate more actively in the supervised credit program. Rural banks are at present also being encouraged to grant loans to groups of farmers who would guarantee each others' loans, an attempt to reduce the cost of loan administration and instill greater social consciousness among farmers in the repayment of loan.

### Small Farmer Credit Institutions

Some twenty years ago, there was not a single institution, government or private, which served the credit needs of farm households in the rural areas. Interest rates from unregistered money lenders, the small farmers' most frequent and usually the most available credit source, were usurious. Interest rates of 100 to 200 per cent were not uncommon and social unrest prevailed in highly tenanted areas.

Two credit systems for small farmers were therefore instituted in 1952 to ease the situation; the rural banking system and the Agricultural Credit Administration, then called the Agricultural Credit and Cooperative Financing Administration (ACCFA). The rural banking system has blossomed into a dynamic rural credit institution that it is now. On the other hand, ACCFA was a failure as a credit program because of poor collection. Nonetheless, investment on the ACCFA program was considered by some as a justifiable political cost in quelling on imminent rebellion.

### Availability of Credit

While the ACCFA program has somehow managed to at least survive, the rural banking system has slowly but surely gained ground in the rural credit field. The impact of institutional credit in the rural areas may best be illustrated by the average interest rates farmers pay then and now.

A study in 1957/58 in Nueva Ecija showed that the interest rate paid by farming households averaged 52 per cent per annum. Only 9 per cent of loans were obtained from institutional sources. The rest were provided by landlords, private money lenders, merchants and relatives.<sup>12/</sup>

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<sup>12/</sup> Jose P. Gapud, "Financing Lowland Rice Farming in Selected Barrios of Munoz, Nueva Ecija," Economic Research Journal (Sept. 1969), p. 79. 10

By 1969/70, another study showed that the average interest rate paid by farming households had declined to 22 per cent. About 27 per cent of households obtained credit from institutional sources.<sup>13/</sup> The interest charged by unregistered sources had also substantially declined, a clear indication that the expanded availability of institutional credit had cut deep into the profits which these unregistered sources used to enjoy.<sup>14/</sup>

While several studies would show varying magnitudes, the fact is that established institutions now supply a significant portion of the credit needs of small farmers and in the process, force non-registered sources to bring down their own credit charges. It is estimated that about 30 per cent of farmer borrowers are reached by institutional sources.<sup>15/</sup>

### Inequities

However, in spite of the significant advances attained in supplying credit to farmers, major inequities still remain. The agricultural credit system heavily favors the better off sugar producers.<sup>16/</sup> Furthermore, only about one-fifth of total credits to agriculture are enjoyed by the small farmer category. Considering that small farmers (under 10 hectares) constitute 95 per cent of the total farmer population who till 70 per cent of the existing cultivated farm area, the distribution of credit is indeed inequitable.

This problem is further magnified if the distribution of credit within the small farmer group were examined. It was estimated that farmers with under 3 hectares and who have no collateral to offer share only 1.6 per cent of production credit.<sup>17/</sup> This group constitutes 73 percent of the total farmer population farming 39 per cent of the country's cultivated area.

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<sup>13/</sup> Institute of Philippine Culture (IPC) - Bureau of Agricultural Economics, "Socio-Economic Study of Nueva Ecija Rice Farmers, CY 1969-70."

<sup>14/</sup> Refer to Tables 3 and 4.

<sup>15/</sup> Refer to Tables 5 and 6.

<sup>16/</sup> Refer to Tables 7, 8 and 9.

<sup>17/</sup> Refer to Table 10.

Major Policy Directions

The plight of the small farmer is gaining major concern among policy makers. Major policy revisions favoring small farmers are anticipated. The recent Presidential Decree transferring land ownership to tenants and lessees alone is a clear manifestation of the attention directed toward the welfare of small farmers. To supplement the land reform program, massive financial assistance primarily through the rural banking system is planned. It may therefore be said that more encouraging developments are to come in the very near future.

TABLE 1  
Loans Granted for Agricultural Production <sup>1/</sup> by Financing Institution, 1966-1971  
(million ₱)

	Year	1966	1967	1968	1969	1970	1971	TOTAL (1966-71)	%
I. Government <sup>10/</sup>									
1. ACA <sup>2/</sup>		9.1	16.3	23.9	23.4	30.9	32.3	135.9	1.1
2. DBP <sup>3/</sup>		42.1	77.0	135.4	97.7	70.5	24.0	440.7	3.7
a. Prodn. inputs and farm operating expenses		*	38.3	66.8	55.6	*	11.7		
b. Capital assets		*	38.7	68.6	42.1	*	12.3		
3. PNB		409.6	521.7	493.3	482.5	553.0	672.0	3132.3	25.8
Sub-Total		460.8	615.0	652.6	603.6	654.4	728.3	3714.9	30.6
Percent		34.6	35.6	35.5	31.8	26.5	25.3		
II. Private									
4. Commercial Banks <sup>4/</sup>		595.5	736.9	775.8	836.9	1275.4	1451.1 <sup>11/</sup>	5671.6	46.7
5. Private Development Banks <sup>8/</sup> - Total		22.0	38.5	25.0	22.6	30.2	40.0	178.3	1.5
a. Prodn. inputs and farm operating expenses		*	*	4.9	4.1	5.6	5.2		
b. Capital assets		*	*	20.1	18.5	24.6	34.8		
6. Rural Banks - Total		247.5	334.1	377.5	418.7	496.5	606.4 <sup>9/</sup>	2478.6	20.3
a. Prodn. Inputs and farm operating expenses <sup>6/</sup>		247.5	314.8	362.3	409.2	490.0	592.9		
b. Capital Assets <sup>7/</sup>		-	19.8	15.2	7.5	6.4	13.4		
7. Savings Banks		4.6	1.8	2.3	2.3	1.5	0.4	12.9	0.1
8. Non-Bank. Financing Institutions <sup>*5/</sup>		2.4	2.1	5.1	15.6	22.2	53.5	100.9	0.8
Sub-Total		872.0	1113.4	1185.7	1294.1	1825.8	2151.4	8442.2	69.4
Percent		65.4	64.4	64.5	68.2	73.6	74.7		
GRAND TOTAL		1332.8	1728.4	1838.3	1897.7	2480.2	2879.7	12157.1	100.0

- \* Breakdown not available.
- 1/ Generally includes short-term input and longer term capital loans to agriculture, fisheries and forestry. Data from 1968 reflect loan volumes granted to the private sector only.
- 2/ Loans granted for FY ending year shown at top. These are short-term loans maturing 60 days after harvest.
- 3/ Loans approved for FY ending year shown at top. Actual loans released for agriculture average 84% of approved loans over the period 1966/67 - 1970/71.
- 4/ Commercial banks data as secured from the Central Bank include renewals. These are mostly short-term maturing loans.
- 5/ Include NIDC, PDCP, Bancom Development Corp., Mutual Bldg. and Loan Assns. and Stock Savings and Loans Assns. Data exclude ACA loans.
- 6/ Data include short-term production loans under special financing programs.
- 7/ Include medium and long-term loans under AGLF, CB-IBRD and other special financing programs in addition to ordinary loans.
- 8/ Including some marketing and/or commodity loans not separable. Loans classified as short-term are assumed to be production loans while those classified as medium and long-term as loans for facilities.
- 9/ Figure includes December estimate by CB Dept. of Rural Banks.
- 10/ Exclude funds channelled by government institutions to private financing institutions.
- 11/ Include estimate of ₱737 M for July to Dec. (Only January to June data available at CB).

SOURCES OF DATA:

- 1) Agricultural Credit Administration (ACA).
- 2) Development Bank of the Philippines (DBP)
- 3) Philippine National Bank (PNB)
- 4) 7 & 8 - Central Bank, Dept. of Economic Research
- 5) DBP, Dept. of Development and Rural Banks and Annual Reports
- 6) CB, Dept. of Rural Banks

(Adopted from the Agricultural Credit Report.)

TABLE -2

Total Agricultural Loans Granted for Marketing Purposes  
(Output)<sup>1/</sup> by Financing Institutions, 1966-71.

(million ₱)

Institution	Year - 1966	1967	1968	1969	1970	1971	Total (1966-71)	%
I. Government								
1. ACA <sup>2/</sup>	4.8	8.9	7.9	5.4	14.3	10.2	37.9	0.5
2. DBP <sup>3/</sup>	6.3	8.1	37.8	45.3	11.0	7/	94.1	1.2
3. PNB <sup>4/</sup>	n.a.	n.a.	168.3	80.6	279.5	325.6	854.0	11.2
Sub-Total			214.0	131.3	304.8	335.8	986.0	12.9
II. Private <sup>6/</sup>								
4. Other Commercial Banks <sup>9/</sup>	n.a.	n.a.	1,011.7	1,210.3	1,946.7	2,469.8 <sup>8/</sup>	6,639.4	87.1
5. Development Banks	n.a.	n.a.	0.7	0.04	0.03	0.07	0.8	*
6. Rural Banks	n.a.	0.8	0.7	0.2	0.2	0.35/	1.4	*
Sub-Total			1,013.1	1,210.54	1,946.93	2,470.17	6,640.6	87.1
GRAND TOTAL			1,227.1	1,341.84	2,251.73	2,805.97	7,626.6	100.0

\* Less than .05 percent.

<sup>1/</sup> Exclude loans granted to agriculturally-related industries except DBP, PDB loans to rice and corn mills.<sup>2/</sup> Loans granted for FY ending year shown at top.<sup>3/</sup> Approved working capital loans to palay/corn millers, warehouses and traders. Since at least 1966 DBP in practice stopped giving loans for trading purposes for the other industrial sectors.<sup>4/</sup> Only for sugar, palay and coconut. Exclude loans granted to government agencies like RCA, Phil. Exchange and NIDC.<sup>5/</sup> Estimated.<sup>6/</sup> Savings banks volume insignificant.<sup>7/</sup> Loans for working capital for rice/corn industry suspended.<sup>8/</sup> Includes estimate of ₱1,277 M for latter half of year (only January-June data available at CB).<sup>9/</sup> Includes renewals but excludes export/import financing of processed products.

SOURCES OF DATA:

- 1) Agricultural Credit Administration (ACA)
- 2) Development Bank of the Philippines (DBP)
- 3) Philippine National Bank (PNB)
- 4) Central Bank of the Philippines, Dept. of Economic Research
- 5) DBP, Department of Development Banks and Annual Reports
- 6) Central Bank, Department of Rural Banks.

(Adopted from the Agricultural Credit Report.)

TABLE 3

Short-Term Loans Interest Rate Per Year\*, by Source of Loan, 224 Loans<sup>1/</sup>, 1957/58.  
(in % of No. of Loans)

ALL LOANS										
Interest Rate % Per Year	No.	%	Land lord	Other Land- lords <sup>2/</sup>	Priv. Indi- vidual	Rela- tives	Mer- chants	FaCoMa	Rural Banks	PNB
<u>No. of Loans</u>	<u>224</u>		<u>125</u>	<u>35</u>	<u>20</u>	<u>18</u>	<u>6</u>	<u>9</u>	<u>10</u>	<u>1</u>
None	44	20.0	22.0	3.0	30.0	50.0	17.0	-	-	-
1-14	29	13.0	10.0	-	10.0	-	-	44.0	100.0	100.0
15-29	19	9.0	12.0	-	-	-	-	44.0 <sup>3/</sup>	-	-
30-59	21	9.0	10.0	6.0	10.0	17.0	-	12.0 <sup>3/</sup>	-	-
60-99	31	14.0	13.0	29.0	10.0	5.0	33.0	-	-	-
100-199	45	20.0	18.0	43.0	15.0	11.0	33.0	-	-	-
200-299	21	9.0	9.0	11.0	15.0	17.0	-	-	-	-
300 & over	14	6.0	6.0	8.0	10.0	-	17.0	-	-	-
		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Average Interest Rate		51.99	69.19	119.7	75.75	89.55	81.52	18.32	14.0 <sup>4/</sup>	

\* Interest rates shown are computed rates (by Gapud) based on formula:

$$\frac{\text{Actual amount charged for interest}}{\text{actual amount received}} \times \frac{12}{\text{Period of loan}} \times 100 = \text{Interest Rate/year}$$

- <sup>1/</sup> Only fully repaid loans included. Of the total 256 loans obtained by all borrowers, 48% were in cash and 43% were in-kind loans.  
<sup>2/</sup> Landlord other than the tenants.  
<sup>3/</sup> These high FaCoMa rates were reported arising when loans were repaid before maturity but no interest adjustments were given or when the annual rate was charged for loans maturing shorter than a year. Add to this is the practice of charging the service fee on a loan basis rather than on a per annum basis.  
<sup>4/</sup> Considering that loans are usually discounted, author found 14% as average on rural bank loans.

SOURCE: Jose P. Gapud, "Financing Lowland Rice Farming in Selected Barrios of Muñoz, Nueva Ecija, 1957-58" Undergraduate thesis, U.P. College of Agriculture, Los Baños, Laguna p. 79.

(Adopted from the Agricultural Credit Report.)

### Footnotes

\* Less than 1/2 of 1 per cent.

1/ In % of borrowers.

2/ In % of total number of loans.

3/ Including loans from pawnshops.

4/ Including rice/corn miller or merchant.

5/ Including friends and neighbors.

6/ Includes some merchants and co-farmers.

7/ Sources of 595 loans obtained by 285 borrowers prior to borrowing from rural banks.

8/ Includes a few "cash and kind" loans.

9/ Only rice mill/warehouse.

10/

### SOURCES:

- (1) Leopoldo P. de Guzman, "An Economic Analysis of the Methods of Farm Financing Used on 5,144 Farms," Philippine Agriculturist, Vol. 41 (January, 1958).
- (2) Jose P. Gapud, "Financing Lowland Rice Farming in Selected Barrios of Munoz, Nueva Ecija," Economic Research Journal (Sept. 1959) p. 79.
- (3) BCS, "Borrowing Practices of Farm Households, May, 1961," PSSH, Bulletin Series No. 12 (June, 1963) p. 241.
- (4) Romeo A. Muere, "An Economic Evaluation of a Decade of Rural Banking in the Philippines in Relation to the Development of Agriculture," Masters thesis UPCA (1965). p. 142.
- (5) Adelino Ordone, "Agricultural Credit in the Land Reform Areas," Economic Research Journal (March, 1957) p. 248.
- (6) Institute of Philippine Culture (IPC)- BAEcon, "Socio Economic Study of Nueva Ecija Rice Farmers, CY 1969-70."

(Adopted from the Agricultural Credit Report.)

TABLE 4

Short-Term Loans Interest Rate Per Year, by Source of Loan, 803 Loans<sup>1/</sup>, 1969-70  
(in % of number of loans)

Interest Rate % Per Year	ALL LOANS		INFORMAL SOURCES					Sub-T Informal Sources		FORMAL SOURCES				
	No.	%	Land- lord	Priv. Money & Lender	Friends & Rela- tives	Merch., Wrhses. Rice Mills	Others	No.	%	FaCoMa ACA	Rural Banks	Other Banks	Sub-T Formal	
No. of Loans	803		261	64	228	17	13	583		100	75	37	220	
5	215	26.8	33.7	18.7	46.5	23.5	16.7	212	36.4	1.9	1.5	0	3	1.4
5-9	80	9.9	6.1	4.7	2.7	5.9	-	26	4.5	26.8	16.0	35.1	54	24.5
10-14	227	28.3	16.1	7.8	7.0	35.3	-	69	11.8	67.6	81.4	64.9	158	71.8
15-19	12	1.5	2.1	3.1	0.4	0	8.3	11	1.9	0.9	-	-	1	0.5
20-24	46	5.7	7.3	1.6	8.4	17.6	25.0	45	7.7	-	1.3	-	1	0.5
25-29	12	1.5	1.9	3.1	1.3	5.9	8.3	12	2.1	-	-	-	-	-
30-34	56	7.0	5.4	31.2	7.9	11.8	8.3	55	9.4	0.9	-	-	1	0.5
35-43	25	3.1	3.8	12.5	2.2	-	-	23	3.9	1.9	-	-	2	0.8
44-50	68	8.5	10.7	9.4	13.2	-	33.4	68	11.7	-	-	-	-	-
51-65	7	0.9	1.5	1.6	0.9	-	-	7	1.2	-	-	-	-	-
66	30	3.7	6.1	1.6	5.7	-	-	30	5.2	-	-	-	-	-
67-87	7	0.9	1.2	3.1	0.4	-	-	7	1.2	-	-	-	-	-
88	7	0.9	1.5	-	1.3	-	-	7	1.2	-	-	-	-	-
88-109	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110-199	7	0.9	1.2	1.6	1.3	-	-	7	1.2	-	-	-	-	-
200-299	2	0.2	0.4	-	0.4	-	-	2	0.3	-	-	-	-	-
300 & over	2	0.2	0.4	-	0.4	-	-	2	0.3	-	-	-	-	-
		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Average Int. Rate		21.84	26.16	30.04	25.36	15.06	28.34		25.93	11.26	11.24	10.24		11.0

<sup>1/</sup>Include both production and consumption loans.

<sup>2/</sup>Mainly PNB & DBP.

SOURCE OF BASIC DATA: IPC-BAEcon "Socio-Economic Study of Nueva Ecija Rice Farmers, CY 1969/70."

(Adopted from the Agricultural Credit Report.)

