

# Costs and Returns

## COSTS and RETURNS of

JULY 2007



# Onion Production



Department of Agriculture  
BUREAU OF AGRICULTURAL STATISTICS

## **FOREWORD**

This report presents the results of the Survey on the Costs and Returns of Onion Production conducted by the Bureau of Agricultural Statistics (BAS) in December 2006. The survey was designed to generate information on costs and returns of producing onion in the three (3) major producing provinces of Ilocos Norte, Pangasinan and Nueva Ecija.

In addition to the data on production costs and returns, this report presents the other socio-economic variables related to onion production. The reference period of the survey is the last completed production cycle in 2006.

This Costs and Returns Survey was conducted by the BAS to fulfill its commitments to provide information on farm profitability and farm income diversification. This was also intended to support the objectives of the Diversified Farm Income and Market Development Project (DFIMDP) of the Department of Agriculture (DA).

As in other BAS publications, we welcome comments and suggestions from data users and researchers for the improvement of our statistical products.

**ROMEO S. RECIDÉ**  
Director

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## EXPLANATORY NOTES

1. Average costs and returns of onion production were computed and presented as follows:

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

$$\text{Per farm} = \frac{\text{Total value of input (or output)}}{\text{Total number of farms}}$$

$$\text{Per kilogram} = \frac{\text{Total value of input (or output)}}{\text{Total production}}$$

2. There were two levels of average costs and returns presented. One represented the consolidated data of the two provinces (Ilocos Norte and Nueva Ecija) producing the multiplier and shallot varieties of onion. The other presented the consolidated data of the three provinces (Ilocos Norte, Pangasinan and Nueva Ecija) producing red creole and yellow granex varieties.
3. Data on input usage and costs and returns may not add up to total due to rounding off.
4. Blank spaces in cells in the statistical tables indicate that there was no report for a particular data item.

## SUMMARY OF FINDINGS

- In the three (3) provinces surveyed (Ilocos Norte, Pangasinan and Nueva Ecija), 97.67 of onion farmers were males. Average age was 48 years.
- Most onion farmers had formal schooling. They had an average of 11 years of experience in onion production.
- Majority or 92 percent reported that farming was their main occupation.
- Average farm size was 1.147 hectares and the average area cultivated to onion was 0.462 hectare.
- About 32.33 percent of the farms were tenanted, 31.67 percent were fully owned by operators, 12.67 percent were leased, 11.33 percent were owned-like possession other than CLT/CLOA, 6 percent were held under CLT/CLOA, 4.67 percent were mortgaged and 1.33 percent were rent free.
- About 63.67 percent of onion farmers planted the red creole, 34.00 percent planted the multiplier and shallot, and 2.33 percent planted yellow granex.
- Average quantities of planting materials used were 667.99 kilograms per hectare of bulbs for multiplier and shallot, and 5.67 kilograms per hectare of seeds for red creole and yellow granex.
- Direct seeding was practiced by 62.33 percent of farmers and the rest used the transplanting method.
- Planting of onion was commonly done during the months of September to March. Harvesting occurred from November to December and January to May of the following year.
- Most common grades of fertilizers applied in onion farms were urea (46-0-0), ammonium sulfate (21-0-0) and complete (14-14-14).
- In farms planted to multiplier and shallot, average application rates per hectare were 108.72 kilograms of urea (46-0-0), 247.33 kilograms of ammonium sulfate (21-0-0) and 129.49 kilograms of complete (14-14-14).
- In farms planted to red creole and yellow granex, average application rates per hectare were 246.37 kilograms of urea (46-0-0), 169.30 kilograms of ammonium sulfate (21-0-0) and 379.27 kilograms of complete (14-14-14).

- Production of multiplier and shallot required an average labor input of 143.46 mandays per hectare. On the other hand, production of red creole and yellow granex needed 146.36 mandays of labor per hectare.
- Planting/transplanting, watering of plant, manual weeding and harvesting were the major farm activities in onion production. Labor spent for these activities accounted for 63.94 percent of the total labor inputs in farms planted to multiplier and shallot, and 65.72 percent in farms planted to red creole and yellow granex.

### **Average Costs and Returns of Producing Multiplier and Shallot**

#### **Ilocos Norte**

- Production of onion averaged 7,579 kilograms per hectare and entailed an average cost of P92,918 per hectare. Average cost of production per kilogram was P12.26.
- Cash costs of production accounted for 47.44 percent of all costs while non-cash costs shared 32.23 percent.
- Onion farmers grossed P179,859 per hectare. Net returns amounted to P86,941 per hectare. Onion farmers gained P0.94 for every peso of investment.
- Average variable costs of production were 86.13 percent of all costs.

#### **Nueva Ecija**

- Production of onion in Nueva Ecija averaged 7,379 kilograms per hectare worth P187,344. Cost of production averaged P83,188 per hectare or P11.27 per kilogram.
- Cash costs of production constituted 56.82 percent of all costs, non-cash costs shared 22.59 percent while imputed costs accounted for 20.59 percent.
- Onion farmers netted P104,156 per hectare. A gain of P1.25 was realized for every peso of investment.
- Average variable costs of production amounted to P67,892 per hectare or 81.61 percent of all costs.

## **Average Costs and Returns of Producing Red Creole and Yellow Granex**

### **Ilocos Norte**

- Production of red creole in Ilocos Norte averaged 9,105 kilograms per hectare and entailed an average cost of P104,506.
- Cash outlays comprised 44.13 percent of all costs. Non-cash costs constituted 30.47 percent. Farmers grossed P200,316 per hectare and netted P95,810 per hectare. For every peso invested in onion production, farmers gained P0.92
- Average variable costs were estimated at P94,078 per hectare or 90 percent of all costs. On per kilogram basis, the cost of producing onion was P11.48.

### **Pangasinan**

- Production of red creole and yellow granex in Pangasinan averaged 10,776 per hectare and entailed an average cost of P100,743 per hectare.
- Cash costs accounted for 70.73 percent of all costs while non-cash costs constituted 8.99 percent.
- Gross returns to farmers averaged P258,564 per hectare. Net returns averaged P157,821 per hectare. For every peso invested in onion production, farmers gained P1.57.
- The average variable costs of production amounted to P 81,966 per hectare or 81.36 percent of all costs. On a per kilogram basis, cost of production was P9.35.

### **Nueva Ecija**

- Production of onion averaged 8,165 kilograms per hectare. Production costs averaged P88,005 per hectare, of which, 76.61 percent were cash outlays, 22.61 percent were imputed costs and the remainder was non-cash cost. Cost of production per kilogram was P10.78.
- Gross returns to farmers averaged P179,420 per hectare. Net returns averaged P91,414 per hectare. Farmers gained P1.04 for every peso of investment.
- Variable costs of onion production averaged P71,256 per hectare or 80.97 percent of all costs. Fixed costs averaged P16,750 per hectare.

- Across the three (3) provinces, about 92.80 percent of the onion produced were sold. Others were disposed of as payments for the use of land and to farm workers, set aside for seeds, used for home consumption and given away.
- The major problems encountered by onion growers were the high costs of fertilizers and seeds, occurrence of pests and diseases, bad weather/natural calamities and lack of capital.
- Wholesalers were the buyers of 50 percent of onion farmers. Wholesaler-retailers were the buyers of 24.33 percent of farmers while the remaining 23.33 percent transacted with agents.
- Onion growers perceived that the right price for their produce averaged P39.10 per kilogram.
- The major marketing concerns of onion farmers were unstable price of onion, low price, and competition with imported supply of the commodity in the market.
- About 24.34 percent of farmers in the 3 provinces availed of loans for onion production and the most common sources of loans were private individuals.
- About 19.67 percent of onion farmers accessed the services of government extension agents and 14.33 percent accessed the services of private extension agents.
- Majority or 54.67 percent of onion farmers in the three provinces surveyed would maintain their current operation while 36.33 percent would expand operation.
- To further improve the production of onion, farmers recommended that there should be government interventions such as policy on price support.
- Another government intervention cited by farmers was to stop the importation of onion. Farmers also clamored for lower price of agricultural inputs.

## COSTS AND RETURNS SURVEY OF ONION PRODUCTION

### Introduction

Onion (garden onion or “bulb” onion and “shallot”), scientifically known as *Allium cepa*, is commonly used as spice or condiment in many food preparations. It is available in fresh, frozen, canned, pickled, and dehydrated form. Depending on the variety, an onion can be sharp and pungent or mild and sweet. *Bulb* onions (e.g. red creole and yellow granex) are grown from seed while *multiplier* onions are raised from bulbs which produce multiple shoots, each of which forms a bulb. Onions are rich in powerful sulfur-containing compounds that are responsible for their pungent odors and for many of their health-promoting effects. Onions are rich in chromium, a trace mineral that helps cells respond to insulin. It also contains vitamin C and numerous flavonoids, most notably, quercetin which contains anti-inflammatory, anticholesterol, anticancer, and antioxidant properties that are effective against the common cold, heart disease, diabetes, osteoporosis, and other diseases.

