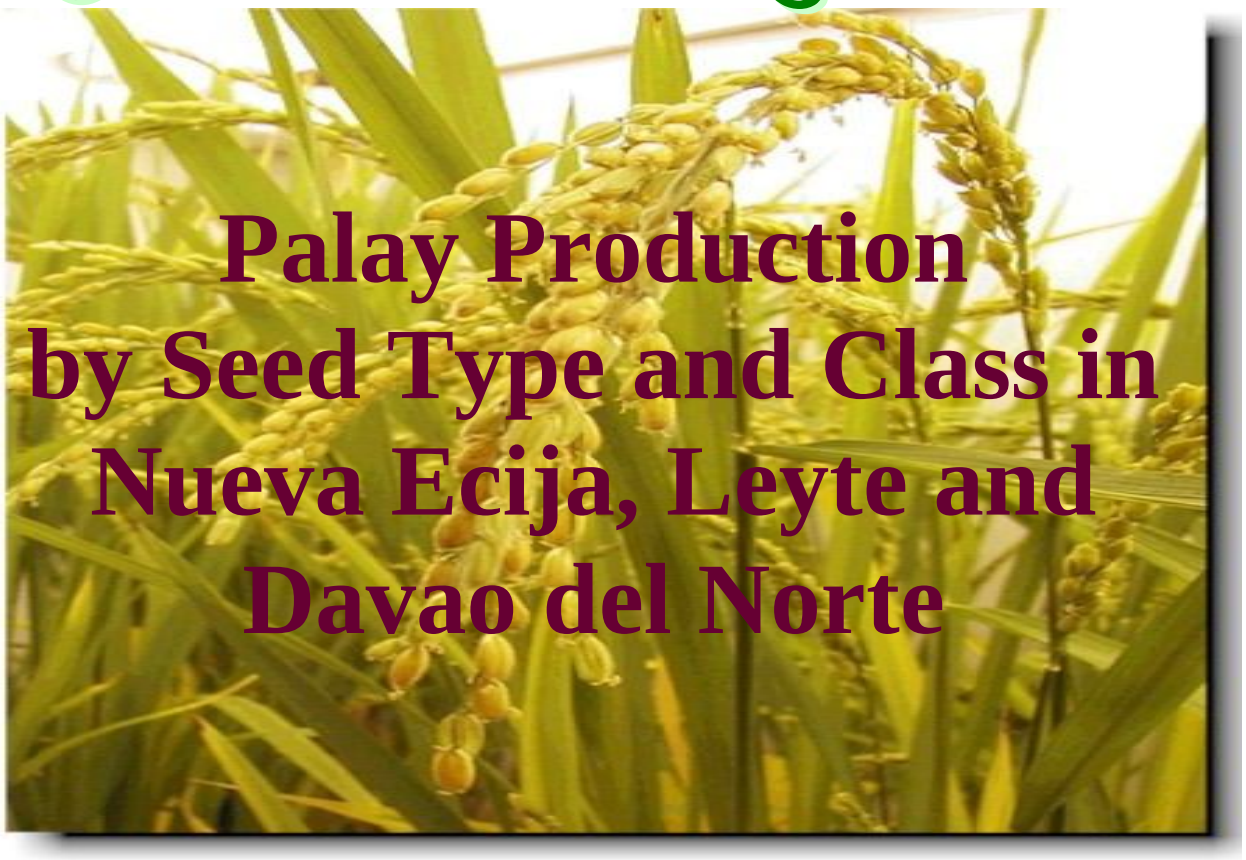
Costs and Returns



Palay Production by Seed Type and Class in Nueva Ecija, Leyte and Davao del Norte

Department of Agriculture
BUREAU OF AGRICULTURAL STATISTICS

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FOREWORD

This report presents the results of the Survey on the Costs and Returns of Palay Production by Seed Type and Class conducted by the Bureau of Agricultural Statistics (BAS) in 2005. The survey was designed to generate information on costs structure of palay and income from production using hybrid, inbred-modern certified and inbred-modern farmers' seeds in the three major palay-producing provinces of Nueva Ecija, Leyte and Davao del Norte.

Aside from information on costs and returns, this report also presents the different measures of profitability, average use of materials and labor inputs and other related socio-economic variables related to palay production. The reference period of the inquiry is July 2004 to June 2005.

The BAS acknowledges the funding support from the GMA Rice Program of the Department of Agriculture (DA) for this undertaking.

ROMEO S. RECIDE
Director

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EXPLANATORY NOTES

1. Average inventory of farm investments was derived based on values of the beginning and ending inventories of investment items during the survey.

$$\textit{Beginning inventory value of farm investment item} = \textit{acquisition cost of the item (P)} - \textit{accumulated depreciation (P)}$$

$$\textit{Ending inventory value of farm investment item} = \textit{beginning inventory of the item (P)} - \textit{one year depreciation (P)}$$

$$\textit{Average inventory value of farm investment item} = \frac{\textit{beginning inventory of the item (P)} + \textit{ending inventory of the item (P)}}{2}$$

2. Average costs and returns of palay production were computed and presented on a per hectare basis by seed type and class, and farm type. This measure was computed as follows:

$$\textit{Per hectare} = \frac{\textit{Total value of input (output)}}{\textit{Total harvest area}}$$

3. Average use of material inputs (users only) are found in the annexes. This was computed as follows:

$$\textit{Average Input Use (Per hectare)} = \frac{\textit{Total quantity of input used}}{\textit{Total harvest area (of inputs users)}}$$

4. Data may not add up due to rounding off.

5. Blank cells in the statistical tables indicate that there was no report for a particular data item.

SUMMARY OF FINDINGS

- Palay farmers in the three provinces (Nueva Ecija, Leyte and Davao del Norte) had an average age of 52 years with 23 years of palay farming experience.

- About 98.73 percent of palay farmers had formal schooling. Those who finished elementary education comprised 15.87 percent of all farmers. About 18.41 percent were high school graduates. Almost 7.00 percent were college degree holders.

- About 33.48 percent of palay farmers were owner operators and 27.15 percent were engaged in sharecropping. The rest were either lessees, holder of CLT/CLOA, or into other types of tenurial arrangements.

- The average sizes of palay farms operated were 1.87 hectares in irrigated areas, 1.46 hectares in rainfed areas and 0.78 hectare in upland areas.

- About 64.36 percent of the irrigated farms sourced their water supply from the National Irrigation Administration (NIA). The rest got water supply from communal system, individual irrigation or small water impounding projects.

- About 88.73 percent of irrigated palay farmers in the three provinces reported two croppings per year. This practice was observed by 38.57 percent of palay farmers in rainfed areas.

- Palay farmers used an average of 22.64 kilograms of hybrid seeds per hectare. Use of certified seeds and farmers' produced seeds averaged 85.27 kilograms and 110.95 kilograms per hectare, respectively.

- On the average, 45.95 kilograms of organic fertilizers were applied per hectare of irrigated palay farms.

- Application of solid inorganic fertilizers averaged 260.60 kilograms per hectare in irrigated farms and 249.68 kilograms in rainfed farms. Urea (46-0-0) and complete (14-14-14) were the common grades of fertilizers applied by farmers.

- Among irrigated farms, average labor utilized in palay production using hybrid seeds was 77.05 mandays per hectare in Leyte. It was lower at 71.70 mandays per hectare in Nueva Ecija and 70.76 mandays in Davao del Norte.

- Labor utilization in farms planted to certified seeds averaged 71.47 mandays per hectare in Leyte, 64.45 mandays in Davao del Norte and 63.67 mandays in Nueva Ecija.

- In palay farms planted to farmers' seeds, labor requirement per hectare averaged 66.10 mandays in Davao del Norte, 65.93 mandays in Leyte and 58.08 mandays in Nueva Ecija.

- Among rainfed palay farms in Leyte, average labor inputs were 66.61 mandays per hectare in farms planted to farmers' seeds and 63.67 mandays in certified seeds. In Nueva Ecija, these averaged 52.55 mandays and 52.80 mandays per hectare, respectively.

- In Davao del Norte, upland farms planted to farmers' seeds required an average labor input of 83.69 mandays per hectare.

- Farmers marketed the bulk of palay produced. In Nueva Ecija, 61.87 percent of all harvests across seed types were sold by farmers. This accounted for 61.54 percent of harvests in Davao del Norte and 51.65 percent in Leyte.

- Among hybrid seed users in the three provinces, 75.10 percent expressed their willingness to plant hybrid seeds even in the absence of subsidy. Of those farmers who were not willing, 26 percent cited high price of inputs and susceptibility of the crop to pests and diseases.

- About 84.80 percent of inbred farmers have not tried planting hybrid seeds. Reasons cited were high cost of seeds and other inputs, labor intensive and type of farms not suitable for hybrid seeds.

Costs and Returns of Palay Production

Nueva Ecija

- In irrigated farms, average yield in producing palay using hybrid seeds was higher at 7,188 kilograms per hectare compared to certified and farmers' seeds at 5,849 kilograms and 4,231 kilograms, respectively.

- Palay production using farmers' seeds was more costly at P8.35 per kilogram compared to P6.89 and P6.34 per kilogram in using certified seeds and hybrid seeds, respectively.

- Production of palay using hybrid seeds was more profitable than using inbred seeds. Farmers gained P0.71 for every peso of investment in using hybrid seeds, P0.60 in using certified seeds and P0.29 in farmers' seeds.

- In rainfed farms, palay production averaged 3,795 kilograms per hectare in growing certified seeds and 3,574 kilograms per hectare in farmers' seeds. Users of farmers' seeds incurred higher production cost at P8.23 per kilogram than those who used certified seeds which entailed average cost of P7.86 per kilogram. On the average, a return of P0.34 was obtained for every peso invested in palay production using certified seeds and P0.25 in using farmers' seeds.

Leyte

- In irrigated farms, average yield of palay production using hybrid seeds was highest at 5,860 kilograms per hectare compared to 4,504 kilograms and 3,774 kilograms in using certified and farmers' seeds, respectively.

- Producing palay was more costly at P7.52 per kilogram in using certified seeds than using farmers' seeds which cost P7.27 per kilogram and hybrid seeds which cost P7.08 per kilogram.

- Palay production using hybrid seeds was found more profitable than using certified and farmers' seeds. Users of hybrid seeds gained P0.49 for every peso of investment in palay production. Farmers planting farmers' seeds gained P0.33 while those users of certified seeds gained only P0.31.

- In rainfed farms, palay production using certified seeds averaged 3,784 kilograms per hectare and 3,022 kilograms in using farmers' seeds.

- Producing palay using farmers' seeds was more costly at P7.73 per kilogram than using certified seeds at P6.50 per kilogram.

- Using certified seeds was found more profitable than using farmers' seeds. Farmers using certified seeds netted P0.49 for every peso of investment while users of farmers' seeds got only P0.28.

Davao del Norte

- In irrigated areas, farms planted to hybrid seeds attained higher yield at 6,149 kilograms per hectare than farms planted to certified and farmers' seeds which 5,208 kilograms and 4,390 kilograms, respectively.

- Production of palay using farmers' seeds was more costly at P7.79 per kilogram than using certified seeds at P7.32 per kilogram and hybrid seeds at P6.96 per kilogram.

- Farmers received higher returns at P0.75 for every peso of investment using hybrid seeds. Returns in using certified seeds and farmers' seeds were P0.61 and P0.52 for every peso of investment, respectively.

- In upland farms of Davao del Norte, production of palay using farmers' seeds averaged 1,610 kilograms per hectare worth P22,842. Cost of production per kilogram was P10.03. Farmers netted P0.42 for every peso of investment in upland palay farming.

SURVEY ON COSTS AND RETURNS OF PALAY PRODUCTION BY SEED TYPE AND CLASS

INTRODUCTION

Rice is the major staple food among Filipinos. It is found in almost every meal of the Filipino households. As an industry, rice dominates the Philippine agriculture in providing employment and income. It contributes about 35 percent to the gross output of the crops subsector and 16 percent to the value of production of agriculture as a whole. For these reasons, the government is continuously investing in diverse programs to enhance palay productivity.

Philippine population is projected to grow at the rate of 2.3 percent per annum while growth rate in the yield per hectare of palay for the past two decades (1981-1990 and 1991-2000) grew only at 2.17 percent and 0.92 percent, respectively. From 2001 to 2005, yield per hectare of palay grew substantially at an average rate of 3.01 percent per annum.

Aside from fertilizer application and expansion in irrigated areas, growth in yield can also be attributed to the increased utilization of improved palay seeds. Undoubtedly, adoption of this technology is the appropriate solution to address the increasing demand for rice in the country. However, some farmers are hesitant to adopt the technology considering that the prices of hybrid seeds and the required inputs are significantly higher compared to those of inbred and traditional seeds.

In order to promote the increased utilization of hybrid seeds, there is a need to establish updated information on the costs and returns structure of palay production by seed type and class. To address the demand for the said information, the Bureau of Agricultural Statistics (BAS) conducted the Costs and Returns Survey (CRS) by Seed Type and Class in September 2005.

The results of the survey will help not only the farmers but also other agribusiness players who are interested to venture in palay production. Moreover, it will provide useful information to policy makers and planners in the agriculture sector for sound decision making and setting of targets for the country's palay production.

OBJECTIVES

The survey is intended to generate data on costs and returns of palay production by seed type and class. Specifically, it aims to:

- establish an up-to-date production costs and returns structure for palay;
- determine indicators of profitability;
- come up with an updated set of data on average use of materials and labor inputs; and
- generate other related socio-economic variables.

SURVEY METHODOLOGY

Coverage

The survey covered 630 sample palay farmers in three major palay-producing provinces of Nueva Ecija, Leyte and Davao del Norte, each representing a major island in the country. Following is the distribution of sample farmers by province:

Nueva Ecija - 240
Leyte - 270
Davao del Norte - 120

The domain of the study is the province with the last completed normal cropping within July 2004 to June 2005 as the reference period. Farmers who harvested palay during the reference period were the target samples for the survey.

Sample Size Allocation and Selection

A three-stage sampling design was employed with the municipality as the primary sampling unit, barangay as the secondary sampling unit and the palay farmer as the ultimate sampling unit. The step-by-step procedures used in sample selection are as follows:

1. In each province, information on palay physical area, total number of palay farmers, and coverage in the GMA-Rice Program by municipality were gathered from the concerned Provincial Operations Centers (POC) with Office of the Provincial Agriculturist (OPAG), Municipal Agricultural Office (MAO) and the 1999 Barangay Screening Survey (BSS) as data sources.

2. The sample municipalities were drawn using probability proportional to size (PPS) based on physical area.

3. In the selected municipalities, barangay level information were obtained using the key informant approach. These included physical area of palay farms, coverage or non-coverage of the barangay in the GMA-Rice Program, number of beneficiaries of the GMA-Rice Program, percentage adoption by seed type and class, availability of irrigation facilities, anticipated field operational problems and indication whether the barangay was affected by any calamity during the reference period. Four seed types and classes were considered, namely:

    - Hybrid;
    - Inbred Modern Certified;
    - Inbred Modern Farmers' Produce; and
    - Inbred Traditional

4. Barangays were arranged in descending order of area devoted to the seed type and class. Sample sizes were determined such that the number of sample farmers per barangay is 10 and the resulting number of sample barangays is allocated equally to the different seed groups in the province. This allocation was used since there is no sound basis on the true distribution of usage of each seed type and class in the province. However, adjustment in the distribution of samples was made depending on the actual situation in the province as verified during data collection.

5. Independent sets of sample barangays were selected from each seed group based on the following criteria:
    - Having higher physical area devoted to the seed type and class;
    - With minimal field operation problems; and
    - Not damaged by any calamity throughout the reference period.

    This procedure implied that a barangay can be identified as sample in at least one seed group.

6. Selection of sample farmers was done during data collection using snowball sampling. A set of screening questions was prepared for this purpose. All qualified samples were interviewed using the CRS questionnaire.

Following is the distribution of farmers by farm type and seed class covered in the survey. No sample farmer using traditional seeds was enumerated.

PROVINCE/ TYPE OF FARM	HYBRID SEEDS	INBRED SEEDS	
		CERTIFIED	FARMERS' PRODUCE
Nueva Ecija			
Irrigated Farms	80	63	64
Rainfed Farms	-	17	16
Leyte			
Irrigated Farms	90	81	62
Rainfed Farms	-	7	30
Davao del Norte			
Irrigated Farms	40	40	30
Upland Farms	-	-	10

SURVEY RESULTS

Demographic Profile of Palay Farmers (Tables 1 - 4)

Age, Farming Experience and Educational Attainment

- Average age of palay farmers was 53 years in Nueva Ecija, 52 years in Leyte and 49 years in Davao del Norte. Palay farmers in Nueva Ecija had the highest average farming experience at 25 years. The lowest was in Davao del Norte at 20 years.

- About 98.73 percent of palay farmers had formal schooling. Palay farmers in Nueva Ecija who finished elementary education was 24.17 percent, 6.67 percent in Leyte, and 20 percent in Davao del Norte.

- Farmers who finished high school were 26.25 percent in Nueva Ecija, 11.11 percent in Leyte, and 19.17 percent in Davao del Norte.

- Finishing college education was reported by 7.78 percent of palay farmers in Leyte, by 7.50 percent in Davao del Norte and 5.83 percent in Nueva Ecija.

- In Nueva Ecija, 28.75 percent of the farmers had 21-30 years of farming experience. In Leyte, palay farmers with 11-20 years and 21-30 years of farming experience each accounted for 27 percent. In Davao del Norte, more than one-third or 35.83 percent of farmers had 11-20 years of farming experience.

Tenurial Status

- In all three provinces, 33.48 percent were found to be owners of palay farms they operate. There were 27.15 percent engaged in sharecropping. About 20.32 percent were lessees and 8.09 percent operate the farms being held under CLT/CLOA. Other form of tenures accounted for 10 percent.

- In Nueva Ecija, 37.50 percent of farmers were owners of the farm they till. Likewise, 34.17 percent of farmers in Davao del Norte were owner operators. In Leyte, 44.07 percent were tenants.

Size of Palay Farms

- The average size of palay farms in the three provinces was 1.81 hectares. Irrigated farms had bigger average area of 1.87 hectares compared with rainfed and upland farms which averaged 1.46 hectares and 0.78 hectare, respectively.

- Across seed type, average size of palay farms cultivated to hybrid seeds was 2.05 hectares. Those planted to certified seeds had average size of 1.83 hectares. Farms that were planted to farmers' seeds had average size of 1.55 hectares.

- In Leyte, the average size of palay farms planted to hybrid seeds was bigger at 2.49 hectares compared to certified seeds and farmers' seeds at 1.60 hectares and 1.46 hectares, respectively.

- In Nueva Ecija, those planted to certified seeds had bigger average farm size at 2.06 hectares compared to those planted to hybrid seeds at 1.66 hectares. In Davao del Norte, area planted to certified seeds averaged 1.88 hectares and those planted to hybrid seeds averaged 1.82 hectares.

Farming System/Technology
(Tables 5 - 14)

Source of Irrigation

- About 64.36 percent of palay farmers operating irrigated farms in the three provinces sourced their water supply from the National Irrigation Administration (NIA). Those farms that got water supply from communal system accounted for 17.09 percent. About 15.64 percent of farmers used individual irrigation system. Other sources of water such as gravity and water impounding projects accounted for less than 3 percent of irrigated farms.

- Majority or 98.18 percent of palay farmers operating irrigated farms in Davao del Norte and 63.29 percent of those in Nueva Ecija sourced their water supply from NIA. In Leyte, 49.36 percent were dependent on NIA and 33.05 percent used the communal irrigation system.

Month of Planting

- Among irrigated farms in the three provinces, more farmers planted their palay in December and January with 39.64 percent and 40.00 percent reporting, respectively. By seed type, 59.62 percent of farmers who used farmers' seeds planted in December while 53.81 percent of those who used hybrid seeds planted in January.

- In Nueva Ecija, 48.75 percent of farmers who used hybrid seeds and 55.56 percent of those who used certified seeds planted in January while 50.00 percent of those who used farmers' seeds planted in December.

- Among hybrid seed users in Leyte, 72.22 percent planted palay in January. On the other hand, 77.42 percent of farmers' seed users planted in December.

- In Davao del Norte, 70.00 percent of hybrid seed users and 77.50 percent of certified seed users planted palay in December. Among users of farmers' seeds, 56.67 percent planted in January.

- In rainfed areas in Nueva Ecija, 54.55 percent of farmers planted palay in July. About 41.18 percent of certified seed users and 68.75 percent of farmers' seed users planted during this month.

- In Leyte, 45.95 percent planted palay in December. By seed type, 53.33 percent of farmers' seed users planted in December while 42.86 percent of certified seed users planted in August.

- In the upland areas of Davao del Norte, 80.00 percent of farmers planted palay in April and 20 percent in May.

Month of Harvesting

- In irrigated farms, peak harvest months were March and April. In Nueva Ecija, majority of farmers who used hybrid and certified seeds harvested their crop in April with 57.50 percent and 69.85 percent reporting, respectively. Among those who used farmers' seeds, 42.18 percent harvested palay in March and 29.69 percent in April.