TABLE 5  
SOURCES OF FARM CREDIT  
(In % of Number of Borrowers or in % of Total No. of Loans)

STUDY YEAR Source	1954/55	1957/58	1961 PSSH		1962 Study	1965/66 Study	1969/70 Study						
	Study Phil. 2/ (All Farm Types only)	Study Nueva Ecija 1/ (Rice Farm only)	Survey Phil. 2/ (All Farm Types)	Kind	(Rural Bank Borrowers only) 7/	Land Reform Areas 2/ C. Luzon (Rice Farm only)	Nueva Ecija 2/ (Rice Farms only)		Total				
	(1)	(2)	Cash	(3)	(4)	(5)	Cash	Kind	(6)	Total			
FaCoMas/ACA/(ACCFA)	11.0	4.0	1.1	1.6	1.3	5.0	22.0	17.7	0.8	13.7			
PNB	} 1.0	*	1.9		1.3	} 45.6	3.0	} 6.5	}	4.5			
DBP			1.2		0.8								
Rural Banks			4.0	4.4			8.1				10.0	14.4	9.5
Commercial & Other Banks			-	0.1			*				-		
Credit Union		-	1.2		0.8	0.5							
SSS, GSIS, Other ins. Companies	*	-	0.7		0.5	11.5	-						
<b>Total Institutional</b>	<b>12.0</b>	<b>8.0</b>	<b>10.6</b>	<b>1.6</b>	<b>7.8</b>	<b>62.1</b>	<b>36.0</b>	<b>38.6</b>	<b>0.8</b>	<b>27.7</b>			
Landlords	39.0	56.0	16.8	36.2	22.7	-	64.0	22.9	48.0	32.8 <sup>6/</sup>			
Relatives	6.0	8.0	38.3	4.4	28.0	10.3	-	16.9	24.8	16.8			
Merchants <sup>4/</sup>	1.0	3.0	22.8	37.2	27.2	-	-	2.0 <sup>9/</sup>	1.6	2.3			
Private Money Lenders	} 42.0	9.0	3.6 <sup>3/</sup>	-	2.5	3.8	-	8.9	7.2	8.3			
Others <sup>5/</sup> incl. Self-Financed			16.0	7.9	19.3	11.4	23.8 <sup>10/</sup>	-	10.2	16.0	12.1		
Not Reported					1.2	0.4		-	0.5	1.6	0.8		
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>			
Sample Size	5,144	78				573				1,010			

TABLE 6

Loans Obtained by Farm Households by Source of Loans  
(In % of Total Value of Loans)

Source	1960/61 PSSH Survey All Farms			FaCoMa Members Luzon 1965/66 Palay Farms	BAE Integrated Agric. Survey 1968/69		
	Loans in Kind	Cash Loans	Total Loans		Loans in Kind	Cash Loans	Total Loans
	1. FaCoMa/ACA/ACCFA	1.7	1.3		1.4	38.0	13.9
2. DBP	-	9.4	7.9		-	2.2	1.9
3. PNB	-	21.1	17.8	18.0	-	-	-
4. Rural & Commercial Banks	-	10.5	8.9		4.7	30.2	26.5
5. SSS, GSIS, & Other Insurance Companies	=	1.4	1.2	-	-	-	-
6. Loan Associations & Credit Unions	-	1.4	1.2	1.0	-	-	-
7. Total Institutional Credit	1.7	45.1	38.4	57.0	18.6	46.1	43.7**
8. Landlords	37.0	10.7	14.8	10.0	44.7	15.3	19.6
9. Relatives	5.8	19.9	17.7	8.0	6.4	4.5	4.8
10. Rice/Corn Miller or Merchant	18.0	5.1	7.1	} 4.0	} 29.2	} 30.0	} 29.9
11. Other Merchants	20.9	11.6	13.0				
12. Friend or Neighbor	2.4	0.6	0.9	} 21.0	}	}	}
13. Pawnshops or Professional Money lenders	-	2.6	2.2				
14. Others	13.8	4.4	5.8				
15. Total Informal Sources	97.9	54.8	61.5	43.0	80.3	49.8	56.3**
16. No Source Reported	0.5	-	0.1	-	1.1	4.1	
Total Value of Loans (P millions)	31	169	200				

\* Adapted from Mears and Agabin, "Finance & Credit Associated with Rice Marketing in the Philippines," U.P.-IEDR Discussion Paper No. 71-15 (August 17, 1971).

\*\* Including no source reported.

#### SOURCES OF DATA:

- 1) PSSH Survey: BCS, "Borrowing Practices of Farm Households, May 1961," PSSH, Bulletin Series No. 12 (June 1963), p. 247. This sample survey excluded loans in kind and purchases on credit with a value less than ₱10, and daily or weekly credit purchases of foodstuffs and other daily needs, regardless of value. 58.8% of loans were made by palay farmers.
- 2) BAE Survey: BAE, Integrated Agricultural Survey, 1968/69. All loans reported above are to palay farmers, with sample including about 6,946. in
- 3) FaCoMa Members: Rodolfo Matienzo, "A Study of Membership of Fourteen Active Rice Farmers Cooperative Marketing Associations in the Central Plain of Luzon, Philippines," Unpublished Masters thesis, Oregon State University (June 1969), p. 46.

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(Adopted from the Agricultural Credit Report.)

TABLE 7  
 Production Loans Granted to Selected Agricultural Crops, Fisheries and Forestry<sup>1/</sup>  
 by Year (1966 - 1971)  
 (million P)

I t e m	Year -	1966	1967	1968	1969	1970	1971	TOTAL (1966-71)	%
i. Crops									
Abaca and other fibers		10.1	14.7	18.3	16.3	6.3	15.1	80.8	0.8
Coconut		107.0	147.7	156.5	167.8	207.1	162.5	958.6	8.9
Coffee and Cacao		9.2	14.4	28.9	11.4	11.8	14.3	90.0	0.8
Corn		14.4	17.7	10.7	17.6	20.1	18.4	98.9	0.9
Palay		327.0	468.4	493.3	409.6	373.6	434.3	2496.2	23.2
Pineapple and Citrus		6.2	7.3	17.2	24.6	6.3	8.4	70.0	0.7
Soybean and other feed grains		-	0.1	36.5	4.4	0.1	2.2	43.3	0.4
Sugar		450.3	543.3	611.2	739.7	1119.5	971.4	4435.3	41.3
Tobacco		14.3	25.0	32.5	23.5	17.3	43.4	156.2	1.5
Other Fruits & Vegetables		11.8	14.0	8.4	13.5	10.4	19.8	77.9	0.7
Sub-Total		950.3	1252.8	1413.5	1428.4	1772.4	1689.8	8507.2	79.2
II. Livestock, Piggery and Poultry <sup>3/</sup>		130.4	168.6	173.5	139.8	135.0	150.7	898.0	8.4
III. Fisheries		62.4	82.6	75.5	80.7	61.5	76.4	439.1	4.1
IV. Forestry <sup>4/</sup>		99.6	108.0	167.0	186.2	219.2	116.6	896.6	8.3
TOTAL		1242.7	1612.0	1829.5	1835.1	2188.1	2033.5	10741.0*	100.0

\* May not add due to rounding.

<sup>1/</sup> Except for private commercial banks, data for other institutions include only new loans.

<sup>2/</sup> Commercial banks data only for January - June.

<sup>3/</sup> Includes cattle and dairy farms, piggery, poultry and other livestock.

<sup>4/</sup> Includes forest nurseries and reforestation projects, logging, timber tracts and forest product gathering.

SOURCES OF DATA: See Table 1.

(Adopted from the Agricultural Credit Report.)

TABLE 8  
Loans Granted for Marketing Purposes<sup>1/</sup> to Selected Agricultural Sectors by Year  
(1968 - 1971)  
(million ₱)

	1968	1969	1970	1971 <sup>2/</sup>	TOTAL (1968-71)	%
I. Crops						
Abaca and other fibers	39.4	46.4	66.5	28.6	180.9	2.8
Coconut	18.8	7.1	7.2	26.5	59.6	0.9
Coffee and cacao	10.0	7.5	5.6	3.0	26.1	0.4
Corn	25.6	4.3	12.9	12.0	54.8	0.8
Palay	186.5	118.1	134.6	43.6	482.8	7.4
Pineapple and citrus	0.7	1.2	9.8	8.8	20.5	0.3
Soybean and other feed grain	0.2	2.3	28.6	5.3	36.4	0.6
Sugar	506.4	318.4	767.6	613.7	2206.1	33.6
Tobacco	38.5	38.4	61.5	54.3	192.7	2.9
Other fruits and vegetables	6.9	10.4	22.5	36.7	76.5	1.2
Sub-Total	832.9	554.2	1116.8	832.5	3336.4	50.8
II. Livestock, Piggery and Poultry	9.6	29.3	10.7	7.1	56.7	0.9
III. Fisheries	12.2	10.6	21.2	13.9	57.9	0.9
IV. Forestry	559.9	732.9	1137.6	681.1	3111.5	47.0
TOTAL*	1414.6	1327.0	2286.3	1534.6	6562.5	100.0

\* May not tally due to rounding.

<sup>1/</sup> Mostly for first-stage agricultural domestic trading. Excludes loans for marketing of processed products, export and import.

<sup>2/</sup> 1971 data for priv. commercial banks only for January to June.

SOURCES OF DATA: See Table 1.

(Adopted from the Agricultural Credit Report.)

TABLE 9

Loans Granted for Corn, Palay and Sugar Industries for Processing, Warehousing and Other Facilities<sup>1/</sup>, by Year (1968-71)

(million ₱)

Crop	Year - 1968	1969	1970	1971 <sup>2/</sup>	TOTAL (1968-71)
Corn	16.1	13.0	0.04	2.9	32.04
Palay	45.1	33.7	22.7	15.5	118.0
Sugar	116.0	87.9	66.1	39.7	309.7

<sup>1/</sup> Exclude guarantees on foreign loans. <sup>2/</sup> January to June only.

SOURCES OF DATA:

- 1) ACA
- 2) DBP
- 3) Central Bank
- 4) PNB

(Adopted from the Agricultural Credit Report.)

TABLE 10  
The Distribution of Production Credit in the Philippines  
1967

Description of Loan Recipients	Total Number of Farms	Total Farm Area (hectares)	Volume of Production Credit (1967) (P <sub>M</sub> )	Number of Loans <sup>1/</sup>
1) Commercial farmers Farm size: 50 has.-200 has. & over	4,303 (0.2%)	898,032 (11.6%)		
2) Semi-commercial farmers (Bankable) Farm size: 10 has.-Under 50 has.	103,234 (4.8%)	1,454,489 (18.7%)	₱1,701.6 ( 98.4)	607,300 (91.1)
3) Farmers (small landowners) with collateral (May or may not be bankable) Farm size: 3 has.-Under 10 has.	485,510 (22.4%)	2,393,350 (30.8%)		
4) a. Subsistence farmers (all forms of tenure) Farm size: 0.2-Under 3 has. No. of farms: 1,350,748	1,573,169 (72.6%)	3,026,603 (38.9%)	₱ 26.8 (1.6)	59,440 <sup>2/</sup> (8.9)
b. Farmers w/no collateral but w/loan can be creditworthy No. of farmers: 209,101				
c. Farmers w/no collateral but need credit support to continue being creditworthy No. of farmers: 13,320				
All farmers	2,166,216 (100.0%)	7,772,474	₱1,728.4 (100.0%)	666,740 (100.0%)

<sup>1/</sup> Does not necessarily correspond to no. of loan recipients, but figure is suggestive of relative size of farmer recipients in each category.

<sup>2/</sup> Represents about 3.8 of total no. of farmers in this category.

- Sources: (1) BCS, 1960 Agriculture Census (Summary Report), Vol. II, Manila, May, 1965,  
for number of farms & farm areas
- (2) Ad Hoc Committee to study the Agricultural Credit System in the Philippines,  
"Agricultural Credit Report," April 15, 1972 - For Volume of Production  
Credit & number of loans.

(Adopted from Comments and Recommendations of Mr. Glenn Browne and Dr.  
John Brake, Consultants to the Ad Hoc Committee on Agricultural Credit.)

ANNOTATED BIBLIOGRAPHY

Abarientos, E.P. and Deomanpo, N.R. "The Financing of Small Farm Operations: A Study on Policy Implication." Unpublished Abstract. Laguna, U.P. Department of Agricultural Economics, 1972.

This study is based on a nationwide sample of 661 farm records chosen and distributed according to importance of various crops. These include 332 rice, 198 corn, 47 tobacco, 26 vegetables and 58 sugarcane farms. Data analyzed pertain to the CY 1969-70.

The effect of external credit on farm income is considered and the study suggests that the diversion of loan proceeds for non-productive uses has negatively affected the accrual of any net increments to productivity. The study also attempts to show that rural banks and the ACA have not effectively reached the small farmers giving as explanation the red tape and paper work involved in formal loans, and the flexibility in the terms of loans from informal sources.

"Agricultural Credit Report." Report prepared by the Ad Hoc Committee to study the Agricultural Credit System in the Philippines, April 15, 1972.

This credit report was prepared by an Ad Hoc Committee to study and review the Agricultural Credit System in the Philippines. The study sought to determine the extent of credit availability for agriculture and the manner by which credit is allocated. Credit volumes from all sources, both government and private were compiled for the period 1966 to 1971. In addition, separate studies were made on the major financial institutions.

The study reveals that these financial institutions were able to achieve a greater degree of penetration into the small farmer stratum during the past ten years. However, it was also found that certain inequities have arisen in the allocation of credit among the different industries within the agricultural sector. In addition, the credit system seemed to have favored the better off farmers leaving for the bottom strata farmers a minimal proportion for them to share.

Agricultural Credit and Cooperative Institute. "An Economic Evaluation of the Agricultural Cooperative Production Credit Program Using USAID-NEC Funds." Preliminary draft of report, 1972. 163 pp.

The study evaluates the FACOMA Wholesale Loan Program, which was initiated in 1968-69. A comparison of the characteristics of the members of the participating FACOMAs and those of the non-participating FACOMAs reveal the following: Members of the FACOMAs are, on the average, smaller farmers and less economically viable; are somewhat more dependent on income outside of farming; have lesser repayment performance.

Asia Research Organization, Inc., "A Study of Rural Credit in the Second District of Pampanga." 1968. 21 pp. (Statistical Tables only.)

Nine municipalities in Pampanga were covered in the study. Surveyed were 305 farmers who secured loans during the CY 1966-67. Samples were classified into categories falling under ACA borrowers, Rural bank borrowers of AGLF loans, and borrowers from Other Sources. The characteristics of each set of borrowers and the attitudes towards the lending sources are compared. The findings reveal: A large proportion of the borrowers in each category are tenants, but the percentage is highest (92%) of the borrowers from Other Sources. Rural bank borrowers show greater farm productivity and greater usage of modern farm inputs than farmers in either of the two other categories. These findings reflect better rural bank supervision over loan application.

Bureau of Agricultural Economics. Integrated Agricultural Survey, CY 1968/69. (Raw Data.)

The data on rice farm indebtedness are part of the nationwide integrated survey conducted by the agency for the crop year 1968/69. The data indicate that of the total value of loans received by farmers, non-institutional sources supplied about 55 per cent and formal agencies, 40 per cent.

The survey data also contain information on the demand for loan, by month (demand for production loans tend to be greatest in July, followed by June and May, in this order), and the purposes for which loans were applied.

Bureau of the Census and Statistics. "Borrowing Practices of Farm Households, May 1961." The Philippine Statistical Survey of Households Bulletin. No. 12, June 1963. 19 pp.

The bulletin contains statistical tables showing data on the borrowing practices of farm households collected during the May 1961 sample survey of households. Generally, data collected pertain to loans, including cash and in-kind loans, obtained during the 12-month period from May 1, 1960 to April 30, 1961.

The data presented in this publication give a fairly good idea of the borrowing practices of Philippine farm households and the factors and conditions affecting such practices.

Economic Development Foundation, Inc. "Evaluation of Total Operations of Farmers' Cooperatives in Nueva Ecija." Final draft of report, January, 1972.

This study comprises phase I of a five-phase project undertaken by the E.D.F. The over-all objective of the project is to determine a feasible method of getting the FACOMAs operationally stable and viable. Phase I contains information on the credit operations of the ACA and the FACOMAs, and a discussion of problems encountered in collection as well as the factors responsible for poor repayment of loans.

Guinanao, Romerico de Mayo. "The Role of Agricultural Credit in the Socio-Economic Development of the Province of Bukidnon." Master's Thesis, Araneta University, 1965. 60 pp.

The sample for this survey consisted of 200 farm owner-operators, 100 borrowers and 100 non-borrowers selected randomly. Data on farm business and social conditions, among which was information on the use of credit, for the crop year 1962-63 were obtained from interviews with

the farmers, their wives, and other members of the family. A comparison of borrowers and non-borrowers of institutional credit sources is presented.

The author concludes that agricultural credit institutions have served to increase agricultural production and income of farmers. He recommends certain measures for technical improvement of the agricultural credit program, among which is the organization of a system of supervised credit.

Mears, Leon A. and Agabin, Meliza, H. "Finance and Credit Associated with Rice Marketing in the Philippines." U.P.-I.F.D.R. Discussion Paper No. 71-15, 15 May 1972. 50 pp. (excluding appendices).

This study provides a discussion on the financing and credit involved in the rice industry - beginning from the factor market for production inputs to the final phase of marketing the product. The paper also shows the rise and fall of the total credit supplied by the formal lending agencies to the rice industry during the 1960s and early 1970s. It discusses the different types of financing and credit accommodations especially the informal ones, typically existing within the industry.

Detailed tables and appendices are presented. Among these are tables on sources of loans, tables on loans extended by the different formal agencies, table on interest rate.

Muere, Romeo A. "An Economic Evaluation of a Decade of Rural Banking in the Philippines in Relation to the Development of Agriculture." Master's Thesis, U.P. College of Agriculture, 1965. 254 pp.

This study includes a discussion of the entire rural banking system, traces its growth and discusses some of the factors that account for the system's successful growth in the first 10 years of its existence. The author notes that the requirement of adequate collateral has been a notable feature in rural bank lending, with credit worthiness measured more in the existence of tangible assets which are readily convertible into cash, and that rural bank loans were extended not in terms of expected net increments in production but of existing wealth and income.

Fifty sample banks and 573 of their borrowers throughout the country were surveyed to test the systems financial strength and operating efficiency, rate of growth, and responsiveness to the credit needs of the territory served. The author's findings, generally are positive.

Ordoneo, Adelino V. "Agricultural Credit in the Land-Reform Areas." Economic Research Journal. XIII:4 (March 1967). 245-257 pp.

The effects of agricultural credit assistance to the farmers in 6 land reform areas in Central Luzon are discussed, based on a survey of 180 farmers.

The study focuses on the farmers' availment of ACA loans. Only 21.6 per cent of the respondents borrowed from ACA while a two-thirds (64%) obtained loans from traditional sources, including former landlords. The author offers reasons why this is so - among these are: the no-repayment capacity of most farmers who are marginal and sub-marginal producers and thus ineligible for ACA loans; and delinquent status in the FACOMAs.

Pahilanga, Romana J. "Socio-Economic Conditions Among Rice Farmers in Nueva Ecija." Preliminary Summary of Findings, September 30, 1971. 11 pp. (Mimeographed.)

Interviews were conducted with 1,010 rice farmers and in depth-interviews with 75 landlords of the farmer respondents. Questions pertain to CY 1969-70. The farmer respondents were structured according to different tenure statuses, with 41% lessees, 37% share tenants, 12% owner-operators, 6% part-owners and 4% lessee-share-tenants. The credit information gathered showed the following: 1) more than 2/3 of the farmers had indebtedness; 2) tenure status is a major factor affecting availment of loans from formal agencies; 3) private money lenders and landlords are still strongly in evidence; and 4) twice as much lessees, part-owners and lessee-share-tenants resort to government for loans than owners and share tenants.

Quintana, Vicente U. "A Study on the Demand for Medium and Long-Term Agricultural Credit for Small Farmers in 20 Rural Banks." The Philippine Agriculturist. XLIX:8. (January 1966). pp. 603-642.

The findings of this study are based mainly on data gathered from records at the Central Bank of the Philippines and at the Agricultural Credit and Cooperative Institute (ACCI). The findings are supported by information gathered from interviews with 221 borrowers from the 20 rural banks studied whose loans were not less than ₱500, and with 180 non-borrowers. Among the findings revealed by the study are: (1) Farms operated on rural bank loans are larger in size than those operated by non-borrowers. (2) Small-farm holders do not avail themselves of rural bank loans for reasons of red tape, delays in obtaining loans, strict collateral requirements, and repayment difficulties. (3) Most of the farm operators demand short-term loans primarily for the purchase of livestock feed.