Onion production in the Philippines decreased from 96,358 metric tons in 2002 to 75,978 metric tons in 2006 and posted an average decline of 5.77 percent annually. On the other hand, farm gate prices of onion went up from P13.39 per kilogram in 2002 to P19.36 per kilogram in 2006 for multiplier, and from P13.82 per kilogram in 2002 to P37.47 per kilogram in 2006 for bulb onion (red creole).

The profitability of agricultural commodities like onion is one the primary concerns of policy makers in setting up goals and strategies as they look forward to prepare the sector for global competition. This is also the concern of agribusiness players who are interested to venture in onion farming.

With the continuous influx of imported onion in the local market, it has become one of the “hottest” commodities in the country today. This has underscored the need for updated information on production costs and returns of this commodity. These information are vital in designing programs and projects that would help the onion industry. To address these concerns, the Bureau of Agricultural Statistics (BAS), has conducted this survey to generate new benchmark information on the profitability in producing this commodity.

## **Objectives**

The survey is intended to generate updated data on the levels and structure of costs and returns of onion production. Specifically, it aims to generate data on:

- production cost structures;
- indicators of profitability such as gross and net returns, returns above cash costs, net profit - cost ratio, etc.;
- average use of materials and labor inputs; and
- other related socio-economic variables including information on new production technologies.

## **Survey Methodology**

The survey covered onion farmers in Ilocos Norte, Nueva Ecija and Pangasinan, the top three (3) onion producing provinces in the country. The domain of the study is the province, with the last completed production cycle in 2006 as reference period.

The lists of onion producing barangays by province prepared by the concerned BAS Provincial Operations Centers (POCs) served as the sampling frame for this study. The lists contain data on area devoted to onion production and number of onion farmers as of 2006. These data were obtained from the Municipal Agriculturist Offices, Agricultural Technicians, barangay officials and other key informants in the barangays and updated results of the Barangay Screening Survey (BSS).

A two-stage sampling design was employed with the barangay as the primary sampling unit and the onion farmer as the secondary and ultimate sampling unit. The barangays were drawn using systematic sampling from an ordered list of barangays with at least five onion farmers. Systematic sampling was used so that both large and small barangays in the province in terms of onion production would be represented in the sample. On the other hand, sample operators were identified using snowball approach during data collection. During the search for sample operators, a set of screening questions was applied to see to it that the samples satisfy the following criteria:

1. must be engaged in onion production, and
2. must have harvested onion in 2006

The total sample size was 100 onion growers per province and this was equally allocated to 20 sample barangays. The survey resulted in the following distribution of sample farmers by province.

PROVINCE	MULTIPLIER AND SHALLOT	RED CREOLE	YELLOW GRANEX	TOTAL SAMPLE
Ilocos Norte	95	5		100
Pangasinan		97	3	100
Nueva Ecija	7	89	4	100
TOTAL	102	191	7	300

## **SURVEY RESULTS**

### **Characteristics of Onion Farmers (Tables 1 - 5)**

#### **Sex, age, educational attainment and farming experience**

- Across the three (3) provinces, 97.67 percent of onion farmer-operators were males. The rest were females.
- Ages of onion farmers averaged 47 years in Nueva Ecija, 48 years in Ilocos Norte, and 49 years in Pangasinan.
- About 37.34 percent of onion farmers in the three (3) provinces finished high school. There were 23 percent who finished elementary education and 11 percent were college degree holders.
- All onion farmers in Pangasinan had formal schooling. About 3.0 percent of the onion farmers in Nueva Ecija and 2.0 percent of those in Ilocos Norte, had no formal schooling at all.
- On the average, onion farmers in Ilocos Norte had 10 years of experience in onion production. In Pangasinan, farmers had 11 years and those in Nueva Ecija had 13 years of experience.

#### **Main occupation**

- Most farmers reported that their main occupation was farming. Specifically, this was reported by 85 percent in Nueva Ecija, 94 percent in Pangasinan, and 97 percent in Ilocos Norte.
- Farmers reporting on other types of occupations ranged from 1 percent to 5 percent.

## **Farm Characteristics (Tables 6 - 9)**

### **Farm size and area cultivated to onion**

- The average size of farms in the provinces surveyed was 1.147 hectares. However, the average area cultivated to onion was 0.462 hectare.
- By province, average area cultivated to onion was 0.192 hectare in Ilocos Norte, 0.581 hectare in Nueva Ecija, and 0.613 hectare in Pangasinan.

### **Area harvested by variety**

- Across provinces, average area harvested to yellow granex was 1.143 hectares. Average area for red creole was 0.570 hectare. A smaller average area at 0.211 hectare was recorded for multiplier and shallot.
- By province, average area harvested to yellow granex was 1.675 hectares in Nueva Ecija and 0.433 hectare in Pangasinan.
- For red creole, average area harvested was 0.619 hectare in Pangasinan, 0.548 hectare in Nueva Ecija and 0.038 hectare in Ilocos Norte.
- Average area harvested to multiplier and shallot averaged 0.374 hectare in Nueva Ecija and 0.199 hectare in Ilocos Norte.

### **Tenure status**

- About 32.33 percent of onion farms in the representative provinces were tenanted. Owned farms accounted for 31.67 percent. Other forms of tenures such as leased, mortgaged, etc., comprised 1.33 percent to 12.67 percent of farms.
- About two-thirds of farms in Ilocos Norte were tenanted. In Pangasinan, 44 percent of farms were fully owned. In Nueva Ecija, 31 percent of the farms were fully owned.

### **Farm investments**

- In all the three (3) provinces, 26.33 percent of onion farmers had carabao and 8.67 percent had cattle as working animals.
- About 15.67 percent of farmers had farmhouse, 6.67 percent with pump house, and 4.67 percent with warehouse. About 25 percent of onion farmers invested in two-wheel tractor while some 11 percent invested in four-wheel tractor.
- Majority of onion farmers at 52.67 percent had irrigation pump. Investments in other farm machinery and transport equipment were reported by less than 10 percent of onion farmers.
- Investments in sprayer, scythe, bolo, shovel, and hose were reported by 50.00 percent to 84.67 percent of onion farmers. Investments in plow, harrow, weighing scale, sprinkler, scissors, sled, trailer and hoe were reported by 12.67 percent to 30.33 percent of farmers.

### **Farm Practices (Tables 10 - 18)**

#### **Number of croppings**

- All onion farmers in Pangasinan and Nueva Ecija practiced only one cropping per year. In Ilocos Norte, 76 percent practiced one cropping per year while 24 percent had two croppings.

#### **Variety planted**

- Red Creole was planted by majority of onion farmers in Pangasinan at 97 percent and in Nueva Ecija at 89 percent. In Ilocos Norte, 95 percent of farmers planted the multiplier and shallot varieties.
- About 3 percent of farmers in Pangasinan and 4 percent in Nueva Ecija planted yellow granex. There were 7 percent of farmers in Nueva Ecija who planted multiplier and shallot.

### **Other crops planted aside from onion**

- Farmers also planted other crops aside from onion. Majority or 79.33 percent planted palay. Those who planted corn accounted for 39.67 percent; condiments, 23.33 percent; vegetables, 19.33 percent; and legumes and nuts, 15 percent.
- In Ilocos Norte, most farmers (97 percent) planted palay. There were about 63 percent who grew condiments.
- In Nueva Ecija, majority of farmers (74 percent) planted palay
- In the case of Pangasinan, most farmers (74 percent) planted corn. There were 67 percent who also planted palay.

### **Method of planting**

- In Ilocos Norte and Pangasinan, 87 percent and 88 percent of farmers, respectively, practiced direct seeding.
- The opposite was observed in Nueva Ecija where 88 percent of onion farmers practiced transplanting and only 12 percent practiced direct seeding.

### **Months of planting and harvesting**

- Across the three (3) provinces, planting of onion took place during the months of September to March. Planting in October and November was reported by 27.67 percent and 29.67 percent of the farmers, respectively.
- By province, there were 61 percent of onion farmers in Pangasinan who planted in October and 40 percent in Ilocos Norte planted in November. In Nueva Ecija, 30 percent of farmers planted onion in November, 35 percent in December and 24 percent in January.
- Harvesting of onion in the three provinces occurred during January to May and November to December. In Ilocos Norte, January and February were the more active harvest months as reported by 28 percent and 27 percent of farmers, respectively. In Pangasinan, 57 percent of onion farmers harvested in February. In Nueva Ecija, 49 percent of onion farmers harvested in March and 35 percent in April.

### **Plowing and harrowing**

- In the three (3) provinces, the use of four-wheel tractor in plowing farms was reported by 45.67 percent of onion farmers. The proportion was relatively higher compared to 24.67 percent of farmers reporting on the use of two-wheel tractor. Only a few onion farmers owned two-wheel and four-wheel tractors. Most of them hired man and machine while others rented the tractors.
- About 74 percent of farmers in Pangasinan, 51 percent in Nueva Ecija, and 12 percent in Ilocos Norte reported plowing with the use of four-wheel tractor. On the other hand, 40 percent of farmers in Nueva Ecija, 29 percent in Pangasinan, and 5 percent in Ilocos Norte used the two-wheel tractor in plowing their farms.
- Across provinces surveyed, the use of two-wheel tractor in harrowing farms was higher as reported by 34.33 percent of onion farmers compared to the 22.67 percent who reported the use of four-wheel tractor.
- Specifically, 60 percent of onion farmers in Nueva Ecija, 40 percent in Pangasinan and 3 percent in Ilocos Norte used two-wheel tractor for harrowing.
- Four-wheel tractor for harrowing was used by 44 percent of onion farmers in Pangasinan, 23 percent in Nueva Ecija and only 1 percent in Ilocos Norte.