- In Leyte, 65.55 percent of farmers who used hybrid seeds harvested their crop in April. About 24.69 percent and 27.18 percent of farmers using certified seeds harvested palay in March and April, respectively. Among those who used farmers' seeds, 50.00 percent harvested palay in March and 46.78 percent in April.

- In Davao del Norte, 52.50 percent of farmers who planted hybrid seeds and 66.67 percent of those who used farmers' seeds harvested palay in April. About 77.50 percent of certified seeds users harvested their crop in March.

- In rainfed farms, 57.58 percent of farmers in Nueva Ecija harvested palay in October. In Leyte, 45.95 percent of farmers harvested their crop in March and 32.43 percent in April.

- In the upland farms of Davao del Norte, peak harvest month was October with 80.00 percent of farmers reporting.

Number of Cropping Per Year

- In irrigated farms in the three provinces, 88.73 percent of farmers reported two croppings per year. In rainfed farms, 61.43 percent of farmers reported one cropping per year while the rest had two croppings. All farmers in upland farms had only one cropping per year.

- By type of seeds used, 33.45 percent of farmers in irrigated areas who planted hybrid seeds had two croppings per year. Users of certified seeds and farmers' seeds who did two croppings per year accounted for 31.82 percent and 23.45 percent, respectively.

- About 41.42 percent of farmers in rainfed areas who planted farmers' seeds had only one cropping.

- All farmers in irrigated farms in Davao del Norte reported two croppings per year. In Leyte and Nueva Ecija, the farmers of irrigated farms who had two croppings were 98.71 percent and 71.50 percent, respectively.

Farm Investments

- Average inventory of farm investments of farmers in the three provinces amounted to P33,226. Investments in farm machinery accounted for 65.49 percent while work animals shared 17.27 percent. The remainder were investments in farm buildings and other structures, and farm tools, equipment and other farm implements.

- Users of hybrid seeds invested more at P47,978 compared to users of certified seeds and farmers' seeds at P30,636 and P21,154, respectively.

- Among the three provinces, highest average farm investment was reported in Nueva Ecija at P46,381 while the lowest was recorded in Davao del Norte at P22, 818.

Farm Practices

Application of Fertilizers

- In all three provinces, 99.52 percent of hybrid seeds users applied inorganic fertilizers. On the other hand, 98.08 percent and 94.34 percent of certified seeds and farmers' seeds users, respectively utilized this farm input.

- All farmers in Nueva Ecija applied inorganic fertilizers. In Leyte, users of inorganic fertilizers ranged from 95.45 percent of farmers who planted certified seeds to 98.89 percent who used hybrid seeds. In Davao del Norte, all farmers who planted hybrid and certified seeds applied inorganic fertilizers in their farms. Among users of farmers' seeds, 75.00 percent applied inorganic fertilizers.

- In Leyte, 57.78 percent of farmers using hybrid seeds applied organic fertilizers in their farm. This was practiced by only 16.25 percent and 15.00 percent of farmers in Nueva Ecija and Davao del Norte, respectively.

Application of Pesticides

- In all three provinces, application of pesticides was higher in farms planted to hybrid seeds with 98.57 percent of farmers reporting than in certified and farmers' seeds with 94.71 percent and 91.51 percent reporting, respectively.

- In Nueva Ecija, farms planted to farmers' seeds were all applied with pesticides. About 97.50 percent of those planted with hybrid seeds and 86.25 percent of those planted with certified seeds were applied with pesticides.

- In Leyte, farms planted to certified seeds were all treated with pesticides. This accounted for 98.89 percent in farms planted to hybrid seeds and 92.39 percent in farms with farmers' seeds.

- In Davao del Norte, all farms planted to hybrid and certified seeds and 72.50 percent planted to farmers' seeds were treated with pesticides.

Method of Weeding

- In the three provinces, about 65.38 percent of farmers using certified seeds adopted manual method of weeding. Adoption of manual weeding was higher for users of farmers' seeds at 74.53 percent reporting and lower for hybrid users at 70.48 percent.

- Mechanical weeding was adopted by 0.48 percent of farmers using certified seeds and 1.42 percent of farmers using farmers' seeds.

- Among provinces, manual weeding was adopted by at least 50.00 percent of farmers in Nueva Ecija, 73.86 percent of farmers in Leyte and 37.50 percent of farmers in Davao del Norte.

Method of Threshing

- In the three provinces, the use of threshing machine was reported by 99.52 percent of farmers using certified seeds, by 96.19 percent of those using hybrid seeds and by 87.74 percent of those using farmers' seeds.

- Manual threshing of crops was practiced by 25.00 percent of farmers in Davao del Norte who planted farmers' seeds.

Method of Drying

- Manual drying was commonly practiced by farmers across seed types. At least 70 percent of farmers in Nueva Ecija, 85 percent in Leyte and 75 percent in Davao del Norte reported manual drying method.

- Mechanical drying was practiced at the most by 5 percent of farmers across the three provinces.

Inputs Usage
(Tables 15 - 34)

Seeds

- Across farm types in Nueva Ecija, use of hybrid seeds as planting material averaged 25.26 kilograms per hectare. Use of certified seeds averaged 110.35 kilograms per hectare and that of farmers' seeds, 156.61 kilograms per hectare.

- In irrigated farms, use of farmers' seeds and certified seeds averaged 156.37 kilograms and 106.73 kilograms per hectare, respectively.

- Among rainfed farms, use of farmers' seeds averaged 157.60 kilograms per hectare while that of certified seeds averaged 121.76 kilograms per hectare.

- In Leyte, use of hybrid seeds across farm types averaged 20.47 kilograms per hectare. For certified seeds and farmers' seeds, seeding rates averaged 63.56 kilograms and 69.21 kilograms per hectare, respectively.

- By farm type, irrigated farms reported higher seeding rate for farmers' seeds at 68.33 kilograms per hectare. Seeding rate for certified seeds averaged 63.85 kilograms per hectare.

- Rainfed farms required an average seeding rate per hectare of 72.31 kilograms of farmers' seeds and 59.13 kilograms of certified seeds.

- In Davao del Norte, irrigated farms recorded an average seed use of 21.34 kilograms of hybrid seeds per hectare. Use of farmers' seeds averaged 81.89 kilograms per hectare while that of certified seeds averaged 56.09 kilograms.

- In upland farms, planting of farmers' seeds averaged 50.65 kilograms per hectare.

Organic Fertilizers

- Application of organic fertilizers was reported only by farmers in irrigated farms. In Nueva Ecija, organic fertilizers were applied at an average of 18.33 kilograms per hectare. In particular, average application rates ranged from 17.92 kilograms per hectare in farms planted to certified seeds to 35.60 kilograms per hectare in hybrid seeds.

- In Leyte, the quantity of organic fertilizers applied to farms with hybrid seeds averaged 221.65 kilograms per hectare. In certified seeds, application of organic fertilizers averaged 7.98 kilograms per hectare.

- In Davao del Norte, application of organic fertilizers averaged 47.11 kilograms per hectare in farms planted to hybrid seeds, 16.57 kilograms in farmers' seeds and 1.67 kilograms in certified seeds.

Solid Inorganic Fertilizers

- Among irrigated palay farms in the three provinces, farmers in Nueva Ecija reported the highest average application of solid inorganic fertilizer at 336.50 kilograms per hectare. The most common grade of fertilizer applied was Complete (14-14-14) at 138.67 kilograms per hectare and Urea (46-0-0) at 116.49 kilograms per hectare.

- By seed type in Nueva Ecija, hybrid seeds required 365.56 kilograms per hectare of solid inorganic fertilizers while certified seeds required 341.37 kilograms per hectare. Farms planted to farmers' seeds utilized 299.75 kilograms per hectare of solid inorganic fertilizers.

- In Davao del Norte, average use of solid inorganic fertilizers was 248.45 kilograms per hectare across seed type. This averaged 264.30 kilograms per hectare in farms with hybrid seeds, 274.35 kilograms in certified seeds and 198.70 kilograms in farmers' seeds.

- Irrigated palay farms in Leyte required 176.62 kilograms per hectare of solid inorganic fertilizers across seed type. Utilization averaged 194.70 kilograms per hectare in hybrid seeds, 182.86 kilograms in certified seeds and 144.16 kilograms in inbred-modern farmers' seeds.

- Among rainfed farms, those in Nueva Ecija had an average fertilizer use of 325.33 kilograms per hectare for farmers' seeds and 296.14 kilograms per hectare for certified seeds.

- Quantity of fertilizer used in rainfed farms in Leyte averaged 126.09 kilograms per hectare for certified seeds and 119.30 kilograms per hectare for farmers' seeds.

Liquid Inorganic Fertilizers

- Among irrigated farms in the three provinces, application of liquid inorganic fertilizers was more popular in Davao del Norte. On the average, about one liter of fertilizers was applied each in farms with hybrid and farmers' seeds and 0.32 liter in certified seeds.

- In Leyte, application of liquid inorganic fertilizers averaged 0.64 liter per hectare in farms planted to certified seeds, 0.35 in hybrid seeds and 0.30 liter in farmers' seeds.

- Application of liquid inorganic fertilizer in Nueva Ecija was minimal at less than 0.01 liter per hectare in farms planted to farmers' seeds.

- Among rainfed farms, only those in Leyte were applied with liquid inorganic fertilizers at average rates of 0.65 liter per hectare in farms planted to certified seeds and 0.09 liter per hectare in farms with farmers' seeds.

Solid Fertilizer Nutrients

- Farmers in Nueva Ecija were heavy users of nitrogen fertilizer than phosphoric acid and water soluble potash. In irrigated farms across seed types, application of nitrogen averaged 87.87 kilograms per hectare. Application of phosphoric acid and water soluble potash averaged 30.99 kilograms and 21.86 kilograms per hectare, respectively.

- By seed type, application of nitrogen fertilizers averaged 92.58 kilograms per hectare in farms planted to hybrid seeds, 89.05 kilograms to certified seeds and 81.51 kilograms to farmers' seeds.

- In rainfed farms, use of nitrogen averaged 67.08 kilograms per hectare in farms planted to farmers' seeds and 59.82 kilograms to certified seeds.

- In Leyte, irrigated palay farmers across seed types applied more nitrogen fertilizers at 51.82 kilograms per hectare. Application of phosphoric acid and water soluble potash averaged 19.16 kilograms and 16.27 kilograms per hectare, respectively.

- Among seed types, application of nitrogen fertilizers averaged 59.88 kilograms per hectare in farms planted to certified seeds, 51.18 kilograms to hybrid seeds and 44.06 kilograms to farmers' seeds.

- In rainfed farms, application of fertilizer nutrients was lower at 41.35 kilograms of nitrogen per hectare, 6.83 kilograms of phosphoric acid and 4.74 kilograms of water soluble potash.

- In Davao del Norte, irrigated palay farmers across seed types applied 63.78 kilograms of nitrogen fertilizers per hectare, 12.86 kilograms of phosphoric acid and 21.70 kilograms of water soluble potash.

- Among seed types, application of nitrogen fertilizers averaged 70.14 kilograms per hectare in farms planted to hybrid seeds, 63.96 kilograms to certified seeds and 57.35 kilograms to farmers' seeds.

Liquid Fertilizer Nutrients

- Use of liquid inorganic fertilizer in palay farms was minimal. In Davao del Norte, application of liquid fertilizer in irrigated farms averaged 0.07 liter of nitrogen per hectare, 0.08 liter of phosphoric acid and 0.05 liter of water soluble potash.

- In Leyte, application of liquid inorganic fertilizers in irrigated farms averaged 0.03 liter of nitrogen per hectare and 0.02 liter each of phosphoric acid and water soluble potash.

- Among rainfed farms, application of liquid nitrogen averaged 0.02 liter per hectare and 0.01 liter each of phosphoric acid and water soluble potash.

Soil Ameliorants

- Use of soil ameliorants was observed only in irrigated farms of Nueva Ecija and Davao del Norte. In Nueva Ecija, palay farmers who planted certified seeds applied zinc metalate at an average of 0.03 liter per hectare. Those who planted farmers' seeds applied zinc sulfate at an average of 2.78 kilograms per hectare and zinc metalate at 0.02 liter per hectare.

- In Davao del Norte, farmers who planted hybrid seeds applied zinc sulfate at an average of 0.23 kilogram per hectare while those who planted certified seeds applied 0.17 kilogram per hectare.

Pesticides

- Among provinces, use of pesticides in irrigated palay farms was heavier in Davao del Norte than in Nueva Ecija and in Leyte.

- In Davao del Norte, farmers across seed types applied an average of 4.12 kilograms of pesticides in solid form per hectare and 2.66 liters in liquid form. Pesticides applied were mostly insecticides at an average of 3.63 kilograms of solid type per hectare and 1.50 liters of liquid type.

- By seed class, application of solid pesticides was heavier in farms planted to hybrid seeds at 5.64 kilograms per hectare than in farms cultivated to certified and farmers' seeds at 5.52 kilograms and 0.80 kilogram per hectare, respectively.

- On the other hand, application of liquid pesticides was heavier in farms planted to certified seeds at 3.12 liters per hectare than to farmers' seeds and hybrid seeds at 2.57 liters and 2.14 liters per hectare, respectively.

- In Nueva Ecija, irrigated palay farmers across seed types applied an average of 1.21 kilograms of solid pesticides and 1.60 liters of liquid type per hectare.

- By seed type, application of solid pesticides was heavier in farms planted to certified seeds at 1.66 kilograms per hectare than in farms planted to farmers' seeds and hybrid seeds at 1.12 kilograms and 0.87 kilogram per hectare, respectively.

- Application of liquid pesticides averaged 1.77 liters per hectare each in farms using hybrid seeds and farmers' seeds. This averaged 1.27 liters in farms using certified seeds.

- In Leyte, use of pesticides in irrigated palay farms across seed type was least at 1.04 kilograms of solid form and 1.37 liters of liquid type per hectare.

- By seed type, application of solid pesticides in farms planted to hybrid seeds was heavier at 1.75 kilograms per hectare than in farms cultivated to certified and farmers' seeds at 0.83 kilogram and 0.24 kilogram, respectively.

- Application of liquid pesticides was heavier in farms planted to certified seeds at 1.72 liters per hectare than those planted to hybrid varieties at 1.28 liters per hectare. Those planted to farmers' seeds were applied with 1.12 liters per hectare of liquid pesticides.

- In rainfed areas, farmers in Nueva Ecija applied averages of 0.64 kilogram of solid pesticides and 1.69 liters of liquid type per hectare across seed type.

- Application of solid pesticides averaged 1.01 kilograms per hectare in farms planted to farmers' seeds and 0.37 kilogram to certified seeds

- Application of pesticides in liquid form averaged 1.93 liters per hectare in farms planted to farmers' seeds and 1.52 to certified seeds.

- In Leyte, use of solid pesticides averaged 0.38 kilogram per hectare on farms planted to farmers' seeds and 0.08 kilogram on farms planted to certified seeds.

- Use of pesticides averaged 2.00 liters in liquid form per hectare planted to certified seeds and 1.12 liters per hectare to farms using farmers' seeds

Labor Utilization By Seed Type and Class

- The use of hybrid seeds required more labor than certified seeds and farmers' seeds. In irrigated farms of Nueva Ecija, about 71.70 mandays per hectare were required for palay production using hybrid seeds compared to 63.67 mandays for certified seeds and 58.08 mandays for farmers' seeds.

- In rainfed farms, labor requirement averaged 52.80 mandays per hectare for palay production using certified seeds and 52.55 mandays for those using farmers' seeds.

- In Leyte, labor utilization in irrigated farms was higher at 77.05 mandays per hectare in farms planted to hybrid seeds compared to 71.47 mandays on farms planted to certified seeds and 65.93 mandays on farms using farmers' seeds.

- In rainfed farms, average labor utilization was higher in farms planted to farmers' seeds at 66.61 mandays per hectare than on farms planted to certified seeds at 63.67 mandays per hectare.

- In Davao del Norte, palay production in irrigated farms using hybrid seeds required an average mandays of 70.76 per hectare. Lower labor requirement was reported in farms planted to certified seeds and farmers' seeds which averaged 64.45 mandays and 66.10 mandays per hectare, respectively.

- Upland farms in Davao del Norte which were planted to farmers' seeds, reported an average labor utilization of 83.69 mandays per hectare.

Labor Utilization By Source

- In the three provinces, hired workers were the main source of labor inputs in irrigated farms across seed types. In Leyte, 87.64 percent of the total labor inputs were contributed by hired workers. It was lower in Davao del Norte at 83.91 percent and in Nueva Ecija at 80.50 percent. The rest was provided by operator, family and exchange labor.

- By gender, the contribution of male farm workers to total labor inputs ranged from 75.40 percent in Davao del Norte to 82.74 percent in Nueva Ecija.

- In rainfed farms in Nueva Ecija, hired workers provided almost 50 percent of the total labor inputs across seed types. Farm operator and family members contributed 45 percent to total labor inputs and the remainder was shared by exchange workers.

- Male farm workers accounted for almost 82 percent of the total labor inputs.

- In Leyte, almost 83 percent of labor requirements in palay production across seed types were provided by hired workers. Farm operator and family members contributed 16.70 percent and the remainder was shared by exchange workers.

- Almost 83 percent or 54.66 mandays of labor inputs were provided by male farm workers.

- In upland farms of Davao del Norte, hired workers accounted for 65 percent of labor requirements in palay production. Exchange workers provided 15 percent of all labor inputs, family members shared 11 percent while farm operators contributed 9 percent.

- Male farm workers constituted 70 percent of the total labor inputs.

Other Information
(Tables 35 - 46)

Disposition of Produce

- In Nueva Ecija, about 61.87 percent of palay harvested across seed types were sold by farmers. Harvesters, threshers and other farm workers took 19.71 percent of total harvests while home consumption accounted for 11.53 percent.

- By seed type, farmers who planted hybrid seeds had higher proportion of total harvests that were marketed at 64.89 percent. Those who used certified and farmers' seeds marketed 62.85 percent and 55.91 percent of their produce, respectively.

- In Leyte, palay farmers marketed 51.65 percent of their harvests. About 15.99 percent were shared to farm workers while 15.59 percent were consumed at home.

- The proportion of palay marketed to total harvests was higher for farmers who planted hybrid seeds at 61.24 percent. This accounted for 47.96 percent of those who used certified seeds and 36.12 percent in the case of farmers' seeds.

- Home consumption of the produce was higher for farmers who planted farmers' seeds at 23.38 percent. Those who used certified seeds and hybrid seeds registered proportions of 14.79 percent and 12.27 percent, respectively.

- In Davao del Norte, palay farmers marketed 61.54 percent of their total harvests. About 18.16 percent of the total produce went to farm workers while 10.75 percent were consumed at home.

- The quantity of palay sold by farmers who planted hybrid and certified seeds accounted for 64.15 percent and 65.92 percent of the total palay harvested, respectively. It was 52.48 percent in the case of those who used farmers' seeds.

Production-related Problems Encountered by Farmers

- Incidence of weeds, pests and diseases, and high cost of inputs were the main production problems of more than 40 percent of palay farmers across the three provinces. Problem on irrigation was cited by 31.30 percent of farmers; financial problem, by 29.70 percent; and weather conditions, by 10.80 percent.

- In Davao del Norte, incidence of weeds, pests and diseases was the major production constraints cited by 76.70 percent of farmers reporting.

- High cost of inputs was cited by 44.60 percent of farmers in Nueva Ecija. Problem on irrigation was mentioned by 37.50 percent of farmers.

- In Leyte, 52.60 percent of farmers cited financial problem. High cost of inputs and the occurrence of weeds, pests and diseases were reported by 47.80 percent and 41.90 percent of farmers, respectively.

Percent of Losses/Damages Incurred by Farmers

- In the three provinces, 49.05 percent of palay farmers across seed types incurred losses resulting from production-related problems. On the average, production losses accounted for 9.84 percent of total harvests.

- By seed type, losses were reported by 55.19 percent of farmers who planted farmers' seeds, by 49.04 percent of those who used certified seeds and by 42.86 percent of those who utilized hybrid seeds.

- In Nueva Ecija, 50.83 percent of the farmers reported crop loss. In particular, crop losses were reported by 42.50 percent of farmers using certified seeds and 66.25 percent of those planting farmers' seeds. Losses ranged from 10.11 percent to as much as 14.07 percent of total harvests.

- In Davao del Norte, crop loss was reported in 80 percent of farms planted to farmers' seeds. Estimated losses averaged 10.01 percent of total harvests.

- In farms planted to hybrid and certified seeds, about 35 percent each of farmers reported crop losses amounting to 7.44 percent and 8.85 percent of total harvests, respectively.

- In Leyte, 47.04 percent reported crop losses. Amount of loss averaged 6.93 percent of total produce.

- By seed type, 61.36 percent of farms planted to certified seeds incurred losses amounting to 6.84 percent of total harvests. In farms cultivated to hybrid seeds, 45.56 percent of farmers incurred losses equivalent to 8.17 percent of produce. About 34.78 percent of farmers who planted farmers' seeds lost 3.94 percent equivalent of their harvests.

Recommendations to Improve Palay Production

- When asked about their recommendations to improve palay production, 25.90 percent of farmers in the three provinces cited the need to improve farming technology. There were 22.40 percent who mentioned the need to improve irrigation services and 21.40 percent requesting for government support programs.