Sacay, Orlando J. "An Analysis of the Crop Loan Program of the Agricultural Credit and Cooperative Financing Administration." Ph.D. Dissertation, Cornell University, New York, 1961. 229 pp.

The study focuses on the repayment performance of both the FACOMAs and the farmer-borrowers. A nationwide sample of 27 FACOMAs and 400 borrowers were surveyed. Various factors which may have a bearing on repayment of loans were examined. Net income was found to be the single most important factor affecting repayment. Other factors which determine productive capacity such as farm size and quality land resource also showed significant correlation to repayment. Tenure as a factor did not show a clear pattern, although part-owners registered the highest repayment performances.

COUNTRY STUDY

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CREDIT AND SMALL FARMER DEVELOPMENT

IN THE PHILIPPINES

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by:  
Orlando Sacay  
The Agricultural Executives, Inc.

Manila  
October, 1972

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SUMMARY

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## CREDIT AND SMALL FARMER DEVELOPMENT IN THE PHILIPPINES<sup>1/</sup>

The availability of institutional credit at liberal terms, a competent extension service, an efficient marketing system and land reform are not essential to triggering a technological breakthrough in agriculture. However, once a breakthrough has started, failure to move ahead in any one or a combination of these factors may seriously affect the rate and extent to which modern technology will spread.

The foregoing statement reflects current thinking on the requisites to agricultural development.<sup>2/</sup> This new school of thought has been brought about by studies of modern advances attained in the development of technology which have proven to dramatically increase farmers' yield.

While development efforts are now centered on the wider adoption of new technology, the factors which accelerate the rate of adoption have gained new dimensions and has since cast a shadow of doubt on traditional concepts of development. In addition, it is now no longer sufficient to consider these factors singly but as part and parcel of a total development effort. Hence, emphasis has now been placed on integrated approaches to rural development.

There is, however, one dilemma. It is a fact that the precise combination of factors necessary to expand and sustain the use of modern technology beyond the initial diffusion stage is not as yet perfectly understood. This dilemma is occasioned by the existence of varying circumstances related and important to proper evaluation of development among developing

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<sup>1/</sup>This paper was prepared by Dr. Orlando J. Sacay for the Spring Review of Small Farmer Credit sponsored by the United States Agency for International Development.

<sup>2/</sup>F.F. Hill and Lowell S. Hardin, Crop Production Succession and Emerging Problems in Developing Countries, Some Issues Emerging from Recent Breakthrough in Food Production, Kenneth L. Turk (ed.) (New York: Vail-Ballen Press, Inc., 1971), p. 24.

countries and in regions within a country itself. In addition, one must consider the inevitable effect which time exerts on these.

### Objective of the Study

It is the purpose of this study to segregate the role of credit in the process of small farmer development while considering other factors which exert an influence on the adoption of technology. The study will attempt to identify the circumstances under which institutional credit becomes necessary in a Philippine setting. Recent efforts to provide small farmer credit will be examined in order to determine their contribution to growth in productivity. Problems and shortcomings will be identified and solutions will be offered.

### Limitation

Advances in rice production in the Philippines during the last five years has been pronounced. The provision of credit to small farmers has been given major attention and still commands major concern. The study is therefore limited to the role and institutional issues of small farmer credit, as these pertain to the adoption of new rice technology. The definition of new rice technology is further limited to varietal change and increased use of fertilizer and pesticides.

### Experience with Adoption of New Rice Technology

#### Varietal Change

The rate of adoption of the new high-yielding varieties (HYVs) since their initial diffusion in 1966 is shown in Table 1.

Table 1. Area of Rice Harvested, Area Grown to High Yielding Varieties and National Average Yields by Year, 1966 to 1971.

Crop Year	Area Harvested	Area Grown to HYVs million hectares--	Yield Per Hectare metric tons--
1966/67	3.10	.08	1.35
1967/68	3.30	.70	1.41
1968/69	3.33	1.35	1.36
1969/70	3.11	1.35	1.72
1970/71	3.11	1.57	1.76

Sources: 1) Bureau of Agricultural Economics.  
2) Area grown to HYVs for 1966/67 obtained from Barker, Randolph, "International Rice Research Institute", Paper read during the Regional Seminar on Agriculture, Sydney, Australia, April 10-12, 1969.

1966/67 may be considered as the period of initial diffusion. The next two years witnessed a major expansion in HYV hectareage. It was during this period that government and private sector efforts were directed towards rice self-sufficiency. The government intensified extension activities, accelerated its program of irrigation development, and expanded credit and exerted efforts to stabilize rice prices. The private sector participated in terms of the expansion of farm supply outlets and extension of credit.

In spite of a slight drought and some damage caused by a powerful typhoon and rat infestation, a slight surplus was produced in 1967/68. This situation caused prices to drop and necessitated some 35,000 m.t. to be exported.

The country experienced a drought of severe proportions in 1968/69. This caused production to drop. But were it not for this natural calamity, the country would have been faced with the acute problems attendant to an unmanageable surplus.

The last two years of the period under study represents the period of sustained interest in the new variety. Government attention on rice seemed to have waned during this period. And even with significant increase recorded on the hectare yields, the country had reverted into its former rice deficient status.

In spite of some natural calamities experienced, including a drop in prices during certain years and reduced interest on the part of the government concerning the rice industry, the switch to HYVs continued. By the end of the program under review, 50 per cent of total harvested hectarage was under the new high yielding rice varieties.

Use of Technical Inputs

Consumption of fertilizer and pesticides may be deduced from available supply statistics (Table 2).

Table 2. Reported Supply of Fertilizer and Pesticides, 1966 to 1971.

Year	Fertilizer Supply			Pesticide Supply <sup>b/</sup>		
	Total	Imports	Production	Total	Imports	Production
	--- 000 m.t. ---			--- million p ---		
1966	198	85 <sup>a/</sup>	113	8	6	2
1967	421	190	231	14	11	3
1968	423	179	244	20	12	8
1969	496	214	282	18	12	6
1970	451	192	259	25 <sup>c/</sup>	25	n.a.
1971	586	306	283	33 <sup>c/</sup>	33	n.a.

- Sources: 1) Fertilizer Institute of the Philippines  
 2) Central Bank of the Philippines  
 3) Foreign Trade Statistics, Bureau of Census and Statistics.

- Remarks: a) Fertilizer imports in 1966 were unusually low due to an import of 207,961 m.t. in 1965.  
 b) Pesticide refers to agricultural chemicals used for pest, disease and weed control.  
 c) Includes imports only.

The increase in fertilizer consumption may be primarily attributed to the increased demand of the rice sector. Consumption by the rice sector was estimated at 27 per cent of national consumption in 1964.<sup>3/</sup> The sugar industry claimed 49 per cent. If

<sup>3/</sup> Based on a breakdown of fertilizer consumption by area and crop, San Miguel Corporation, Market Research Department as cited by Randolph Barker, "The Philippine Fertilizer Industry: Growth and Change," Seminar on Economics of Rice Production in the Philippines (Paper presented at a Conference at the International Rice Research Institute, December 11, 12 and 13, 1969), p.5-25.

the consumption of the sugar industry increased only moderately, and there is no reason to believe otherwise, then the use of fertilizer by rice growers during the past five years would have at least doubled. The growth in pesticide use was likewise phenomenal.

#### Profitability and Risk

Research studies would show that varietal improvement has shifted the production response curve upward and to the right. <sup>4/</sup> Studies have also showed that high yield expectancy is the single most important reason for adopting improved varieties. Farm experiences in the provinces of Laguna, Bulacan, Pampanga and Rizal showed that per hectare yields of HYVs to be about 40 to 120 per cent more than traditional varieties. Despite a 150 to 200 per cent increase in production expenditures, net returns of HYVs were 60 to 100 per cent higher. <sup>5/</sup>

On the contrary, certain misapprehensions on the value of the new rice technology have been entertained. A study conducted in Iloilo province in 1971-72 led to a conclusion that HYV technology is under some tenancy arrangements, less profitable, per crop, than the lower high-yielding traditional methodology, for the typical yields obtained". <sup>6/</sup>

In the study of farmer records kept by farmers in the province of Laguna and Batangas, 11 out of 16 farmers showed an increase of the harvest when they shifted to

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<sup>4/</sup> Randolph Barker, S.H. Liao and S.K. De Datta, "Economic Analysis of Rice Production from Experimental Results to Farmer Fields," (Paper presented at Agronomy Department Seminar, UPCA, August 9, 1968). (Mimeographed.) p. 15.

<sup>5/</sup> Randolph Barker and E.U. Quintana, "Farm Management Studies of Costs and Returns in Rice Production", The Seminar-Workshop on the Economics of Rice Production (Paper presented at a conference at the International Rice Research Institute, December 8-9, 1967).

<sup>6/</sup> Kenneth F. Smith, "Palay Productivity & Profitability in Iloilo 1971-72, A Comparative Analysis Study" (Study conducted by the Office of Agricultural Development, USAID, Manila, March & Dec. 1972. (Xeroxed.)

high-yielding varieties. Three realized larger net shares than when they were planting traditional varieties. For the two other farmers, there was no considerable change.<sup>7/</sup>

Yield statistics obtained from Rizal Province during the dry season of 1966-67 showed that approximately 20 per cent of farmers who grew IR8 attained yields less than the traditional variety average.<sup>8/</sup>

#### General Observations

With the experience gained in recent years, the following can be surmised:

- 1) Varietal change was attained at a very rapid rate.
- 2) There was an accompanying increase in the use of fertilizer and pesticide.
- 3) With the demonstrated confidence farmers have shown in new rice technology, they must have found adoption to be profitable. This is so despite losses caused by natural calamities and price declines.
- 4) There did not seem to be any major constraints to technological change although in specific circumstances or cases, practice of new technology did not necessarily contribute to the farmer's betterment.

#### Factors Other than Credit Influencing Technological Change

Before the real role of credit to technological change can be clearly delineated, it is necessary to first examine the impact other factors have made on

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<sup>7/</sup> E. P. Abarientos, et. al., Impact of Technology on Small Farmers and their Families (An Eight-Year Experience in Farm Record-Keeping Project 1962-1970); (Laguna: U.P. College of Agriculture, 1972), p. 96.

<sup>8/</sup> Barker and Quintana, Op. cit., p. 1-41.

accelerating the use of improved technology at the farm level. The factors examined were communications, irrigation, prices, size of farm and land reform. Their relevance to the role of credit was likewise examined.

### Communication

The "communication gap" is the first major constraint to technological change. This observation is illustrated by a study conducted in the province of Laguna. The reasons given by 359 non-users of certified seed during the period of early introduction of HYVs were as follows (Table 3):

Table 3. Reasons Given by 359 Farmers for Not Using Certified Seeds, Laguna Province.

<u>Reasons Given</u>	<u>Per cent of Farmers</u>
1) Never heard about it	48
2) Not available locally, limited supply and stocks arrive late	36
3) Prohibitive price and no money	6
4) Not interested, not applicable, haven't tried it yet	6
5) Planting seeds provided by landlord	3
6) Poor germination	<u>1</u>
Total	100

Source: Gelia T. Castillo, "Impact of Agriculture Innovation on Patterns of Rural Life (Focus on the Philippines)", Agricultural Revolution in Southeast Asia, (Vol. II, 1970), p. 21.

Once the communication barrier is removed, other factors such as supply availability and credit become more important constraints. This is also illustrated by the same study mentioned above in the case of fertilizer use.

Table 4. Reasons Given by 156 Farmers For Not Using Commercial Fertilizer, Laguna.

Reasons Given	Per cent of Farmers
1) Not available locally, stocks arrive late and limited supply	43
2) Not interested because the farms are fertile	19
3) No money to buy and prohibitive price	22
4) Unavailability of irrigation water and belief that fertilizer produce no good effects on the farm	10
5) Landlord or overseer does not allow the use of fertilizer	3
6) No reason given	3
Total	100

Source: Ibid., p. 21

Efforts to encourage farmers to use fertilizer was initiated during the 1950s. This was done by means of a fertilizer price subsidy program. By the time the HYVs were introduced, the lack of information concerning the use of fertilizer was no longer a serious problem. Hence, availability of supply, funds and irrigation were more important factors although lack of technical information was by no small measure still a problem.

Demonstration Effect. The "demonstration effect" is a major contributor to the rapid adoption of HYVs. Starting with a few resourceful farmers, it was not uncommon to see in a given town or village the number of farmers switching to HYVs to increase in multiples of 10 during the following growing season. There would seem to be no substitute to farmers seeing for themselves the benefits HYVs would give them. The study of

three Laguna municipalities for instance would indicate that no other factor could have produced such a rapid rate of adoption than the demonstration effect (Table 5).

Table 5. Percentage of Area Planted to HYVs  
Three Municipalities of Laguna Province  
1966 to 1969.

Year	Season	Municipality		
		Binan	Cabuyao	Calamba
1966	Wet Season	-	2	1
1967	Dry Season	4	18	15
	Wet Season	39	64	60
1968	Dry Season	58	58	55
	Wet Season	92	70	50
1969	Dry Season	97	42	58
	Wet Season	80	68	61

Source: Randolph Barker and Violeta Cordova, "The Impact of New Technology on Rice Production - A Study of Change in Three Philippine Municipalities from 1966 to 1969" (Paper presented at the 28 International Congress of Orientalists, Canberra, Australia, January 6-12, 1971). (mimeographed.) p. 12

The rate of adoption of HYVs is faster than the hectareage data would show. It was observed that not all farmers who plant HYVs place their entire farm under a new variety. A study of 155 farmers in Laguna illustrates this (Table 6).

Table 6. Manner of Adoption of HYVs, 155  
Farmers, Laguna Province, 1967.

Area of Farm Grown to HYVs	Per cent of Farmers
Entire farm	39
Portion of farm	31
Non-adopter	30
Total	100

Source: Castillo, Op. cit., p. 28

It was also observed that the proportion of farmers growing only the recommended variety was directly correlated with the length of experience in growing the variety (Table 7).

Table 7. Per cent of Farmers Growing Recommended Varieties, Barrio Coralan, Laguna.

<u>Number of Seasons Participating</u>	<u>Per cent Planting Both Local Varieties &amp; Recommended</u>	<u>Per cent Planting Recommended Variety Only</u>
One Season	80	20
Two Seasons	69	31
Three Seasons	23	77
Four Seasons	--	100

Source: C. Dimaano and A. M. de Guzman, "Coralan Rice Farmers' Response to Change in Cropping Pattern". A Case Study, (The Seminar-Workshop on the Economics of Rice Production (Paper presented at a conference at the International Rice Research Institute, Dec. 8-9, 1967). p. 7-44

This information suggest that while farmers would readily adopt recommended HYV's, they still go through the adoption process within their farm. And it would be an error to assume that all farmers who accept change will place their entire farms under HYVs.

### Irrigation

It has been observed that nearly 100 per cent of the early adoptors of HYVs had fully irrigated farms. This level dropped to 50 per cent for later adoptors. It was also observed that poor irrigation facilities were associated with lower input levels and the resultant lower yields and profits.<sup>9/</sup>

On a national scale, a higher adoption rate was observed in irrigated land compared to rainfed land (Table 8).

<sup>9/</sup> Randolph Barker, "Economic Aspects of High Yielding Varieties of Rice with Special Reference to National Price Policies: IRRI Report" (Paper prepared for the Thirteenth Session of the FAO Study Group on Rice, Manila, March 20-27, 1969).

Table 8. Per cent of Irrigated and Rainfed Lowland Area Grown to HYVs in the Philippines, by 1967/68 to 1970/71.

(per cent)			
Crop Year	Irrigated	Rainfed	Total Lowland
1967/68	34	17	25
1968/69	62	31	47
1969/70	61	39	50
1970/71	67	45	57

Source: Based on data from the Bureau of Agricultural Economics.

The influence of irrigation on the adoption of new technology at the local level is more pronounced. This may be seen in the case of Gapan, Nueva Ecija (Table 9).

Table 9. Adoption of HYVs and Improved Cultural Practices on 513 Farmers in Gapan, Nueva Ecija, 1970.

Item	Irrigated Crops	Partially Irrigated	Rainfed
1) Per cent of Area planted to HYV	96.5	62.5	31.6
2) Nitrogen application per hectare (kg.)	49.8	28.9	20.5
3) Per cent using insecticide	90.5	78.2	56.8
4) Per cent using herbicide	52.0	21.8	11.4

Source: Keith Griffin, "Economic Aspects of Technical Change in the Rural Areas of Monsoon Asia" (Geneva United Nations Research Institute of Social Development, January, 1972). (Mimeographed.).

In a study of five villages in Cavite province, reception to the new varieties was cool despite a massive information campaign and assurance of credit accommodations. This was due to the unreliability of the irrigation system

serving the area. 10/

As HYVs' need irrigation and the lack of it increases risk of failure and reduces prospective profits, irrigation has become a major limiting factor to varietal change.

### Prices

Experience of recent years has shown that the product/factor price relationship was favorable in providing incentives to farmers to increase output. The conversion rate from traditional varieties to HYVs continued despite price declines. A weakening of rice prices was experienced in 1968 and 1969 (Table 10).

Table 10. Average Yearly Prices of Rice 1968-1971.

Year	Palay Farm Price (Macan or Equiv.)	Wholesale Milled Rice (Wagwag 1st Class)
1966	14.92	43.44
1967	15.21	47.10
1968	14.52	42.42
1969	14.95	42.82
1970	17.62	50.77
1971	25.56	60.20

Sources: 1) Bureau of Agricultural Economics  
2) Central Bank of the Philippines  
3) Bureau of Commerce

If the data in the preceding table is compared with the information contained in Table 1, it may be observed that prices may have had an effect on the rate of varietal change. However, what appears to be a dampened enthusiasm on HYVs in 1969 may have been the effect of unfavorable weather rather than prices.

A study of the price elasticity of hectarage showed elasticity to be highest in areas with strong commercial markets and/or relatively extensive irrigation develop-

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O. J. Sacay, D.H. Shapiro and R.H. Gecolea, Strategies in Rural Economic Development: A Case Study in Five Philippine Villages. (Silang: International Institute of Rural Reconstruction, 1971).

ment.<sup>11/</sup> But whether there is a parallel between the expansion of hectarage and the adoption of HYVs cannot be ascertained. It is however clear that price was not a significant constraint although these could have posed as a major deterrent to adoption had circumstances been different.