### **Weeding**

- On the average, 76.67 percent of onion farmers practiced manual weeding. About 94.33 percent sprayed chemicals to control weeds.
- About 96 percent of onion farmers in Pangasinan, 95 percent in Ilocos Norte and 92 percent in Nueva Ecija reported the use of chemicals for weed control.

### **User of Fertilizers**

- The use of organic fertilizers were reported by 6.32 percent of farmers in Ilocos Norte who planted multiplier and shallot, and by 20 percent in Pangasinan and 7.53 percent in Nueva Ecija who planted red creole and yellow granex.
- The use of inorganic fertilizers was reported by all farmers surveyed in the three provinces who planted red creole and yellow granex. In Ilocos Norte, 97.89 percent of farmers who planted multiplier and shallot used inorganic fertilizers.

- The most common grades of inorganic fertilizers used by those who planted red creole and yellow granex were complete (14-14-14) as reported by 85.35 percent and urea (46-0-0) as reported by 63.13 percent.
- About 62.75 percent of farmers who planted multiplier and shallot used ammonium sulfate (21-0-0). Some 49.02 percent and 39.22 percent used complete (14-14-14) and urea (46-0-0), respectively.
- There were few (3.92 percent) onion farmers who applied liquid fertilizers. About 14.29 percent of farmers who planted multiplier and shallot varieties were users of phosphorous. There were 17.17 percent of farmers who planted red creole and yellow granex applied liquid fertilizers. In Nueva Ecija, 5.38 percent of farmers were users of Agrowell (15-7-7).

### **User of Pesticides**

- The application of herbicide/weedicide was reported by 95.10 percent of farmers who planted multiplier and shallot, and by 93.78 percent of farmers who planted red creole and yellow granex.
- Specifically, 94.74 percent of those who planted multiplier and shallot in Ilocos Norte and all onion farmers in Nueva Ecija applied herbicides/weedicides.
- About 91.40 percent of farmers in Nueva Ecija, 96.00 percent in Pangasinan and all farmers in Ilocos Norte reported the use of herbicides/weedicides for red creole and yellow granex production.
- Application of insecticides was reported by 86.53 percent of farmers who planted red creole and yellow granex, and by 59.80 percent of farmers who planted multiplier and shallot.
- About 59.07 percent of farmers who planted red creole and 44.12 percent of farmers who planted multiplier and shallot reported application of fungicides on their farms.

## **Input Usage (Tables 19 - 27)**

### **Planting materials**

- Planting materials used in the production of onion were bulbs for multiplier and shallot varieties and seeds for red creole and yellow granex varieties. Planting multiplier and shallot varieties required an average of 667.99 kilograms of bulbs per hectare. Farmers in Nueva Ecija used only 341.60 kilograms of bulbs per hectare as planting materials while those in Ilocos Norte used 713.12 kilograms.
- For red creole and yellow granex, onion farmers in Pangasinan used 6.25 kilograms of seeds per hectare. Seeding rates averaged 5.04 kilograms per hectare in Nueva Ecija and 3.68 kilograms per hectare in Ilocos Norte.

### **Fertilizers**

- Across provinces, application rates of organic fertilizer averaged 158.55 kilograms per hectare for onion multiplier and 228.13 kilograms per hectare for red creole and yellow granex varieties.
- For inorganic fertilizers, application rates were 678.44 kilograms per hectare for onion multiplier and shallot, and 971.24 kilograms per hectare for red creole and yellow granex. The most common grades of inorganic fertilizers used were complete (14-14-14), urea (46-0-0), ammonium sulfate (21-0-0) and ammonium phosphate (16-20-0).

### **Mulching materials**

- The mulching materials used by farmers were rice straws. Around 2,522.72 kilograms of rice straws were used per hectare of multiplier and shallot, and 148.82 kilograms per hectare of red creole and yellow granex.
- In Ilocos Norte, heavy use of rice straws on onion farms was noted at 2,813.46 kilograms per hectare for multiplier and shallot, and 3,210.53 kilograms per hectare for red creole and yellow granex.
- Use of rice straws averaged 419.85 kilograms per hectare in Nueva Ecija and 264.27 kilograms per hectare in Pangasinan.

## **Pesticides**

- Across provinces, herbicide/weedicide was applied at the rate of 2.54 liters per hectare on farms planted to multiplier and shallot varieties and 3.21 liters per hectare planted to red creole and yellow granex varieties.
- For every hectare of farms planted to red creole and yellow granex, application of liquid insecticides averaged 2.75 liters and those of solid types averaged 1.29 kilograms. This corresponded to averages of 1.15 liters and 0.34 kilogram per hectare of farms planted to multiplier and shallot varieties.
- Average application rates of fungicides were 0.20 liter of liquid type and 1.63 kilograms of solid type per hectare of red creole and yellow granex. These were equivalent to 0.12 liter and 1.42 kilograms per hectare of multiplier and shallot.

## **Labor**

- Production of onion multiplier and shallot required an average labor input of 143.46 mandays per hectare.
- Hired workers provided 57.70 percent of the total labor utilized while farm operators and family members shared 39.74 percent. Exchange workers provided the remainder.
- By sex of worker, males contributed 75.61 percent to total labor inputs.
- Planting/transplanting, watering the plant, manual weeding and harvesting were the major farm activities in onion production. Labor spent for these activities accounted for 63.94 percent of the total labor inputs.
- Labor inputs on farms planted to red creole and yellow granex varieties totalled 146.36 mandays per hectare.
- Hired workers provided the bulk of labor inputs, accounting for 68.18 percent of total labor utilized. Unpaid labor (operator, family and exchange) provided the remainder.
- By sex of worker, males contributed 73.18 percent to total labor inputs.
- About 66 percent of the labor inputs were spent on planting/transplanting, watering the plant, manual weeding and harvesting.

## **Average Costs and Returns of Producing Multiplier and Shallot (Tables 28 - 34)**

### **Average for two selected provinces (Ilocos Norte and Nueva Ecija)**

- The average costs of producing multiplier and shallot amounted to P91,736 per hectare or P12.14 per kilogram.
- About P44,470 of the production costs were cash outlays and the biggest expense item was hired labor at P11,486.
- Non-cash costs amounted to P28,595 per hectare or almost 31 percent of the total costs. Planting materials (own produced) was the main expense item at P21,799.
- About 20.35 percent or P18,671 per hectare constituted the imputed costs of production. Operator's labor and interest on operating capital contributed P5,262 and P5,198, respectively.
- Onion farmers grossed P180,768 per hectare from an average of 7,555 kilograms of onion produced.
- Farm receipts over cash costs were estimated at P136,298 per hectare. Returns above cash and non-cash costs amounted to P107,703 per hectare.
- Net earnings stood at P89,032 per hectare. Onion farmers gained P0.97 for every peso invested in onion production.
- Variable costs of production amounted to P78,553 per hectare. Fixed costs averaged P13,182 per hectare.

### **Ilocos Norte**

- Production of onion averaged 7,579 kilograms per hectare and entailed an average cost of P92,918. Average cost of production per kilogram was P12.26.
- Cash costs of production averaged P44,084 per hectare. Hired labor accounted for 25.90 percent of the total cash outlays.
- Non-cash costs were estimated at P29,950 per hectare. Planting materials (own produced) was the main non-cash cost item at P22,238.

- Imputed costs averaged P18,884 per hectare. Of this amount, 28.83 percent represented the opportunity cost of operator labor while 27.30 percent constituted the interest on operating capital.
- Gross earnings of onion farmers averaged P179,859 per hectare. Returns above cash and non-cash costs amounted to P105,825 per hectare. Net returns amounted to P86,941 per hectare. Onion farmers gained P0.94 for every peso of investment.
- Average variable costs of production amounted to P 80,027 per hectare while fixed costs averaged P12,890 per hectare.

### **Nueva Ecija**

- Production of onion in Nueva Ecija averaged 7,379 kilograms per hectare worth P187,344. Cost of production averaged P83,188 per hectare or P11.27 per kilogram.
- Cash costs constituted about 56.82 percent of all costs or P47,264 per hectare. Payment to hired workers was the biggest expense item at P11,968 per hectare.
- Non-cash costs amounted to P18,794 per hectare and shared 22.59 percent in total costs. Planting materials (own produced) comprised the bulk of this expense item at P18,626.
- Imputed costs averaged P17,130 per hectare. Interest on operating capital contributed P5,508, accounting for about 32.15 percent of the imputed costs.
- Onion farmers netted P104,156 per hectare. A gain of P1.25 was realized for every peso of investment.
- On the average, variable costs of production amounted to P67,892 and fixed costs, P15,296 per hectare.