- Other recommendations of farmers included availability of seeds and improved farm to market roads with 14.00 percent and 1.70 percent of farmers reporting, respectively.

Length of Time Using Hybrid Seeds

- In Nueva Ecija, 46.81 percent of the farmers had been planting hybrid seeds for one year. About 42.55 percent had been using hybrid seeds for two years and 10.64 percent, for three years.

- In Leyte, 39.20 percent of farmers were engaged in palay production using hybrid seeds for two years. Those with three years experience in planting hybrid seeds accounted for 34.78 percent while 17.49 percent had been using hybrid seeds for one year. Farmers using hybrid seeds for four and five years accounted for 4.35 percent each.

- In Davao del Norte, 31.20 percent of hybrid seeds users had been in the practice for three years; 25 percent, for two years; and 18.75 percent, for four years. Those with one year and five years of using hybrid seeds accounted for 12.50 percent each.

Average Area Harvested and Yield of Hybrid Seeds Users

- Across the three provinces, average area harvested by hybrid seeds users decreased from 1.37 hectares during the preceding cropping season to 1.33 hectares during the reference period. However, average yield per hectare increased from 6.32 metric tons in the preceding cropping to 6.98 metric tons during the reference period.

- In Nueva Ecija, average area harvested by farmers planting hybrid seeds was 1.38 hectares during the reference period. It was 1.44 hectares in the preceding period. Average yield per hectare were 7.99 metric tons for the former and 6.99 metric tons for the latter.

- In Davao del Norte, average area harvested by farmers planting hybrid seeds went down from 1.42 hectares during the preceding cropping season to 1.19 hectares during the reference period. On the contrary, yield per hectare increased from 5.89 metric tons recorded in the preceding cropping season to 6.29 metric tons recorded during the reference period.

- Increase in area harvested to hybrid seeds was noted in Leyte. Area harvested increased from 1.19 hectares during the preceding cropping season to 1.31 hectares during the reference period. Likewise, average yield increased from 4.95 metric tons to 5.16 metric tons per hectare.

Willingness to Plant Hybrid Seeds in the Absence of Subsidy

- Majority or 75.10 percent of hybrid seeds users in the three provinces expressed their willingness to plant hybrid seeds even in the absence of subsidy. The other 23.80 percent were not willing to do it without subsidy.

- It was noted that 94.50 percent of hybrid seeds users in Leyte and 71.20 percent in Nueva Ecija would remain planting hybrid seeds even in the absence of subsidy.

- On the other hand, 60 percent of those farmers planting hybrid seeds in Davao del Norte were not willing to continue cultivating hybrid seeds without subsidy.

Reasons for Not Planting Hybrid Seeds in the Absence of Subsidy

- Of all farmers using hybrid seeds and are not willing to plant hybrid seeds in the absence of subsidy, 74 percent did not cite any reason at all. About 19 percent of farmers who were not willing said that high price of seeds would constrain them to continue using hybrid seeds. The remaining 7 percent complained that hybrid seeds are susceptible to pests and diseases.

Inbred Farmers Who Formerly Planted / Have Not Planted Hybrid Seeds

- Majority or 84.80 percent of inbred farmers in the three provinces have not tried using hybrid seeds.

- In Davao del Norte, 30 percent of inbred seed users have tried planting hybrid seeds. Nueva Ecija and Leyte had 11.20 percent and 12.20 percent of farmers reporting, respectively.

Reasons of Inbred Farmers for Not Trying Hybrid Seeds

- One of the reasons cited by inbred farmers for not trying to use hybrid seeds was high cost of seeds and other inputs. This was mentioned by 31.10 percent of farmers across the three provinces.

- Another reason mentioned by 17.80 percent of farmers was that the use of hybrid seeds is labor intensive while some 15.60 percent reported that their farms are not suitable for planting hybrid seeds.

- In Nueva Ecija, 37.50 percent reasoned out that planting hybrid seeds is labor intensive.

- The high cost of seeds and other inputs was the constraint cited by 42.90 percent and 37.50 percent of farmers in Leyte and Davao del Norte, respectively.

Inbred Farmers by Length of Time Using Hybrid Seeds in the Past

- About 84.40 percent of inbred seed users have tried planting hybrid seeds for a year. This was reported by 90.90 percent of farmers in Leyte, 83.30 percent in Nueva Ecija and by 79.20 percent in Davao del Norte.

- Those who have tried using hybrid seeds for two to four years before were reported by 4.50 percent to 12.50 percent of farmers among the three provinces.

Reasons of Inbred Farmers (Formerly Using Hybrid Seeds) for Shifting to Inbred Seeds

- In the three provinces, the lower cost of material inputs and maintenance was the reason cited by 32.80 percent of farmers who shifted to inbred farming.

- Better adaptability of inbred seeds to weather and soil conditions was the reason of 20.30 percent of farmers who shifted to inbred seeds. Less labor inputs in inbred farming was reported by 15.60 percent of farmers

- Other reasons mentioned by less than 10 percent of farmers in shifting to inbred farming included bad experience with hybrid seeds, availability of inbred seeds and yield performance.

Production Costs and Returns
(Tables 47 - 60)

Nueva Ecija

Irrigated Farms

Hybrid Seeds

- The average cost of palay production using hybrid seeds was P45,586 per hectare. Cash outlays accounted for 44 percent of all costs, non-cash payments shared 38 percent while imputed costs contributed 18 percent.

- Hired labor was the biggest cash outlay at P6,500. It accounted for 33 percent of cash costs.

- Palay farmers using hybrid seeds reported an average production of 7,188 kilograms per hectare. Average cost of palay production was P6.34 per kilogram. Farmers grossed P78,147 per hectare. Returns above cash costs settled at P58,267. Net returns averaged P32,561. Farmers gained P0.71 for every peso of investment in palay production per hectare using hybrid seeds.

- Variable costs accounted for almost 80 percent of the total production expenses.

Certified Seeds

- Farmers using certified seeds incurred an average production cost of P40,308 per hectare. Of this amount, 42 percent were cash outlays and fertilizer was the principal cost item. Non-cash costs contributed 39 percent and harvesters' share was the biggest cost item. The remainder represented the imputed costs and rental value of owned land was the leading cost item.

- Production of palay averaged 5,849 kilograms per hectare. On a per kilogram basis, cost of palay production averaged P6.89. Gross value of output was P64,309. Returns above cash and non-cash costs amounted to P31,670. Net returns averaged P24,000 per hectare. Farmers netted P0.60 for every peso of investment in palay production.

- Variable expenditures accounted for 79 percent of all costs.

Farmers' Seeds

- The cost of palay production using farmers' seeds averaged P35,308 per hectare. Cash costs at P15,428 per hectare comprised 44 percent of all costs. Non-cash expenses accounted for 36 percent of all costs and imputed costs, 20 percent.

- Palay farmers grossed an average of P45,382 per hectare. Returns above cash outlays amounted to P29,955 per hectare. Farmers recorded earnings of P17,315 per hectare above cash and non-cash costs. Deducting all costs, farmers netted P10,074 per hectare. For every peso of investment, farmers gained P0.29.

- Average yield of palay farms was 4,231 kilograms per hectare. Cost of production per kilogram averaged P8.35.

- Variable costs of production averaged P28,154 per hectare and accounted for 80 percent of all costs.

Rainfed Farms

Certified Seeds

- Farms using certified seeds entailed an average production cost of P29,831 per hectare. Cash outlays comprised 44 percent of total production costs. About 32 percent were imputed costs and the rest were non-cash expenses. Labor input was the major cost item at P13,083 per hectare or 44 percent of all costs.

- Average production was 3,795 kilograms per hectare with gross value of P40,121. Farmers spent P7.86 for every kilogram of palay produced. Returns above cash and non-cash costs of production amounted to P19,740 per hectare. Deducting all production costs, farmers netted P10,290 per hectare. Net profit-cost ratio was 0.34.

- Variable expenses accounted for 80 percent of total production costs.

Farmers' Seeds

- Palay production using farmers' seeds entailed an average cost of P29,428 per hectare. Of this amount, 40 percent were cash outlays, 35 percent were non-cash payments and 25 percent were imputed costs. Average cost of labor at P14,774 per hectare accounted for 50 percent of the total production costs.

- Farmers grossed P36,725 per hectare. Returns above cash and non-cash costs averaged P14,385 per hectare. On the average, farmers netted P7,297 per hectare. Palay farmers gained P0.25 for every peso invested in palay production.

- Average variable cost of production at P23,793 per hectare represented 81 percent of total production costs.

Leyte

Irrigated Farms

Hybrid Seeds

- Palay production using hybrid seeds entailed an average cost of P41,493 per hectare. Of this amount, 41 percent represented non-cash payments, 39 percent, cash outlays and 20 percent, was imputed costs.

- Farmers grossed P61,880 per hectare. Returns above cash and non-cash costs averaged P28,612 per hectare. Net returns averaged P20,387 per hectare. Net profit-cost ratio was 0.49.

- Yield averaged 5,860 kilograms per hectare. On a per kilogram basis, cost of palay production was P7.08.

- Variable cost of palay production using hybrid seeds averaged P32,439 per hectare and accounted for 78 percent of the total production costs.

Certified Seeds

- Average production of palay using certified seeds was 4,504 kilograms per hectare valued at P44,214. Average production cost was P33,861 per hectare. Average net returns amounted to P10,353 per hectare. Net profit-cost ratio was 0.31.

- Of the total costs incurred, 44 percent were non-cash payments, 42 percent were cash outlays while 14 percent were imputed costs.

- Variable costs of production averaged P27,199 per hectare and comprised 80 percent of all costs.

Farmers' Seeds

- Production of palay using farmers' seeds entailed an average cost of P27,449 per hectare. Of this amount, 45 percent were non-cash expenses, 39 percent were cash outlays and 16 percent were imputed costs.

- Palay production averaged 3,774 kilograms per hectare. On a per kilogram basis, production cost was P7.27.

- Farmers grossed P36,544 per hectare. Returns above cash and non-cash costs amounted P13,387 per hectare. Net returns amounted to P9,095 per hectare. Net profit-cost ratio was 0.33

- Variable costs of production at P22,275 accounted for 81 percent of total production costs.

Rainfed Farms

Certified Seeds

- On the average, production cost of palay using certified seeds amounted to P24,588 per hectare. Cash and non-cash costs of production accounted for 43 percent and 44 percent of all costs, respectively. Imputed costs shared 13 percent to total production costs.

- Yield averaged 3,784 kilograms of palay per hectare worth P36,715. Farmers obtained P15,411 per hectare after deducting cash and non-cash costs of production. Farmers netted P12,127 per hectare. Average cost of production per kilogram was P6.50. Net profit-cost ratio was 0.49.

- Variable costs of production at P19,058 per hectare accounted for 78 percent of all costs.

Farmers' Seeds

- Average cost of palay production using farmers' seeds was P23,369 per hectare. Cash outlays accounted for 40 percent of all costs, non-cash payments, 38 percent and imputed costs, 22 percent.

- Average gross returns amounted to P29,859 per hectare while net returns figured to P6,490 per hectare. Farmers gained P0.28 for every peso invested in palay production.

- Yield averaged 3,022 kilograms of palay per hectare. Cost of production per kilogram was P7.73.

- Average variable costs of production at P19,020 per hectare accounted for 81 percent of all costs.

Davao del Norte

Irrigated Farms

Hybrid Seeds

- The average cost of palay production in farms planted to hybrid seeds was P42,817 per hectare. About 40 percent of the total expenses were non-cash items. Cash costs contributed 39 percent while imputed costs shared 21 percent.

- Labor was the major cost item of production at P17,199 or 40 percent of all costs.

- Average production was 6,149 kilograms per hectare valued at P74,765. Net of cash outlays, farmers got P58,235 and when non-cash costs were taken out, returns settled at P40,927. Farmers netted P31,948 per hectare. Net profit-cost ratio was 0.75.

- Of the total expenses incurred in palay production, variable costs accounted for almost 80 percent.

Certified Seeds

- In farms planted to certified seeds, production cost averaged P38,106 per hectare. Cash outlays at P 15,464 per hectare represented 41 percent of all costs. Non-cash payments were 38 percent of total production costs. The remainder or 21 percent were imputed costs.

- Gross returns amounted to P61,465 per hectare. Net of cash and non-cash costs, farmers obtained P31,451. Considering all costs, farmers netted P23,359 per hectare. Net profit-cost ratio was 0.61.

- Yield averaged 5,208 kilograms of palay per hectare. Cost of production per kilogram averaged P 7.32.

Farmers' Seeds

- Palay farms planted to farmers' seeds entailed an average production cost of P34,213 per hectare. Of this amount, 47 percent were non-cash payments, 37 percent were cash outlays and 16 percent were imputed costs.

- Average production was 4,390 kilograms of palay per hectare with a gross value of P52,084. On a per kilogram basis, farmers spent P7.79 in producing palay. Returns above cash and non-cash costs of production amounted to P23,306 per hectare. On the average, farmers netted P17,870 per hectare. Net profit-cost ratio was 0.52.

- Variable costs of production at P29,808 per hectare accounted for 87 percent of all costs.

Upland Farms

Farmers' Seeds

- Production cost in upland palay farms using farmers' seeds averaged P16,140 per hectare. Of this amount, 44 percent were paid in kind, 29 percent were paid in cash and the rest were imputed costs. High non-cash costs can be attributed to harvesters' and threshers' shares.

- With an average yield of 1,610 kilograms per hectare, farmers grossed P22,842. Returns above cash and non-cash costs amounted to P11,074 per hectare. Net returns settled at P6,702 per hectare. A net profit-cost ratio of 0.42 was realized.

- Variable costs of production averaged P15,443 per hectare or 96 percent of all costs.

Inter-provincial Comparison

Irrigated Farms

Hybrid Seeds

- Among farms planted to hybrid seeds, Nueva Ecija reported the highest average yield of 7,188 kilograms per hectare. Cost of production averaged P45,586 per hectare. This translated to the lowest production cost per kilogram of P6.34. Net returns were computed at P32,561 per hectare. The net profit-cost ratio was 0.71. Farmers gained P0.71 for every peso invested in palay production.

- Palay production using hybrid seeds was most profitable in Davao del Norte. The highest net profit-cost ratio was established at 0.75. Production cost averaged P42,817 per hectare with average yield of 6,149 kilograms. Farmers grossed P74,765 per hectare and netted P31,948.

- Highest production cost per kilogram of P7.08 was recorded in Leyte. Average yield was 5,860 kilograms per hectare. Farmers grossed P61,880 per hectare and netted P20,387. Farmers gained P0.49 for every peso invested in palay production.

Certified Seeds

- In farms planted to certified seeds, highest yield of 5,849 kilograms per hectare was posted by farmers of Nueva Ecija. Cost of production averaged P40,308 per hectare or P6.89 per kilogram. Gross value of output was P64,309. Farmers netted P24,000. The net profit-cost ratio was 0.60.

- Highest net profit-cost ratio of 0.61 was established by farmers of Davao del Norte. Production cost averaged P38,106 per hectare. Farmers had an average yield of 5,208 kilograms of palay worth P61,465. Farmers netted P23,359.

- Cost of production per kilogram was highest at P7.52 in Leyte. Yield averaged 4,504 kilograms per hectare. Farmers grossed P44,214 per hectare and netted P10,353. Net profit-cost ratio was 0.31.

Farmers' Seeds

- Among farms planted to farmers' seeds, Davao del Norte reported the highest average yield of 4,390 kilograms per hectare. Cost of production averaged P34,213 per hectare which translated to the lowest production cost per kilogram of P7.79. Net returns were computed at P17,870 per hectare. The net profit-cost ratio was computed highest at 0.52, indicating farmers' gain of P0.52 for every peso invested in palay production.

- Highest production cost per kilogram of P8.35 was recorded in Nueva Ecija. Average yield was 4,231 kilograms per hectare. Farmers grossed P45,382 per hectare and netted P10,074. Farmers gained P0.29 for every peso invested in palay production.

Rainfed farms

Certified Seeds

- Among farms planted to certified seeds, Nueva Ecija reported higher average yield of 3,795 kilograms per hectare than what was recorded in Leyte at 3,784 kilograms. Cost of production averaged P29,831 per hectare or P7.86 per kilogram in Nueva Ecija. It averaged P24,588 per hectare or P6.50 per kilogram in Leyte.

- Gross returns averaged P40,121 per hectare in Nueva Ecija and P36,715 per hectare In Leyte. Farmers netted P10,290 and P12,127, respectively. Farmers of Leyte gained more at P0.49 for every peso invested in palay production while those in Nueva Ecija gained P0.34 only.

Farmers' Seeds

- Palay production using farmers' seeds was more profitable in Leyte. Yield averaged 3,022 kilograms per hectare valued at P29,859. Cost of production averaged P23,369 per hectare. Farmers netted P6,490. Net profit-cost ratio was 0.28, indicating farmers' gain of P0.28 for every peso invested in palay production.

- In Nueva Ecija, average yield was 3,574 kilograms per hectare worth P36,725. Cost of production was P29,428 per hectare of P8.23 per kilogram. Farmers netted P7,297 and gained P0.25 for every peso invested in palay production.

STATISTICAL TABLES

Table 1. Average age and farming experience of palay farmers and percentage distribution by educational attainment and seed type and class, selected provinces, Philippines, June 2005

PROVINCE / SEED TYPE AND CLASS	AGE (year)	FARMING EXPERIENCE (year)	EDUCATIONAL ATTAINMENT (percent)								
			ELEMENTARY LEVEL	ELEMENTARY GRADUATE	HIGH SCHOOL LEVEL	HIGH SCHOOL GRADUATE	COLLEGE LEVEL	COLLEGE GRADUATE	VOCATIONAL	POST GRADUATE	NO SCHOOLING
All 3 Provinces	**52**	**23**	**33.98**	**15.87**	**13.49**	**18.41**	**7.30**	**6.98**	**2.54**	**0.16**	**1.27**
Hybrid	50	22	7.78	4.13	4.44	6.83	3.49	4.92	1.75		
Inbred-Modern Certified	53	25	9.68	6.19	4.60	7.78	2.06	1.59	0.48	0.16	0.48
Inbred-Modern Farmers' seeds	52	24	16.49	5.56	4.44	3.81	1.75	0.48	0.32		0.79
Nueva Ecija	**53**	**25**	**25.00**	**24.17**	**4.58**	**26.25**	**7.92**	**5.83**	**3.75**	**0.42**	**2.08**
Hybrid	50	23	6.67	5.42	1.67	10.42	3.33	2.92	2.92		
Inbred-Modern Certified	53	24	5.00	9.58	1.25	10.00	3.33	2.08	0.42	0.42	1.25
Inbred-Modern Farmers' seeds	56	28	13.32	9.17	1.67	5.83	1.25	0.83	0.42		0.83
Leyte	**52**	**23**	**46.29**	**6.67**	**20.37**	**11.11**	**5.56**	**7.78**	**2.22**		
Hybrid	50	21	9.63	1.85	5.93	4.07	2.96	7.41	1.48		
Inbred-Modern Certified	55	28	15.56	3.33	7.41	4.07	1.11	0.37	0.74		
Inbred-Modern Farmers' seeds	50	21	21.12	1.48	7.04	2.96	1.48				
Davao del Norte	**49**	**20**	**24.17**	**20.00**	**15.83**	**19.17**	**10.00**	**7.50**	**0.83**		**2.50**
Hybrid	51	20	5.83	6.67	6.67	5.83	5.00	3.33			
Inbred-Modern Certified	49	19	5.83	5.83	5.00	11.67	1.67	3.33			
Inbred-Modern Farmers' seeds	47	22	12.51	7.50	4.17	1.67	3.33	0.83	0.83		2.50

Table 2. Percentage distribution of palay farmers by farming experience and age group, selected provinces, Philippines, June 2005

PROVINCE / AGE GROUP	< 11 YEARS	11-20 YEARS	21-30 YEARS	> 30 YEARS
All 3 Provinces	**20.32**	**28.41**	**27.78**	**23.49**
30 years & below	3.65	0.48		
31 - 40 years	6.67	8.10	0.16	
41 - 50 years	6.35	13.32	10.00	0.95
51 - 60 years	2.54	4.29	11.58	7.62
61 - 70 years	1.11	2.22	5.56	10.15
71 years & above			0.48	4.77
Nueva Ecija	**17.92**	**26.25**	**28.75**	**27.08**
30 years & below	2.92	0.42		
31 - 40 years	7.50	7.50		
41 - 50 years	4.17	12.91	11.24	0.42
51 - 60 years	2.92	3.75	9.17	7.50
61 - 70 years	0.42	1.67	7.50	11.66
71 years & above			0.83	7.50
Leyte	**21.48**	**27.04**	**27.41**	**24.07**
30 years & below	3.70	0.37		
31 - 40 years	5.93	8.89		
41 - 50 years	7.78	11.11	9.26	0.74
51 - 60 years	2.22	3.70	13.72	8.52
61 - 70 years	1.85	2.96	4.07	11.11
71 years & above			0.37	3.70
Davao del Norte	**22.50**	**35.83**	**26.67**	**15.00**
30 years & below	5.00	0.83		
31 - 40 years	6.67	7.50	0.83	
41 - 50 years	7.50	19.17	9.17	2.50
51 - 60 years	2.50	6.67	11.67	5.83
61 - 70 years	0.83	1.67	5.00	5.00
71 years & above				1.66