#### Size of Farm

It has been observed in Gapan, Nueva Ecija that large farms with a strong financial base were the first to adopt new technology. <sup>12/</sup>

The study of farmers in Barrio Coralan in Laguna showed the adoption of recommended farm practices to be correlated to the size of farm. Farmers with bigger landholdings had better adoption performance. <sup>13/</sup>

A study of 7 municipalities in Central Luzon proclaimed as land reform areas, however, showed smaller farms to have significantly higher yields than larger farms. This relationship was observed before and after the proclamation of these municipalities as land reform areas. <sup>14/</sup>

The confusion seems to arise from the interpretations of "size of farm". If interpreted to refer to the ownership unit, then it would be reasonable to assume that those who owned larger tracts of land would be in a better position to finance and adopt new technology. On the other hand, if interpreted to mean the operating farm unit, it

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<sup>11/</sup>

A.M. Weisblat and P.R. Sandoval, "Rice Production Institutional Factors and Economic Incentives", The Seminar-Workshop on the Economics of Rice Production (Paper presented at a conference at the International Rice Research Institute, Dec. 8-9, 1967), p. 9-7.

<sup>12/</sup>

Randolph Barker, Geronimo Dozina, Jr. and Liu Fu-Shan, "The Changing Pattern of Rice Production in Gapan, Nueva Ecija, 1965 to 1970" (Saturday Seminar, Agricultural Economics Department, UPCA, Dec. 11, 1971). (Mimeographed). p. 3.

<sup>13/</sup>

C. Dimaano and de Guzman, Op. cit., p. 7-67.

<sup>14/</sup>

Pedro R. Sandoval and Benjamin V. Gaon, Agricultural Land Reform in the Philippines: Economic Aspects (Laguna: College of Agriculture, University of the Philippines, 1971), p. 35.

would also be reasonable to assume that farmers who cultivate smaller areas would be able to devote more labor for the care of the crop and achieve higher yields.

### Land Tenure

Studies have shown that a share-tenancy arrangement was conducive to the adoption of new rice technology. Unfortunately, most of the studies were conducted in the province of Laguna. However, whether Laguna landowners are "good" landlords compared to their counterparts in other provinces is only a matter of conjecture.

A study of Central Luzon noted the emergence of commercial rice farmers from former non-farming landlords since the appearance of the new rice varieties.<sup>15/</sup> How many of these commercial rice farmers worked with their tenants or farmed by direct administration could not be ascertained.

One of the studies referred to above covered three municipalities in Laguna which experienced a high rate of adoption of new technology from 1966-69. Ninety per cent of the farmers surveyed were tenants.<sup>16/</sup>

The significant findings of the study were as follows:

- 1) In 24 out of 30 cases studied, the tenant made the decision regarding variety, fertilizer and chemicals;
- 2) All but three tenants interviewed were financed by the landowner;
- 3) In a majority of cases, the landowners did not find it necessary to borrow money to lend to tenants;
- 4) The landowners had every reason to finance the adoption of new technology as they got the lion's share of incremental profits.

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<sup>15/</sup> Shigeru Ishikawa, Agricultural Development Strategies in Asia, (The Asian Development Bank, 1970), p. 25.

<sup>16/</sup> Barker and Cordova, Op. cit., p. 6.

Based on data from 45 farms during the wet seasons from 1966 to 1969, increase in profits were shared as follows (Table 11).

Table 11. How Increase in Profits is Shared Among Claimants, 45 Laguna Towns, Wet Season, 1966-69.

Claimant	Per cent
Landowner	38
Tenant	28
Hired Labor	23
Operating Capital	11
Total	100

Source: Ibid., p. 21.

In another study of the same area, 16 out of 41 farmer respondents reported that non-adoption of improved varieties was the landlord's decision. This indicates that share-tenancy also presents some constraints to change.

A study of five Bulacan towns showed that farms operated under lease tenure used more technical inputs and achieved higher yields than share tenure. However, the study was carried out in 1965 prior to the introduction of HYVs.<sup>17/</sup> As a matter of fact, a negative correlation, although statistically insignificant, was found between the conversion of share-croppers to a leasehold system and the spread of HYVs.<sup>18/</sup> The study of 8 pilot barrios in two municipalities in Laguna seem to indicate that both share-tenants and leasees are more responsive than part-owners.<sup>19/</sup>

A more intensive study of land reform has been carried out on 7 municipalities of Central Luzon which have been declared as land reform area between 1964

<sup>17/</sup>Weisblat and Sandoval, Op. cit., p. 9-4.

<sup>18/</sup>Griffin, Op. cit., p. 36.

<sup>19/</sup>Gelia T. Castillo, Alice M. de Guzman, Soledad L. Pahud and Lorna Paje, "The Green Revolution at the Village Level. A Philippine Case Study" (Paper prepared for the 28th International Congress for Orientalists, Canberra, January 6-12, 1971) (Xeroxed). p. 93.

and 1965. This study included a benchmark survey during the pre-land reform period (1963-65) and post-proclamation periods (1967/68 and 1968/69). The data reported by this study showed that:

- 1) There is a strong correlation between the value of technical inputs used per hectare and yields. However, there is no clear pattern in the difference in inputs used among tenure groups.
- 2) There are significant differences in the yield per hectare between tenure groups and within tenure groups over time. However, the differences and changes do not fall into any discernable pattern.

There were data to prove that an improvement in tenure status encouraged farmers to use fertilizer and insecticide. However, this observation is not supported by the resultant yields per hectare (Table 12).

Table 12. Relationship of Tenural Change to the Use of Technical Inputs and Yields, 366 Farms, 7 Land Reform Municipalities, Central Luzon, 1968/69.

Tenural Change	Per cent of Farmers	Per cent Using Fertilizer	Per cent Using Insecticide	Yield /Ha. - cavans-
No change in Share-tenancy status	31	80	54	52.3
Share-tenants who shifted to:				
Ownership	1	67	67	69.4
Part-ownership	2	86	43	38.4
Leasehold	56	93	69	51.6
Lease-Tenancy	10	97	61	51.1
All who shifted	69	93	67	51.0
All share tenants	100			51.4

Source: Sandoval and Gaon, Op. cit., p. 100.

Studies on land reform so far carried out does not establish any conclusive relationship between tenural arrangement and the adoption of technology.

### Major Observations

Based on the foregoing studies on recent experiences gained in the adoption of new rice technology, the following observations may be made as they pertain to the role of credit to technological change.

- 1) During the early stage of introduction of new technology, the speed by which information is passed on to farmers is the single most important factor determining the rate of adoption. Once the "communication gap" is bridged, other factors of secondary importance such as availability of farm supplies and credit gain greater prominence.
- 2) If the objective is to merely gain farmer acceptance of new technology, the tendency of farmers to only partially adopt change reduces the immediate need for massive credit assistance. However, if the objective is hectare expansion and significant growth in total production, credit availability becomes more important.
- 3) Recognizing the force of the "demonstration effect" on the rate of adoption would strongly suggest that credit programs should only be part of a major agricultural extension effort.
- 4) A favorable product/factor price relationship is a pre-condition to technological change. Credit could then be used by farmers profitably. On the other hand, availability of credit will not reverse an unfavorable price situation.
- 5) The availability of irrigation and size of farm are strongly correlated to technological change. However, since there is little that can be done to modify existing situations, these factors become relevant only in the selection of loan recipients.
- 6) The relationship of tenure and land tenure reform to technological change is not conclusive. There is some evidence that new rice technology creates certain inequities in tenancy arrangements. A disturbance, however, in tenancy arrangements would affect availability of financial assistance. This

would in turn create a demand for credit from other sources in place of the traditional sources of credit which include landlords, relatives, private money lenders and merchants.

#### Relationship of Credit to Technological Change

With the experience gained in recent years, it becomes apparent that the availability of credit is not a necessary pre-requisite to trigger a breakthrough in technology. It also becomes equally apparent that once the initial diffusion stage is past, the availability or lack of credit can materially affect the rate and extent of adoption of new technology. The issues are therefore focused on the circumstances under which credit becomes essential and the extent lack of credit would retard progress.

#### Increase in Demand for Credit

Most farmers borrow to finance usual farm expenditures and to tide them over from one harvest period to another. This is so even if technological improvement were not part of their farm program. However, researches clearly show that technological change increases production expenditures which in turn increases farmers' demand for credit. The study of farmers in Barrio Coralan in Laguna clearly illustrates this point. <sup>20/</sup>

It was found that:

- 1) 81 per cent of participants in the rice production program carried out in the barrio borrowed from one or more sources while only 50 per cent of non-participants used credit;
- 2) There was strong correlation between adoption of recommended practices and the amount borrowed by farmers;
- 3) With changing technology, there was a shift in the proportion of loans used for fertilizer and chemicals from 5 per cent to 24 per cent.

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<sup>20/</sup> Dimaano and de Guzman, Op. cit., p. 7-70

The study of 30 tenants changing to HYVs in three municipalities in Laguna province from 1965 to 1969 showed advances made by landlords to have increased. This study showed that a larger proportion of tenants were advanced larger amounts for items such as fertilizer and chemicals. About 40 per cent of the increase in production credit accommodation were due to increased allowances for these items. Allowances for labor expenditures also increased (Table 13).

Table 13. Money Advanced by Landlords for Specific Items, 30 Tenants, Laguna, 1965 vs. 1969.

Items	1965		1969	
	Number Reporting	% Per Hectare	Number Reporting	% Per Hectare
Fertilizer	18	28	24	65
Chemicals	10	5	23	16
Land preparacion	0	0	14	108
Transplanting	13	34	19	52
Weeding	4	15	10	55
Others	1	39	9	74

Source: Barker and Cordova, Op. cit., p. 17.

#### Causes for Non-adoption

The relationship of credit to technological change can be better examined by studying the causes of non-adoption. The results of the survey made by the Bureau of Agricultural Economics for the crop year 1966/67 for the provinces of Bulacan, Laguna, Nueva Ecija, Pampanga and Tarlac were therefore examined. In 1966/67 only 2 to 3 per cent of these areas were under HYVs.

The survey showed that the major constraint to varietal change was lack of information. This was followed by the problem of supply availability. If the reasons "prohibitive price" and "no cash outlay" referred to the unavailability of credit, then this factor would be ranked third (Table 14).

Table 14. Reasons for Non-Use of Recommended Varieties, Five Provinces, 1966/67.

Reasons	Per cent
1) Never heard of them	43
2) Not available locally	26
3) Available but:	
a. prohibitive price	7
b. no cash outlay	15
c. stocks arrive late	2
d. limited supply	1
e. not interested	4
f. other reasons	2
<b>Total</b>	<b>100</b>

Source: Shigeru Ishikawa, Agricultural Development Strategies in Asia, (The Asian Development Bank, 1970) p. 36.

About 50 per cent of farmers in the five provinces were reported to be using fertilizer, indicating the fact that there was existing universal appreciation of the use of fertilizer during the period of survey. It should also be mentioned that the private sector had already gained significant inroads in the domestic distribution of fertilizer. Hence, the unavailability of credit became the major reason for non-use of fertilizer. The reasons "prohibitive price" and "no cash outlay" may be considered synonymous to lack of credit (Table 15).

Table 15. Reasons for Non-Use of Chemical Fertilizer, Five Provinces, 1966 to 1967.

Reasons	Per cent
1) Not available	15
2) Available but:	
a. prohibitive price	16
b. no cash outlay	38
c. fertilizer arrive late	2
d. don't want to use it	12
e. other reasons	7
f. no reason given	10
<b>Total</b>	<b>100</b>

Source: Ibid.

An ESFAC fertilizer survey conducted earlier in 1964 shows that credit is not as important a factor as the above information indicates. Reasons given by non-users were lack of money or credit (13 per cent) and high price of fertilizer (5 per cent). This was however to be expected since 51 per cent of farmer respondents did not have knowledge of the proper use of chemical fertilizers.<sup>21/</sup>

### Conclusions

On the basis of the foregoing studies, some conclusions can be derived. These conclusions are as follows:

- 1) Technological change with the associated increase in production expenditures will definitely increase the demand for credit. Farmers who normally borrow for subsistence and farm expenditures will need larger loans to finance additional expenditures.
- 2) Other farmers who normally are able to finance their expenditures from current income and savings may have to secure credit to finance the added cost of new technology. There will be farmers who will not find the necessity to borrow.
- 3) It is clear that once the "communication gap" is bridged, the availability of farm supplies becomes the major constraint to change. However, as soon as the problem of local availability is resolved, credit becomes the most important factor affecting adoption of new technology.
- 4) The credit problem seems to be more pronounced among farmers who desire to increase input use as compared to farmers who desire to switch to HYVs and apply what they consider to be the associated improvements in cultural practices.

Unfortunately, research studies have not been purposely directed to determine how farmers who adopted change financed the added cost associated with new technology. In the absence of research data which would clearly segregate the contribution of credit to technological improvement, only rough approximations can be made.

Among farmers who adopted new rice technology, it is estimated that:

- 1) 50 per cent had to increase the volume of credit secured by approximately 40 per cent of previous total borrowings.
- 2) 30 per cent had to go into borrowing.
- 3) 20 per cent did not have to borrow from any source.

Using the above estimates, credit volume availed of by rice farmers would have increased by approximately 60 per cent. It is also roughly calculated that had rice farmers been deprived of additional credit, the rate of adoption would have proceeded only half as fast as was actually experienced during recent years. It is further estimated that about 25 per cent of farmers who did not adopt new technology but who cultivate about 50 per cent of the entire rice area of the country are unable to do so because of the unavailability of credit.

#### Role of Institutional Credit for Small Farmers

Recognizing the significant role credit plays in improving the level of technology, the question lies on whether it is absolutely essential that credit be made available through established institutions.

#### Credit Volume and Technological Change

During the period covering the years 1966 to 1971, major emphasis has been placed on provisions for institutional credit in the government's effort to increase production. The reported volume made available through established institutions is presented in Table 16.

Table 18. Volume of Institutional Credit for Rice Production Compared to Indicators of Technological Improvement, 1966 to 1971.

Year	Credit Volume			Area Grown To HYV	Ferti- lizer Supply	Pesti- cide Sup- ply
	Government	Private	Total			
	- - - ₱ Million - - -			(Million Ha.)		
1966	111	216	327		198	7
1967	152	316	468	.08	421	14
1968	141	352	493	.70	423	20
1969	85	324	409	1.35	496	18
1970	74	299	373	1.35	451	25 <sub>a/</sub>
1971	57	377	434	1.57	586	33 <sub>a/</sub>

Source: 1) "Agricultural Credit Report" (Report prepared by the Ad Hoc Committee to Study the Agricultural Credit System in the Philippines, April 15, 1972), p. 46.

2) Fertilizer Institute of the Philippines.

3) Central Bank of the Philippines.

4) Foreign Trade Statistics, Bureau of Census and Statistics.

Remarks: a/ includes imports only.

It will be noted that a major expansion of credit from government and private institutions was registered during the years 1967 and 1968. These were the years characterized by massive efforts of the government to attain rice self-sufficiency. Starting 1969, the credit situation tightened. While credit volumes seemed to have recovered by 1971, the increase in volume during this year was offset by a high rate of inflation resulting from the de facto devaluation of the peso.

The initial years of the period under review seem to indicate that credit expansion seemed to have influenced varietal change. However, despite the contraction of credit, the area grown to HYV's continued to expand almost unabated, except for the year 1969. The stagnation during this year may have been caused by unfavorable weather conditions.

It would also appear that purchases of fertilizer and pesticides were not severely affected by the contraction of credit. Purchases as indicated by supply statistics manifested a sustained yearly growth.

It would, however, be difficult to correlate the availability of institutional credit to technological change in terms of aggregates. There is also doubt that impressive credit volumes as shown by statistics were all used for rice production.

Institutional Credit Availability

It should be mentioned that during the past decade, substantial inroads have been gained in providing institutional credit to small farmers. By the end of the 1960's, a significant portion of farmers and of loan volumes were supplied by institutional sources (Table 17).

Table 17. Sources of Credit by Farm Households

Source	No. of Loans <u>a/</u> (1969/70)	Value of Loans <u>b/</u> (1968/69)
<b>Institutions:</b>		
ACA	13.7	13.7
PNB & DBP	4.5	1.9
Rural Banks	9.5	26.5
Others	-	-
Subtotal	<u>27.7</u>	<u>43.7</u>
<b>Unregistered:</b>		
Landlord	32.8	19.6
Relatives	16.8	4.8
Merchants	2.3	) 29.9
Money lenders	8.3	
Others	12.1	)
Subtotal	<u>72.3</u>	<u>56.3</u>
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

a/ Based on 1969/70 Study of Nueva Ecija for rice farms only. IPC-BAEcon.

b/ Based on 1968/69 Study of rice farmers only. BAE, Integrated Agricultural Survey, 1968/69.

A substantial decline in the average interest rate paid by a farming household was also observed during the past decade. A study in 1957/58 conducted in Munoz, Nueva Ecija reported interest rate to average 52 percent per annum. <sup>22/</sup> The socio-economic study conducted in Nueva Ecija showed average interest payment to have declined to 22 per cent per annum by 1969/70. <sup>23/</sup>

#### Rural Bank and ACA Loans

Two major programs are responsible for this improvement in the credit situation in the country. The rural banking system established in 1952 constitute the first program. Rural banks are privately owned banks provided heavy financial assistance by the Central Bank of the Philippines. Equity capital and access to the rediscount window at extremely low interest rates are provided, enabling these banks to generate loans about 5 times paid-up capital. Today there are 580 such banks.

The other agency is the Agricultural Credit Administration (ACA) established also in 1952. It is a government owned financial institution which grants loans to farmers through 295 active Farmers' Cooperative Marketing Associations. Together, rural banks and ACA represent the institutional source of credit for subsistence and semi-commercial farmers.

While these two agencies were organized at the same time to solve the liquidity problem in rural areas, the impact they effected have been quite different. The rural banking system has flourished into a major source of credit in the rural areas. Of total credit volumes granted for agricultural production by government and private financial institutions from 1966-71, the system supplied 20.3 per cent. <sup>24/</sup> Repayment averaged 96.3 per cent. <sup>25/</sup>

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<sup>22/</sup> Jose P. Gapud, "Financing Lowland Rice Farms in Selected Barrios of Munoz, Nueva Ecija", Economic Research Journal (September, 1963).

<sup>23/</sup> Institute of Philippine Culture (IPC) BA Econ, "Socio-Economic Study of Nueva Ecija Rice Farmers, CY 1969-70, (Basic data).

<sup>24/</sup> "Agricultural Credit Report," Op. cit., p. 18.

<sup>25/</sup> Romeo A. Muere, "An Economic Evaluation of a Decade of Rural Banking in the Philippines in Relation to Development in Agriculture". (Masters Thesis, 1965).

On the other hand, ACA had been plagued by a poor repayment performance and a shortage of loanable funds. ACA supplied only 1.1 per cent of total credit volumes for agricultural production. Collections amounted to 68.6 per cent of total releases from 1966-71. The repayment rate may have been actually lower since loans which matured prior to 1966 were still being collected.

The volume of loans granted by these two institutions are presented in Table 18.

Table 18. Volume of Loans for Rice Production, Rural Banks and ACA, 1966 to 1971.

Year	Rural Bank Loans		ACA Loans <sup>b/</sup>
	Ordinary	Special <sup>a/</sup>	
	- - - P Million - - -		
1966	92	-	9
1967	130	10	16
1968	181	9	24
1969	189	5	23
1970	213	6	31
1971	262	13	32

Source: "Agricultural Credit Report," Op. cit.,

Remarks: <sup>a/</sup>This refers to loans granted under the Agricultural Guarantee and Loan Fund (AGLF) and subsequently the Agricultural Loan Fund. It is assumed that all AGLF Loans were all for rice production.