## **Average Costs and Returns of Producing Red Creole and Yellow Granex (Tables 35 - 43)**

### **Average for three selected provinces (Ilocos Norte, Pangasinan, Nueva Ecija)**

- Production of red creole and yellow granex entailed an average cost of P94,709 per hectare. Cash outlays accounted for 73.27 percent of all costs, non-cash costs contributed 5.41 percent while imputed costs shared 21.31 percent. On a per kilogram basis, the cost of production was computed at P9.93.
- Hired labor was the main cash cost item at P16,641 per hectare. Landowner's share was the major non-cash expense item amounting to P4,730 per hectare. Interest on operating capital was the biggest imputed cost at P8,854 per hectare.
- Average production of onion was 9,535 kilograms per hectare worth P220,937. Considering all production costs, net earnings stood at P126,229 per hectare.
- Onion farmers gained P1.33 for every peso of investment.
- Average variable and fixed costs of production amounted to P76,906 per hectare and P17,802 per hectare, respectively.

### **Ilocos Norte**

- The production of red creole in Ilocos Norte averaged 9,105 kilograms per hectare and entailed an average cost of P104,506. On per kilogram basis, the cost of producing onion was P11.48.
- Cash outlays comprised 44.13 percent and non-cash costs, 30.47 percent of all costs. The rest were imputed costs.
- Farmers grossed P200,316 per hectare. Returns above cash and non-cash costs amounted to P122,358 per hectare. Net returns averaged P95,810 per hectare.
- For every peso invested in onion production, farmers gained P0.92.
- Average variable costs were estimated at P94,078 per hectare or 90 percent of all costs.

## **Pangasinan**

- Production of red creole and yellow granex entailed an average cost of P100,743 per hectare. On a per kilogram basis, cost of production was P9.35.
- Cash costs accounted for 70.73 percent of all costs or P71,257 per hectare. Costs of planting materials, hired labor and solid fertilizers were the leading expense items at P21,816, P17,684 and P13,701 per hectare, respectively.
- Non-cash costs averaged P9,054 per hectare, of which, almost 97 percent represented the cost of landowners' share from production.
- Imputed costs averaged P20,432 per hectare. Interest on operating capital was the biggest cost item, accounting for 46 percent of this cost component.
- Gross returns to farmers averaged P258,564 per hectare. Returns above cash and non-cash costs amounted to P178,252 per hectare. Net returns to farmers averaged P157,821 per hectare. For every peso invested in onion production, farmers gained P1.57.
- The average variable costs of production amounted to P 81,966 per hectare or 81.36 percent of all costs.

## **Nueva Ecija**

- Cost of onion production averaged P88,005 per hectare, of which, 76.61 percent were cash outlays, 22.61 were imputed costs and 0.78 percent were non-cash cost.
- Major cash outlays were payment to hired labor, cost of fertilizers and planting materials, all of which accounted for 68.23 percent of all cash costs.
- Production of onion averaged 8,165 kilograms per hectare. Cost of production per kilogram was P10.78.
- Gross returns to farmers averaged P179,420 per hectare. Returns above cash costs amounted to P111,997 per hectare while returns above cash and non-cash costs stood at P111,310 per hectare.
- Net returns averaged P91,414 per hectare. Farmers gained P1.04 for every peso of investment in onion production.

- Variable costs of onion production averaged P71,256 per hectare or 80.97 percent of all costs. Fixed costs averaged P16,750 per hectare or 19.03 percent of the total production costs.

### **Other Information (Tables 44 - 52)**

#### **Disposition of produce**

- On the average, 92.80 percent of the total volume of onion produced were sold. The proportion was even higher in Nueva Ecija where more than 96 percent were put in the market. About 2.43 percent of the total production was allotted for landowner's share. Others were wastage, given away and set aside for seeds.

#### **Production - related problems**

- The major problem encountered by onion growers was the high costs of fertilizer. About 93 percent of farmers in Pangasinan, 87 percent in Ilocos Norte and 69 percent in Nueva Ecija reported this problem.
- In Pangasinan, 92 percent of farmers complained on the high cost of seeds while another 77 percent cited the occurrence of pests and diseases.
- Bad weather and natural calamities were experienced by 76 percent of farmers in Nueva Ecija.

#### **Major buyers of produce**

- About 50 percent of onion farmers across the three (3) provinces sold their produce to wholesalers. Farmers who sold their produce to wholesaler-retailers comprised 24.33 percent while those who transacted with agents constituted 23.33 percent.
- In Ilocos Norte, 56 percent of farmers transacted with wholesalers. Similarly, wholesalers were the buyers of 53 percent of farmers in Pangasinan.
- Agents or brokers were the buyers of 54 percent of onion farmers in Nueva Ecija.

### **Perceived right price of produce**

- Onion growers in the three (3) provinces surveyed perceived that the right price of their produce averaged P39.10 per kilogram.
- In Nueva Ecija, majority of onion farmers (53 percent) reported that the right price for their produce should range from P21 to P30 per kilogram.
- According to 51 percent of farmers in Pangasinan, the right price of onion per kilogram should range from P31 to P40. However, there were 37 percent of farmers who perceived the price to be ranging from P41 to P50 per kilogram.
- In Ilocos Norte, there were 27 percent of onion farmers who mentioned that the right price for their produce should be P41-50 per kilogram. About 19 percent of farmers mentioned the price range of P31-40 while another 21 percent reported the price range of P21-30 per kilogram.

### **Marketing - related problems**

- About 67.67 percent of farmers were concerned about the unstable price of onion, 65.33 percent complained on the low price and 49.33 percent cited problem on the competition with imported onion in the market.
- The low price of onion was reported by 53 percent of farmers in Nueva Ecija and 85 percent of farmers in Ilocos Norte.
- The unstable price of onion was reported by 70 percent of farmers in Ilocos Norte and 88 percent in Pangasinan.
- Competition with imported supply of onion in the market was cited by 60 percent of farmers in Nueva Ecija.

### **Access to credit**

- About 24.34 percent of farmers in the provinces surveyed availed of loans for onion production. About 19 percent of farmers borrowed from private individuals, 4.67 percent from banks, and 0.67 percent from cooperative.
- Among provinces, the number of farmers who availed of loans for onion production accounted for 38 percent in Nueva Ecija, 21 percent in Pangasinan and 14 percent in Ilocos Norte.

### **Access to extension services**

- Across the three (3) provinces, 19.67 percent of onion farmers accessed the services of government extension agents and 14.33 percent accessed the services of private extension agents.
- Accessing the services of extension agents was reported by 61 percent of onion farmers in Pangasinan, 25 percent in Nueva Ecija and 16 percent in Ilocos Norte.

### **Plans of onion farmers**

- About 54.67 percent of onion farmers in the three provinces surveyed would maintain their current operation. Specifically, there were 56.00 percent each of farmers in Ilocos Norte and Pangasinan and 52.00 percent in Nueva Ecija who said they would maintain current trends of operation.
- There were 42 percent of farmers in Nueva Ecija, 39.00 percent in Ilocos Norte, and 28.00 percent in Pangasinan who would expand operation.

### **Recommendations for further improvement of onion production**

- To further improve the production of onion, 34.67 percent of farmers across the three (3) provinces recommended that there should be government intervention or policy on price support.
- Another government intervention cited by 29 percent of farmers was to stop the importation of onion. Also, 22 percent of farmers sought for lower price of agricultural inputs.

# **STATISTICAL TABLES**

Table 1. Percentage distribution of onion farmers by sex,  
selected provinces, Philippines, 2006

PROVINCE	MALE	FEMALE
All 3 Provinces	97.67	2.33
Ilocos Norte	100.00	
Pangasinan	97.00	3.00
Nueva Ecija	96.00	4.00

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Table 2 Average age of onion farmers and percentage distribution by age group, selected provinces, Philippines, 2006

PROVINCE	AVERAGE AGE (year)	AGE GROUP (year)					
		< 31	31-40	41-50	51-60	61-70	> 70
All 3 Provinces	48	3.67	24.67	30.33	28.33	12.33	0.67
Ilocos Norte	48	4.00	21.00	33.00	30.00	12.00	
Pangasinan	49	5.00	20.00	30.00	28.00	16.00	1.00
Nueva Ecija	47	2.00	33.00	28.00	27.00	9.00	1.00

Table 3. Percentage distribution of onion farmers by educational attainment, selected provinces, Philippines, 2006

EDUCATIONAL ATTAINMENT	ALL 3 PROVINCES	ILOCOS NORTE	PANGASINAN	NUEVA ECIJA
Elementary Level	3.33	2.00	3.00	5.00
Elementary Graduate	23.00	25.00	24.00	20.00
High School Level	14.33	12.00	15.00	16.00
High School Graduate	37.34	40.00	31.00	41.00
College Level	5.00	7.00	4.00	4.00
College Graduate	11.00	10.00	14.00	9.00
Vocational	4.33	2.00	9.00	2.00
No Schooling	1.67	2.00		3.00

Table 4. Average farming experience of onion farmers and percentage distribution by number of years engaged in onion production, selected provinces, Philippines, 2006