Table 3. Percentage distribution of palay farmers by seed type and class, and tenurial status, selected provinces, Philippines, June 2005

PROVINCE / TENURE STATUS	SEED TYPE AND CLASS		
	HYBRID	INBRED - MODERN	
		CERTIFIED	FARMERS' SEEDS
All 3 Provinces	**33.33**	**33.02**	**33.65**
Owner	12.21	11.59	9.68
Tenant	6.35	9.21	11.59
Lessee	7.14	7.62	5.56
Rent Free	0.79	0.95	0.48
CLT/CLOA	3.49	2.06	2.54
Owner Like Possession other than CLT/CLOA	1.59	1.43	3.02
Amortizing Owner	0.16		
Mortgagee	1.59	0.16	0.79
Nueva Ecija	**33.33**	**33.33**	**33.33**
Owner	9.58	16.67	11.25
Tenant	0.83	2.50	2.08
Lessee	12.50	10.42	11.67
Rent Free	0.83	0.42	1.25
CLT/CLOA	6.25	2.92	4.58
Owner Like Possession other than CLT/CLOA	1.67	0.42	2.08
Mortgagee	1.67		0.42
Leyte	**33.33**	**32.59**	**34.07**
Owner	14.44	7.04	8.15
Tenant	8.15	14.44	21.48
Lessee	4.07	8.52	2.59
Rent Free	0.74	0.37	
CLT/CLOA	2.59	2.22	1.11
Owner Like Possession other than CLT/CLOA	1.85		
Mortgagee	1.48		0.74
Davao del Norte	**33.33**	**33.33**	**33.33**
Owner	12.50	11.67	10.00
Tenant	13.33	10.83	8.33
Lessee	3.33		
Rent Free	0.83	3.33	
CLT/CLOA			1.67
Owner Like Possession other than CLT/CLOA	0.83	6.67	11.67
Amortizing Owner	0.83		
Mortgagee	1.67	0.83	1.67

CLT/CLOA - Certificate of Land Transfer/Certificate of Land Ownership Award

Table 4. Average size of palay farms by seed type and class, and farm type, selected provinces, Philippines, June 2005

(in hectare)

PROVINCE / FARM TYPE	ALL SEED TYPES AND CLASSES	SEED TYPE AND CLASS		
		HYBRID	INBRED - MODERN	
			CERTIFIED	FARMERS' SEEDS
All 3 Provinces	**1.81**	**2.05**	**1.83**	**1.55**
Irrigated	1.87	2.05	1.82	1.70
Rainfed	1.46		1.93	1.21
Upland	0.78			0.78
Nueva Ecija	**1.82**	**1.66**	**2.06**	**1.74**
Irrigated	1.80	1.66	2.03	1.76
Rainfed	1.91		2.14	1.67
Upland				
Leyte	**1.85**	**2.49**	**1.60**	**1.45**
Irrigated	1.97	2.49	1.62	1.69
Rainfed	1.06		1.43	0.97
Upland				
Davao del Norte	**1.70**	**1.82**	**1.88**	**1.41**
Irrigated	1.79	1.82	1.88	1.62
Rainfed				
Upland	0.78			0.78

Table 5. Percentage distribution of palay farmers by seed type and class, source of irrigation and average area planted, selected provinces, Philippines, last complete cropping, July 2004 - June 2005

PROVINCE / SEED TYPE AND CLASS	SOURCE OF IRRIGATION									
	N I A a/		COMMUNAL		INDIVIDUAL		GRAVITY		WATER IMPOUNDING	
	%	AVE. AREA (HA.)	%	AVE. AREA (HA.)	%	AVE. AREA (HA.)	%	AVE. AREA (HA.)	%	AVE. AREA (HA.)
All 3 Provinces	**64.36**	**1.436**	**17.09**	**1.392**	**15.64**	**1.334**	**0.18**	**3.000**	**2.73**	**1.137**
Hybrid	24.55	1.294	3.09	2.132	8.73	1.124			1.82	1.225
Inbred-Modern Certified	22.73	1.500	9.27	1.109	1.45	2.263				
Inbred-Modern Farmers' seeds	17.09	1.553	4.73	1.463	5.45	1.422	0.18	3.000	0.91	0.960
Nueva Ecija	**63.29**	**1.634**	**7.73**	**3.044**	**28.50**	**1.249**	**0.48**	**3.000**		
Hybrid	13.53	1.598	4.83	2.890	20.29	1.035				
Inbred-Modern Certified	26.09	1.700	1.45	2.200	2.90	2.683				
Inbred-Modern Farmers' seeds	23.67	1.582	1.45	4.400	5.31	1.286	0.48	3.000		
Leyte	**49.36**	**1.276**	**33.05**	**1.055**	**11.16**	**1.538**			**6.44**	**1.137**
Hybrid	29.18	1.276	2.58	1.075	2.58	1.750			4.29	1.225
Inbred-Modern Certified	13.73	1.148	20.60	1.041	0.43	1.000				
Inbred-Modern Farmers' seeds	6.44	1.550	9.87	1.080	8.15	1.500			2.15	0.960
Davao del Norte	**98.18**	**1.365**	**0.91**	**0.900**	**0.91**	**1.000**				
Hybrid	35.45	1.106	0.91	0.900						
Inbred-Modern Certified	35.45	1.513			0.91	1.000				
Inbred-Modern Farmers' seeds	27.28	1.509								

a/ NIA - National Irrigation Administration

Table 6. **Irrigated Farms**: Percentage distribution of palay farmers by month of planting, and seed type and class, selected provinces, Philippines, July 2004 - June 2005

PROVINCE / SEED TYPE AND CLASS	2004						2005					
	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
All 3 Provinces	**5.82**	**5.45**	**0.55**	**0.18**	**3.09**	**39.64**	**40.00**	**2.00**	**0.36**		**0.18**	**2.73**
Hybrid	6.19	4.76			2.86	26.19	53.81	2.38	0.48			3.33
Inbred-Modern Certified	6.52	8.15	1.63	0.54	3.26	38.04	34.24	3.26	0.54			3.80
Inbred-Modern Farmers' seeds	4.49	3.21			3.21	59.62	28.21				0.64	0.64
Nueva Ecija	**10.14**	**2.90**			**3.38**	**35.75**	**43.00**	**0.48**			**0.48**	**3.86**
Hybrid	13.75	1.25			5.00	25.00	48.75					6.25
Inbred-Modern Certified	4.76					34.92	55.56	1.59				3.17
Inbred-Modern Farmers' seeds	10.94	7.81			4.69	50.00	23.44				1.56	1.56
Leyte	**2.58**	**10.30**	**1.29**	**0.43**	**4.29**	**30.90**	**43.78**	**4.29**	**0.86**			**1.29**
Hybrid	1.11	10.00			2.22	7.78	72.22	5.56	1.11			
Inbred-Modern Certified	6.17	18.52	3.70	1.23	7.41	20.99	30.86	6.17	1.23			3.70
Inbred-Modern Farmers' seeds					3.23	77.42	19.35					
Davao del Norte	**4.55**					**65.45**	**26.36**					**3.64**
Hybrid	2.50					70.00	22.50					5.00
Inbred-Modern Certified	10.00					77.50	7.50					5.00
Inbred-Modern Farmers' seeds						43.33	56.67					

Table 7. **Rainfed Farms**: Percentage distribution of palay farmers by month of planting, and seed type and class, selected provinces, Philippines, July 2004 - June 2005

PROVINCE / SEED TYPE AND CLASS	2004						2005					
	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
All 3 Provinces	**27.14**	**7.14**	**2.86**	**1.43**	**2.86**	**28.57**	**15.71**	**2.86**			**1.43**	**10.00**
Hybrid												
Inbred-Modern Certified	33.33	12.50	8.33	4.17	4.17	16.67					4.17	16.67
Inbred-Modern Farmers' seeds	23.91	4.35			2.17	34.78	23.91	4.35				6.52
Nueva Ecija	**54.55**	**6.06**	**3.03**	**3.03**		**9.09**					**3.03**	**21.21**
Hybrid												
Inbred-Modern Certified	41.18		5.88	5.88		17.65					5.88	23.53
Inbred-Modern Farmers' seeds	68.75	12.50										18.75
Leyte	**2.70**	**8.11**	**2.70**		**5.41**	**45.95**	**29.73**	**5.41**				
Hybrid												
Inbred-Modern Certified	14.29	42.86	14.29		14.29	14.29						
Inbred-Modern Farmers' seeds					3.33	53.33	36.67	6.67				
Davao del Norte												
Hybrid												
Inbred-Modern Certified												
Inbred-Modern Farmers' seeds												

Table 8. **Upland Farms**: Percentage distribution of palay farmers by month of planting, and seed type and class, selected provinces, Philippines, July 2004 - June 2005

PROVINCE / SEED TYPE AND CLASS	2004						2005					
	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
All 3 Provinces										**80.00**	**20.00**	
Hybrid												
Inbred-Modern Certified												
Inbred-Modern Farmers' seeds										80.00	20.00	
Nueva Ecija												
Hybrid												
Inbred-Modern Certified												
Inbred-Modern Farmers' seeds												
Leyte												
Hybrid												
Inbred-Modern Certified												
Inbred-Modern Farmers' seeds												
Davao del Norte										**80.00**	**20.00**	
Hybrid												
Inbred-Modern Certified												
Inbred-Modern Farmers' seeds										80.00	20.00	

Table 9. **Irrigated Farms**: Percentage distribution of palay farmers by month of harvesting, and seed type and class, selected provinces, Philippines, July 2004 - June 2005

PROVINCE / SEED TYPE AND CLASS	2004						2005					
	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
All 3 Provinces		**0.18**	**2.00**	**5.27**	**6.18**	**1.09**	**0.18**	**2.73**	**32.36**	**47.82**	**2.00**	**0.18**
Hybrid			1.90	7.14	4.76	0.48		1.90	21.44	60.00	2.38	
Inbred-Modern Certified			3.80	6.52	8.15	1.63	0.54	3.26	35.33	37.51	2.72	0.54
Inbred-Modern Farmers' seeds		0.64		1.28	5.77	1.28		3.21	43.59	43.59	0.64	
Nueva Ecija		**0.48**	**1.93**	**8.70**	**4.83**	**1.45**		**2.90**	**27.05**	**52.66**		
Hybrid			2.50	16.25	1.25	1.25		2.50	18.75	57.50		
Inbred-Modern Certified			3.17	4.76					22.22	69.85		
Inbred-Modern Farmers' seeds		1.56		3.13	14.06	3.13		6.25	42.18	29.69		
Leyte			**1.29**	**2.58**	**10.30**	**1.29**	**0.43**	**3.86**	**27.90**	**47.21**	**4.72**	**0.43**
Hybrid				1.11	10.00			2.22	15.56	65.55	5.56	
Inbred-Modern Certified			3.70	6.17	18.52	3.70	1.23	7.41	24.69	27.18	6.17	1.23
Inbred-Modern Farmers' seeds								1.61	50.00	46.78	1.61	
Davao del Norte			**3.64**	**4.55**					**51.82**	**40.00**		
Hybrid			5.00	2.50					40.00	52.50		
Inbred-Modern Certified			5.00	10.00					77.50	7.50		
Inbred-Modern Farmers' seeds									33.33	66.67		

Table 10. **Rainfed Farms**: Percentage distribution of palay farmers by month of harvesting, and seed type and class, selected provinces, Philippines, July 2004 - June 2005

PROVINCE / SEED TYPE AND CLASS	2004						2005					
	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
All 3 Provinces		**1.43**	**7.14**	**28.57**	**8.57**	**2.86**	**1.43**	**1.43**	**28.57**	**17.14**	**2.86**	
Hybrid												
Inbred-Modern Certified		4.17	16.67	33.32	12.50	8.33	4.17	4.17	16.67			
Inbred-Modern Farmers' seeds			2.17	26.09	6.52				34.78	26.09	4.35	
Nueva Ecija		**3.03**	**15.15**	**57.58**	**9.09**	**3.03**	**3.03**		**9.09**			
Hybrid												
Inbred-Modern Certified		5.88	23.53	41.18		5.88	5.88		17.65			
Inbred-Modern Farmers' seeds			6.25	75.00	18.75							
Leyte				**2.70**	**8.11**	**2.70**		**2.70**	**45.95**	**32.43**	**5.41**	
Hybrid												
Inbred-Modern Certified				14.29	42.84	14.29		14.29	14.29			
Inbred-Modern Farmers' seeds									53.33	40.00	6.67	
Davao del Norte												
Hybrid												
Inbred-Modern Certified												
Inbred-Modern Farmers' seeds												

Table 11. **Upland Farms**: Percentage distribution of sample farmers by month of harvesting, and seed type and class, selected provinces, Philippines, July 2004 - June 2005

PROVINCE / SEED TYPE/CLASS	2004						2005					
	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
All 3 Provinces				**80.00**	**20.00**							
Hybrid												
Inbred-Modern Certified												
Inbred-Modern Farmers' seeds				80.00	20.00							
Nueva Ecija												
Hybrid												
Inbred-Modern Certified												
Inbred-Modern Farmers' seeds												
Leyte												
Hybrid												
Inbred-Modern Certified												
Inbred-Modern Farmers' seeds												
Davao del Norte				**80.00**	**20.00**							
Hybrid												
Inbred-Modern Certified												
Inbred-Modern Farmers' seeds				80.00	20.00							

Table 12. Percentage distribution of palay farmers by seed type and class, farm type and number of croppings per year, selected provinces, Philippines, July 2004 - June 2005

PROVINCE / SEED TYPE AND CLASS	IRRIGATED FARMS		RAINFED FARMS		UPLAND FARMS	
	ONE CROPPING	TWO CROPPINGS	ONE CROPPING	TWO CROPPINGS	ONE CROPPING	TWO CROPPINGS
All 3 Provinces	**11.27**	**88.73**	**61.43**	**38.57**	**100.00**	
Hybrid	4.73	33.45				
Inbred-Modern Certified	1.64	31.82	20.00	14.29		
Inbred-Modern Farmers' seeds	4.91	23.45	41.42	24.29	100.00	
Nueva Ecija	**28.50**	**71.50**	**90.91**	**9.09**		
Hybrid	12.56	26.09				
Inbred-Modern Certified	4.35	26.09	42.42	9.09		
Inbred-Modern Farmers' seeds	11.59	19.32	48.49			
Leyte	**1.29**	**98.71**	**35.14**	**64.86**		
Hybrid		38.63				
Inbred-Modern Certified		34.76		18.92		
Inbred-Modern Farmers' seeds	1.29	25.32	35.14	45.94		
Davao del Norte		**100.00**			**100.00**	
Hybrid		36.36				
Inbred-Modern Certified		36.36				
Inbred-Modern Farmers' seeds		27.28			100.00	

Table 13. Average farm investments of palay farmers by major item, and seed type and class, selected provinces, Philippines, June 2005

(in peso)

PROVINCE/ SEED TYPE AND CLASS	FARM INVESTMENT				
	ALL ITEMS	WORK ANIMALS	FARM BUILDINGS & OTHER STRUCTURES	FARM MACHINERY	FARM TOOLS, EQUIPMENT & OTHER IMPLEMENTS
All 3 provinces	**33,226**	**5,738**	**2,613**	**21,758**	**3,117**
Hybrid	47,978	6,139	3,029	34,976	3,834
Inbred-Modern Certified	30,636	7,032	2,635	17,810	3,159
Inbred-Modern Farmers' seeds	21,154	4,071	2,180	12,539	2,365
Nueva Ecija	**46,381**	**6,900**	**2,379**	**32,685**	**4,416**
Hybrid	69,442	7,740	4,054	52,326	5,322
Inbred-Modern Certified	44,381	9,528	2,469	27,875	4,509
Inbred-Modern Farmers' seeds	25,320	3,433	615	17,855	3,418
Leyte	**26,159**	**6,019**	**3,044**	**14,855**	**2,241**
Hybrid	39,815	6,167	2,898	27,533	3,218
Inbred-Modern Certified	19,662	5,847	3,778	8,023	2,015
Inbred-Modern Farmers' seeds	19,014	6,038	2,486	8,987	1,503
Davao del Norte	**22,818**	**2,783**	**2,110**	**15,438**	**2,488**
Hybrid	23,418	2,875	1,275	17,025	2,243
Inbred-Modern Certified	27,289	4,650	450	19,213	2,977
Inbred-Modern Farmers' seeds	17,745	823	4,605	10,075	2,243

Table 14. Percentage of palay farmers by farm practices employed, and seed type and class, selected provinces, Philippines, July 2004 - June 2005

FARM PRACTICES	SEED TYPE AND CLASS		
	HYBRID	INBRED - MODERN	
		CERTIFIED	FARMERS' SEEDS
All 3 Provinces			
Use of organic fertilizers	33.81	2.88	0.94
Use of inorganic fertilizers	99.52	98.08	94.34
Use of pesticides	98.57	94.71	91.51
Use of soil ameliorants	0.95	1.44	2.36
Manual weeding	70.48	65.38	74.53
Mechanical weeding		0.48	1.42
Manual threshing	7.14	1.44	12.74
Mechanical threshing	96.19	99.52	87.74
Manual drying	78.10	83.17	85.85
Mechanical drying	0.95	1.44	1.89
Nueva Ecija			
Use of organic fertilizers	16.25	5.00	
Use of inorganic fertilizers	100.00	100.00	100.00
Use of pesticides	97.50	86.25	100.00
Use of soil ameliorants	1.25	2.50	3.75
Manual weeding	62.50	53.75	50.00
Mechanical weeding		1.25	
Manual threshing	7.50	1.25	5.00
Mechanical threshing	98.75	100.00	96.25
Manual drying	70.00	73.75	77.50
Mechanical drying		1.25	5.00
Leyte			
Use of organic fertilizers	57.78	1.14	
Use of inorganic fertilizers	98.89	95.45	97.83
Use of pesticides	98.89	100.00	92.39
Use of soil ameliorants			2.17
Manual weeding	92.22	73.86	94.57
Mechanical weeding			3.26
Manual threshing	8.89	1.14	14.13
Mechanical threshing	93.33	100.00	85.87
Manual drying	85.56	95.45	91.30
Mechanical drying	2.22		
Davao del Norte			
Use of organic fertilizers	15.00	2.50	5.00
Use of inorganic fertilizers	100.00	100.00	75.00
Use of pesticides	100.00	100.00	72.50
Use of soil ameliorants	2.50	2.50	
Manual weeding	37.50	70.00	77.50
Mechanical weeding			
Manual threshing	2.50	2.50	25.00
Mechanical threshing	97.50	97.50	75.00
Manual drying	77.50	75.00	90.00
Mechanical drying		5.00	

Table 15. Average quantity of seeds used per hectare by seed type and class, and farm type, selected provinces, Philippines, last complete cropping, July 2004 - June 2005

(kilogram)

PROVINCE/ FARM TYPE	SEED TYPE AND CLASS		
	HYBRID	INBRED - MODERN	
		CERTIFIED	FARMERS' SEEDS
Nueva Ecija	**25.26**	**110.35**	**156.61**
Irrigated	25.26	106.73	156.37
Rainfed		121.76	157.60
Upland			
Leyte	**20.47**	**63.56**	**69.21**
Irrigated	20.47	63.85	68.33
Rainfed		59.13	72.31
Upland			
Davao del Norte	**21.34**	**56.09**	**77.33**
Irrigated	21.34	56.09	81.89
Rainfed			
Upland			50.65

Table 16. **Irrigated farms**: Average quantity of organic fertilizers applied per hectare by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005

(kilogram)

PROVINCE/ SEED TYPE AND CLASS	ORGANIC FERTILIZER							
	TOTAL	SAGANA 100	GUANO	CHICKEN DUNG	V-4 (2-4-2)	COCORICH (2-4-2)	PROVIDER (1-1-1)	OTHERS a/
Nueva Ecija	**18.33**	**2.36**	**1.77**	**4.92**			**7.81**	**1.47**
Hybrid	35.60		3.07	5.64			22.63	4.27
Inbred - Modern Certified	17.92	6.99	2.10	8.83				
Inbred - Modern Farmers' seeds								
Leyte	**92.62**			**27.36**	**61.22**			**4.03**
Hybrid	221.65			67.27	150.50			3.88
Inbred - Modern Certified	7.98							7.98
Inbred - Modern Farmers' seeds								
Davao del Norte	**19.59**		**3.35**			**12.39**		**3.85**
Hybrid	47.11					42.00		5.11
Inbred - Modern Certified	1.67							1.67
Inbred - Modern Farmers' seeds	16.57		11.05					5.52

a/ Include Probiotic, Organica 2000 (1.83-11.06-0.55), Crop Giant (8-8-8), Biogro (1.3-7-3), and Dura Bloom

Table 17. **Irrigated farms**: Average quantity of solid inorganic fertilizers applied per hectare by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005

(kilogram)