<sup>b/</sup>This includes all loans for production but were primarily for rice production.

No significant changes in ACA's no collateral lending policies or procedures may be noted during the past 20 years. On the other hand, the rural banking system, recognizing the need to move away from a collateral-oriented policy of lending established the Agricultural Guarantee and Loan Fund (AGLF) and put it into operation in 1967. Funds administered by the Central Bank of the Philippines were placed in special time deposits with participating rural banks to serve as a source of loanable funds and as a partial guarantee for loans

granted by rural banks. Unsecured loans were guaranteed to the extent of 70 per cent. Supervision of loans were provided by government technicians.

The contributions of these two agencies to technological change were remarkably different. The following observations are based on a study of farmer-borrowers conducted for the crop year 1967 in the second district of Pampanga, the first district declared as a land reform area. By this time the new high yielding rice varieties had already been introduced. The rural banks AGLF program had likewise been initiated.

The following selected information would indicate the nature and extent to which these lending institutions contributed to technological change.

Table 19. Selected information from the Study of Rural Credit in the Second District of Pampanga, 1967.

Item	Rural Banks	ACA	Other Sources
1) No. of borrower-respondents	101	104	100
2) Size of farm (ha.):			
Median	4	4	3.5
Average	6.25	4	3.75
3) With irrigation	- - - - -	percent	- - - - -
	20	44	38
4) Tenants	84	87	92
5) No collateral	88	100	93
6) Planting HYV (IR8 & IR5)	95	27	27
7) Planted new variety after receiving loan	37	8	-
8) Used fertilizer	96	76	59
9) Used insecticide	86	38	38
10) No technical <del>and</del> advice received	14	43	50

Source: Asia Research Organization, "A Study of Rural Credit in the Second District of Pampanga", (Study prepared for the U.S. Agency for International Development, 1967), (Xeroxed). p.

Based on these selected information, the following may be observed:

- 1) ACA's credit program has merely served as a substitute source of credit to farmers who borrow from unregistered sources charging higher interest rates. In addition, ACA's credit program has not contributed to technological change. The use of ACA loans did not appear to be different from loans from other sources.
- 2) The rural banking system has definitely contributed to technological change in addition to substantially expanding the availability of low-cost credit in the rural areas.
- 3) It appears that the difference in performance between ACA and rural bank programs was not so much in the selection of loan recipients but in manner of loan supervision.

### Conclusions

The following conclusions on the importance of institutional credit may therefore be derived from the foregoing observations:

- 1) Recent experience seem to indicate that the availability of institutional credit will accelerate the adoption of new technology after the initial diffusion stage. However, institutional credit may not be as essential in sustaining the continued adoption of new technology.
- 2) While institutional credit is instrumental in bringing down the interest rates prevailing in rural areas, investment in credit programs which only serve to subsidize interest payments made by farmers cannot be fully justified in terms of development.
- 3) Evidence has confirmed the observation that provisions for credit through established institutions should only be part of a major agricultural extension effort if these are to accelerate development. Should an effective extension service be absent, there would be a necessity for proper technical supervision to be provided together with the loan.

Problems and Prospects  
of Small Farmer Credit Programs

The rural banking system and the Agricultural Credit Administration are almost exclusively the only source of institutional credit for small farmers. The average size of loans will show that a large majority of borrowers operate farms below 5 hectares.

Table 20. Volume of Credit for Production and Average Size of Loans, Rural Banks and ACA, 1966-71.

Year	Rural Banks				ACA	
	Ordinary Loans		Special Loans		Total Volume	Average Size
	Total Volume	Average Size	Total Volume	Average Size		
(Pmillion)	(P)	(Pmillion)	(P)	(Pmillion)	(P)	
1966	247	784	-	-	14	395
1967	304	886	10	507	25	555
1968	354	975	9	477	32	568
1969	404	1,073	5	613	29	585
1970	483	1,232	6	857	45	730
1971	580	1,356	13	791	43	769
All years	2,372	1,069	44	611	188	618

Source: "Agricultural Credit Report," Op. cit.

Loan Receptients

There is reason to believe that rural banks cater to the better off farmers of the small farmer group. The rural credit study in the second district of Pampanga showed that the average size farm of rural bank borrowers was larger than that for ACA. A study of Nueva Ecija showed that rural banks preferred more financially stable farmers. The farmers in Nueva Ecija who were reported to have current loans with the rural banks were:

- 4 out of 10 owners and part-owners;
- 1 out of 10 lessees;
- 0.6 out of 10 share-tenants.

On the other hand, ACA seemed to have favored the lower strata farmers. Those with ACA loans were:

- 1 out of 10 owners and share-tenants;
- 2 out of 10 lessees, lessee/share-tenants and part-owners. 26/

The major problem lies in serving small farmers who have no collateral to offer, but nonetheless would be capable of increasing productivity and income and be able to pay for their loans should these be granted. The problem becomes doubly significant with recent developments. The entire country now being declared as a land reform area, about 700,000 share-tenants and lessees would surely be cut-off from landlord credit. Credit accommodations granted by landlords to these farmers may approximate the total volume granted by the entire rural banking system.

#### RB Supervised Credit Scheme

AGLF Program. In an attempt to encourage rural bankers to extend themselves to the service of this lower strata farmers, the AGLF program was launched in 1967. This program is essentially a supervised credit scheme. But in spite of the availability of funds and the 70 per cent guarantee feature, initial results were not entirely satisfactory.

Of the ₱34 million set aside for the AGLF program, the maximum loaned out by rural banks in any one year reached only ₱18 million. By the end of 1971, ₱4.6 million remained unused. 27/

The slow growth of the program was due to the unwillingness or hesitance of rural bankers to aggressively participate in the program. The reason cited is the unreliability of government technicians who have been assigned to rural banks to supervise loans. Hesitance in granting high-risk loans may also be expected of these privately owned banks.

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26/ P.R. Sandoval, S.C. Hsieh and B.V. Gaon, "Productivity Status of Lowland Rice Farms: A Case Study of Pre-Land Reform Conditions," The Philippine Agriculturist, LX (June, 1967), p.

27/ "Agricultural Credit Report," Op. cit., p. 6.

ALF Program. By the end of 1971, the AGLF was essentially replaced by the Agricultural Loan Fund (ALF) with the purpose of further encouraging rural bankers to expand loan volumes and hire their own technicians. This new program makes available to rural banks funds in the form of special time deposits for three years bearing an interest of 3 per cent instead of the usual 6 per cent per annum. A rebate of one-half of this 3 per cent payment is given to rural banks who hire their own technicians.

The guarantee portion of the program is provided by an Agricultural Guarantee Fund. Production loans are guaranteed to the extent of 70 per cent provided these are under the supervised credit scheme.

An added feature of the rural banks supervised credit program is the granting of loans to liability groups. Loans are granted without collateral to groups of farmers who agree to guarantee each others' loans. While initial trials have been encouraging, the scheme has not been implemented nationwide.

It would seem that the incentives provided rural banks were not yet sufficient. Government guarantee has recently been raised from 70 to 85 percent to further encourage rural banks to relax lending policies and expand loan releases under the scheme. Should this measure prove to be insufficient, administrative sanctions may be anticipated. It will still require a period of trial before any lessons can be gained with this approach to solve the problem of small farmer credit.

### Observations

Only a few observations on supervised credit for small farmers may be made at this stage.

- 1) Recent experience shows that a credit program designed to reach the lower stratum small farmers cannot be expanded rapidly if this is to be properly administered. Definitely, the program cannot be expanded fast enough to effect a rapid adoption of new technology. Supervised credit schemes must be viewed from the objective of improving the economic status of farm families rather than the narrow objective of attaining a fast rate of varietal change or significant increases in national production of a specific crop.

- 2) The private banking sector should not be expected to meet the credit needs of all small farmers. To a certain extent, supervised credit programs are a government function. Furthermore, it would be unrealistic to assume that the private banking sector will shoulder government costs associated with financially unsound loans.
- 3) The major bottleneck in expanding the supervised credit scheme is the unavailability of properly trained and qualified loan supervisors. This is a reflection of an ineffective government extension service. It will take time for the rural banking system to develop its own supervising capabilities. It will take a longer time for loan supervisors to expand the volume of loans supervised to justify administrative costs incurred in maintaining them.
- 4) Farmers who are borderline or submarginal cases are clearly the responsibility of the government from a social and political viewpoint. However, ACA will have to undergo a major restructuring and re-staffing if the loans they grant are to be at least productive, even if not fully recoverable..

## SUMMARY

- 1) The objective this study is to determine the role of credit in the adoption of new technology on the basis of recent experience gained in the diffusion of new rice varieties. The study also attempts to identify the circumstances under which institutional credit becomes essential.
- 2) Experience gained in recent years shows that varietal change and increased use of production inputs have been attained at a very rapid rate. There appeared to have been no major constraints to adoption. New rice technology has been effective in substantially increasing yields. The product/factor price relationship has been favorable, thus making adoption of new technology profitable to farmers.
- 3) During the early stage of introduction of new technology, the speed by which information is passed on to farmers is the single most important factor determining the rate of adoption. Once the "communication gap" is bridged, local availability becomes the major constraint to change. But as soon as this problem is resolved, credit becomes the most important factor affecting adoption of new technology.
- 4) Technological change with the associated increase in production expenditures will definitely increase the demand for credit. Farmers who normally borrow will need larger loans. Others will have to go into borrowing. Only a small proportion of farmers will not feel the necessity to borrow.
- 5) The relationship of tenure and land tenure reform to technological change is not conclusive. While landlords finance their tenants in growing HYVs, there is also some evidence that new rice technology creates certain inequities in tenancy arrangements. A disturbance in arrangements will surely create a demand for credit from alternative sources.
- 6) Recent experience seem to indicate that institutional credit is needed to accelerate the adoption of new technology after the initial diffusion stage. However, institutional credit may not be as essential in sustaining continued adoption.
- 7) Institutional credit which only serves to bring down interest rates prevailing in rural areas add little to technological change. The "demonstration effect" was one of the major contributor to the rapid adoption

of HYVs. This would suggest that credit programs should only be part of a major agricultural extension effort. Should an effective extension service be absent, there would be a necessity for proper technical supervision to be provided together with the loan.

- 8) Small farmer credit has been significantly expanded in recent years. However, there is doubt whether the lower strata farmers were adequately reached. The problem can be resolved by the replacement of collateral requirement with proper technical supervision. Experience, however, shows that a supervised credit program cannot be expanded rapidly.

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COUNTRY STUDY

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SMALL FARMER SAVINGS BEHAVIOR

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by:  
Orlando Sacay  
The Agricultural Executives, Inc.

Manila  
October, 1972

## SMALL FARMER SAVINGS BEHAVIOR<sup>1/</sup>

Information about the savings behavior of farmers hold special significance to the questions of financing technological change in agriculture. In the face of profitable new technology, can small farmers generate savings to self-finance the added cost of improved technology? If not, and granted that financial institutions are able to deliver credit, will incremental income be available to finance succeeding crops.

Unfortunately, there is a dearth of information on the subject of farm level savings rendering it difficult to arrive at any categorical answer to these questions. Research studies are few and far apart. Moreover, these studies are largely indicative in nature and do not address the subject matter squarely.

### Sectoral Estimates of Savings

Earlier studies on savings and capital accumulation in Philippine agriculture were summarized by Quintana et. al. (1964) to support the following "important empirical generalizations, or at least working hypotheses."<sup>2/</sup>

- 1) "Savings from income in the agricultural sector tends to exceed investment in agriculture in the Philippines... Philippine agriculture thus appears to be performing the classic function assigned to agriculture in developing economies with a large agricultural sector - that of generating savings for investment in other sectors of the economy.
- 2) "Capital accumulation in Philippine agriculture appears to be limited by lack of incentives to invest more than by lack of a potential supply of savings...

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<sup>1/</sup>This paper was prepared by Dr. Orlando J. Sacay for the Spring Review of Small Farmer Credit sponsored by the United States Agency for International Development.

<sup>2/</sup>E.U. Quintana, V.W. Ruttan and A.M. Weisblat, "Savings and Capital Accumulation in Philippine Agriculture," Philippine Economic Journal, III:2 (Second Semester, 1964), p. 113.

- 3) "Lack of productive investment alternatives in agriculture appears to represent a major factor limiting private investment in Philippine agriculture..."

Trinidad (1964), in a pioneering study on capital formation in agriculture analyzed a sub-sample of 4,800 farm households of the 1955 Crop and Livestock Survey. He reported that net capital formed in the agricultural sector was almost double the rate of net investment in the whole economy, an indication that capital investments in agriculture was high relative to income. It was also observed that the rate of capital formation was highest in the newer, less densely settled agricultural regions, and lowest (in some cases, negative) in the older, agricultural regions.<sup>3/</sup>

On the other hand, Paauw and Tyron (1968) reported that "agricultural savings were continuously negative, i.e., the sector dissaved until 1961 when agricultural savings turned positive. Agriculture did not show a surplus of sectoral savings over investment until 1964."<sup>4/</sup>

Varying estimates between the two aforementioned studies may lie in the differences in computational methods. Paauw and Tyron arrived at their estimates by determining voluntary savings transfers between industry and agriculture. This is basically a commodity flow method for which Hooley entertains certain misgivings because of the problem of underestimation of inventory accumulation and own-account construction which contributes to a downward bias. He suggests making more extensive use of direct estimates of capital formation in developing Asian countries. Trinidad used an inventory approach, much in line with Hooley's recommendations.

It may therefore be concluded that even in terms of aggregates, the savings behavior of the entire agricultural sector is as not yet clearly understood. In addition, macro estimates shed very little light to the question of small farmer savings behavior. A segregation

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<sup>3/</sup> L.A. Trinidad, "Private Capital Formation in Agriculture," The Philippine Economic Journal, III:6 (Second Semester, 1964), p. 139.

<sup>4/</sup> D.S. Paauw and J.L. Tyron, "Agriculture-Industry Interrelationships in an Open Dualistic Economy: The Philippines, 1949-1964," The Philippine Economic Journal, VII:13 (First Semester, 1968), p. 77.

between the city dweller and the barrio resident or the capital owning group and the labor providing group, to which many small farmers belong, had not been made.

Rural Savings

The amount of rural savings as indicated by deposits with rural banks appear to be rather substantial. As of 1971, total deposits were reported to be P332 million. This amount was equivalent to 52 per cent of total loans granted in 1971 which stood at P636 million.

This ratio of deposits to total loans varied greatly by region (Table 1). In Southern Luzon and Northern Mindanao, about 60 per cent of loans appear to be financed by deposits. In contrast with the Bicol Region and Western Visayas, less than one-third was financed by deposits. It is held certain that there are some important factors which influence the savings performance of various regions. These could however not be pinpointed with the existing data available and a thorough investigation would no doubt unravel some of the perplexing questions about savings.

Table 1. Rural bank Deposits Compared to Total Resources and Loan Volume, 539 Rural Banks, 1971.

Region	Number of Banks	Deposits <sup>a/</sup>		Total Loan Volume <sup>b/</sup>	Deposits as Percent of Loan Volume
		Total	Per Bank		
		P million			-percent-
Northern Luzon	48	16.7	.348	41.0	41
Central Luzon	140	99.5	.710	205.5	48
Southern Luzon	149	147.1	.987	243.6	60
Bicol Region	38	5.5	.145	22.8	24
Eastern Visayas	37	15.1	.409	32.0	47
Western Visayas	63	17.6	.280	57.1	31
Northern Mindanao	33	9.9	.300	24.9	40
Southern Mindanao	31	16.5	.531	28.3	53

Remarks: a/ Includes special time deposits.

b/ Includes other earning assets.

Source of Data: Central Bank of the Philippines, Nineteenth Annual Report on the Rural Banking System, 1971.

Private capital contributions and undivided profits of rural banks amounted to P186 million, equivalent to 29 per cent of the total volume of loans granted. If these capital items are considered as savings, private capital and deposits would make up for 81 per cent of credit accommodations. The balance is supplied by the government's capital accounts with rural banks and by the rediscounting facilities of the Central Bank of the Philippines. To a significant extent therefore, the rural sector itself finances the rural banking system.

However, private capital accounts are not held by small farmers. In addition, the sources of deposits have not been identified, leaving the question of small farmer savings behavior still unanswered.

Research Studies

The common impression about small farmer savings is that there is none. While this impression is not necessarily true, research findings show that only a small percentage of farm families have the opportunity to save.

Net Income

The first attempt to study the manner of disposition of farm family incomes was performed on a nationwide sample survey of 400 crop loan (ACCFA) borrowers in 1957/58. The study showed that on the average, there was hardly any opportunity for cash savings (Table 2).

Table 2. Cash Receipts and Expenditures of 400 Crop Loan Borrowers, 1957/58.

<u>Cash Receipts</u>		<u>Cash Expenses</u>	
	<u>pesos</u>		<u>pesos</u>
1) Crop sales	304	1) Living expenses	750
2) Value of crops paid to creditors	283	2) Farm operating expenses	211
3) Livestock sales	95	3) Capital investments	44
4) Other income of operator	294	4) Unusual expenses	144
5) Other income of family members	<u>200</u>	5) Value of interest payments	<u>62</u>
Total	1,176		1,211

Source: O.J. Sacay, "An Analysis of the Crop Loan Program of the ACCFA," Unpublished Ph.D. Thesis, Cornell University, Ithaca, N.Y., 1961. 31

The study also showed that staying out of debt alone is a major problem among small farmers. It was discovered that 78 per cent of the sample farmers had outstanding obligations at the beginning of the crop year.

In terms of income distribution, however, a certain proportion of farmers would have had the opportunity to save. The distribution of net income (total receipts less living expenses and farm operating expenditures) showed that about 40 per cent of farmers could have saved after unusual expenses and interest payments were made (Table 3).

Table 3. Distribution According to Amount of Net Income of 400 Crop Loan Borrowers, 1957/58.

Range	Per cent of Farmers
<u>pesos</u>	
minus 500	7
minus 500 to 0	35
0 to 500	38
500 to 1000	11
1000 to 1500	5
1500 and over	4
Total	100

Source: Ibid, p. 142.

However, if it was the tendency for farmers who had positive net incomes to subsidize those who had negative incomes, then the percentage of farmers who could have saved, or the amount of potential savings, would be lower.

The study of Castillo (1963) tends to support this tendency.<sup>5/</sup> It was reported that 21 per cent of households in the barrios studied can be classified as

<sup>5/</sup>G.T. Castillo and J.F. Pua, "Research Notes on the Contemporary Family: Findings in a Tagalog Area," Philippine Journal of Home Economics, XIV:3 (July-Sept., 1963), p. 4-35.

extended families. The typical concept of the extended family obligation was one of burden and dependency, at least in the short-run. Of the 79 per cent which were nuclear families (husband, wife and children only), 8 per cent indicated giving assistance to and receiving assistance from relatives who were not part of the household. It was also found that 75 per cent of the families which received assistance came from the three lowest annual income levels. The assistance provided was toward common family expenditures.