PROVINCE	AVERAGE FARMING EXPERIENCE (year)	YEARS ENGAGED IN ONION PRODUCTION			
		< 11	11 - 20	21 - 30	> 30
All 3 Provinces	11	66.00	23.67	7.33	3.00
Ilocos Norte	10	73.00	20.00	5.00	2.00
Pangasinan	11	71.00	20.00	8.00	1.00
Nueva Ecija	13	54.00	31.00	9.00	6.00

Table 5. Percentage distribution of onion farmers by main occupation, selected provinces, Philippines, 2006

MAIN OCCUPATION	ALL 3 PROVINCES	ILOCOS NORTE	PANGASINAN	NUEVA ECIJA
Officials of Government	0.33		1.00	
Professional	3.34	3.00	2.00	5.00
Clerks	0.33			1.00
Service Workers and Shop and Market Sales Workers	0.67		1.00	1.00
Farmers, Forestry Workers and Fishermen	92.00	97.00	94.00	85.00
Trades and Related Workers	0.33		1.00	
Plant and Machine Operators and Assemblers	1.00			3.00
Laborers and Unskilled Workers	1.67		1.00	4.00
Special Occupations	0.33			1.00

Table 6. Average farm size and area devoted to onion production,  
selected provinces, Philippines, 2006

(hectare)

PROVINCE	AVERAGE FARM SIZE	AREA CULTIVATED TO ONION
All 3 Provinces	1.147	0.462
Ilocos Norte	0.787	0.192
Pangasinan	1.130	0.613
Nueva Ecija	1.523	0.581

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Table 7. Average area planted and harvested by variety, selected provinces, Philippines, 2006

(hectare)

PROVINCE	MULTIPLIER AND SHALLOT		RED CREOLE		YELLOW GRANEX	
	AREA PLANTED	AREA HARVESTED	AREA PLANTED	AREA HARVESTED	AREA PLANTED	AREA HARVESTED
All 3 Provinces	0.212	0.211	0.570	0.570	1.143	1.143
Ilocos Norte	0.200	0.199	0.038	0.038		
Pangasinan			0.619	0.619	0.433	0.433
Nueva Ecija	0.374	0.374	0.548	0.548	1.675	1.675

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Table 8. Percentage distribution of onion farms by tenure status, selected provinces, Philippines, 2006

LAND TENURE	ALL 3 PROVINCES	ILOCOS NORTE	PANGASINAN	NUEVA ECIJA
Owned	31.67	20.00	44.00	31.00
Tenanted	32.33	66.00	15.00	16.00
Leased	12.67		10.00	28.00
Held Under CLT/CLOA	6.00		7.00	11.00
Owned-like Possession other than CLT/CLOA	11.33	10.00	17.00	7.00
Mortgaged	4.67	4.00	7.00	3.00
Rent Free	1.33			4.00

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

Table 9. Percentage of onion farmers by type of farm investment, selected provinces, Philippines, 2006

FARM INVESTMENT	ALL 3 PROVINCES	ILOCOS NORTE	PANGASINAN	NUEVA ECIJA
<b>Work animals</b>				
Carabao	26.33	33.00	8.00	37.00
Cattle	8.67	4.00	19.00	2.00
<b>Farm buildings and other structures</b>				
Farm house	15.67	2.00	15.00	30.00
Warehouse	4.67	7.00	4.00	3.00
Pump house	6.67		6.00	14.00
<b>Farm machinery and transport equipment</b>				
Two-wheel tractor	25.00	10.00	33.00	31.00
Four-wheel tractor	11.00	2.00	23.00	6.00
Irrigation pump	52.67	55.00	69.00	34.00
Electric pump	2.00	6.00		
Water pump generator	2.00	6.00		
Elf	0.33	1.00		
Tricycle	2.33	6.00		1.00
Truck	0.67		1.00	1.00
<b>Farm tools, equipment and other supplies</b>				
Plow	30.33	12.00	32.00	47.00
Harrow	25.33	8.00	28.00	40.00
Sprayer	84.67	84.00	83.00	87.00
Shovel/spade	59.33	23.00	75.00	80.00
Bolo	69.00	36.00	92.00	79.00
Scythe	70.67	65.00	95.00	52.00
Weighing scale	17.67	16.00	17.00	20.00
Sprinkler	29.00	12.00	18.00	57.00
Spading fork	9.67	7.00	7.00	15.00
Hose	50.67	70.00	67.00	15.00
Scissors	18.67	36.00	16.00	4.00
Air plotter	5.33	2.00		14.00
Calavera	8.33	2.00	11.00	12.00
Sled	20.00	30.00	16.00	14.00
Trailer	13.33	5.00	22.00	13.00
Grass cutter	0.33	1.00		
Deep well	0.33		1.00	
Shallow tube well	0.67			2.00
Hoe	12.67		38.00	
Rake	0.67		1.00	1.00
Trowel	0.33		1.00	
Nylon	0.33	1.00		
Red bag	0.33			1.00

Table 10. Percentage distribution of onion farmers reporting on the number of cropping per year, selected provinces, Philippines, 2006

PROVINCE	ONE CROPPING	TWO CROPPINGS
All 3 Provinces	92.00	8.00
Ilocos Norte	76.00	24.00
Pangasinan	100.00	
Nueva Ecija	100.00	

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Table 11. Percentage distribution of onion farmers by variety planted, selected provinces, Philippines, 2006

PROVINCE	MULTIPLIER AND SHALLOT	RED CREOLE	YELLOW GRANEX
All 3 Provinces	34.00	63.67	2.33
Ilocos Norte	95.00	5.00	
Pangasinan		97.00	3.00
Nueva Ecija	7.00	89.00	4.00

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Table 12. Percentage of onion farmers planting other crops,  
selected provinces, Philippines, 2006

OTHER CROPS	ALL 3 PROVINCES	ILOCOS NORTE	PANGASINAN	NUEVA ECIJA
Palay	79.33	97.00	67.00	74.00
Corn	39.67	42.00	74.00	3.00
Vegetables a/	19.33	29.00	3.00	26.00
Watermelon	0.67			2.00
Calamansi	0.33			1.00
Raddish	0.33	1.00		
Condiments b/	23.33	63.00		7.00
Legumes & nuts c/	15.00	40.00	1.00	4.00
Commercial crops d/	6.67	13.00	7.00	

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a/ eggplant, tomato, cabbage, cucumber, squash, bitter gourd, gourd, lady finger (okra),  
pechay and mustard

b/ chili, garlic, green pepper and black pepper

c/ beans, mungo, peanut and stringbeans

d/ tobacco and sugarcane

Table 13. Percentage distribution of onion farmers by variety planted and method of planting, selected provinces, Philippines, 2006

VARIETY / METHOD OF PLANTING	ALL 3 PROVINCES	ILOCOS NORTE	PANGASINAN	NUEVA ECIJA
Multiplier and Shallot				
Direct seeding / planting	29.00	87.00		
Transplanting	5.00	8.00		7.00
Red Creole				
Direct seeding / planting	31.00		85.00	8.00
Transplanting	32.67	5.00	12.00	81.00
Yellow Granex				
Direct seeding / planting	2.33		3.00	4.00
Transplanting				

Table 14. Percentage distribution of onion farmers by month of planting and harvesting, selected provinces, Philippines, September 2005 - December 2006

MONTH	PLANTING				HARVESTING			
	ALL 3 PROVINCES	ILOCOS NORTE	PANGASINAN	NUEVA ECIJA	ALL 3 PROVINCES	ILOCOS NORTE	PANGASINAN	NUEVA ECIJA

**2005**

September	2.00	1.00	4.00	1.00
October	27.67	16.00	61.00	6.00
November	29.67	40.00	19.00	30.00
December	18.33	4.00	16.00	35.00

**2006**

January	8.00			24.00	16.00	28.00	17.00	3.00
February	3.67	7.00		4.00	30.67	27.00	57.00	8.00
March	0.33	1.00			27.00	6.00	26.00	49.00
April					14.00	7.00		35.00
May					2.00	1.00		5.00
June								
July								
August								
September	4.00	12.00						
October	6.33	19.00						
November					2.00	6.00		
December					8.33	25.00		

Table 15. Percentage of onion farmers by type of tractor used and method of weeding applied, selected provinces, Philippines 2006

PROVINCE	PLOWING		HARROWING		WEEDING	
	2- WHEEL TRACTOR	4- WHEEL TRACTOR	2- WHEEL TRACTOR	4- WHEEL TRACTOR	MANUAL	CHEMICAL SPRAYING
All 3 Provinces	24.67	45.67	34.33	22.67	76.67	94.33
Ilocos Norte	5.00	12.00	3.00	1.00	56.00	95.00
Pangasinan	29.00	74.00	40.00	44.00	83.00	96.00
Nueva Ecija	40.00	51.00	60.00	23.00	91.00	92.00

Table 16. Percentage of onion farmers by type of solid fertilizers used and variety planted, selected provinces, Philippines 2006