PROVINCE/ SEED TYPE AND CLASS	INORGANIC FERTILIZER										
	TOTAL	UREA		AMMONIUM SULFATE (21-0-0)	AMMONIUM PHOSPATE (16-20-0)	COMPLETE			MURIATE OF POTASH (0-0-60)	17-0-17	OTHERS a/
		45-0-0	46-0-0			12-12-12	14-14-14	16-16-16			
Nueva Ecija	**336.50**	**5.01**	**116.49**	**11.82**	**51.80**	**2.06**	**138.67**	**0.44**	**1.77**	**5.31**	**3.13**
Hybrid	365.56	7.68	114.41	6.06	77.48	5.98	146.86			4.27	2.82
Inbred - Modern Certified	341.37	4.81	120.61	8.30	47.63		145.95		4.81	7.87	1.40
Inbred - Modern Farmers' seeds	299.75	2.32	114.39	21.81	28.31		122.04	1.39	0.46	3.71	5.32
Leyte	**176.62**	**21.72**	**63.06**	**0.98**	**6.05**	**2.81**	**41.05**	**8.95**	**12.54**		**19.47**
Hybrid	194.70	12.29	61.88		5.17	0.86	32.77	6.04	30.40		45.28
Inbred - Modern Certified	182.86	45.50	61.46	3.19	1.43	7.98	42.76	20.53			0.01
Inbred - Modern Farmers' seeds	144.16	9.52	66.46		12.29		50.98	0.61	0.61		3.69
Davao del Norte	**248.45**		**84.48**	**56.20**	**28.47**		**42.36**		**21.77**	**6.87**	**8.31**
Hybrid	264.30		95.52	55.62	14.76		36.89		28.38	15.32	17.82
Inbred - Modern Certified	274.35		77.60	43.34	57.51		65.85		25.84	4.17	0.05
Inbred - Modern Farmers' seeds	198.70		82.85	73.80	3.31		16.57		9.94	2.21	10.01

a/ Include 17-7-17, Di-Ammonium Phosphate (18-46-0), 20-10-0, Crop Giant (15-30-0), Plant Vitamin (15-15-30), Top Grow (0.50-0-2.04), Grow More (10-50-10), Multi-K (13-0-46), and 2N-1

Table 18. **Rainfed farms**: Average quantity of solid inorganic fertilizers applied per hectare by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005

(kilogram)

PROVINCE/ SEED TYPE AND CLASS	INORGANIC FERTILIZER								
	TOTAL	UREA		AMMONIUM SULFATE (21-0-0)	AMMONIUM PHOSPATE (16-20-0)	COMPLETE		MURIATE OF POTASH (0-0-60)	17-0-17
		45-0-0	46-0-0			14-14-14	16-16-16		
Nueva Ecija	**308.50**	**3.18**	**65.93**	**3.97**	**32.57**	**197.30**		**3.97**	**1.59**
Hybrid									
Inbred - Modern Certified	296.14		57.85	4.13	26.17	201.10		6.89	
Inbred - Modern Farmers' seeds	325.33	7.50	76.92	3.75	41.28	192.12			3.75
Leyte	**120.66**	**9.58**	**65.78**	**1.74**	**10.45**	**27.87**	**5.23**		
Hybrid									
Inbred - Modern Certified	126.09	39.13	34.78			26.09	26.09		
Inbred - Modern Farmers' seeds	119.30	2.18	73.55	2.18	13.07	28.32			
Davao del Norte									
Hybrid									
Inbred - Modern Certified									
Inbred - Modern Farmers' seeds									

Table 19. **Irrigated Farms**: Average quantity of liquid inorganic fertilizers applied per hectare by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005

(liter)

PROVINCE/ SEED TYPE AND CLASS	LIQUID INORGANIC FERTILIZER											
	TOTAL	FOLIAR (15-15-30)	MEGA YIELD (4-7-10)	SUPER HARVEST (7.97-3.39-1.14)	FREE GROW (0.10-0.20-1.02)	CROP GIANT (15-30-0)	AGROWELL (15-7-7)	AZ-41 (0.0025-0.00999-0.00139)	DI-AMMONIUM PHOSPHATE (18-46-0)	MAXI-GRAIN (3-0-0)	CALIGRO (3.35-0.25-0.60)	OTHERS a/
Nueva Ecija	**b/**					**b/**						
Hybrid												
Inbred - Modern Certified												
Inbred - Modern Farmers' seeds	b/					b/						
Leyte	**0.43**	**0.03**	**0.04**	**0.30**	**0.03**							**0.01**
Hybrid	0.35	0.07	0.10	0.09	0.08							
Inbred - Modern Certified	0.64	0.01		0.63								
Inbred - Modern Farmers' seeds	0.30			0.25								0.05
Davao del Norte	**0.70**	**0.06**	**0.23**			**0.08**	**0.18**	**0.04**	**0.04**	**0.01**	**0.05**	**0.01**
Hybrid	1.00		0.14			0.14	0.27	0.14	0.14	0.02	0.16	
Inbred - Modern Certified	0.32		0.02			0.08	0.18					0.03
Inbred - Modern Farmers' seeds	0.93	0.19	0.60			0.02	0.09			0.02		

a/ Include Biotrisol (7-4-4), Nitrofert (9.93-5.2-3.2), Restorer (7.64-0.03-12.55) and Algafer (11-3-4)

b/ Less than 0.01 liter

Table 20. **Rainfed Farms**: Average quantity of liquid inorganic fertilizers applied per hectare by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005

(liter)

PROVINCE / SEED TYPE AND CLASS	LIQUID INORGANIC FERTILIZER		
	TOTAL	SUPER HARVEST (7.97-3.39-1.14)	RESTORER (7.64-0.03-12.55)
Nueva Ecija			
Hybrid			
Inbred - Modern Certified			
Inbred - Modern Farmers' seeds			
Leyte	**0.20**	**0.17**	**0.03**
Hybrid			
Inbred - Modern Certified	0.65	0.52	0.13
Inbred - Modern Farmers' seeds	0.09	0.09	
Davao del Norte			
Hybrid			
Inbred - Modern Certified			
Inbred - Modern Farmers' seeds			

Table 21. Average quantity of solid fertilizer nutrients applied per hectare by seed type and class, and farm type, selected provinces, Philippines, last complete cropping, July 2004 - June 2005

(kilogram)

PROVINCE/ SEED TYPE AND CLASS	IRRIGATED FARMS			RAINFED FARMS			ALL FARM TYPES		
	NITROGEN	PHOSPHORIC ACID	WATER SOLUBLE POTASH	NITROGEN	PHOSPHORIC ACID	WATER SOLUBLE POTASH	NITROGEN	PHOSPHORIC ACID	WATER SOLUBLE POTASH
Nueva Ecija	**87.87**	**30.99**	**21.86**	**62.90**	**30.64**	**30.27**	**83.96**	**30.94**	**23.17**
Hybrid	92.58	37.77	22.47				92.58	37.77	22.47
Inbred - Modern Certified	89.05	30.12	24.65	59.82	33.39	32.29	82.01	30.90	26.49
Inbred - Modern Farmers' seeds	81.51	24.57	18.22	67.08	26.90	27.53	78.65	25.03	20.07
Leyte	**51.82**	**19.16**	**16.27**	**41.35**	**6.83**	**4.74**	**50.86**	**18.03**	**15.21**
Hybrid	51.18	32.35	26.91				51.18	32.35	26.91
Inbred - Modern Certified	59.88	10.52	10.23	41.43	7.83	7.83	58.74	10.35	10.08
Inbred - Modern Farmers' seeds	44.06	9.69	7.60	41.33	6.58	3.97	43.46	9.01	6.80
Davao del Norte	**63.78**	**12.86**	**21.70**				**60.63**	**12.23**	**20.63**
Hybrid	70.14	11.61	28.27				70.14	11.61	28.27
Inbred - Modern Certified	63.96	20.92	25.44				63.96	20.92	25.44
Inbred - Modern Farmers' seeds	57.35	3.40	10.36				48.96	2.91	8.84

Table 22. Average quantity of liquid fertilizer nutrients applied per hectare by seed type and class, and farm type, selected provinces, Philippines, last complete cropping, July 2004 - June 2005

(liter)

PROVINCE/ SEED TYPE AND CLASS	IRRIGATED FARMS			RAINFED FARMS			ALL FARM TYPES		
	NITROGEN	PHOSPHORIC ACID	WATER SOLUBLE POTASH	NITROGEN	PHOSPHORIC ACID	WATER SOLUBLE POTASH	NITROGEN	PHOSPHORIC ACID	WATER SOLUBLE POTASH
Nueva Ecija	**a/**	**a/**					**a/**	**a/**	
Hybrid									
Inbred - Modern Certified									
Inbred - Modern Farmers' seeds	a/	a/					a/	a/	
Leyte	**0.03**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.03**	**0.02**	**0.02**
Hybrid	0.02	0.02	0.03				0.02	0.02	0.03
Inbred - Modern Certified	0.05	0.02	0.01	0.05	0.02	0.02	0.05	0.02	0.01
Inbred - Modern Farmers' seeds	0.02	0.01	0.01	0.01	a/	a/	0.02	0.01	a/
Davao del Norte	**0.07**	**0.08**	**0.05**				**0.06**	**0.08**	**0.05**
Hybrid	0.10	0.13	0.03				0.10	0.13	0.03
Inbred - Modern Certified	0.04	0.04	0.02				0.04	0.04	0.02
Inbred - Modern Farmers' seeds	0.07	0.08	0.12				0.06	0.07	0.11

a/ Less than 0.01 liter

Table 23. **Irrigated Farms**: Average quantity of soil ameliorants used per hectare by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005

PROVINCE / SEED TYPE AND CLASS	SOIL AMELIORANTS	
	ZINC SULFATE (kg)	ZINC METALATE (li)
Nueva Ecija	**0.88**	**0.02**
Hybrid		
Inbred - Modern Certified		0.03
Inbred - Modern Farmers' seeds	2.78	0.02
Leyte		
Hybrid		
Inbred - Modern Certified		
Inbred - Modern Farmers' seeds		
Davao del Norte	**0.13**	
Hybrid	0.23	
Inbred - Modern Certified	0.17	
Inbred - Modern Farmers' seeds		

Table 24. **Irrigated Farms**: Average quantity of pesticides applied per hectare by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005

PROVINCE/ SEED TYPE AND CLASS	INSECTICIDES		HERBICIDES / WEEDICIDES		FUNGICIDES		RODENTICIDES		MOLLUSCICIDES		ALL PESTICIDES	
	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)
Nueva Ecija	**0.43**	**0.69**	**0.09**	**0.81**	**0.12**		**0.02**		**0.55**	**0.10**	**1.21**	**1.60**
Hybrid	0.30	0.84	0.26	0.80	0.05		0.01		0.24	0.14	0.87	1.77
Inbred - Modern Certified	0.74	0.56		0.67			0.01		0.91	0.04	1.66	1.27
Inbred - Modern Farmers' seeds	0.23	0.67	0.01	0.98	0.33		0.05		0.49	0.12	1.12	1.77
Leyte	**0.22**	**0.77**	**0.37**	**0.50**	**0.01**	**0.02**	**0.02**	**0.02**	**0.41**	**0.05**	**1.04**	**1.37**
Hybrid	0.09	0.48	0.86	0.71	0.03	0.04	0.03	0.04	0.73	a/	1.75	1.28
Inbred - Modern Certified	0.60	1.03	0.07	0.55		0.01	0.02	0.01	0.15	0.11	0.83	1.72
Inbred - Modern Farmers' seeds		0.89	a/	0.16		0.01	a/	0.01	0.24	0.05	0.24	1.12
Davao del Norte	**3.63**	**1.50**	**0.02**	**0.81**	**0.25**	**0.05**	**0.02**	**0.01**	**0.20**	**0.29**	**4.12**	**2.66**
Hybrid	4.64	0.95	0.02	0.93	0.67	0.07	0.02		0.28	0.20	5.64	2.14
Inbred - Modern Certified	5.26	1.89	0.02	0.84	0.08	0.05	0.03	0.03	0.13	0.31	5.52	3.12
Inbred - Modern Farmers' seeds	0.48	1.51	a/	0.65	0.09	0.04	0.02		0.21	0.36	0.80	2.57

a/ Less than 0.01

Table 25. **Rainfed Farms**: Average quantity of pesticides applied per hectare by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005

PROVINCE/ SEED TYPE AND CLASS	INSECTICIDES		HERBICIDES / WEEDICIDES		FUNGICIDES		RODENTICIDES		MOLLUSCICIDES		ALL PESTICIDES	
	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)
Nueva Ecija	**0.44**	**0.68**		**1.02**	**0.06**		**0.02**		**0.11**		**0.64**	**1.69**
Hybrid												
Inbred - Modern Certified	0.08	0.58		0.94	0.11		0.03		0.14		0.37	1.52
Inbred - Modern Farmers' seeds	0.94	0.81		1.13					0.08		1.01	1.93
Leyte		**0.69**		**0.59**			**0.01**		**0.31**	**0.02**	**0.32**	**1.29**
Hybrid												
Inbred - Modern Certified		0.91		1.09			0.04		0.03		0.08	2.00
Inbred - Modern Farmers' seeds		0.63		0.46					0.38	0.02	0.38	1.12
Davao del Norte												
Hybrid												
Inbred - Modern Certified												
Inbred - Modern Farmers' seeds												

Table 26. **Irrigated Farms**: Average labor utilization per hectare by farm activity, seed type and class, and sex, Nueva Ecija, last complete cropping, July 2004 - June 2005

(manday)

FARM ACTIVITY	HYBRID			INBRED - MODERN					
				CERTIFIED			FARMERS' SEEDS		
	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES
Seedbed preparation									
Man	0.04		0.04	a/		a/	0.01		0.01
Man and animal	1.06		1.06	0.94		0.94	0.87		0.87
Man and machine	0.64		0.64	0.33	0.01	0.34	0.26		0.26
Land preparation									
Plowing									
Man				0.02		0.02	0.02		0.02
Man and animal	0.53		0.53	0.42		0.42	0.25		0.25
Man and machine	1.50		1.50	1.35		1.35	1.79		1.79
Harrowing									
Man							0.02		0.02
Man and animal	0.37		0.37	0.25		0.25	0.35		0.35
Man and machine	1.81		1.81	1.44	0.05	1.49	1.87		1.87
Repairing of dikes									
Man	2.41		2.41	0.97		0.97	1.51		1.51
Man and animal	0.55		0.55	0.45		0.45	0.64		0.64
Man and machine				0.05		0.05	0.18		0.18
Levelling									
Man	0.02		0.02	0.06		0.06	0.05		0.05
Man and animal	0.42		0.42	0.33		0.33	0.39		0.39
Man and machine	0.60		0.60	0.42		0.42	0.71		0.71
Pulling/Bundling of seedlings	4.92	1.42	6.34	5.44	0.21	5.65	4.65	0.40	5.05
Hauling of seedlings									
Man	0.32	0.01	0.33	0.54	0.05	0.59	0.20		0.20
Man and animal	0.70	0.06	0.76	0.30		0.30	0.53		0.53
Man and machine	0.02		0.02				0.02		0.02
Planting									
Transplanting	8.07	5.17	13.24	6.20	6.46	12.66	5.28	5.03	10.31
Broadcasting/Direct seeding	0.05		0.05	0.31		0.31	0.81		0.81
Care of Crops									
Irrigation/Drainage	9.76		9.76	7.55		7.55	4.07		4.07
Fertilizer application									
Basal	0.33		0.33	0.30	0.01	0.31	0.33		0.33
Side dressing	0.77		0.77	0.57	0.01	0.58	0.64	0.01	0.65
Top dressing	0.77		0.77	0.45	0.01	0.46	0.64		0.64
Chemical application	1.31		1.31	1.09	0.01	1.10	1.35		1.35
Weeding									
Manual	1.58	0.06	1.64	1.19	0.09	1.28	1.09	0.09	1.18
Mechanical				0.02		0.02			
Harvesting	15.36	3.08	18.44	13.05	5.67	18.72	11.90	5.42	17.32
Threshing									
Manual	0.29		0.29				0.05		0.05
Mechanical	4.15		4.15	3.97		3.97	3.45		3.45
Hauling of produce									
Man	0.28		0.28	0.53	0.07	0.60	0.15		0.15
Man and animal	1.16		1.16	1.07	a/	1.07	1.06		1.06
Man and machine	0.19		0.19	0.12		0.12	0.13		0.13
Drying									
Manual	1.92		1.92	1.20	0.06	1.26	1.78	0.06	1.84
Mechanical				0.04		0.04	0.02		0.02
All farm activities	**61.90**	**9.80**	**71.70**	**50.96**	**12.71**	**63.67**	**47.07**	**11.01**	**58.08**

a/ Less than 0.01 manday

Table 27. **Rainfed Farms**: Average labor utilization per hectare by farm activity, seed type and class, and sex, Nueva Ecija, last complete cropping, July 2004 - June 2005

(manday)

FARM ACTIVITY	INBRED - MODERN					
	CERTIFIED			FARMERS' SEEDS		
	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES
Seedbed preparation						
Man				0.01		0.01
Man and animal				0.06		0.06
Man and machine	0.21		0.21	0.25		0.25
Land preparation						
Plowing						
Man and animal	0.06		0.06	1.35		1.35
Man and machine	3.06		3.06	2.62		2.62
Harrowing						
Man and animal	0.06		0.06	0.08		0.08
Man and machine	1.75		1.75	1.75		1.75
Repairing of dikes						
Man	2.21		2.21	1.85		1.85
Man and animal	0.53		0.53	0.03		0.03
Man and machine	0.04		0.04			
Levelling						
Man	0.03		0.03			
Man and animal	1.26		1.26	0.48		0.48
Man and machine	0.10		0.10	0.71		0.71
Pulling/Bundling of seedlings	2.43	2.28	4.71	1.02	4.05	5.07
Hauling of seedlings						
Man and animal	0.48		0.48	0.59		0.59
Planting						
Transplanting	3.18	2.41	5.59	5.75	3.83	9.58
Broadcasting/Direct seeding	6.45		6.45	1.11		1.11
Care of Crops						
Irrigation/Drainage	1.59		1.59	1.73		1.73
Fertilizer application						
Basal	0.38		0.38	0.85		0.85
Side dressing	0.28		0.28	0.42		0.42
Top dressing	0.55		0.55	0.91		0.91
Chemical application	1.01		1.01	1.10		1.10
Manual weeding				3.92		3.92
Harvesting	11.14	4.78	15.92	10.46	1.91	12.37
Threshing						
Manual	0.03		0.03	0.08		0.08
Mechanical	3.05		3.05	2.25		2.25
Hauling of produce						
Man	0.21		0.21	0.09		0.09
Man and animal	0.97		0.97	0.78		0.78
Man and machine	0.07		0.07	0.16		0.16
Drying						
Manual	2.12	0.08	2.20	2.13		2.13
Mechanical				0.22		0.22
All farm activities	**43.25**	**9.55**	**52.80**	**42.76**	**9.79**	**52.55**

Table 28. **Irrigated Farms**: Average labor utilization per hectare by farm activity, seed type and class, and sex, Leyte, last complete cropping, July 2004 - June 2005

(manday)

FARM ACTIVITY	HYBRID			INBRED - MODERN					
				CERTIFIED			FARMERS' SEEDS		
	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES
Seedbed preparation									
Man	0.76	0.03	0.79	0.76	0.02	0.78	1.06	0.04	1.10
Man and animal	0.21		0.21	0.55		0.55	0.31		0.31
Man and machine	0.20		0.20	0.19		0.19	0.31		0.31
Land preparation									
Plowing									
Man	0.07		0.07	0.21		0.21	0.20		0.20
Man and animal	2.61		2.61	2.91		2.91	1.85		1.85
Man and machine	1.25	0.01	1.26	1.62		1.62	1.43		1.43
Harrowing									
Man				0.21		0.21	0.02		0.02
Man and animal	0.50		0.50	1.13		1.13	0.60		0.60
Man and machine	2.24		2.24	0.71		0.71	0.72		0.72
Repairing of dikes									
Man	3.64	0.07	3.71	3.63	0.06	3.69	3.75		3.75
Man and Animal	0.03		0.03	0.03		0.03			
Levelling									
Man	0.14	0.09	0.23	0.38	0.02	0.40	0.39		0.39
Man and animal	1.11	0.03	1.14	1.07		1.07	0.85		0.85
Man and machine	0.03	0.03	0.06	0.01		0.01	0.14		0.14
Pulling/Bundling of seedlings	3.00	3.86	6.86	3.74	2.88	6.62	2.16	3.05	5.21
Hauling of seedlings									
Man	0.85	0.09	0.94	1.07	0.16	1.23	1.16	0.08	1.24
Man and animal	0.06		0.06	0.22	0.02	0.24	0.01		0.01
Planting									
Transplanting	9.52	3.19	12.71	9.97	1.29	11.26	10.51	0.42	10.93
Broadcasting/Direct seeding				0.06		0.06			
Care of Crops									
Irrigation/Drainage	3.58	0.03	3.61	2.33	0.06	2.39	3.93		3.93
Fertilizer application									
Basal	0.79	0.01	0.80	0.33		0.33	0.36		0.36
Side dressing	0.24		0.24	0.48		0.48	0.16		0.16
Top dressing	0.41	0.01	0.42	0.41		0.41	0.67		0.67
Chemical application	1.01	0.09	1.10	1.42	0.19	1.61	0.93		0.93
Weeding									
Manual	5.09	1.73	6.82	3.56	1.51	5.07	5.19	0.68	5.87
Mechanical							0.09		0.09
Harvesting	12.56	6.76	19.32	13.25	8.02	21.27	13.75	2.24	15.99
Threshing									
Manual	0.73	0.20	0.93	0.01		0.01	0.96	0.43	1.39
Mechanical	4.89		4.89	3.77	0.18	3.95	3.16		3.16
Hauling of Produce									
Man	2.25		2.25	1.08	0.01	1.09	1.50		1.50
Man and animal	0.23		0.23	0.24		0.24	0.12		0.12
Man and machine	0.46		0.46	0.08		0.08	0.10		0.10
Drying									
Manual	2.11	0.23	2.34	1.42	0.20	1.62	1.92	0.68	2.60
Mechanical	0.02		0.02						
All farm activities	**60.59**	**16.46**	**77.05**	**56.86**	**14.61**	**71.47**	**58.31**	**7.62**	**65.93**