### Inventory Changes

In a survey of 550 farms sampled from 7 land reform municipalities in Central Luzon conducted by Sandoval and Gaon (1971), it was observed that non-land capital inventory did not change over the years (1963/65 to 1967/68). This was so inspite of tenural changes and the introduction of new high-yielding rice varieties. Their findings are presented in Table 4.

Table 4. Change in Inventory Items, 550 Farms, 7 Land Reform Provinces, 1963/65 to 1967/68.

Item	Change
	<u>pesos</u>
Land	1,234
Buildings	-36
Tools/equipment	22
Work animals	-50
Other animals	7
Others	1
Total change	1,178
Change in non-land-capital	-56

Source: Pedro R. Sandoval and Benjamin V. Gaon, Agri-cultural Land Reform in the Philippines: Economic Aspects (Laguna: College of Agriculture, University of the Philippines, 1971), p. 58.

### Savings and Deficit-Spending

The most recent and most extensive study on family income and expenditures was conducted by the Bureau of

the Census and Statistics Survey of Households for the calendar year 1965. This nationwide survey included a sample of 3,606 rural families. The pertinent findings of this survey are presented in Table 5.

Table 5. Income, Expenditures and Savings of Rural Families, Philippines, 1965.

Income Class	Frequency Distribution	Average Income	Average Expenditures	Available for Savings	Percent of Families Deficit-Spending
	percent	----	pesos	----	percent
Under 500	14.5	319	1,120	-801	96.0
500 to 999	21.9	751	1,503	-752	89.2
1,000 to 1,499	18.8	1,235	1,870	-635	80.2
1,500 to 1,999	14.4	1,718	2,134	-416	65.2
2,000 to 2,499	9.0	2,241	2,524	-283	59.1
2,500 to 2,999	6.8	2,714	2,706	8	44.6
3,000 to 3,999	7.2	3,415	3,403	12	42.3
4,000 to 4,999	3.5	4,410	3,748	662	29.5
5,000 to 5,999	1.6	5,539	4,834	705	29.3
6,000 to 7,999	1.3	6,778	4,562	2,216	24.9
8,000 to 9,999	0.4	9,258	5,999	3,259	12.5
10,000 and over	0.4	13,827	9,024	4,803	22.2
All	100.0	1,755	2,142	-387	71.5

Sources of Data: 1) "Family Income Distribution and Expenditure Patterns in the Philippines: 1965," Journal of Philippine Statistics, XIX:2 (Central Bureau of the Census and Statistics, April to June, 1968), Table 11.

2) "Savings and Deficit-Spending Among Families in the Philippines, 1965," Special Release No. 70-E, Bureau of the Census and Statistics, January, 1969, Table 1.

The results of this survey presents a bleaker picture than the previous studies mentioned. The study shows that the rural sector as a whole is a deficit spender. Only 28.5 per cent of families are able to keep family expenditures within their income. It will however, be noted that a family need not have a high income in order to be able to refrain from deficit-spending.

Limitations of Income Surveys. The preceding surveys mentioned may suffer from some degree of inaccuracy in estimation. The amount available for savings is arrived at as a residual. Errors in estimating both income and expenditures are therefore compounded in the savings estimate.

There is always a tendency for income estimates to be under-reported. Difficulty is normally met in recalling volume of harvest, quantity sold and price, quantity paid to creditors, quantity consumed, etc. for products which come only once or twice a year. Price estimates for products consumed which would make up a significant portion of the income estimates will normally be estimated by the farmer at a lower than retail level. Income from odd jobs paid in cash or in kind but come irregularly are also difficult to recall. And any omissions will likewise contribute to a downward bias.

On the other hand, expenditure estimates are easy to overestimate. The usual practice of estimating certain items of expenditures especially food (as was employed in the survey) is to make weekly estimates and multiply this by 52 to arrive at a yearly estimate. With this procedure, any error is magnified and errors are usually overestimates.

It is therefore considered that the information from this survey is only indicative and presents an underestimation of savings potentials.

#### Taiwan Rural Savings Study

In a study of rural savings in Taiwan, it was observed that propensity to save was much higher than had originally been expected. The data analyzed consisted of farm record keeping information from over 3900 accounts for the period 1960 to 1970.<sup>6/</sup>

The measures used were "average propensity to save" (APS) and "marginal propensity to save" (MPS). APS was defined to mean that portion of per capita income that is not spent for family consumption, expressed in percentile points. MPS was defined as that portion of additional per capita income that is not spent for family consumption, expressed in per-

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<sup>6/</sup>Dale Adams, Marcia Ong, and I.J. Singh, "Farm Level Savings and Consumption in Taiwan, 1960-1970," (Preliminary Report, Ohio State University and JCRR, June, 1972).

centile points. MPS was defined as that portion of additional per capita income that is not spent for family consumption, expressed in percentile points. MPS estimates were derived from the slope of functions fitted into the data. Four statistical functions were used: linear, quadratic, semi-log, and double-log. The lowest and highest estimates from any of the four functions were presented.

The average propensity to save ranged from about one-fifth to one-quarter of total income. The marginal propensity to save ranged from about one-third to two-thirds of the marginal or incremental income.

Unfortunately, there is no parallel to the Taiwan study in the Philippines. It is however felt that the APS magnitudes in the Philippines would be considerably lower than Taiwan. MPS values in the light of new rice technologies in the Philippines cannot even be roughly approximated as compared to Taiwan.

The use of this analytical method in the Philippines will meet some difficulty or at least limited applicability. Most available information are from surveys and not from farm records kept over time. As mentioned, errors in estimates may render the results of analysis meaningless. In addition, a significant group of family accounts will carry a negative savings figure which may unduly confuse analysis and interpretation. There is, however, opportunity to determine propensities to save among small farmers.

A very limited number of farmers in Laguna and Batangas provinces have kept records. Analysis of these records would certainly provide greater insights on the question of the savings behavior of small farmers although the applicability of results to the national picture would be limited.

#### Experiences in Generating Cash Savings

There have been isolated attempts made at encouraging savings in the rural areas of the Philippines. The principal means employed was the establishment of credit unions.

#### Nueva Ecija

Credit unions established in the barrios have generally been failures. As part of a standard procedure in barrio development, the Philippine Rural

Reconstruction Movement (PRRM), which had been operating in the province of Nueva Ecija for 20 years was able to organize 48 credit unions in that province.<sup>7/</sup> As of September, 1969 (the date of the latest report) total deposits was registered at P138,097, an average of P2,877 per credit union and P41 per member, an amount in no way modest under barrio standards. However, information has it that only about 10 of these credit unions have remained active and only 2 or 3 credit unions are truly viable. Success was primarily due to aggressive, self-sacrificing leaders in these barrios.

### Cavite

PRRM nau also organized 11 credit unions in the province of Cavite. Only one has survived.

On the other hand, the International Institute of Rural Reconstruction (IIRR), taking the same province organized 5 pilot credit unions in the same number of barrios. A counterpart financing scheme to match the funds of credit unions was tested and found successful. In only a period of two years total deposits amounted to P25,927, or an average of P5,185 per credit union and P66 per member.<sup>8/</sup> The volume of deposits varied greatly, the smallest amount of deposits was P1,693 while the largest was P12,833. Among these credit unions, those with larger deposits were more "urban", meaning that a high percentage of total income received by barrio residents came from sources other than farming.

All 5 credit unions have survived. However, experience from this pilot program highlighted the following observation: Credit unions can only grow in size from additional deposits rather than from income derived from loans.

The credit unions in Cavite province had perhaps a better chance for success than their counterparts in Nueva Ecija province. Farms in Cavite grow a varied

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<sup>7/</sup>"Philippine Rural Reconstruction Movement 1970-71" (Published brochure, 1971), p. 19.

<sup>8/</sup>O.J. Sacay, D.H. Shapiro and R.H. Gecolea, Strategies in Rural Economic Development: A Case Study in Five Philippine Villages. (Silang: International Institute of Rural Reconstruction, 1971), p. 73.

number of crops which are intensively cultivated and provide farmers year round sources of income. Nueva Ecija in contrast has a monocultural cropping pattern which generates income but once or twice a year when there is irrigation water available. Moreover, an aggressive program to increase production and income was carried in Cavite out alongside efforts to encourage savings. The difference in success between Cavite and Nueva Ecija is primarily attributed to the quality of supervision provided to these village-level organizations.

### Mindanao

A successful program on a wider scale is being carried out in the island of Mindanao. As of 1970, there were 38 credit unions organized with a total deposit of P1.9 million. The average deposit of these credit unions organized at the municipal level was P50,360, or P290 per member.<sup>9/</sup>

It was reported that about 60 per cent of members are farmers. Farmers are considered to be good borrowers although possessing the tendency to borrow more than they have saved. The same tendency observed in Cavite province may also be applied in Mindanao.

The remarkable success of the credit unions in Mindanao is attributed primarily to the training and educational program carried out by the Southern Philippines Educational Cooperative Center (SPECC). A prospective member is required to complete 18 lessons on cooperatives and make 9 deposits before he becomes a member. In addition, three-month leadership courses and 6-week live-in management courses for credit unions are provided by the center.

Credit unions organized in communities where there are farmer-members tend to have smaller deposits than credit unions organized in established institutions.

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<sup>9/</sup>Based on information contained in a proposal submitted by the Southern Philippines Educational Cooperative Center to the Chairman of the National Economic Council, June 21, 1971.

Of the 28 "community type" credit unions, the average deposit was P21,164 per credit union and P149 per member. This compares with P132,109 per credit union and P503 per member where credit unions have been organized among employees of business establishments. The same tendency is noted in the entire country. The largest credit union are organized among employees of business concerns.

### Visayas

Similar successes are being experienced in the Visayas on a program being carried out along lines similar to those carried out in Mindanao. Sixteen credit unions are reported to have a total deposit of P3.2 million. About 80 per cent of members are farmers who are not the biggest depositors but who are reputed to be the most regular savers, deriving a regular source of income from crops consisting predominantly of coconut and rice. In addition, most of these farmers own the land they till.

Training is being conducted by the Visayas Cooperative Training Center (VICTO).

### GOVERNMENT POLICY

The government's policy on small farmer savings is one of disconcern. Recent experiments of credit unions in the Philippines indicate that they have not received any financial support whatsoever from the government. Credit unions were left entirely to their own resources. Loans generated by these institutions were financed entirely out of the deposits of members.

The government has not made any explicit pronouncements or implied policies to encourage savings among small farmers. As a matter of fact, credit unions are classified as non-agricultural cooperatives.

An attempt was made by the government in the past to provide assistance to credit unions and other non-agricultural cooperatives with the establishment of the Philippine National Cooperative Bank. This bank started operations in 1960. It did well until 1965 when its financial condition started to deteriorate, finally reaching a crisis in 1971. Mismanagement and large past due accounts were principally responsible for this development. The government's withdrawal of its deposits also contributed in no small measure to the demise of the bank. It is now defunct and is at such a state that any attempt at reviving it will incur more cost than the setting up of a new one. Neither alternatives appeal to policy makers.

### Summary and Conclusions

At the present time, it would be better to draw conclusions from experiences gained in generating savings rather than from the results of studies which only serve to indicate the savings behavior of small farmers.

### Savings Generation

Research studies on family income and expenditures suggest that only a very small proportion of small farmers could have generated savings. These studies also indicate that farm families need not have a high income to be able to refrain from deficit-spending, implying that savings may be generated even from low income farmers. It is however felt that research findings tend to present an underestimation of savings potential in the rural areas. Until more meaningful studies on propensity to save among small farmers are carried out, research information cannot be completely relied upon as the basis for policy formulation.

Experience clearly shows that savings can be generated among small farmers. It should however be recognized that there are certain factors which

favor a better savings performance. Farmers in multi-cropped areas and areas grown to permanent crops will tend to have greater savings potentials. Income of farmers in these areas are more uniformly distributed throughout the year.

### Credit Unions

The establishment of credit unions seems to be the most feasible approach to generating rural savings. The key to the success of these institutions are: 1) the availability of local leaders; 2) rigorous education and training; and 3) regular and strict supervision.

It should also be recognized that small farmers will tend to borrow more than they have saved. With a loan policy of extending unsecured loans twice the amount of savings, a borrower automatically deprives another member of the opportunity to borrow. This arrangement becomes a disincentive to saving. Counterpart sources of funds are therefore needed.

A possible source is the deposits of non-farmer members. Experience shows that families deriving regular incomes from sources other than farming tend to save more. Hence, credit unions organized in areas where farmers are a minority tend to have larger deposits. But whether farmers can hold their ground in the allocation of loanable funds is questionable.

There does not seem to be any alternative but for the government to step in and match credit unions' capital. A better situation will arise as compared to the present arrangement whereby a farmer can obtain loans without any savings at all. It is believed that credit unions can be organized and developed into a state of maturity for these to be able to handle funds from outside sources.

### Savings and Loaning Institutions

A viable cooperative banking system with adequate government financial support is essential to the proper development of credit unions in the country. These banks will serve as a depository of funds and a source of loans for credit unions in the same way that credit unions deal with their members. Existing financial institutions cannot perform these functions if they are to observe normal banking policies. Neither can funds be re-loaned as funds from these sources already carry a retail price tag.

The rural banking system can also be developed into a savings institution for small farmers. Rural banks can pursue aggressive savings campaigns or may even open investment in these banks to small farmers. A forced savings program for borrowers will also contribute to the expansion of deposits in the rural areas.

The foregoing steps however are contingent on a definitive policy on savings by the government. Unfortunately, the government's present posture is non-committal.

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COUNTRY STUDY

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PALAY PRODUCTIVITY AND PROFITABILITY IN ILOILO, 1971-72

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A Comparative Analysis

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SUMMARY

Conclusions

1. This study indicates that the principal constraint on small farmer productivity is economic. HYV technology is less profitable, per crop, than the lower yielding traditional methodology, for the typical yields obtained.
2. Greater productivity and profit are technically feasible, but are beyond the farmer's present experience and expectations.
3. A fixed rental would significantly improve the farmers income potential in HYV production.
4. Without both increased incentive and knowledge, a HYV productivity program will not be successful.

Recommendations

1. A palay price support program -- to reduce the risk to the farmer.
2. A land reform program to redistribute the productivity increases in favor of the (tenant) farmer.
3. Continuing extension training and adaptive field research trials -- to demonstrate HYV potential.

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PALAY PRODUCTIVITY AND PROFITABILITY IN ILOILO, 1971-72  
A Comparative Analysis\*

Kenneth F. Smith  
Management Systems Advisor  
Office of Agricultural Development USAID/Manila

December 1972

General Situation

Iloilo Province is one of four provinces on Panay Island in the Western Visayas; the third ranking palay<sup>1</sup> producing region in the Philippines in 1971.<sup>2</sup> Palay farming accounts for 43% of the cultivated land area in Iloilo, and is widely distributed throughout the province, involving some 91,000 farmers; most of whom have small farms of about 2 hectares.<sup>3</sup>

In Iloilo, rice is grown under three different types of conditions: Upland (low yielding); Rainfed Lowland (moderate yield); and Irrigated Lowland (high yield). Although the conditions under which the rice is grown tend to limit production, yield is also strongly influenced by the variety of seed used and the management practices followed. Discussions with agricultural technicians on the Provincial Development Staff, Farm Management Technicians of the Agricultural Productivity Commission, the Bureau of Plant Industry, the Agricultural Credit Agency, and several farmers in the province, as well as a farm Cooperative Manager, indicate that on properly irrigated lowland<sup>4</sup> yields average between 40-45 cavans per hectare<sup>5</sup> with "traditional"

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\* NOTE: This paper is a revised version of my earlier paper, Palay Productivity in Iloilo, 1971-72, March 1972. That paper did not distinguish between the share tenant and the leaseholder, but treated the land rental of both as a fixed percentage. Since the share and lease differ in a form which affects the outlay and returns to the farmer, this paper elaborates on that aspect.

1/ Palay = rough, or paddy, rice

2/ Extracted from Jesus C. Alix "Patterns of Distribution of Palay Harvest in the Philippines, 1956, 1963, 1970 and 1971" Philippine Agricultural Situation (Bureau of Agricultural Economics, DANR) Vol. VIII No. 4, Oct-Dec 71, Table 14 - Palay (Rough Rice); Percentage, Area and Production by Region, Philippines, Crop Year 1968-71, page 41.

3/ Extracted from Agricultural Development Plan 1972-76 Rice, Iloilo (Draft), Provincial Development Staff, Iloilo, March 1972.

4/ Where the highest yields can be expected.

5/ 1 cavan = 44 kilos  
1 hectare = 2.47 acres

seeds and farming practices, and 65-72 cavans per hectare where high yielding varieties (HYV) are used and modernized practices followed.<sup>1</sup>

### Improved Productivity Possible

Yields of 80, 90, 100 and even more cavans per hectare have been obtained by some farmers, but these are the exception rather than the rule.<sup>2</sup>

Unquestionably, however, it has been established that the high yielding variety seeds produce more rice per hectare when modernized practices are followed, and the emphasis of the farm management technicians in the province has been in training farmers in the improved methodology. A major factor in obtaining high yields with the improved practices has been the use of fertilizer.

### Lack of Acceptance

The HYVs were introduced in 1966 and an intensified program was implemented in 1968. Slightly more than 50 percent of palay farmers are now estimated to be planting the HYV seeds, nationwide. Thus the government's efforts to induce the farmers to plant the HYV's have been relatively successful.<sup>3</sup>

However, farmers have been generally reluctant to adopt fully the modern technology of intensive fertilization and improved management practices that should complement the "miracle seeds." Consequently rice production in the province is far below potential. At the same time, the palay farmer's income and standard of living is generally considered unsatisfactory. This has posed a problem for the farm management technician, namely - why doesn't the farmer produce more since he needs the income?

### Contributing Causes

Numerous reasons have been cited for this apparently anomalous situation. Scarcity of credit for those who do want it has been a major complaint. Inability of the farmer to qualify for credit, another. Insufficient technical personnel, inadequately qualified extension workers, poor roads, insufficient farmer training, farmer complacency, even laziness, have all been blamed at one time or another as the major constraint to increased farm productivity.

1/ This is considerably higher than the official 4 year average estimate of 42.5 c/ha for HYV irrigated palay for the Western Visayas Region. Furthermore, the 4 year average for HYV irrigated palay for the Philippines as a whole is only 45 c/ha - PHILIPPINES - PALAY (Rough Rice) Yield Per Hectare, By Region, Seed Type, Irrigated and Non-irrigated Lowland Cavans. (44 kg. Sacks). Source: BAECON, IAS - May 29, 1972 & Dr. J. Atkinson, USDA. Project ADAM.