FERTILIZER	MULTIPLIER AND SHALLOT			RED CREOLE AND YELLOW GRANEX			
	ALL 2 PROVINCES	ILOCOS NORTE	NUEVA ECIJA	ALL 3 PROVINCES	ILOCOS NORTE	PANGASINAN	NUEVA ECIJA
Organic Fertilizer a/	5.88	6.32		13.64		20.00	7.53
Inorganic Fertilizer	98.04	97.89	100.00	100.00	100.00	100.00	100.00
Urea (45-0-0)	4.90	5.26		5.05		4.00	6.45
Urea (46-0-0)	39.22	40.00	28.57	63.13		80.00	48.39
Ammonium Sulfate (21-0-0)	62.75	66.32	14.29	47.47	100.00	72.00	18.28
Ammonium Phosphate (16-20-0)	27.45	27.37	28.57	39.90		39.00	43.01
Complete (14-14-14)	49.02	46.32	85.71	85.35	100.00	78.00	92.47
Complete (16-16-16)	8.82	7.37	28.57	3.54		3.00	4.30
Complete (15-15-15)	3.92	4.21		26.26	20.00	40.00	11.83
Complete (19-19-19)	8.82	7.37	28.57	18.18	60.00	21.00	12.90
Muriate of Potash (0-0-60)	1.96	2.11		6.06		9.00	3.23
Others b/	3.92	4.21		4.04	20.00	3.00	4.30

a/ Include bio-earth, bonena, chicken manure, plantimate and siglat

b/ Include calcium nitrate, crop giant (15-15-30), gravac, growmore (4-0-48), complete (20-20-20), redeem and semager

Table 17. Percentage of onion farmers by type of liquid fertilizers used and variety planted, selected provinces, Philippines 2006

VARIETY PLANTED / PROVINCE	HEAVY GREEN	AGROWELL (15-7-7)	COMPLETE (20-20-20)	BAYFOLAN (11-8-6)	PHOSPHOROUS	OTHERS a/	TOTAL
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**Multiplier and Shallot**

All 2 Provinces	1.96				0.98	1.96	3.92
Ilocos Norte	2.11					1.05	3.16
Nueva Ecija					14.29	14.29	14.29

**Red Creole and Yellow Granex**

All 3 Provinces	0.51	2.53	1.01	3.54		10.10	17.17
Ilocos Norte							
Pangasinan			1.00	7.00		6.00	14.00
Nueva Ecija	1.08	5.38	1.08			15.05	21.51

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a/ Include atonik, ANAA, biozome, complete (14-14-14), farmer's friend and gravac

Table 18. Percentage of onion farmers by type of pesticides used and variety planted, selected provinces, Philippines 2006

VARIETY PLANTED / PROVINCE	HERBICIDE / WEEDICIDE	INSECTICIDE		FUNGICIDE	
	LIQUID (l)	SOLID (kg)	LIQUID (l)	SOLID (kg)	LIQUID (l)
<b>Multiplier and Shallot</b>					
All 2 Provinces	95.10	15.69	59.80	44.12	3.92
Ilocos Norte	94.74	13.68	57.89	45.26	2.11
Nueva Ecija	100.00	42.86	85.71	28.57	28.57
<b>Red Creole and Yellow Granex</b>					
All 3 Provinces	93.78	24.35	86.53	59.07	13.99
Ilocos Norte	100.00		100.00	100.00	
Pangasinan	96.00	17.00	82.00	71.00	18.00
Nueva Ecija	91.40	32.26	91.40	46.24	9.68

Table 19. Average quantity of planting materials used per hectare of onion farm by source and variety planted, selected provinces, Philippines, 2006

(kilogram)

VARIETY PLANTED / PROVINCE	BULB				SEED
	PURCHASED	OWN PRODUCED	RECEIVED FROM OTHERS	ALL SOURCES	PURCHASED
<b>Multiplier and Shallot</b>					
All 2 Provinces	108.48	557.19	2.32	667.99	0.12
Ilocos Norte	107.92	602.56	2.64	713.12	0.14
Nueva Ecija	112.60	229.01		341.60	
<b>Red Creole and Yellow Granex</b>					
All 3 Provinces					5.67
Ilocos Norte					3.68
Pangasinan					6.25
Nueva Ecija					5.04

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Table 20. Average quantity of solid fertilizers applied per hectare of onion farm by variety planted, selected provinces, Philippines, 2006

(kilogram)							
FERTILIZER	MULTIPLIER AND SHALLOT			RED CREOLE AND YELLOW GRANEX			
	ALL 2 PROVINCES	ILOCOS NORTE	NUEVA ECIJA	ALL 3 PROVINCES	ILOCOS NORTE	PANGASINAN	NUEVA ECIJA
Organic Fertilizer a/	158.55	180.47		228.13		147.31	318.25
Inorganic Fertilizer	678.44	702.30	505.88	971.24	650.00	922.57	1,026.13
Urea (45-0-0)	47.98	54.62		13.25		8.97	18.03
Urea (46-0-0)	108.72	115.83	57.25	246.37		302.40	185.29
Ammonium Sulfate (21-0-0)	247.33	273.61	57.25	169.30	394.74	262.64	65.36
Ammonium Phosphate (16-20-0)	94.46	99.60	57.25	150.11		106.04	199.33
Complete (14-14-14)	129.49	119.68	200.38	379.27	226.32	231.44	543.18
Complete (16-16-16)	44.04	31.66	133.59	4.93		2.46	7.66
Complete (15-15-15)	0.28	0.32		0.72	5.26	1.04	0.34
Complete (19-19-19)	0.53	0.58	0.15	0.39	18.42	0.47	0.24
Muriate of Potash (0-0-60)	4.64	5.28		6.81		7.05	6.58
Others b/	0.97	1.11		0.08	5.26	0.05	0.10

a/ Include bio-earth, bonena, chicken manure, plantimate and siglat

b/ Include calcium nitrate, crop giant (15-15-30), gravac, growmore (4-0-48), complete (20-20-20), redeem and semager

Table 21. Average quantity of liquid fertilizers applied per hectare of onion farm by variety planted, selected provinces, Philippines, 2006

(liter)

VARIETY PLANTED / PROVINCE	HEAVY GREEN	AGROWELL (15-7-7)	COMPLETE (20-20-20)	BAYFOLAN (11-8-6)	PHOSPHOROUS	OTHERS <sup>a/</sup>	TOTAL
<b>Multiplier and Shallot</b>							
All 2 Provinces	0.23				0.05	0.05	0.33
Ilocos Norte	0.26					0.01	0.27
Nueva Ecija					0.38	0.38	0.76
<b>Red Creole and Yellow Granex</b>							
All 3 Provinces	0.02	0.07	0.03	0.15		0.14	0.41
Ilocos Norte							
Pangasinan			0.02	0.29		0.09	0.39
Nueva Ecija	0.04	0.14	0.05			0.21	0.44

a/ Include atonik, ANAA, biozome, complete (14-14-14), farmer's friend and gravac

Table 22. Average quantity of fertilizer nutrients applied per hectare of onion farm by variety planted, selected provinces, Philippines, 2006

VARIETY PLANTED / PROVINCE	NITROGEN		PHOSPHOROUS		POTASSIUM	
	KILOGRAM (kg)	LITER (l)	KILOGRAM (kg)	LITER (l)	KILOGRAM (kg)	LITER (l)
<b>Multiplier and Shallot</b>						
All 2 Provinces	164.049	0.001	44.285	0.001	28.252	0.001
Ilocos Norte	173.322	0.001	41.987	0.001	25.320	0.001
Nueva Ecija	96.976		60.907		49.456	
<b>Red Creole and Yellow Granex</b>						
All 3 Provinces	232.938	0.034	84.094	0.024	58.166	0.021
Ilocos Norte	119.263		36.368		36.763	
Pangasinan	248.308	0.035	54.253	0.026	37.282	0.020
Nueva Ecija	216.338	0.032	117.240	0.021	81.322	0.021

Table 23. Average quantity of mulching materials used per hectare of onion farm by variety planted, selected provinces, Philippines, 2006

(kilogram)

VARIETY PLANTED / PROVINCE	RICE STRAWS	RICE HULLS	BAMBOO STRIPS	SUGARCANE LEAVES	ASH
<b>Multiplier and Shallot</b>					
All 2 Provinces	2,522.72	13.91	38.94	23.18	
Ilocos Norte	2,813.46		44.33	26.39	
Nueva Ecija	419.85	114.50			
<b>Red Creole and Yellow Granex</b>					
All 3 Provinces	148.82	83.11			0.21
Ilocos Norte	3,210.53				
Pangasinan	264.27				
Nueva Ecija	10.73	175.26			0.45

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Table 24. Average quantity of pesticides applied per hectare of onion farm by type and variety planted, selected provinces, Philippines 2006

VARIETY PLANTED / PROVINCE	HERBICIDE / WEEDICIDE	INSECTICIDE		FUNGICIDE	
	LIQUID (l)	SOLID (kg)	LIQUID (l)	SOLID (kg)	LIQUID (l)

**Multiplier and Shallot**

All 2 Provinces	2.54	0.34	1.15	1.42	0.12
Ilocos Norte	2.40	0.24	1.08	1.58	0.04
Nueva Ecija	3.53	1.05	1.62	0.29	0.67