Table 29. **Rainfed Farms**: Average labor utilization per hectare by farm activity, seed type and class, and sex, Leyte, last complete cropping, July 2004 - June 2005

(manday)

FARM ACTIVITY	INBRED - MODERN					
	CERTIFIED			FARMERS' SEEDS		
	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES
Seedbed preparation						
Man	0.31		0.31	0.93		0.93
Man and animal	0.10		0.10	0.53		0.53
Man and machine	0.21		0.21	0.37		0.37
Land preparation						
Plowing						
Man	0.12		0.12			
Man and animal	1.27		1.27	3.71		3.71
Man and machine	1.83		1.83	0.70		0.70
Harrowing						
Man and animal	0.64		0.64	0.84		0.84
Man and machine	0.50		0.50	1.11		1.11
Repairing of dikes						
Man	3.25		3.25	2.34	0.07	2.41
Levelling						
Man				0.27		0.27
Man and animal	0.99		0.99	1.20		1.20
Man and machine				0.01		0.01
Pulling/Bundling of seedlings	2.02	3.44	5.46	2.61	4.08	6.69
Hauling of seedlings						
Man	0.57		0.57	1.19	0.13	1.32
Man and animal						
Planting						
Transplanting	11.01		11.01	10.03	0.78	10.81
Broadcasting/Direct seeding	0.03		0.03			
Care of Crops						
Irrigation/Drainage	3.20	0.03	3.23	1.98		1.98
Fertilizer application						
Basal	0.19		0.19	0.31		0.31
Side dressing	0.10		0.10	0.05		0.05
Top dressing	0.30		0.30	0.50	a/	0.50
Chemical application	1.57		1.57	0.85		0.85
Weeding						
Manual	2.92	0.53	3.45	5.18	1.14	6.32
Mechanical				0.17		0.17
Harvesting	11.77	9.10	20.87	11.63	3.79	15.42
Threshing						
Manual				1.09	0.50	1.59
Mechanical	5.20		5.20	3.35		3.35
Hauling of produce						
Man	0.77		0.77	1.96		1.96
Man and animal	0.05		0.05	0.20		0.20
Man and machine	0.02		0.02	0.31		0.31
Drying						
Manual	1.11	0.52	1.63	2.40	0.30	2.70
Mechanical				0.07		0.07
All farm activities	**50.05**	**13.62**	**63.67**	**55.82**	**10.79**	**66.61**

a/ less than 0.01 manday

Table 30. **Irrigated Farms**: Average labor utilization per hectare by farm activity, seed type and class, and sex, Davao del Norte, last complete cropping, July 2004 - June 2005

(manday)

FARM ACTIVITY	HYBRID			INBRED - MODERN					
				CERTIFIED			FARMERS' SEEDS		
	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES
Seedbed preparation									
Man	2.37	0.05	2.42	1.19	0.09	1.28	0.99	0.15	1.14
Man and animal	0.07		0.07	0.13		0.13	0.24		0.24
Man and machine	0.40		0.40	0.36		0.36	0.56		0.56
Land preparation									
Plowing									
Man							0.09		0.09
Man and animal				0.38		0.38	0.17		0.17
Man and machine	4.00		4.00	3.32		3.32	2.39		2.39
Harrowing									
Man and animal	0.20		0.20	0.15		0.15	0.04		0.04
Man and machine				0.01		0.01	0.06		0.06
Repairing of dikes									
Man	3.28	0.18	3.46	2.17		2.17	3.44	0.15	3.59
Levelling									
Man	0.02		0.02	0.03		0.03			
Man and animal	0.89		0.89	1.00		1.00	0.88		0.88
Man and machine							0.15		0.15
Pulling/Bundling of seedlings	3.22	3.09	6.31	3.13	3.87	7.00	3.22	2.77	5.99
Hauling of seedlings									
Man	0.90	0.02	0.92	0.56		0.56	0.61	0.35	0.96
Man and animal				0.01		0.01	0.09		0.09
Planting									
Transplanting	9.23	6.01	15.24	9.23	5.19	14.42	11.78	4.35	16.13
Broadcasting/Direct seeding				0.04		0.04			
Care of Crops									
Irrigation/Drainage	1.47	0.02	1.49	1.16		1.16	1.64	0.05	1.69
Fertilizer application									
Basal	0.29		0.29	0.08		0.08	0.16		0.16
Side dressing	0.48		0.48	0.56		0.56	0.48	0.01	0.49
Top dressing	0.46		0.46	0.58		0.58	0.44	0.01	0.45
Chemical application	2.80		2.80	1.85		1.85	1.99	0.06	2.05
Manual weeding	1.44	0.59	2.03	1.77	0.22	1.99	2.05	1.37	3.42
Harvesting	11.66	7.11	18.77	12.11	6.06	18.17	11.15	5.75	16.90
Threshing									
Manual	0.17		0.17	0.08		0.08			
Mechanical	5.87		5.87	5.37	0.07	5.44	4.27	0.01	4.28
Hauling of produce									
Man	1.76	0.06	1.82	1.53		1.53	1.24		1.24
Man and animal	0.07		0.07	0.02		0.02	0.17		0.17
Man and machine	0.05		0.05				0.25		0.25
Drying									
Manual	1.61	0.92	2.53	1.56	0.50	2.06	2.10	0.42	2.52
Mechanical				0.07		0.07			
All farm activities	**52.71**	**18.05**	**70.76**	**48.45**	**16.00**	**64.45**	**50.65**	**15.45**	**66.10**

Table 31. **Upland Farms**: Average labor utilization per hectare by farm activity and sex, Inbred-Modern Farmers' seeds, Davao del Norte, last complete cropping, July 2004 - June 2005

(manday)

FARM ACTIVITY	MALE	FEMALE	BOTH SEXES
Planting			
Broadcasting/Direct seeding	7.46	7.15	14.61
Care of crops			
Manual weeding	10.70	6.28	16.98
Harvesting	7.78	5.64	13.42
Manual threshing	8.27	4.65	12.92
Hauling of produce			
Man	2.06		2.06
Manual drying	2.91	1.64	4.55
Others			
Clearing	18.58		18.58
Burning	0.57		0.57
All farm activities	**58.33**	**25.36**	**83.69**

Table 32. **Irrigated Farms**: Average labor utilization per hectare by seed type and class, source of labor and sex, selected provinces, Philippines, last complete cropping, July 2004 - June 2005

(manday)

PROVINCE / SEED TYPE AND CLASS	OPERATOR			FAMILY			EXCHANGE			HIRED			ALL SOURCES		
	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES
Nueva Ecija	**5.72**	**0.14**	**5.86**	**5.22**	**0.28**	**5.50**	**1.21**	**0.05**	**1.26**	**41.35**	**10.70**	**52.05**	**53.50**	**11.17**	**64.66**
Hybrid	6.95	0.17	7.12	4.34	0.43	4.77	1.44		1.44	49.17	9.20	58.37	61.90	9.80	71.70
Inbred - Modern Certified	4.52	0.18	4.70	3.99	0.22	4.21	0.58		0.58	41.87	12.31	54.18	50.96	12.71	63.67
Inbred - Modern Farmers' seeds	5.67	0.05	5.72	7.48	0.18	7.66	1.62	0.16	1.78	32.30	10.62	42.92	47.07	11.01	58.08
Leyte	**5.26**	**0.23**	**5.49**	**2.87**	**0.50**	**3.38**	**0.03**	**0.03**	**0.05**	**50.63**	**12.61**	**63.24**	**58.79**	**13.37**	**72.16**
Hybrid	3.93	0.25	4.18	2.40	0.37	2.77		0.05	0.05	54.26	15.79	70.05	60.59	16.46	77.05
Inbred - Modern Certified	6.02	0.36	6.38	2.17	0.13	2.30	0.05	0.01	0.06	48.62	14.11	62.73	56.86	14.61	71.47
Inbred - Modern Farmers' seeds	6.35	0.05	6.40	4.30	1.10	5.40	0.04	0.01	0.05	47.62	6.46	54.08	58.31	7.62	65.93
Davao del Norte	**6.47**	**0.32**	**6.79**	**3.12**	**0.77**	**3.90**	**0.06**		**0.06**	**40.71**	**15.34**	**56.05**	**50.37**	**16.44**	**66.80**
Hybrid	8.08	0.20	8.28	3.75	1.23	4.98	0.07		0.07	40.81	16.62	57.43	52.71	18.05	70.76
Inbred - Modern Certified	4.94	0.29	5.23	1.74	0.46	2.20	0.03		0.03	41.74	15.25	56.99	48.45	16.00	64.45
Inbred - Modern Farmers' seeds	6.93	0.48	7.41	4.36	0.75	5.11	0.11		0.11	39.25	14.22	53.47	50.65	15.45	66.10

Table 33. **Rainfed Farms**: Average labor utilization per hectare by seed type and class, source of labor and sex, selected provinces, Philippines, last complete cropping, July 2004 - June 2005

(manday)

PROVINCE / SEED TYPE AND CLASS	OPERATOR			FAMILY			EXCHANGE			HIRED			ALL SOURCES		
	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES
Nueva Ecija	**11.76**	**0.13**	**11.89**	**11.62**	**0.21**	**11.83**	**2.63**		**2.63**	**17.03**	**9.31**	**26.34**	**43.04**	**9.65**	**52.69**
Hybrid															
Inbred - Modern Certified	9.70	0.23	9.93	15.66		15.66	1.06		1.06	16.83	9.32	26.15	43.25	9.55	52.80
Inbred - Modern Farmers' seeds	14.57		14.57	6.11	0.50	6.61	4.77		4.77	17.31	9.29	26.60	42.76	9.79	52.55
Leyte	**6.84**	**0.15**	**6.99**	**3.44**	**0.60**	**4.04**	**0.07**	**0.14**	**0.21**	**44.31**	**10.48**	**54.79**	**54.66**	**11.36**	**66.02**
Hybrid															
Inbred - Modern Certified	5.75	0.34	6.09	1.68	0.18	1.86				42.62	13.10	55.72	50.05	13.62	63.67
Inbred - Modern Farmers' seeds	7.11	0.10	7.21	3.89	0.70	4.59	0.09	0.17	0.26	44.73	9.82	54.55	55.82	10.79	66.61
Davao del Norte															
Hybrid															
Inbred - Modern Certified															
Inbred - Modern Farmers' seeds															

Table 34. **Upland Farms**: Average labor utilization per hectare by seed type and class, source of labor and sex, selected provinces, Philippines, last complete cropping, July 2004 - June 2005

(manday)

PROVINCE / SEED TYPE AND CLASS	OPERATOR			FAMILY			EXCHANGE			HIRED			ALL SOURCES		
	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES
Nueva Ecija															
Hybrid															
Inbred - Modern Certified															
Inbred - Modern Farmers' seeds															
Leyte															
Hybrid															
Inbred - Modern Certified															
Inbred - Modern Farmers' seeds															
Davao del Norte	**7.28**		**7.28**	**5.29**	**4.16**	**9.45**	**7.18**	**5.37**	**12.55**	**38.58**	**15.83**	**54.41**	**58.33**	**25.36**	**83.69**
Hybrid															
Inbred - Modern Certified															
Inbred - Modern Farmers' seeds	7.28		7.28	5.29	4.16	9.45	7.18	5.37	12.55	38.58	15.83	54.41	58.33	25.36	83.69

Table 35. Percentage distribution of palay produce by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005

PROVINCE / SEED TYPE AND CLASS	SOLD / TO BE SOLD	HARVESTERS' SHARE	THRESHERS' SHARE	OTHER LABORERS' SHARE	LAND-OWNER'S SHARE	LEASE RENTAL	FOR HOME CONSUMPTION	GIVEN AWAY	USED/TO BE USED FOR SEEDS	USED/TO BE USED FOR FEEDS	IRRIGATION FEE	WASTAGE	FOR OTHER PURPOSES a/
Nueva Ecija	**61.87**	**8.84**	**6.34**	**4.53**	**0.97**	**2.75**	**11.53**	**1.66**	**0.73**	**0.09**	**0.08**	**0.15**	**0.46**
Hybrid	64.89	8.61	6.54	4.82	0.60	2.51	10.12	1.45	0.10	0.06	0.07	0.11	0.12
Inbred - Modern Certified	62.85	8.62	6.10	4.87	1.14	2.60	11.75	1.51	0.36	0.01	0.03	0.12	0.04
Inbred - Modern Farmers' seeds	55.91	9.52	6.39	3.57	1.27	3.35	13.36	2.19	2.22	0.22	0.16	0.26	1.58
Leyte	**51.65**	**9.07**	**5.38**	**1.54**	**8.22**	**2.02**	**15.59**	**0.99**	**0.50**	**0.03**	**0.32**	**0.10**	**4.59**
Hybrid	61.24	8.62	6.40	2.54	4.02	1.77	12.27	1.30			0.03	0.12	1.69
Inbred - Modern Certified	47.96	11.08	4.69	0.10	9.72	2.68	14.79	0.98	0.49	0.01	0.71	0.08	6.71
Inbred - Modern Farmers' seeds	36.12	7.64	4.08	1.17	15.13	1.77	23.38	0.39	1.56	0.10	0.46	0.10	8.10
Davao del Norte	**61.54**	**7.98**	**6.93**	**3.25**	**6.57**	**0.32**	**10.75**	**1.19**	**0.36**	**0.06**	**0.05**	**0.22**	**0.78**
Hybrid	64.15	8.02	6.45	2.00	5.94	1.14	11.04	0.86		0.08		0.08	0.24
Inbred - Modern Certified	65.92	7.59	6.54	3.47	5.78		8.96	1.13				0.12	0.49
Inbred - Modern Farmers' seeds	52.48	8.50	7.98	4.14	8.36		13.13	1.61	1.26	0.15	0.16	0.51	1.72

a/ Include payment to loans and interest, and rental of animal and machine, etc.

Table 36. Percentage of farmers by type of production-related problems encountered, selected provinces, Philippines, July 2004 - June 2005

PROVINCE	NUMBER REPORTING	PROBLEM ENCOUNTERED					
		WEEDS, PESTS AND DISEASES	HIGH COST OF INPUTS	IRRIGATION PROBLEMS	FINANCIAL PROBLEM	WEATHER	OTHERS a/
All 3 Provinces	569	44.40	42.10	31.30	29.70	10.80	6.40
Nueva Ecija	201	31.20	44.60	37.50	7.10	7.50	5.00
Leyte	266	41.90	47.80	36.30	52.60	14.10	5.20
Davao del Norte	102	76.70	24.20	7.50	23.30	10.00	11.70

a/ Include farming technology, unavailability of seeds, soil problems, insufficient inputs and poor quality of seeds

Table 37. Distribution of palay farmers who incurred / did not incur losses and percent of estimated loss / damage due to problems encountered in production, selected provinces, Philippines, July 2004 - June 2005

PROVINCE / SEED TYPE AND CLASS	PERCENTAGE OF FARMERS		PERCENT OF LOSS
	INCURRED LOSSES	DID NOT INCUR LOSSES	
All 3 Provinces	**49.05**	**50.95**	**9.84**
Hybrid	42.86	57.14	9.35
Inbred-Modern Certified	49.04	50.96	8.86
Inbred-Modern Farmers' seeds	55.19	44.81	11.36
Nueva Ecija	**50.83**	**49.17**	**11.72**
Hybrid	43.75	56.25	10.74
Inbred-Modern Certified	42.50	57.50	10.11
Inbred-Modern Farmers' seeds	66.25	33.75	14.07
Leyte	**47.04**	**52.96**	**6.93**
Hybrid	45.56	54.44	8.17
Inbred-Modern Certified	61.36	38.64	6.84
Inbred-Modern Farmers' seeds	34.78	65.22	3.94
Davao del Norte	**50.00**	**50.00**	**9.07**
Hybrid	35.00	65.00	7.44
Inbred-Modern Certified	35.00	65.00	8.85
Inbred-Modern Farmers' seeds	80.00	20.00	10.01

Table 38. Percentage of farmers providing recommendations to further improve palay production, selected provinces, Philippines, July 2004 - June 2005

PROVINCE	TYPE OF RECOMMENDATION						
	AVAILABILITY OF SEEDS	IMPROVE TECHNOLOGY	GOVERNMENT SUPPORT	IMPROVE IRRIGATION SERVICES	IMPROVE ROADS	RECORD-KEEPING BY FARMERS	CONTINUE RICE PROGRAM
All 3 Provinces	14.00	25.90	21.40	22.40	1.70	0.20	0.30
Nueva Ecija	9.20	24.20	12.10	22.10	2.50		
Leyte	16.30	22.60	27.80	25.90	1.10		0.70
Davao del Norte	18.30	36.70	25.80	15.00	1.70	0.80	

Table 39. Percentage distribution of farmers by length of time using hybrid seeds, selected provinces, Philippines, July 2004 - June 2005

PROVINCE	NUMBER REPORTING	LENGTH OF USE (number of years)				
		1	2	3	4	5
All 3 Provinces	86	32.56	38.37	20.93	4.60	3.49
Nueva Ecija	47	46.81	42.55	10.64		
Leyte	23	17.39	39.20	34.78	4.35	4.35
Davao del Norte	16	12.50	25.00	31.20	18.75	12.50

Table 40. Average area harvested and yield per hectare of hybrid seed users, previous cropping vs. latest cropping, selected provinces, Philippines, July 2004 - June 2005

PROVINCE	NUMBER REPORTING	PREVIOUS CROPPING a/		LATEST CROPPING b/	
		AREA HARVESTED (HA.)	YIELD PER HECTARE (MT)	AREA HARVESTED (HA.)	YIELD PER HECTARE (MT)
All 3 Provinces	86	1.37	6.32	1.33	6.98
Nueva Ecija	47	1.44	6.99	1.38	7.99
Leyte	23	1.19	4.95	1.31	5.16
Davao del Norte	16	1.42	5.89	1.19	6.29

a/ Last cropping season planting hybrid seeds

b/ July 2004 - June 2005

Table 41. Distribution of hybrid seed users by willingness to plant hybrid seeds even in the absence of subsidy, selected provinces, Philippines, July 2004 - June 2005

PROVINCE	PERCENTAGE OF HYBRID USERS		
	WILLING	NOT WILLING	NO COMMENT
All 3 Provinces	75.10	23.80	0.10
Nueva Ecija	71.20	28.80	
Leyte	94.50	3.30	2.20
Davao del Norte	40.00	60.00	

Table 42. Distribution of hybrid seed users by reason for not planting hybrid seeds in the absence of subsidy, selected provinces, Philippines, July 2004 - June 2005

PROVINCE	REASON FOR NOT PLANTING HYBRID		
	HIGH COST OF SEEDS AND INPUTS	SUSCEPTIBILITY TO PESTS AND DISEASES	NO REASON GIVEN
All 3 Provinces	19.00	7.00	74.00
Nueva Ecija	18.80	6.20	75.00
Leyte			100.00
Davao del Norte	21.70	8.70	69.60

Table 43. Distribution of inbred farmers who formerly planted / have not planted hybrid seed selected provinces, Philippines, July 2004 - June 2006

PROVINCE	NUMBER OF INBRED SAMPLES	PERCENTAGE OF INBRED SEED USERS	
		HAVE PLANTED HYBRID SEEDS	HAVE NOT PLANTED HYBRID SEEDS
All 3 Provinces	420	15.20	84.80
Nueva Ecija	160	11.20	88.80
Leyte	180	12.20	87.80
Davao del Norte	80	30.00	70.00

Table 44. Percentage of inbred seed users by reason for not trying hybrid in the past, selected provinces, Philippines, July 2004 - June 2005

PROVINCE	TYPE OF REASON						
	HIGH COST OF SEEDS AND OTHER INPUTS	LACK OF KNOWLEDGE ON HYBRID TECHNOLOG	LABOR INTENSIVE	UNAVAILABILITY OF SEEDS	AREA NOT SUITABLE TO HYBRID	FINANCIAL PROBLEM	UNAWARE / REASON NOT STATED
All 3 Provinces	31.10	11.10	17.80	11.10	15.60	11.10	6.70
Nueva Ecija	12.50	18.80	37.50		12.50	18.80	6.20
Leyte	42.90		9.50	19.00	19.00	4.80	4.80
Davao del Norte	37.50	25.00		12.50	12.50	12.50	12.50

Table 45. Percentage distribution of inbred seed users formerly using hybrid seeds by length of time using hybrid seeds, selected provinces, Philippines, July 2004 - June 2005