2/ Time limitations did not permit a detailed follow-up on the reasons for variance between the 65-72 c/ha and the 80-100 + c/ha farmers. The IRRI indicates however that "the more skillful growers, perhaps the top 25%, achieve rice yields 50 to 100 percent higher than the average yield due to better management practices." Rice Production Manual 1970, University of the Philippines College of Agriculture, in cooperation with the International Rice Research Institute, p. 355.

3/ J.C. Alix, op.cit., p. 22.

### Economics - Critical Factor

Undoubtedly, each of these (as well as other factors) have played a contributing role. However, a review of the Iloilo data indicates that from the farmer's vantage point of income, (rather than the technician's approach of higher productivity) in the lower price ranges which prevail, the HYV technology is less profitable, per crop, than the lower yielding traditional methodology, for the "typical" yields cited.<sup>1</sup> Even when higher prices are obtained, the increased profit from the higher yield is marginal, while the cash outlay requirements more than double.

For atypical yields of 100+ cavans per hectare, the HYV technology is clearly advantageous in terms of total profit;<sup>2</sup> but the increased cost, effort and risk involved, place it in a category which most small farmers are either unable to attain, or are as yet unwilling to undertake.

### Estimating Costs

There are several ways to calculate costs,<sup>3</sup> and obviously the amount of profit shown will depend on what factors are excluded from the cost of production. Following the recommended IRRI approach, table 1 outlines the estimated costs of each step of the rice production process in Iloilo.

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1/ Bearing in mind that these "typical" yields are higher than the official average! PHILIPPINES - PALAY (Rough Rice) Yield . . . op. cit.

2/ Although even then the return on capital is not as great in most cases.

3/ Randolph Barker "The Economics of Rice Production" Rice Production Manual, 1970. University of the Philippines, College of Agriculture, in Cooperation with the International Rice Research Institute, p. 296.

**TABLE 1 - ESTIMATED PER HECTARE COSTS FOR RICE CULTURE - ILOILO PROVINCE 1972**

Item	Activity	Quantity	Type of Expense			Traditional (Pesos)	HYV (Pesos)
			Materials	Labor	Rental		
1.	Seed	1 Cavan	M			55	55
2.	Plowing			L		5	5
3.	Harrowing			L		5	5
4.	Seed Treatment		M			-	7
5.	Sowing Seed Bed			L		5	5
6.	Fertilizing	4 kg 14-14-14	M			-	2
7.	Spraying	2 tbsp Sevin	M	L		-	1
8.	Irrigating			L		-	1
9.	Plowing	(By carabao)		L		2.50	2.50
10.	First harrowing			L		60	60
11.	Drainage			L		30	30
12.	Irrigating			L		5	5
13.	Second Harrowing			L		5	5
14.	Drainage			L		30	30
15.	Fertilizing	50 kg. Urea	M			-	153
		200 kg 14-14-14		L		-	6
16.	Leveling			L		30	30
17.	Pulling Seedlings			L		60	60
18.	Transplanting			L		70	90
19.	Insecticide	1 ltr Diazinon (Foliar)	M	L		-	8
20.	Fungicide	1 kg copper	M	L		-	6
21.	Replanting			L		-	16
22.	Insecticide	1 ltr Gusathion (Foliar)	M	L		-	12
23.	Fungicide	1 kg Hinosan	M			-	6
24.	Weedicide	25 kg Tavion (Granule)	M	L		10	35
25.	Rogueing			L		3	74
26.	Weeding			L		-	3
27.	Irrigating			L		40	6
28.	Insecticide	1 kg Folidol	M			5	5
29.	Fungicide	1 kg Hinosan	M	L		10	19
30.	Drainage			L		-	35
31.	Topdressing Fert.	50 kg Urea	M	L		6	6
32.	Irrigating			L		5	5
33.	Irrigating Fee				R	25	25
34.	Drainage			L		5	5
35.	Interest on Loan for Labor and Materials (P800 @ 8% x 1/2 yr)*				R	-	32
36.	Harvesting			L		(Yield x 7% x Selling Price)	
37.	Threshing and Drying			L		(Yield x 7% x Selling Price)	
38.	Warehousing Fees				R	(Yield x 1/2 peso)	
39.	Land Rent				R	(Variable - see text)	

SOURCE: Agricultural Division, Provincial Development Staff, Iloilo, March 1972

\* In many cases the true interest is higher than 8%, since the interest is often collected in advance and "service charges" are added. (D. Tinsler, AD/USAID/M)

Land Rental<sup>1</sup>

There are many schemes for land rental payments, with three principal patterns; two under Share Tenancy, and one under Leasehold Rental.

Under the Share Tenancy system which predominates in the province, both the costs of production and the income from harvest are usually shared. In most cases, the Landlord and the Tenant share both the costs and the income equally, on a 50 - 50 arrangement. This system requires the lowest cash investment from the tenant, and gives him the least exposure to risk.

In other cases, the Tenant incurs all the costs, but receives a disproportionate amount of the income:- 60% on a 60 - 40 Share, or even 70% on a 70 - 30 Share basis. In effect, this latter sharing system is a high rental, which varies with the size of the crop. Psychologically, it is justified on the grounds that it provides more incentive to the tenant to produce, while affording him great security in the event of a crop failure; since there is no rent due and the landlord can be relied upon to provide subsistence in that eventuality.

Under the land reform program, where a tenant has a Leasehold Rental arrangement, the rental is fixed. The amount, determined by formula, is 25% of the average harvest of the three previous normal crops prior to obtaining the lease, thus:-

$$R = \frac{25 \sum_{i=1}^3 C_{i-3}}{3}$$

The rents typically range between 10 and 15 cavans, and are due whether the farmer has a harvest or not, regardless of the reason.

Amortizing owners are essentially in the same situation as the leaseholder above, but make purchase payments rather than mere rental.

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<sup>1/</sup> This paragraph has been included as a result of several discussions with Mr. David Christenson, Land Reform and Credit Advisor, AD/USAID/M. My previous paper treated Land Rent solely as 25% of the yield, as reported to me by the Iloilo Provincial Agricultural Staff. Actually, the situation is more complex than this, and the differences are significant enough to warrant a fuller treatment.

To examine the profit to the farmer under various conditions, in terms of return above cash outlay, the data in Table 1 has been rearranged in Table 2. For our purposes, labor is assumed to be hired for harvesting and threshing. Labor for other activities is assumed to be performed by the farmer and his family, at no cash cost.<sup>1</sup>

**TABLE 2 - ESTIMATED PER HECTARE CASH COSTS FOR RICE CULTURE - ILOILO PROVINCE 1972**

<u>Item</u>	<u>Traditional</u>	<u>HYV</u>
1 Seed	55	55
2 Fertilizer	-	183
3 Insecticide, Herbicide & Fungicide	20	213
4 Hired Labor for Harvesting, Threshing and Drying	(Yield x 14% x Selling Price)	
5 Warehousing Fees	(Yield x 1/2 peso)	
6 Land Rent	(Variable, see text)	
7 Irrigation Fees	25	25
8 Interest on Loan	-	32

The profitability to three "typical" farmers is outlined on the following tables.

Table 3 summarizes the costs and benefits of palay production calculated for various yields at different selling prices.

**TABLE 3 - COSTS AND BENEFITS OF PALAY PRODUCTION FOR TYPICAL AND ATYPICAL YIELDS OF TRADITIONAL AND HIGH YIELDING VARIETY PRODUCTION FOR AN ILOILO SHARE-TENANT (50-50) 1972, GIVEN THREE DIFFERENT SELLING PRICES FOR PALAY**

	<u>TRADITIONAL (Ca/Ha)</u>		<u>HIGH YIELDING VARIETIES (Ca/Ha)</u>				
	<u>40</u>	<u>45</u>	<u>65</u>	<u>72</u>	<u>80</u>	<u>90</u>	<u>100</u>
<b>A. Selling Price 20 Pesos/Cavan</b>							
Cost	116	124.25	361.25	372.8	386	402.5	419
Income	400	450	650	720	800	900	1000
Profit	284	325.75	288.75	347.2	414	497.5	581
Cost/Benefit 1:	3.45	3.62	1.80	1.96	2.07	2.24	2.40
<b>B. Selling Price 25 Pesos/Cavan</b>							
Cost	130	140	384	398	414	434	454
Income	500	562.5	812.5	900	1000	1125	1250
Profit	370	422	428.5	502	586	691	796
Cost/Benefit 1:	3.85	4.00	2.12	2.26	2.42	2.60	2.76
<b>C. Selling Price 30 Pesos/Cavan</b>							
Cost	144	155.75	406.75	423.2	442	465.5	489
Income	600	675	975	1080	1200	1350	1500
Profit	456	519.25	568.25	656.8	758	884.5	1011
Cost/Benefit 1:	4.16	4.35	2.39	2.56	2.72	2.89	3.07

<sup>1/</sup> Due to rural unemployment and underemployment typically experienced in the Philippines, the opportunity cost of labor for the farmer and his family is treated as zero.

**TABLE 4 - COSTS AND BENEFITS OF PALAY PRODUCTION FOR TYPICAL AND ATYPICAL YIELDS OF TRADITIONAL AND HIGH YIELDING VARIETY PRODUCTION FOR AN ILOILO SHARE-TENANT (60-40) 1972, GIVEN THREE DIFFERENT SELLING PRICES FOR PALAY**

	<u>TRADITIONAL (Ca/Ha)</u>		<u>HIGH YIELDING VARIETIES (Ca/Ha)</u>				
	<u>40</u>	<u>45</u>	<u>65</u>	<u>72</u>	<u>80</u>	<u>90</u>	<u>100</u>
<b>A. <u>Selling Price 20 Pesos/Cavan</u></b>							
Cost	232	248.5	722.5	745.6	772	805	838
Income	480	540	780	864	960	1080	1200
Profit	248	291.5	57.5	118.4	188	275	362
Cost/Benefit 1:	2.07	2.17	1.08	1.16	1.24	1.34	1.43
<b>B. <u>Selling Price 25 Pesos/Cavan</u></b>							
Cost	260	230	768	796	828	868	908
Income	600	675	975	1080	1200	1350	1500
Profit	340	395	207	284	372	482	592
Cost/Benefit 1:	2.31	2.41	1.27	1.36	1.45	1.56	1.66
<b>C. <u>Selling Price 30 Pesos/Cavan</u></b>							
Cost	288	311.5	813.5	846.4	884	931	978
Income	720	810	1170	1296	1440	1620	1800
Profit	432	498.5	356.5	449.6	556	689	822
Cost/Benefit 1:	2.50	2.60	1.44	1.53	1.63	1.74	1.85

For the dubious distinction of "independence" and "privilege to exercise initiative," the 60-40 HYV share tenant is in much worse economic shape than his 50-50 counterpart, at all stages. He doesn't begin to break even with the traditional 50-50 farmer until he reaches the upper production levels (generally above 80 cavans/ha). To support his farming operations he must capitalize heavily.

**TABLE 5 - COSTS AND BENEFITS OF PALAY PRODUCTION FOR TYPICAL, AND ATYPICAL YIELDS OF TRADITIONAL AND HIGH YIELDING VARIETY PRODUCTION FOR AN ILOILO LESSEE TENANT (FIXED RENTAL)\* 1972, GIVEN THREE DIFFERENT SELLING PRICES FOR PALAY**

	<u>TRADITIONAL (Ca/Ha)</u>		<u>HIGH YIELDING VARIETIES (Ca/Ha)</u>				
	<u>40</u>	<u>45</u>	<u>65</u>	<u>72</u>	<u>80</u>	<u>90</u>	<u>100</u>
<b>A. <u>Selling Price 20 Pesos/Cavan</u></b>							
Cost	432	473.5	962.5	985.6	1012	1045	1078
Income	800	900	1300	1440	1600	1800	2000
Profit	368	426.5	337.5	454.4	588	755	922
Cost/Benefit 1:	1.35	1.91	1.35	1.46	1.58	1.72	1.86
<b>B. <u>Selling Price 25 Pesos/Cavan</u></b>							
Cost	510	561.25	1068	1096	1128	1168	1208
Income	1000	1125	1625	1800	2000	2250	2500
Profit	490	503.75	557	704	872	1082	1292
Cost/Benefit 1:	1.96	2.01	1.52	1.64	1.77	1.93	2.07
<b>C. <u>Selling Price 30 Pesos/Cavan</u></b>							
Cost	588	649	1173.5	1206.4	1244	1291	1338
Income	1200	1350	1950	2160	2400	2700	3000
Profit	612	701	776.5	953.6	1156	1409	1662
Cost/Benefit 1:	2.04	2.08	1.66	1.79	1.93	2.09	2.25

Due to the fixed nature of the rent, the "Land Reform" leaseholder is significantly better off than his share-cropping brothers, as all increases above the rent accrue to his favor. Below 25 pesos/ca, however, the profit on HYV in the "normal" range is less than that of the traditional yield, and doesn't seem to warrant the extra effort involved.

These nuances are seen better when presented graphically, as in the following tables.

\* For the purposes of this analysis the rental of 40 and 45 cavans yield has been assumed as 25%, while for 65 cavans and above, it has been fixed at the equivalent price of 12 cavans.

**TABLE 6** TRADITIONAL & HYV PROFIT/HA AS A FUNCTION OF YIELD  
(50 - 50 SHARE TENANT)

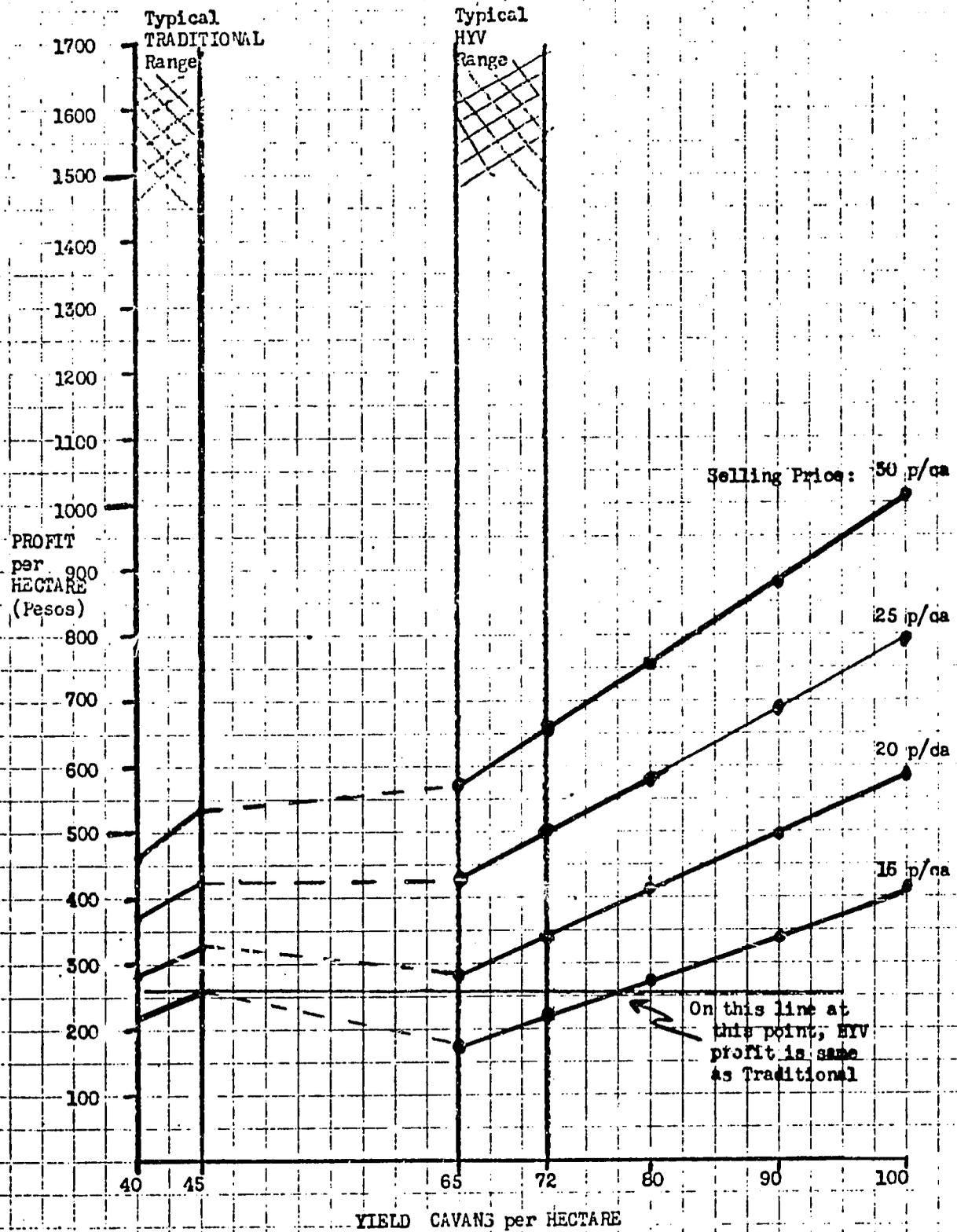


TABLE 7: TRADITIONAL & HYV PROFIT/HA AS A FUNCTION OF YIELD  
(60 - 40 SHARE TENANT)