**Red Creole and Yellow Granex**

All 3 Provinces	3.21	1.29	2.75	1.63	0.20
Ilocos Norte	2.74		2.79	2.45	
Pangasinan	2.67	0.52	1.98	2.26	0.23
Nueva Ecija	3.82	2.14	3.61	0.93	0.16

Table 25. Average labor utilization for onion production per hectare, by source of labor, sex and variety planted, selected provinces, Philippines 2006

(manday)							
SOURCE OF LABOR	MULTIPLIER AND SHALLOT			RED CREOLE AND YELLOW GRANEX			
	ALL 2 PROVINCES	ILOCOS NORTE	NUEVA ECIJA	ALL 3 PROVINCES	ILOCOS NORTE	PANGASINAN	NUEVA ECIJA
Operator							
Both Sexes	37.35	37.35	37.32	26.16	97.21	23.61	28.74
Male	37.11	37.09	37.32	26.00	97.21	23.52	28.50
Female	0.23	0.27		0.16		0.09	0.24
Family							
Both Sexes	19.66	20.34	14.73	16.43	51.08	11.68	21.56
Male	10.42	10.70	8.39	13.63	33.82	9.80	17.80
Female	9.24	9.64	6.34	2.80	17.26	1.88	3.77
Exchange							
Both Sexes	3.67	2.46	12.43	3.98		1.32	6.94
Male	3.11	1.83	12.43	3.77		1.32	6.50
Female	0.56	0.63		0.21			0.44
Hired							
Both Sexes	82.78	80.72	97.66	99.79	5.26	93.35	107.23
Male	57.81	58.45	53.19	63.71	5.26	64.05	63.54
Female	24.96	22.27	44.47	36.08		29.30	43.69
All Sources							
Both Sexes	143.46	140.87	162.14	146.36	153.55	129.96	164.48
Male	108.47	108.07	111.33	107.11	136.29	98.69	116.34
Female	34.99	32.80	50.81	39.25	17.26	31.27	48.14

Table 26. Average labor utilization for production of multiplier and shallot varieties per hectare, by farm activity and sex, selected provinces, Philippines, 2006

(manday)									
FARM ACTIVITY	ALL 2 PROVINCES			ILOCOS NORTE			NUEVA ECIJA		
	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE
Clearing of field	1.73	1.68	0.05	1.10	1.05	0.05	6.30	6.30	
Plowing									
Man-animal	0.45	0.45		0.36	0.36		1.15	1.15	
Man-machine (2-wheel)	0.29	0.29		0.17	0.17		1.15	1.15	
Man-machine (4-wheel)	0.18	0.18		0.21	0.21				
Harrowing									
Man-animal	0.16	0.16		0.12	0.12		0.43	0.43	
Man-machine (2-wheel)	0.28	0.28		0.03	0.03		2.10	2.10	
Man-machine (4-wheel)	0.01	0.01		0.01	0.01				
Plotting/Levelling of plots									
Man	1.72	1.72		0.97	0.97		7.16	7.16	
Man-animal	0.13	0.13		0.12	0.12		0.19	0.19	
Man-machine	0.01	0.01		0.01	0.01				
Sowing/Planting of seeds	1.39	1.37	0.02	0.42	0.42		8.40	8.21	0.19
Pulling of seedlings	1.71	0.68	1.03	0.10	0.10		13.36	4.87	8.49
Planting/Transplanting									
Direct seeding	32.99	23.87	9.12	37.55	27.17	10.38			
Transplanting	6.01	3.20	2.80	1.51	1.25	0.26	38.55	17.37	21.18
Mulching	9.54	8.38	1.16	10.28	8.96	1.32	4.18	4.18	
Watering/Irrigating	11.74	11.55	0.19	11.43	11.21	0.21	14.00	14.00	
Weeding									
Manual	10.39	7.59	2.80	10.24	7.75	2.49	11.50	6.44	5.06
Chemical spraying	1.94	1.92	0.02	2.04	2.04		1.28	1.09	0.19
Thinning	0.87	0.57	0.30	0.99	0.64	0.34			
Fertilizer application	3.53	3.30	0.23	3.38	3.11	0.26	4.63	4.63	
Chemical spraying (disinfectant)	2.21	2.21		2.25	2.25		1.95	1.95	
Harvesting	30.59	21.27	9.32	30.68	21.52	9.15	29.96	19.47	10.50
Hauling	2.06	1.87	0.19	2.23	2.01	0.22	0.86	0.86	
Cutting of leaves/cleaning of bulbs/ sorting/grading	11.52	7.22	4.30	12.67	7.89	4.78	3.19	2.38	0.81
Drying	10.46	7.40	3.06	11.48	8.16	3.33	3.05	1.91	1.15
Bundling/Braiding	1.55	1.16	0.39	0.55	0.55		8.78	5.53	3.24
TOTAL	143.46	108.47	34.99	140.87	108.07	32.80	162.14	111.33	50.81

Table 27. Average labor utilization for production of red creole and yellow granex varieties per hectare, by farm activity and sex, selected provinces, Philippines, 2006

FARM ACTIVITY	ALL 3 PROVINCES			ILOCOS NORTE			PANGASINAN			NUEVA ECIJA		
	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE
Clearing of field	3.90	3.51	0.38	3.47	3.47		6.13	5.40	0.73	1.44	1.43	0.01
Plowing												
Man-animal	1.23	1.23					0.61	0.61		1.92	1.92	
Man-machine (2-wheel)	0.45	0.44	0.01				0.20	0.19	a/	0.73	0.71	0.01
Man-machine (4-wheel)	0.51	0.51					0.37	0.37		0.67	0.67	
Harrowing												
Man-animal	1.40	1.40					0.59	0.59		2.29	2.29	
Man-machine (2-wheel)	0.73	0.73					0.23	0.23		1.27	1.27	
Man-machine (4-wheel)	0.37	0.37					0.35	0.35		0.40	0.40	
Plotting/Levelling of plots												
Man	5.75	5.42	0.33	3.63	3.63		6.16	6.05	0.11	5.31	4.74	0.57
Man-animal	2.09	2.09	0.01				2.47	2.45	0.01	1.69	1.69	
Man-machine	0.30	0.29	a/				0.57	0.56	0.01			
Sowing of seeds	1.75	1.55	0.20	1.32	1.32		0.27	0.26	0.01	3.39	2.97	0.42
Pulling of seedlings	5.52	3.41	2.12	1.84	1.84		0.59	0.56	0.02	10.99	6.55	4.44
Planting/Transplanting												
Direct seeding	4.71	4.55	0.15				8.25	7.96	0.29	0.81	0.81	
Transplanting	15.93	8.95	6.97	27.68	22.42	5.26	3.11	2.63	0.47	30.05	15.89	14.16
Mulching	0.99	0.92	0.06	2.58	2.58		1.00	0.93	0.07	0.98	0.91	0.06
Watering/Irrigating	22.75	22.60	0.14	39.47	39.47		23.05	22.99	0.07	22.35	22.12	0.23
Weeding												
Manual	33.90	18.31	15.60	11.18	8.55	2.63	28.14	12.35	15.80	40.35	24.93	15.42
Chemical spraying	2.53	2.51	0.02	1.37	1.37		2.78	2.75	0.03	2.25	2.24	0.01
Thinning	2.90	2.42	0.48				4.69	3.94	0.75	0.92	0.75	0.18
Fertilizer application	4.16	4.14	0.02	2.11	2.11		5.18	5.16	0.02	3.04	3.02	0.02
Chemical spraying (disinfectant)	3.40	3.40		3.74	3.74		4.14	4.14		2.58	2.58	
Harvesting	18.91	12.04	6.87	27.05	23.42	3.63	17.04	11.38	5.66	20.95	12.74	8.21
Hauling	1.16	1.10	0.06	4.16	3.95	0.21	1.47	1.41	0.07	0.80	0.76	0.05
Cutting of leaves/cleaning of bulbs/ sorting/grading	10.67	4.90	5.77	12.11	7.89	4.21	12.13	4.99	7.14	9.05	4.80	4.25
Drying	0.38	0.31	0.06	11.84	10.53	1.32	0.45	0.43	0.02	0.26	0.15	0.11
TOTAL	146.36	107.11	39.25	153.55	136.29	17.26	129.96	98.69	31.27	164.48	116.34	48.14

a/ Less than 0.01

Table 28. Average costs and returns of multiplier and shallot production, **Two Selected Provinces**, 2006