PROVINCE	LENGTH OF USE (number of years)			
	1	2	3	4
All 3 Provinces	84.40	6.20	4.70	4.70
Nueva Ecija	83.30	5.60	11.10	
Leyte	90.90	4.60	4.50	
Davao del Norte	79.20	8.30		12.50

Table 46. Percentage of inbred seeds users (formerly using hybrid seeds) by reason for shifting to inbred seeds, selected provinces, Philippines, July 2004 - June 2005

PROVINCE	TYPE OF REASON						
	AVAILABILITY OF SEEDS	LOW COSTS OF MATERIAL INPUTS AND MAINTENANCE	LESS LABOR NEEDED	BAD EXPERIENCE WITH HYBRID	BETTER ADAPTABILITY TO WEATHER AND SOIL CONDITIONS	YIELD PERFORMANCE	NO REASON GIVEN
All 3 Provinces	7.80	32.80	15.60	9.40	20.30	7.80	6.20
Nueva Ecija		22.20	27.80	19.70	16.70		16.70
Leyte	18.20	22.70	9.10	9.10	22.70	13.60	4.60
Davao del Norte	4.20	50.00	12.50	4.20	20.80	8.30	6.30

Table 47. **Irrigated Farms**: Average costs and returns of palay production per hectare by seed type and class, Nueva Ecija, last complete cropping, July 2004 - June 2005

ITEM	UNIT	HYBRID		INBRED - MODERN			
				CERTIFIED		FARMERS' SEEDS	
		QUANTITY	VALUE (P)	QUANTITY	VALUE (P)	QUANTITY	VALUE (P)
Total number of samples		80		63		64	
Production	kg.	7,188	78,147	5,849	64,309	4,231	45,382
Area harvested	ha.	1.464		1.816		1.684	
CASH COSTS			**19,880**		**16,724**		**15,428**
Seeds	kg.	25.26	1,562	102.80	1,566	40.00	476
Organic fertilizer	kg.	35.60	138	17.92	35		
Inorganic fertilizer							
Solid	kg.	365.56	5,562	341.37	5,122	299.75	4,632
Liquid	li.					a/	2
Soil Ameliorants							
Solid	kg.					2.78	22
Liquid	li.			0.03	5	0.02	6
Pesticides							
Solid	kg.	0.87	182	1.66	289	1.12	294
Liquid	li.	1.77	949	1.27	695	1.77	1,132
Hired labor	manday	28.49	6,500	20.81	4,774	17.03	4,396
Land tax			154		181		89
Rentals:							
Machine			58		42		
Animal			39		34		43
Tools and equipment			4				6
Fuel and oil			1,355		976		872
Transport cost			76		49		64
Irrigation fee			497		1,067		788
Interest payment on crop loan			560		468		708
Food expense			964		654		596
Repairs			1,131		724		956
Sacks and tying materials, etc.			149		43		346
NON-CASH COSTS			**17,351**		**15,914**		**12,639**
Seeds	kg.			3.93	59	116.37	1,400
Harvesters' share	kg.	618.82	6,823	486.45	5,417	403.12	4,338
Threshers' share	kg.	469.84	5,068	360.13	4,024	272.11	2,925
Hired labor paid in kind	manday	7.00	2,757	10.69	4,219	5.07	1,694
Landowner's share	kg.	43.08	477	60.59	640	65.14	688
Lease rental	kg	203.00	2,151	140.72	1,465	134.71	1,382
Irrigation fee	kg	3.93	42	2.29	24	9.65	101
Rentals:							
Machine	kg	3.17	33	1.50	16	2.51	26
Interest payment on crop loan	kg.			4.72	50	8.06	85
IMPUTED COSTS			**8,355**		**7,670**		**7,241**
Operator labor	manday	7.12	1,104	4.70	724	5.72	903
Family labor	manday	4.77	763	4.21	620	7.66	1,171
Exchange labor	manday	1.44	227	0.58	93	1.78	277
Depreciation			953		465		563
Interest on operating capital			2,383		1,998		1,754
Rental value of owned land			2,925		3,770		2,573
TOTAL COSTS			**45,586**		**40,308**		**35,308**
GROSS RETURNS			78,147		64,309		45,382
RETURNS ABOVE CASH COSTS			58,267		47,585		29,955
RETURNS ABOVE CASH AND NON-CASH COSTS			40,916		31,670		17,315
NET RETURNS			32,561		24,000		10,074
NET PROFIT-COST RATIO			0.71		0.60		0.29
COST PER KILOGRAM			6.34		6.89		8.35

a/ Less than 0.01

Table 48. **Irrigated Farms**: Average variable and fixed costs of palay production per hectare by seed type and class, Nueva Ecija, last complete cropping, July 2004 - June 2005

(peso)

ITEM	SEED TYPE AND CLASS		
	HYBRID	INBRED - MODERN	
		CERTIFIED	FARMERS' SEEDS
VARIABLE COSTS	**36,460**	**31,911**	**28,154**
Seeds	1,562	1,625	1,876
Organic fertilizer			
Solid	138	35	
Inorganic fertilizer			
Solid	5,562	5,122	4,632
Liquid			2
Soil ameliorants			
Solid			22
Liquid		5	6
Pesticides			
Solid	182	289	294
Liquid	949	695	1,132
Labor			
Hired Labor	9,257	8,993	6,090
Operator Labor	1,104	724	903
Family Labor	763	620	1,171
Exchange Labor	227	93	277
Rentals: machine, animal, tools & equipment	134	92	75
Fuel & oil	1,355	976	872
Transport cost	76	49	64
Irrigation fee	539	1,091	889
Food expense	964	654	596
Repairs	1,131	724	956
Harvesters' share	6,823	5,417	4,338
Threshers' share	5,068	4,024	2,925
Landowner's share	477	640	688
Sacks and tying materials	149	43	346
FIXED COSTS	**9,126**	**8,397**	**7,154**
Land tax	154	181	89
Lease rental	2,151	1,465	1,382
Interest payment on crop loan	560	518	793
Depreciation	953	465	563
Interest on operating capital	2,383	1,998	1,754
Rental value of owned land	2,925	3,770	2,573
TOTAL COSTS	**45,586**	**40,308**	**35,308**

Table 49. **Rainfed Farms**: Average costs and returns of palay production per hectare by seed type and class, Nueva Ecija, last complete cropping, July 2004 - June 2005

ITEM	UNIT	INBRED - MODERN			
		CERTIFIED		FARMERS' SEEDS	
		QUANTITY	VALUE (P)	QUANTITY	VALUE (P)
Total number of samples		17		16	
Production	kg.	3,795	40,121	3,574	36,725
Area harvested	ha.	2.135		1.666	
CASH COSTS			**13,171**		**11,968**
Seeds	kg.	121.76	1,828	68.67	962
Inorganic fertilizer	kg.	296.14	4,385	325.33	4,485
Pesticides					
Solid	kg.	0.37	152	1.01	59
Liquid	li.	1.52	944	1.93	1,410
Hired labor	manday	7.15	2,294	9.85	3,683
Land tax			256		42
Fuel and oil			471		359
Transport cost			57		13
Interest payment on crop loan			435		263
Food expense			264		426
Repairs			2,060		266
Sacks and tying materials, etc.			25		
NON-CASH COSTS			**7,210**		**10,372**
Seeds	kg.			88.93	1,001
Harvesters' share	kg.	382.59	4,052	337.82	3,503
Threshers' share	kg.	220.12	2,320	220.57	2,265
Hired labor paid in kind	manday			2.04	832
Landowner's share	kg.	62.81	658		
Lease rental	kg	14.33	151	220.83	2,250
Rentals:					
Animal	kg			3.75	38
Interest payment on crop loan	kg.	2.75	29	47.35	483
IMPUTED COSTS			**9,450**		**7,088**
Operator labor	manday	9.93	1,641	14.57	2,553
Family labor	manday	15.66	2,613	6.61	1,066
Exchange labor	manday	1.06	163	4.77	872
Depreciation			1,208		451
Interest on operating capital			1,537		1,696
Rental value of owned land			2,288		450
TOTAL COSTS			**29,831**		**29,428**
GROSS RETURNS			40,121		36,725
RETURNS ABOVE CASH COSTS			26,950		24,757
RETURNS ABOVE CASH AND NON-CASH COSTS			19,740		14,385
NET RETURNS			10,290		7,297
NET PROFIT-COST RATIO			0.34		0.25
COST PER KILOGRAM			7.86		8.23

Table 50. **Rainfed Farms**: Average variable and fixed costs of palay production per hectare by seed type and class, Nueva Ecija, last complete cropping, July 2004 - June 2005

(peso)

ITEM	INBRED - MODERN	
	CERTIFIED	FARMERS' SEEDS
VARIABLE COSTS	**23,927**	**23,793**
Seeds	1,828	1,963
Inorganic fertilizer		
Solid	4,385	4,485
Pesticides		
Solid	152	59
Liquid	944	1,410
Labor		
Hired Labor	2,294	4,515
Operator Labor	1,641	2,553
Family Labor	2,613	1,066
Exchange Labor	163	872
Rentals: animal		38
Fuel & oil	471	359
Transport cost	57	13
Food expense	264	426
Repairs	2,060	266
Harvesters' share	4,052	3,503
Threshers' share	2,320	2,265
Landowner's share	658	
Sacks and tying materials	25	
FIXED COSTS	**5,904**	**5,635**
Land tax	256	42
Lease rental	151	2,250
Interest payment on crop loan	464	746
Depreciation	1,208	451
Interest on operating capital	1,537	1,696
Rental value of owned land	2,288	450
TOTAL COSTS	**29,831**	**29,428**

Table 51. **Irrigated Farms**: Average costs and returns of palay production per hectare by seed type and class, Leyte, last complete cropping, July 2004 - June 2005

ITEM	UNIT	HYBRID		INBRED - MODERN			
				CERTIFIED		FARMERS' SEEDS	
		QUANTITY	VALUE (P)	QUANTITY	VALUE (P)	QUANTITY	VALUE (P)
Total number of samples		90		81		62	
Production	kg.	5,860	61,880	4,504	44,214	3,774	36,544
Area harvested	ha.	1.288		1.083		1.313	
CASH COSTS			**16,258**		**14,296**		**10,664**
Seeds	kg.	20.47	821	60.76	747		
Organic fertilizer	kg.	221.65	845	7.98	40		
Inorganic fertilizer							
Solid	kg.	194.70	3,276	182.86	3,043	144.16	2,282
Liquid	li.	0.35	48	0.64	59	0.30	47
Pesticides							
Solid	kg.	1.75	349	0.83	151	0.24	75
Liquid	li.	1.28	691	1.72	1,037	1.12	599
Hired labor	manday	38.57	6,693	36.92	7,315	31.36	5,268
Land tax			103		48		31
Rentals:							
Machine			136		18		32
Animal			11		29		23
Tools and equipment			1				
Fuel and oil			865		163		508
Transport cost			136		68		82
Irrigation fee			974		218		245
Interest payment on crop loan			220		152		37
Food expense			558		1,008		968
Repairs			406		167		417
Sacks and tying materials, etc.			125		33		50
NON-CASH COSTS			**17,010**		**14,980**		**12,493**
Seeds	kg.			3.08	76	68.33	689
Harvesters' share	kg.	505.76	5,304	460.88	4,527	253.07	2,445
Threshers' share	kg.	375.37	3,990	198.49	1,936	116.94	1,112
Hired labor in kind	manday	6.34	3,533	0.59	91	2.19	374
Landowner's share	kg.	235.67	2,414	415.75	4,123	519.18	4,920
Lease rental	kg	110.90	1,142	116.98	1,106	66.23	628
Irrigation fee	kg	1.91	20	34.22	331	20.23	190
Rentals:							
Machine	kg	26.31	270	94.79	922	53.06	505
Tools and equipment	kg.	9.83	101			13.77	130
Interest payment on crop loan	kg.	22.83	236	196.46	1,868	158.43	1,500
IMPUTED COSTS			**8,225**		**4,585**		**4,292**
Operator labor	manday	4.18	470	6.38	826	6.40	759
Family labor	manday	2.77	397	2.30	265	5.40	550
Exchange labor	manday	0.05	5	0.05	6	0.05	5
Depreciation			477		246		350
Interest on operating capital			2,036		1,983		1,323
Rental value of owned land			4,840		1,259		1,305
TOTAL COSTS			**41,493**		**33,861**		**27,449**
GROSS RETURNS			61,880		44,214		36,544
RETURNS ABOVE CASH COSTS			45,622		29,918		25,880
RETURNS ABOVE CASH AND NON-CASH COSTS			28,612		14,938		13,387
NET RETURNS			20,387		10,353		9,095
NET PROFIT-COST RATIO			0.49		0.31		0.33
COST PER KILOGRAM			7.08		7.52		7.27

Table 52. **Irrigated Farms**: Average variable and fixed costs of palay production per hectare by seed type and class, Leyte, last complete cropping, July 2004 - June 2005

(peso)

ITEM	SEED TYPE AND CLASS		
	HYBRID	INBRED - MODERN	
		CERTIFIED	FARMERS' SEEDS
VARIABLE COSTS	**32,439**	**27,199**	**22,275**
Seeds	821	823	689
Organic fertilizer			
Solid	845	40	
Inorganic fertilizer			
Solid	3,276	3,043	2,282
Liquid	48	59	47
Pesticides			
Solid	349	151	75
Liquid	691	1,037	599
Labor			
Hired Labor	10,226	7,406	5,642
Operator Labor	470	826	759
Family Labor	397	265	550
Exchange Labor	5	6	5
Rentals: machine, animal, tools & equipment	519	969	690
Fuel & oil	865	163	508
Transport cost	136	68	82
Irrigation fee	994	549	435
Food expense	558	1,008	968
Repairs	406	167	417
Harvesters' share	5,304	4,527	2,445
Threshers' share	3,990	1,936	1,112
Landowner's share	2,414	4,123	4,920
Sacks and tying materials	125	33	50
FIXED COSTS	**9,054**	**6,662**	**5,174**
Land tax	103	48	31
Lease rental	1,142	1,106	628
Interest payment on crop loan	456	2,020	1,537
Depreciation	477	246	350
Interest on operating capital	2,036	1,983	1,323
Rental value of owned land	4,840	1,259	1,305
TOTAL COSTS	**41,493**	**33,861**	**27,449**

Table 53. **Rainfed Farms**: Average costs and returns of palay production per hectare by seed type and class, Leyte, last complete cropping, July 2004 - June 2005

ITEM	UNIT	INBRED - MODERN			
		CERTIFIED		FARMERS' SEEDS	
		QUANTITY	VALUE (P)	QUANTITY	VALUE (P)
Total number of samples		7		30	
Production	kg.	3,784	36,715	3,022	29,859
Area harvested	ha.	0.821		0.765	
CASH COSTS			**10,558**		**9,330**
Seeds	kg.	59.13	779		
Inorganic fertilizer					
Solid	kg.	126.09	1,818	119.30	2,084
Liquid	li.	0.65	92	0.09	10
Pesticides					
Solid	kg.	0.08	39	0.38	91
Liquid	li.	2.00	1,081	1.12	558
Hired labor	manday	29.64	5,554	30.39	4,760
Land tax			13		75
Rentals:					
Animal					17
Fuel and oil			46		163
Transport cost					96
Interest payment on crop loan					52
Food expense			1,070		1,028
Repairs			30		345
Sacks and tying materials, etc.			36		51
NON-CASH COSTS			**10,746**		**8,791**
Seeds	kg.			72.31	673
Harvesters' share	kg.	413.75	3,969	196.00	1,920
Threshers' share	kg.	91.94	877	168.91	1,714
Hired labor in kind	manday			3.80	488
Landowner's share	kg.	132.17	1,270	324.05	3,233
Lease rental	kg	331.13	3,159	4.36	44
Rentals:					
Machine	kg	155.05	1,471	7.87	75
Tools and equipment	kg.			10.68	101
Interest payment on crop loan	kg.			56.91	543
IMPUTED COSTS			**3,284**		**5,248**
Operator labor	manday	6.09	744	7.21	943
Family labor	manday	1.86	182	4.59	644
Exchange labor	manday			0.26	26
Depreciation			164		190
Interest on operating capital			1,498		1,201
Rental value of owned land			696		2,244
TOTAL COSTS			**24,588**		**23,369**
GROSS RETURNS			36,715		29,859
RETURNS ABOVE CASH COSTS			26,157		20,529
RETURNS ABOVE CASH AND NON-CASH COSTS			15,411		11,738
NET RETURNS			12,127		6,490
NET PROFIT-COST RATIO			0.49		0.28
COST PER KILOGRAM			6.50		7.73

Table 54. **Rainfed Farms**: Average variable and fixed costs of palay production per hectare by seed type and class, Leyte, last complete cropping, July 2004 - June 2005

(peso)

ITEM	INBRED - MODERN	
	CERTIFIED	FARMERS' SEEDS
VARIABLE COSTS	**19,058**	**19,020**
Seeds	779	673
Inorganic fertilizer		
Solid	1,818	2,084
Liquid	92	10
Pesticides		
Solid	39	91
Liquid	1,081	558
Labor		
Hired Labor	5,554	5,248
Operator Labor	744	943
Family Labor	182	644
Exchange Labor		26
Rentals: machine, animal, tools & equipment	1,471	193
Fuel & oil	46	163
Transport cost		96
Food expense	1,070	1,028
Repairs	30	345
Harvesters' share	3,969	1,920
Threshers' share	877	1,714
Landowner's share	1,270	3,233
Sacks and tying materials	36	51
FIXED COSTS	**5,530**	**4,349**
Land tax	13	75
Lease rental	3,159	44
Interest payment on crop loan		595
Depreciation	164	190
Interest on operating capital	1,498	1,201
Rental value of owned land	696	2,244
TOTAL COSTS	**24,588**	**23,369**

Table 55. **Irrigated Farms**: Average costs and returns of palay production per hectare by seed type and class, Davao del Norte, last complete cropping, July 2004 - June 2005

ITEM	UNIT	HYBRID		INBRED - MODERN			
				CERTIFIED		FARMERS' SEEDS	
		QUANTITY	VALUE (P)	QUANTITY	VALUE (P)	QUANTITY	VALUE (P)
Total number of samples		40		40		30	
Production	kg.	6,149	74,765	5,208	61,465	4,390	52,084
Area harvested	ha.	1.101		1.500		1.509	
CASH COSTS			**16,530**		**15,464**		**12,543**
Seeds	kg.	21.34	1,583	56.09	948		
Organic fertilizer	kg.	47.11	241	1.67	7	16.57	57
Inorganic fertilizer							
Solid	kg.	264.30	3,575	274.35	3,671	198.70	2,707
Liquid	li.	1.00	146	0.32	38	0.93	126
Soil Ameliorants	kg.	0.23	5	0.17	4		
Pesticides							
Solid	kg.	5.64	853	5.52	490	0.80	408
Liquid	li.	2.14	1,197	3.12	1,915	2.57	1,414
Hired labor	manday	30.72	4,208	30.48	4,268	28.56	3,898
Land tax			105		70		138
Rentals:							
Machine			45				68
Animal			12		14		50
Tools and equipment			9		1		4
Fuel and oil			669		524		590
Transport cost			85		62		45
Irrigation fee			1,312		1,268		1,294
Interest payment on crop loan			631		323		310
Food expense			1,430		1,120		807
Repairs			218		533		486
Others:							
Interest rates on farm input					8		13
Sacks and tying materials, etc.			206		200		128
NON-CASH COSTS			**17,308**		**14,550**		**16,234**
Seeds	kg.					81.89	952
Harvesters' share	kg.	455.83	5,483	395.45	4,668	356.93	4,232
Threshers' share	kg.	382.31	4,592	340.78	3,983	326.27	3,917
Hired labor paid in kind	manday	1.91	1,268	2.84	2,218	3.74	2,076
Landowner's share	kg.	376.55	4,659	301.26	3,545	386.87	4,700
Lease rental	kg	60.11	708				
Irrigation fee	kg					8.50	99
Rentals:							
Machine	kg	50.89	598	10.81	125	16.48	187
Interest payment on crop loan	kg.			0.88	11	6.19	71
IMPUTED COSTS			**8,979**		**8,092**		**5,436**
Operator labor	manday	8.28	1,104	5.23	684	7.41	985
Family labor	manday	4.98	533	2.20	233	5.11	565
Exchange labor	manday	0.07	11	0.03	3	0.11	13
Depreciation			551		452		316
Interest on operating capital			1,889		1,814		1,378
Rental value of owned land			4,891		4,906		2,179
TOTAL COSTS			**42,817**		**38,106**		**34,213**
GROSS RETURNS			74,765		61,465		52,084
RETURNS ABOVE CASH COSTS			58,235		46,001		39,541
RETURNS ABOVE CASH AND NON-CASH COSTS			40,927		31,451		23,306
NET RETURNS			31,948		23,359		17,870
NET PROFIT-COST RATIO			0.75		0.61		0.52
COST PER KILOGRAM			6.96		7.32		7.79

Table 56. **Irrigated Farms**: Average variable and fixed costs of palay production per hectare by seed type and class, Davao del Norte, last complete cropping, July 2004 - June 2005