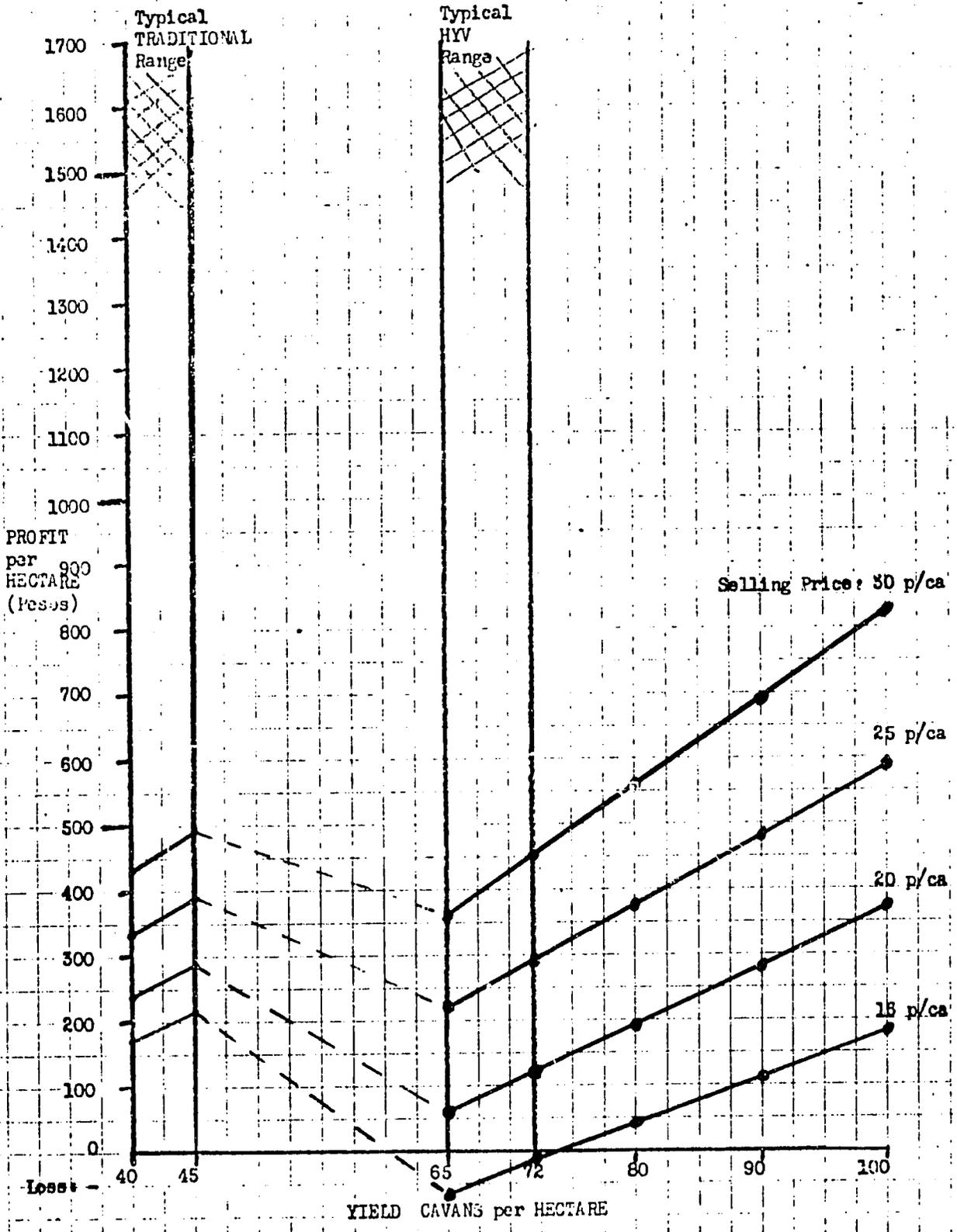


TABLE 8 TRADITIONAL & HYV PROFIT/HA AS A FUNCTION OF YIELD (LESSEE TENANT - FIXED RENTAL)

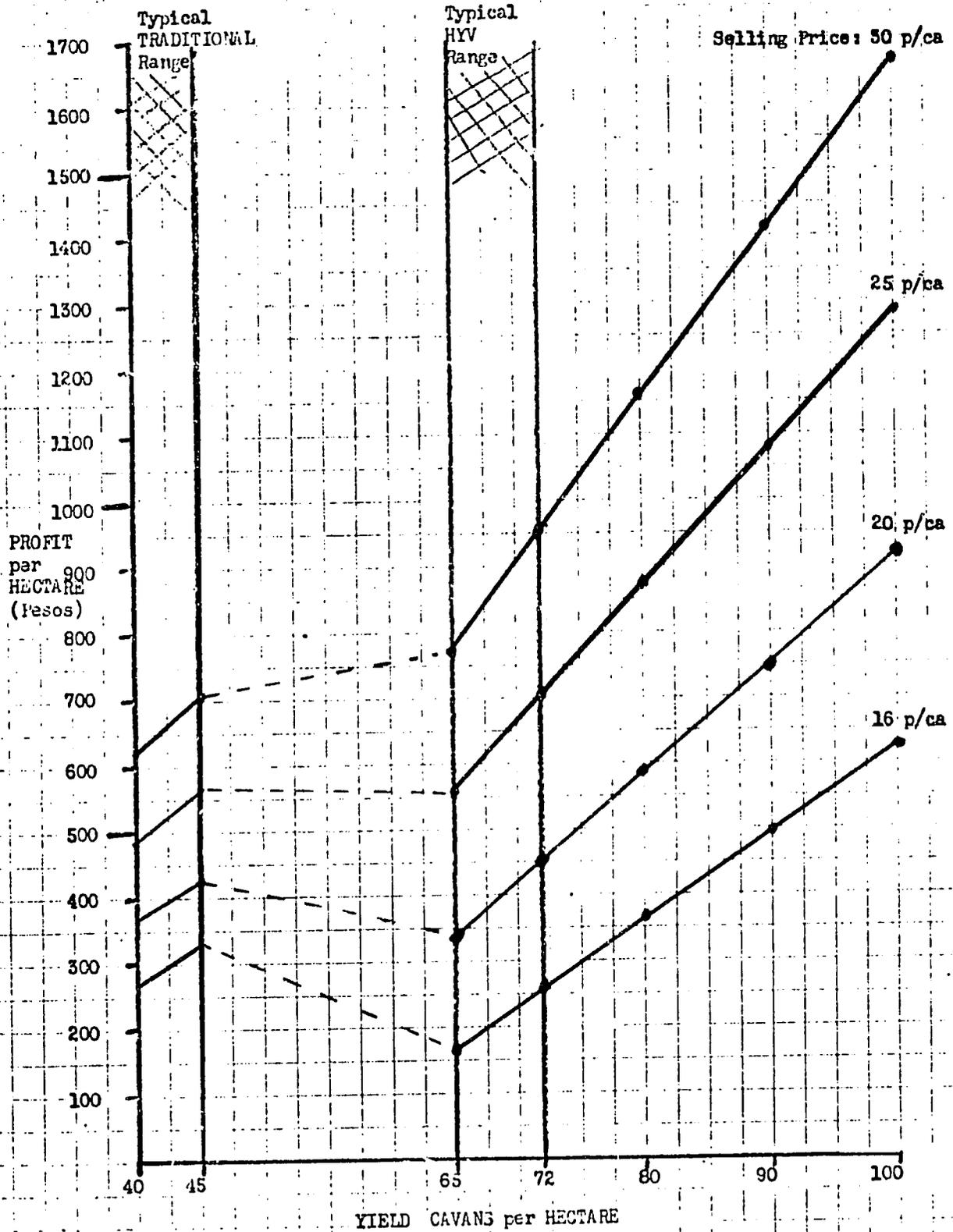
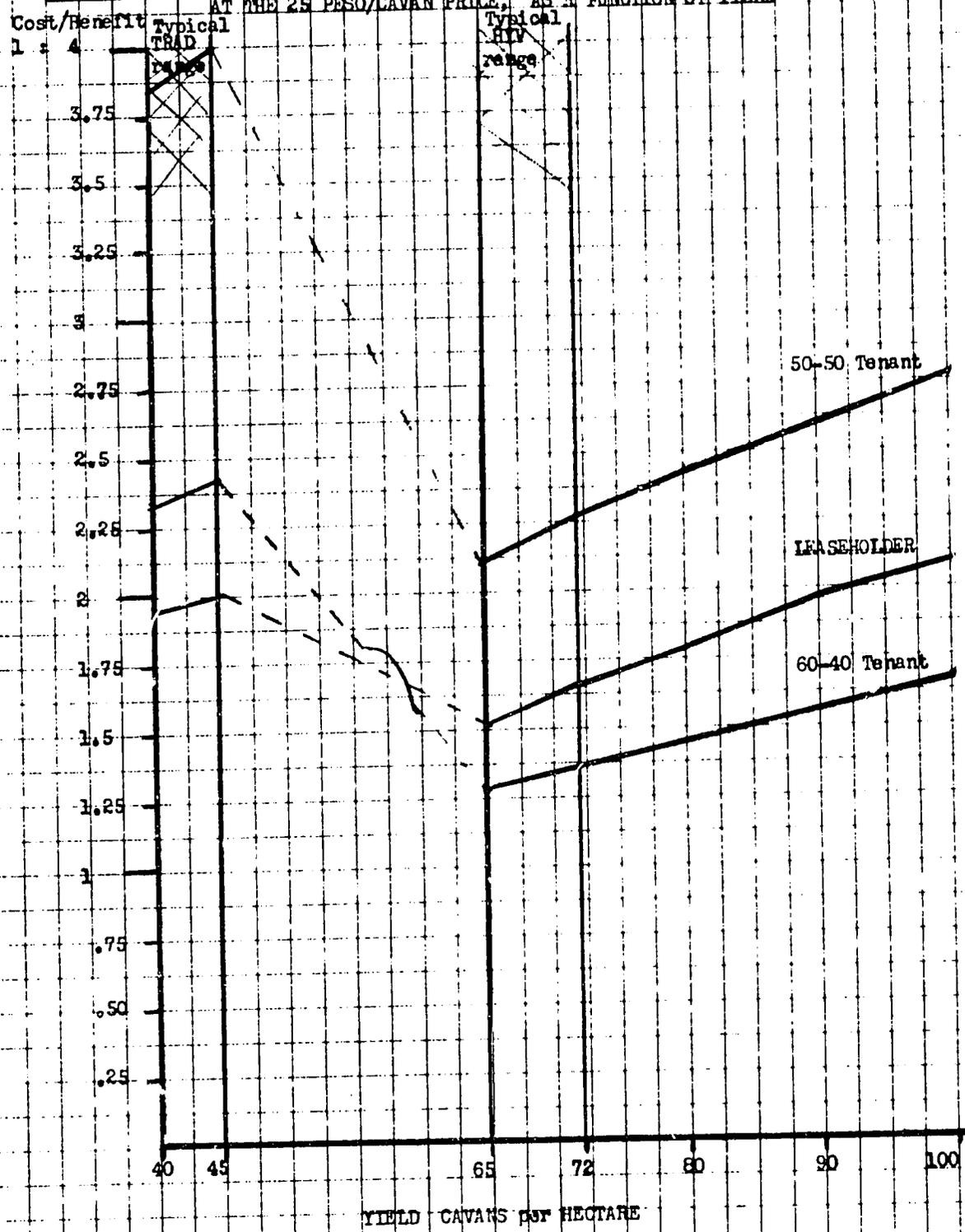


TABLE 9

COST/BENEFIT FOR THREE CATEGORIES OF RICE FARMERS COMPARED AT THE 25 PESO/CAVAN PRICE, AS A FUNCTION OF YIELD



### Price Support Rate Unrealistic

It is clear from the foregoing tables (6-9) that the 1966 palay support price<sup>1</sup> of 16 pesos per cavan is now unrealistically low, providing no incentive for productivity increases. In fact the HYV 60-40 share tenant loses money at this price. Even at 20 pesos a cavan, most farmers who produce 40 cavans per hectare will still make a larger profit than those who produce 65 cavans/ha.<sup>2</sup>

With a selling price of 25 pesos/cavan, at the 65 cavans/ha yield the 50-50 share tenant farmer is just about "breaking even" with the best traditional production rate, while the leaseholder and the 60-40 share tenant are still behind.<sup>3</sup> And this, after undertaking greater cash outlay and effort.

It is not until a price of 30 pesos/cavan is reached that most types of farmers are compensated for this additional effort.<sup>4</sup> Even then, return on investment is still at a lower rate than the lesser yield.

### Risk

Even with an adequate guaranteed price for his product, the farmer incurs tremendous risks. He is at the mercy of weather - floods, drought, winds; insects and disease, which can and do destroy his crops. If he survives all this, and he and his neighbors reap a bountiful harvest, without a price support policy, the laws of the marketplace conspire against them, and the price falls.

The answer to the farm management technician's question of why the farmer doesn't grow more, even if he knows how, can be illustrated in terms of game theory<sup>5</sup> where the individual is pitted against the other farmers, and the various options considered.

If the individual farmer opts for HYV technology, he must obtain credit, and put in additional effort over the traditional variety production.

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1/ R.A. 4643. During the time that this data was being gathered, the price for palay was 27.5 pesos per cavan. The 20-30 pesos was cited as a general range for the market to fluctuate.

2/ The differential is actually greater since HYV's are generally priced lower than the traditional ones.

3/ These data indicate that it takes about 25 cavans of palay to cover the additional cost of HYV inputs; - Fertilizer, insecticide, herbicide, fungicide, hired labor, warehousing and interest.

4/ The 60-40 share tenant doesn't improve his situation until he approaches the 80 cavan/ha level!

5/ Zero-sum game, with two options.

Table 10 illustrates the investment and payoff to the individual farmer under different conditions:

**TABLE 10 - PAYOFF TABLE TO INDIVIDUAL FARMER UNDER ALTERNATE STRATEGIES AND YIELDS**

Individual Farmer (50-50 Share Tenant)	Total Yield for All Other Farmers			Risk		Minimax Strategy Selection	
	Poor Harvest	Rank Order	Good Harvest	Rank Order	Worst Case		Best Case
Traditional* 45 ca/ha Price : Credit : Effort : Profit :	30 p/ca - - 519.25	2	20 p/ca - - 325.75	3	3	2	x
HYV 72 ca/ha Price : Credit : Effort : Profit :	30 p/ca 544 16 m/days+ 656.8	1	20 p/ca 544 16 m/days+ 347.2	4	4	1	

If the total harvest is poor, the scarcity will drive up the market price of palay, to say 30 pesos/cavan. The individual farmer who planted traditional varieties will receive 519.25 pesos profit for his 45 cavans, with little investment in cash or effort. If he had planted HYV he would have received a greater profit (656.8 pesos) for his additional efforts and cash outlay.

If the total harvest was high, the price would tend to fall, perhaps to 20 pesos/cavan. In this case, the traditional farmer would receive 325.75 pesos for his minimal efforts, while the HYV farmer would net only 347.2 pesos after having had to bear the cost of his inputs.

Comparing these four situations, the individual is better off where he produces HYV, but there is a poor harvest overall.<sup>1</sup> He is much worse off, "losing" about P309.6 when there is a good harvest. The traditional planter under similar circumstances only risks a P193.5 variance; although the overall HYV profit is slightly higher, the additional effort and expenditure do not seem to be worth the slight increase in payoff.

Evaluating these alternate strategies in terms of reducing risk to the individual farmer<sup>2</sup> the HYV route is riskier. It is the way of the aggressive innovator, requiring additional capital and labor for the extra gain. The penalty for failure is high however. The traditional route is more conservative - the prospective gains are less, but so is the potential loss. Even if the profit margins were changed the factor of additional credit and effort would likely favor the conservative approach.

1/ This is contrary to the hopes of the farm technicians.

2/ "Minimax Strategy" -- minimizing the maximum loss, or reducing the risk.

\*NOTE: Although the comparison shown is between 45 ca traditional yield and 72 ca HYV, what is really being compared here is technological production rather than varieties. Actually, planting HYV rice without the accompanying inputs will yield about the same result as planting traditional.

### Appropriate Floor Price

A price support program for palay would be advantageous to the farmer in several ways. It would reduce his risk, by enabling him to estimate return for his efforts, before planting. This he cannot do now. It would also make him a better credit risk, as bankers could also calculate his ability to repay loans. The advantages of increasing productivity beyond 72 cavans/ha would also be apparent.

The level at which the floor price should be established, is a function of both "feasible" productivity, and "reasonable" profit. If set too high, a support price could stifle initiative and stagnate productivity.<sup>1</sup> Set too low, it will fail to provide any incentive.<sup>2</sup>

Frequent changes in costs, yields, and income expectations suggest that the actual support price be evaluated annually.

### HYV Input Subsidy

At present productivity levels, HYV technology is less profitable, per crop, than the traditional methodology. A subsidy on inputs (principally fertilizer) could redress this imbalance. It would not reduce the risk factor, however, and without a price support program would probably not be effective.

### Other Considerations

This discussion has compared traditional with HYV rice on the assumption that only one crop is planted. There are, of course, more complex considerations. With the HYV, the growing period is shortened from 180 to 125 days, enabling the energetic farmer with adequate irrigation to grow two or even three crops per year. Furthermore, the HYV's are generally more resistant to lodging and disease,<sup>3</sup> and thus more likely to produce a crop than the traditional yields.

When considered on a profit per hectare per year basis, the HYV obviously presents a better picture than the traditional varieties.

- 1/ Many technicians contend that the farmer is only motivated by economic gain to a certain level of income (an individual decision), after which more value is placed on other, more leisurely pursuits.
- 2/ For example, if one assumes that a desired profit level is 600 pesos, and the 50-50 share-tenant farmer knows that he possesses the capability to produce over 80 cavans/ha, a support price of 25 pesos/ca would be appropriate. A 30 pesos/ca price would probably have little effect on productivity, as the farmer could reach his desired level by merely continuing his present behavior. Similarly, a 20 pesos/ca price would require yields so far beyond the farmer's expectations (in excess of 100 ca/ha) that he wouldn't bother trying.
- 3/ The statistics of HYV usage, (J.C. Alix op cit) coupled with the low yields (BAECON and Dr. J. Atkinson, op cit) tend to suggest that HYV seeds are being used, but without the supporting inputs.

Also, IRRI has demonstrated in field trials that yields in excess of 100 cavans are not confined to the experimental plots of research stations.<sup>1</sup>

Nevertheless, the typical Filipino farmer is not yet in this category.<sup>2</sup> Within his experience, price policies; credit availability; costs of inputs; yields; and net profit; - in short, all the factors which make up his frame of reference -- militate against him striving for HYV production.

### Conclusions and Recommendations

1. The principal constraint on the small farmer's productivity is economic uncertainty. A palay price support program would significantly reduce the risk to the farmer, and encourage him to produce more.<sup>3</sup>
2. A land reform program will better the farmer's lot by a redistribution of income at whatever rate he is currently farming.<sup>4</sup> Further, the negative factor (of holding down the yield in order to reduce the future rental) is removed. Additionally, since the farmer will retain the increased production for his own benefit, he should be motivated to produce more. Without a meaningful price support system, however, land reform alone will not provide sufficient incentive to increase yields. At the lower price levels he doesn't start bettering his 45 cavan/ha profit significantly until his production approaches 80 cavans per hectare.
3. With improved farm management practices, greater productivity and profit than at present are technically feasible with the HYV's. Whether this is beyond the farmer's present capabilities and expectations, or whether he has been "laying back" on production because of economic reasons is uncertain. If the farmer is not responsive to a price support program, it could be that he does not possess the required knowledge, and a campaign to educate him would be in order.
4. In the meantime, continuing extension training efforts and adaptive field research, trials could probably best demonstrate technical feasibility. In conjunction with a greater incentive to produce, this should bring about the changes desired.<sup>5</sup>
5. Without both incentive and knowledge, a program to increase productivity will not move very far, very fast.

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1/ "Masagana 99" the applied research project conducted jointly by NFAC, APC and IRRI on rainfed and upland rice in 5 municipalities in Bulacan and Nueva Ecija, reported yields of 120 cavans per hectare. Rainfed Rice and the New Technology in the Philippines, 1973 Shell Chemical Company and Vernon Ross, IRRI.

2/ The government's goals are in the 70's. 100 ca/ha is considered unrealistically high by the average farmer.

3/ Significantly, since the earlier version of this paper was written and circulated in March 1972, the Philippine government has considered, and recently (December 1972) adopted a price support program of P25 per cavan to be implemented for the coming crop season.

4/ Under the "New Society" of President Marcos, Land Reform is to be a major priority program in the Philippines which will move the rice farmer to "Amortizing Owner" status, so that he may reap the benefits of his efforts.

5/ As part of its Disaster Recovery Program from the floods, USAID/P has developed several innovative projects to supply the inputs for "Whole Farm" demonstrations.