(peso)

ITEM	SEED TYPE AND CLASS		
	HYBRID	INBRED - MODERN	
		CERTIFIED	FARMERS' SEEDS
VARIABLE COSTS	**34,042**	**30,522**	**29,808**
Seeds	1,583	948	952
Organic fertilizer			
Solid	241	7	57
Inorganic fertilizer			
Solid	3,575	3,671	2,707
Liquid	146	38	126
Soil ameliorants			
Solid	5	4	
Pesticides			
Solid	853	490	408
Liquid	1,197	1,915	1,414
Labor			
Hired Labor	5,476	6,486	5,974
Operator Labor	1,104	684	985
Family Labor	533	233	565
Exchange Labor	11	3	13
Rentals: machine, animal, tools & equipment	664	140	309
Fuel & oil	669	524	590
Transport cost	85	62	45
Irrigation fee	1,312	1,268	1,393
Food expense	1,430	1,120	807
Repairs	218	533	486
Harvesters' share	5,483	4,668	4,232
Threshers' share	4,592	3,983	3,917
Landowner's share	4,659	3,545	4,700
Sacks and tying materials	206	200	128
FIXED COSTS	**8,775**	**7,584**	**4,405**
Land tax	105	70	138
Lease rental	708		
Interest payment on crop loan	631	334	381
Interest rates on farm input		8	13
Depreciation	551	452	316
Interest on operating capital	1,889	1,814	1,378
Rental value of owned land	4,891	4,906	2,179
TOTAL COSTS	**42,817**	**38,106**	**34,213**

Table 57. **Upland Farms**: Average costs and returns of palay production per hectare, Inbred-Modern Farmers' seeds, Davao del Norte, last complete cropping, July 2004 - June 2005

ITEM	UNIT	QUANTITY	VALUE (P)
Total number of samples		10	
Production	kg.	1,610	22,842
Area harvested	ha.	0.775	
CASH COSTS			**4,707**
Hired labor	manday	26.91	3,605
Food expense			932
Sacks and tying materials, etc.			170
NON-CASH COSTS			**7,062**
Seeds	kg.	50.65	631
Harvesters' share	kg.	193.17	2,766
Threshers' share	kg.	241.47	3,393
Hired labor paid in kind	manday	1.16	272
IMPUTED COSTS			**4,371**
Operator labor	manday	7.28	947
Family labor	manday	9.45	1,098
Exchange labor	manday	12.55	1,629
Depreciation			120
Interest on operating capital			577
TOTAL COSTS			**16,140**
GROSS RETURNS			22,842
RETURNS ABOVE CASH COSTS			18,136
RETURNS ABOVE CASH AND NON-CASH COSTS			11,074
NET RETURNS			6,702
NET PROFIT-COST RATIO			0.42
COST PER KILOGRAM			10.03

Table 58. **Upland Farms**: Average variable and fixed costs of palay production per hectare, Inbred-Modern Farmers' seeds, Davao del Norte, last complete cropping, July 2004 - June 2005

(peso)

ITEM	VALUE
VARIABLE COSTS	**15,443**
Seeds	631
Labor	
Hired Labor	3,877
Operator Labor	947
Family Labor	1,098
Exchange Labor	1,629
Food expense	932
Harvesters' share	2,766
Threshers' share	3,393
Sacks and tying materials	170
FIXED COSTS	**697**
Depreciation	120
Interest on operating capital	577
TOTAL COSTS	**16,140**

Table 59. **Irrigated Farms**: Average costs and returns of palay production per hectare by seed type and class, by province, Philippines, last complete cropping, July 2004 - June 2005

(peso)

ITEM	NUEVA ECIJA			LEYTE			DAVAO DEL NORTE		
	HYBRID	INBRED - MODERN		HYBRID	INBRED - MODERN		HYBRID	INBRED - MODERN	
		CERTIFIED	FARMERS' SEEDS		CERTIFIED	FARMERS' SEEDS		CERTIFIED	FARMERS' SEEDS
Cash costs	19,880	16,724	15,428	16,258	14,296	10,664	16,530	15,464	12,543
Non-cash costs	17,351	15,914	12,639	17,010	14,980	12,493	17,308	14,550	16,234
Imputed costs	8,355	7,670	7,241	8,225	4,585	4,292	8,979	8,092	5,436
Total costs	45,586	40,308	35,308	41,493	33,861	27,449	42,817	38,106	34,213
Average yield (kg./ha.)	7,188	5,849	4,231	5,860	4,504	3,774	6,149	5,208	4,390
Gross Returns	78,147	64,309	45,382	61,880	44,214	36,544	74,765	61,465	52,084
Returns above cash costs	58,267	47,585	29,955	45,622	29,918	25,880	58,235	46,001	39,541
Returns above cash and non-cash costs	40,916	31,670	17,315	28,612	14,938	13,387	40,927	31,451	23,306
Net returns	32,561	24,000	10,074	20,387	10,353	9,095	31,948	23,359	17,870
Net profit-cost ratio	0.71	0.60	0.29	0.49	0.31	0.33	0.75	0.61	0.52
Cost per kilogram	6.34	6.89	8.35	7.08	7.52	7.27	6.96	7.32	7.79

Table 60. **Rainfed Farms**: Average costs and returns of palay production per hectare by seed type and class, by province, Philippines, last complete cropping, July 2004 - June 2005

(peso)

ITEM	NUEVA ECIJA		LEYTE	
	INBRED - MODERN		INBRED - MODERN	
	CERTIFIED	FARMERS' SEEDS	CERTIFIED	FARMERS' SEEDS
Cash costs	13,171	11,968	10,558	9,330
Non-cash costs	7,210	10,372	10,746	8,791
Imputed costs	9,450	7,088	3,284	5,248
Total costs	29,831	29,428	24,588	23,369
Average yield (kg./ha.)	3,795	3,574	3,784	3,022
Gross Returns	40,121	36,725	36,715	29,859
Returns above cash costs	26,950	24,757	26,157	20,529
Returns above cash and non-cash costs	19,740	14,385	15,411	11,738
Net returns	10,290	7,297	12,127	6,490
Net profit-cost ratio	0.34	0.25	0.49	0.28
Cost per kilogram	7.86	8.23	6.50	7.73

ANNEXES

Annex Table 1. **Irrigated Farms**: Average quantity of organic fertilizers applied per hectare by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005 a/

(kilogram)

PROVINCE/ SEED TYPE AND CLASS	ORGANIC FERTILIZER							
	TOTAL	SAGANA 100	GUANO	CHICKEN DUNG	V-4 (2-4-2)	COCORICH (2-4-2)	PROVIDER (1-1-1)	OTHERS b/
Nueva Ecija	**18.33**	**2.36**	**1.77**	**4.92**			**7.81**	**1.47**
Hybrid	35.60		3.07	5.64			22.63	4.27
Inbred - Modern Certified	17.92	6.99	2.10	8.83				
Inbred - Modern Farmers' seeds								
Leyte	**93.93**			**27.75**	**62.09**			**4.09**
Hybrid	223.58			67.86	151.81			3.91
Inbred - Modern Certified	8.26							8.26
Inbred - Modern Farmers' seeds								
Davao del Norte	**19.59**		**3.35**			**12.39**		**3.85**
Hybrid	47.11					42.00		5.11
Inbred - Modern Certified	1.67							1.67
Inbred - Modern Farmers' seeds	16.57		11.05					5.52

a/ User only

b/ Include Probiotic, Organica 2000 (1.83-11.06-0.55), Crop Giant (8-8-8), Biogro (1.3-7-3), and Dura Bloom

Annex Table 2. **Irrigated Farms**: Average quantity of solid inorganic fertilizers applied per hectare by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005 a/

(kilogram)

PROVINCE/ SEED TYPE AND CLASS	INORGANIC FERTILIZER										
	TOTAL	UREA		AMMONIUM SULFATE (21-0-0)	AMMONIUM PHOSPATE (16-20-0)	COMPLETE			MURIATE OF POTASH (0-0-60)	17-0-17	OTHERS b/
		45-0-0	46-0-0			12-12-12	14-14-14	16-16-16			
Nueva Ecija	**336.50**	**5.01**	**116.49**	**11.82**	**51.80**	**2.06**	**138.67**	**0.44**	**1.77**	**5.31**	**3.13**
Hybrid	365.56	7.68	114.41	6.06	77.48	5.98	146.86			4.27	2.82
Inbred - Modern Certified	341.37	4.81	120.61	8.30	47.63		145.95		4.81	7.87	1.40
Inbred - Modern Farmers' seeds	299.75	2.32	114.39	21.81	28.31		122.04	1.39	0.46	3.71	5.32
Leyte	**179.14**	**22.02**	**63.96**	**1.00**	**6.14**	**2.85**	**41.63**	**9.07**	**12.72**		**19.75**
Hybrid	196.39	12.40	62.42		5.22	0.87	33.06	6.09	30.67		45.67
Inbred - Modern Certified	189.34	47.11	63.64	3.31	1.48	8.26	44.28	21.25			0.01
Inbred - Modern Farmers' seeds	144.16	9.52	66.46		12.29		50.98	0.61	0.61		3.69
Davao del Norte	**248.45**		**84.48**	**56.20**	**28.47**		**42.36**		**21.77**	**6.87**	**8.31**
Hybrid	264.30		95.52	55.62	14.76		36.89		28.38	15.32	17.82
Inbred - Modern Certified	274.35		77.60	43.34	57.51		65.85		25.84	4.17	0.05
Inbred - Modern Farmers' seeds	198.70		82.85	73.80	3.31		16.57		9.94	2.21	10.01

a/ User only

b/ Include 17-7-17, Di-Ammonium Phosphate (18-46-0), 20-10-0, Crop Giant (15-30-0), Plant Vitamin (15-15-30), Top Grow (0.50-0-2.04), Grow More (10-50-10), Multi-K (13-0-46), and 2N-1

Annex Table 3. **Rainfed Farms**: Average quantity of solid inorganic fertilizers applied per hectare by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005 a/

(kilogram)

PROVINCE/ SEED TYPE AND CLASS	INORGANIC FERTILIZER								
	TOTAL	UREA		AMMONIUM SULFATE (21-0-0)	AMMONIUM PHOSPATE (16-20-0)	COMPLETE		MURIATE OF POTASH (0-0-60)	17-0-17
		45-0-0	46-0-0			14-14-14	16-16-16		
Nueva Ecija	**308.50**	**3.18**	**65.93**	**3.97**	**32.57**	**197.30**		**3.97**	**1.59**
Hybrid									
Inbred - Modern Certified	296.14		57.85	4.13	26.17	201.10		6.89	
Inbred - Modern Farmers' seeds	325.33	7.50	76.92	3.75	41.28	192.12			3.75
Leyte	**126.16**	**10.02**	**68.78**	**1.82**	**10.93**	**29.14**	**5.46**		
Hybrid									
Inbred - Modern Certified	131.82	40.91	36.36			27.27	27.27		
Inbred - Modern Farmers' seeds	124.74	2.28	76.90	2.28	13.67	29.61			
Davao del Norte									
Hybrid									
Inbred - Modern Certified									
Inbred - Modern Farmers' seeds									

a/ User only

Annex Table 4. **Irrigated Farms**: Average quantity of liquid inorganic fertilizers applied per hectare by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005 a/

(liter)

PROVINCE/ SEED TYPE AND CLASS	LIQUID INORGANIC FERTILIZER											
	TOTAL	FOLIAR (15-15-30)	MEGA YIELD (4-7-10)	SUPER HARVEST (7.97-3.39-1.14)	FREE GROW (0.10-0.20-1.02)	CROP GIANT (15-30-0)	AGROWELL (15-7-7)	AZ-41 (0.0025-0.00999-0.00139)	DI-AMMONIUM PHOSPHATE (18-46-0)	MAXI-GRAIN (3-0-0)	CALIGRO (3.35-0.25-0.60)	OTHERS b/
Nueva Ecija	**c/**					**c/**						
Hybrid												
Inbred - Modern Certified												
Inbred - Modern Farmers' seeds	c/					c/						
Leyte	**0.43**	**0.03**	**0.04**	**0.31**	**0.03**							**0.01**
Hybrid	0.35	0.07	0.10	0.10	0.08							
Inbred - Modern Certified	0.66	0.01		0.65								
Inbred - Modern Farmers' seeds	0.30			0.25								0.05
Davao del Norte	**0.70**	**0.06**	**0.23**			**0.08**	**0.18**	**0.04**	**0.04**	**0.01**	**0.05**	**0.01**
Hybrid	1.00		0.14			0.14	0.27	0.14	0.14	0.02	0.16	
Inbred - Modern Certified	0.32		0.02			0.08	0.18					0.03
Inbred - Modern Farmers' seeds	0.93	0.19	0.60			0.02	0.09			0.02		

a/ User only

b/ Include Biotrisol (7-4-4), Nitrofert (9.93-5.2-3.2), Restorer (7.64-0.03-12.55), and Algafer (11-3-4)

c/ Less than 0.01 liter

Annex Table 5. **Rainfed Farms**: Average quantity of liquid inorganic fertilizers applied per hectare by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005 a/

(liter)

PROVINCE / SEED TYPE AND CLASS	LIQUID INORGANIC FERTILIZER		
	TOTAL	SUPER HARVEST (7.97-3.39-1.14)	RESTORER (7.64-0.03-12.55)
Nueva Ecija			
Hybrid			
Inbred - Modern Certified			
Inbred - Modern Farmers' seeds			
Leyte	**0.21**	**0.18**	**0.03**
Hybrid			
Inbred - Modern Certified	0.68	0.55	0.14
Inbred - Modern Farmers' seeds	0.09	0.09	
Davao del Norte			
Hybrid			
Inbred - Modern Certified			
Inbred - Modern Farmers' seeds			

a/ User only

Annex Table 6. Average quantity of solid fertilizer nutrients applied per hectare by seed type and class, and farm type, selected provinces, Philippines, last complete cropping, July 2004 - June 2005 a/

(kilogram)

PROVINCE/ SEED TYPE AND CLASS	IRRIGATED FARMS			RAINFED FARMS			ALL FARM TYPES		
	NITROGEN	PHOSPHORIC ACID	WATER SOLUBLE POTASH	NITROGEN	PHOSPHORIC ACID	WATER SOLUBLE POTASH	NITROGEN	PHOSPHORIC ACID	WATER SOLUBLE POTASH
Nueva Ecija	**87.87**	**30.99**	**21.86**	**62.90**	**30.64**	**30.27**	**83.96**	**30.94**	**23.17**
Hybrid	92.58	37.77	22.47				92.58	37.77	22.47
Inbred - Modern Certified	89.05	30.12	24.65	59.82	33.39	32.29	82.01	30.90	26.49
Inbred - Modern Farmers' seeds	81.51	24.57	18.22	67.08	26.90	27.53	78.65	25.03	20.07
Leyte	**52.56**	**19.44**	**16.50**	**43.23**	**7.14**	**4.95**	**51.73**	**18.34**	**15.47**
Hybrid	51.62	32.63	27.14				51.62	32.63	27.14
Inbred - Modern Certified	62.00	10.89	10.59	43.32	8.18	8.18	60.86	10.72	10.45
Inbred - Modern Farmers' seeds	44.06	9.69	7.60	43.21	6.88	4.15	43.88	9.10	6.87
Davao del Norte	**63.78**	**12.86**	**21.70**				**63.78**	**12.86**	**21.70**
Hybrid	70.14	11.61	28.27				70.14	11.61	28.27
Inbred - Modern Certified	63.96	20.92	25.44				63.96	20.92	25.44
Inbred - Modern Farmers' seeds	57.35	3.40	10.36				57.35	3.40	10.36

a/ User only

Annex Table 7. Average quantity of liquid fertilizer nutrients applied per hectare by seed type and class, and farm type, selected provinces, Philippines, last complete cropping, July 2004 - June 2005 a/

(liter)

PROVINCE/ SEED TYPE AND CLASS	IRRIGATED FARMS			RAINFED FARMS			ALL FARM TYPES		
	NITROGEN	PHOSPHORIC ACID	WATER SOLUBLE POTASH	NITROGEN	PHOSPHORIC ACID	WATER SOLUBLE POTASH	NITROGEN	PHOSPHORIC ACID	WATER SOLUBLE POTASH
Nueva Ecija	**b/**	**b/**					**b/**	**b/**	
Hybrid									
Inbred - Modern Certified									
Inbred - Modern Farmers' seeds	b/	b/					b/	b/	
Leyte	**0.03**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.03**	**0.02**	**0.02**
Hybrid	0.02	0.02	0.03				0.02	0.02	0.03
Inbred - Modern Certified	0.05	0.02	0.01	0.05	0.02	0.02	0.05	0.02	0.01
Inbred - Modern Farmers' seeds	0.02	0.01	0.01	0.01	b/	b/	0.02	0.01	b/
Davao del Norte	**0.07**	**0.08**	**0.05**				**0.07**	**0.08**	**0.05**
Hybrid	0.10	0.13	0.03				0.10	0.13	0.03
Inbred - Modern Certified	0.04	0.04	0.02				0.04	0.04	0.02
Inbred - Modern Farmers' seeds	0.07	0.08	0.12				0.07	0.08	0.12

a/ User only

b/ Less than 0.01 liter

Annex Table 8. **Irrigated Farms**: Average quantity of soil ameliorants used per hectare by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005 a/

PROVINCE / SEED TYPE AND CLASS	SOIL AMELIORANTS	
	ZINC SULFATE (kg)	ZINC METALATE (li)
Nueva Ecija	**26.79**	**0.54**
Hybrid		
Inbred - Modern Certified		0.53
Inbred - Modern Farmers' seeds	81.08	0.54
Leyte		
Hybrid		
Inbred - Modern Certified		
Inbred - Modern Farmers' seeds		
Davao del Norte	**4.44**	
Hybrid	10.00	
Inbred - Modern Certified	2.86	
Inbred - Modern Farmers' seeds		

a/ User only

Annex Table 9. **Irrigated Farms**: Average quantity of pesticides applied per hectare by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005 a/

PROVINCE/ SEED TYPE AND CLASS	INSECTICIDES		HERBICIDES / WEEDICIDES		FUNGICIDES		RODENTICIDES		MOLLUSCICIDES		ALL PESTICIDES	
	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)
Nueva Ecija	**0.46**	**0.74**	**0.10**	**0.87**	**0.13**		**0.02**		**0.59**	**0.11**	**1.30**	**1.71**
Hybrid	0.31	0.85	0.27	0.81	0.05		0.01		0.24	0.14	0.88	1.80
Inbred - Modern Certified	0.90	0.68		0.81			0.01		1.11	0.05	2.01	1.54
Inbred - Modern Farmers' seeds	0.23	0.67	0.01	0.98	0.33		0.05		0.49	0.12	1.12	1.77
Leyte	**0.23**	**0.80**	**0.39**	**0.52**	**0.01**	**0.03**	**0.02**	**0.03**	**0.43**	**0.05**	**1.08**	**1.42**
Hybrid	0.09	0.50	0.90	0.74	0.03	0.04	0.03	0.04	0.76	b/	1.82	1.33
Inbred - Modern Certified	0.62	1.07	0.08	0.57		0.01	0.02	0.01	0.15	0.12	0.86	1.78
Inbred - Modern Farmers' seeds		0.93	b/	0.16		0.01	b/	0.01	0.25	0.05	0.25	1.17
Davao del Norte	**3.68**	**1.52**	**0.02**	**0.82**	**0.26**	**0.05**	**0.03**	**0.01**	**0.20**	**0.30**	**4.18**	**2.70**
Hybrid	4.64	0.95	0.02	0.93	0.67	0.07	0.02		0.28	0.20	5.64	2.14
Inbred - Modern Certified	5.26	1.89	0.02	0.84	0.08	0.05	0.03	0.03	0.13	0.31	5.52	3.12
Inbred - Modern Farmers' seeds	0.50	1.58	b/	0.68	0.09	0.04	0.02		0.22	0.38	0.84	2.69

a/ User only

b/ Less than 0.01

Annex Table 10. **Rainfed Farms**: Average quantity of pesticides applied per hectare by seed type and class, selected provinces, Philippines, last complete cropping, July 2004 - June 2005 a/

PROVINCE/ SEED TYPE AND CLASS	INSECTICIDES		HERBICIDES / WEEDICIDES		FUNGICIDES		RODENTICIDES		MOLLUSCICIDES		ALL PESTICIDES	
	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)	SOLID (kg)	LIQUID (li)
Nueva Ecija	**0.44**	**0.68**		**1.02**	**0.06**		**0.02**		**0.11**		**0.64**	**1.69**
Hybrid												
Inbred - Modern Certified	0.08	0.58		0.94	0.11		0.03		0.14		0.37	1.52
Inbred - Modern Farmers' seeds	0.94	0.81		1.13					0.08		1.01	1.93
Leyte		**0.76**		**0.65**			**0.01**		**0.34**	**0.02**	**0.35**	**1.43**
Hybrid												
Inbred - Modern Certified		0.91		1.09			0.04		0.03		0.08	2.00
Inbred - Modern Farmers' seeds		0.72		0.52					0.43	0.02	0.43	1.27
Davao del Norte												
Hybrid												
Inbred - Modern Certified												
Inbred - Modern Farmers' seeds												

a/ User only