ITEM	PER HECTARE			PER FARM (P)	PER KILOGRAM (P)
	QUANTITY	UNIT	VALUE		
Production	7,555	kg	180,768	38,227	23.93
Area harvested = 0.211 ha					
Number of farms = 102					
<b>CASH COSTS</b>			<b>44,470</b>	<b>9,404</b>	<b>5.89</b>
Planting materials					
Seeds	0.12	kg	354	75	0.05
Bulbs	108.48	kg	4,439	939	0.59
Fertilizers					
Organic	158.55	kg	565	119	0.07
Inorganic					
Solid	678.44	kg	8,924	1,887	1.18
Liquid	0.33	l	92	20	0.01
Mulching materials	2,598.75	kg	3,111	658	0.41
Pesticides					
Solid	1.77	kg	883	187	0.12
Liquid	3.80	l	2,636	557	0.35
Hired Labor	82.78	manday	11,486	2,429	1.52
Land tax			184	39	0.02
Rentals:					
Land			1,971	417	0.26
Machine			185	39	0.02
Animal			5	1	b/
Tools and equipment			5	1	b/
Fuel and oil			3,373	713	0.45
Transport cost of inputs			210	44	0.03
Interest payment on crop loan			762	161	0.10
Electricity			484	102	0.06
Irrigation fee			132	28	0.02
Red bag			153	32	0.02
Food expense			3,866	817	0.51
Repairs			587	124	0.08
Others a/			65	14	0.01
<b>NON-CASH COSTS</b>			<b>28,595</b>	<b>6,047</b>	<b>3.79</b>
Planting materials (Bulbs)					
Own produced	557.19	kg	21,799	4,610	2.89
Received from others	2.32	kg	70	15	0.01
Harvesters' share	8.99	kg	185	39	0.02
Other laborers' share	4.45	kg	73	15	0.01
Landowner's share	318.45	kg	6,469	1,368	0.86
<b>IMPUTED COSTS</b>			<b>18,671</b>	<b>3,948</b>	<b>2.47</b>
Operator Labor	37.35	manday	5,262	1,113	0.70
Family Labor	19.66	manday	2,731	577	0.36
Exchange Labor	3.67	manday	413	87	0.05
Depreciation			3,023	639	0.40
Interest on operating capital			5,198	1,099	0.69
Rental value of owned land			2,044	432	0.27
<b>TOTAL COSTS</b>			<b>91,736</b>	<b>19,399</b>	<b>12.14</b>
GROSS RETURNS			180,768	38,227	23.93
RETURNS ABOVE CASH COSTS			136,298	28,823	18.04
RETURNS ABOVE CASH AND NON-CASH COSTS			107,703	22,776	14.26
NET RETURNS			89,032	18,828	11.78
NET PROFIT-COST RATIO			0.97	0.97	0.97

a/ Include basket, cellophane, plastic bag and straw/twine

b/ Less than 0.01

Table 29. Average variable and fixed costs of multiplier and shallot production,  
Two Selected Provinces, 2006

(peso)			
ITEM	PER HECTARE	PER FARM	PER KILOGRAM
<b>VARIABLE COSTS</b>	<b>78,553</b>	<b>16,612</b>	<b>10.40</b>
Planting materials			
Seeds			
Purchased	354	75	0.05
Bulbs			
Purchased	4,439	939	0.59
Own produced	21,799	4,610	2.89
Received from others	70	15	0.01
Fertilizers			
Organic	565	119	0.07
Inorganic			
Solid	8,924	1,887	1.18
Liquid	92	20	0.01
Mulching materials	3,111	658	0.41
Pesticides			
Solid	883	187	0.12
Liquid	2,636	557	0.35
Labor			
Hired Labor	11,486	2,429	1.52
Operator labor	5,262	1,113	0.70
Family labor	2,731	577	0.36
Exchange labor	413	87	0.05
Rentals:			
Machine	185	39	0.02
Animal	5	1	a/
Tools and equipment	5	1	a/
Fuel and oil	3,373	713	0.45
Transport cost of inputs	210	44	0.03
Electricity	484	102	0.06
Irrigation fee	132	28	0.02
Red bag	153	32	0.02
Food expense	3,866	817	0.51
Repairs	587	124	0.08
Harvesters' share	185	39	0.02
Other laborers' share	73	15	0.01
Landowner's share	6,469	1,368	0.86
Others	65	14	0.01
<b>FIXED COSTS</b>	<b>13,182</b>	<b>2,788</b>	<b>1.74</b>
Land tax	184	39	0.02
Lease rental	1,971	417	0.26
Interest payment on crop loan	762	161	0.10
Depreciation	3,023	639	0.40
Interest on operating capital	5,198	1,099	0.69
Rental value of owned land	2,044	432	0.27
<b>TOTAL COSTS</b>	<b>91,736</b>	<b>19,399</b>	<b>12.14</b>

a/ Less than 0.01

Table 30. Average costs and returns of multiplier and shallot production, **Ilocos Norte**, 2006

ITEM	PER HECTARE			PER FARM (P)	PER KILOGRAM (P)
	QUANTITY	UNIT	VALUE		
Production	7,579	kg	179,859	35,877	23.73
Area harvested = 0.199 ha					
Number of farms = 95					
<b>CASH COSTS</b>			<b>44,084</b>	<b>8,794</b>	<b>5.82</b>
Planting materials					
Seeds	0.14	kg	403	80	0.05
Bulbs	107.92	kg	3,744	747	0.49
Fertilizers					
Organic	180.47	kg	643	128	0.08
Inorganic					
Solid	702.30	kg	9,070	1,809	1.20
Liquid	0.27	l	63	13	0.01
Mulching materials	2,884.17	kg	3,486	695	0.46
Pesticides					
Solid	1.83	kg	936	187	0.12
Liquid	3.52	l	2,456	490	0.32
Hired Labor	80.72	manday	11,419	2,278	1.51
Land tax			210	42	0.03
Rentals:					
Land			2,130	425	0.28
Machine			84	17	0.01
Animal			5	1	b/
Tools and equipment			5	1	b/
Fuel and oil			3,192	637	0.42
Transport cost of inputs			220	44	0.03
Interest payment on crop loan			290	58	0.04
Electricity			551	110	0.07
Irrigation fee			134	27	0.02
Red bag			174	35	0.02
Food expense			4,214	841	0.56
Repairs			611	122	0.08
Others a/			42	8	0.01
<b>NON-CASH COSTS</b>			<b>29,950</b>	<b>5,974</b>	<b>3.95</b>
Planting materials (Bulbs)					
Own produced	602.56	kg	22,238	4,436	2.93
Received from others	2.64	kg	79	16	0.01
Harvesters' share	10.24	kg	210	42	0.03
Other laborers' share	3.96	kg	59	12	0.01
Landowner's share	362.48	kg	7,363	1,469	0.97
<b>IMPUTED COSTS</b>			<b>18,884</b>	<b>3,767</b>	<b>2.49</b>
Operator Labor	37.35	manday	5,445	1,086	0.72
Family Labor	20.34	manday	2,888	576	0.38
Exchange Labor	2.46	manday	290	58	0.04
Depreciation			2,779	554	0.37
Interest on operating capital			5,155	1,028	0.68
Rental value of owned land			2,326	464	0.31
<b>TOTAL COSTS</b>			<b>92,918</b>	<b>18,535</b>	<b>12.26</b>
GROSS RETURNS			179,859	35,877	23.73
RETURNS ABOVE CASH COSTS			135,775	27,084	17.91
RETURNS ABOVE CASH AND NON-CASH COSTS			105,825	21,109	13.96
NET RETURNS			86,941	17,342	11.47
NET PROFIT-COST RATIO			0.94	0.94	0.94

a/ Include basket, cellophane and plastic bag

b/ Less than 0.01

Table 31. Average variable and fixed costs of multiplier and shallot production,  
Ilocos Norte, 2006

(peso)

ITEM	PER HECTARE	PER FARM	PER KILOGRAM
<b>VARIABLE COSTS</b>	<b>80,027</b>	<b>15,963</b>	<b>10.56</b>
Planting materials			
Seeds			
Purchased	403	80	0.05
Bulbs			
Purchased	3,744	747	0.49
Own produced	22,238	4,436	2.93
Received from others	79	16	0.01
Fertilizers			
Organic	643	128	0.08
Inorganic			
Solid	9,070	1,809	1.20
Liquid	63	13	0.01
Mulching materials	3,486	695	0.46
Pesticides			
Solid	936	187	0.12
Liquid	2,456	490	0.32
Labor			
Hired Labor	11,419	2,278	1.51
Operator labor	5,445	1,086	0.72
Family labor	2,888	576	0.38
Exchange labor	290	58	0.04
Rentals			
Machine	84	17	0.01
Animal	5	1	a/
Tools and equipment	5	1	a/
Fuel and oil	3,192	637	0.42
Transport cost of inputs	220	44	0.03
Electricity	551	110	0.07
Irrigation	134	27	0.02
Red bag	174	35	0.02
Food expense	4,214	841	0.56
Repairs	611	122	0.08
Harvesters' share	210	42	0.03
Other laborers' share	59	12	0.01
Landowner's share	7,363	1,469	0.97
Others	42	8	0.01
<b>FIXED COSTS</b>	<b>12,890</b>	<b>2,571</b>	<b>1.70</b>
Land tax	210	42	0.03
Lease rental	2,130	425	0.28
Interest payment on crop loan	290	58	0.04
Depreciation	2,779	554	0.37
Interest on operating capital	5,155	1,028	0.68
Rental value of owned land	2,326	464	0.31
<b>TOTAL COSTS</b>	<b>92,918</b>	<b>18,535</b>	<b>12.26</b>

a/ Less than 0.01

Table 32. Average costs and returns of multiplier and shallot production, **Nueva Ecija**, 2006

ITEM	PER HECTARE			PER FARM (P)	PER KILOGRAM (P)
	QUANTITY	UNIT	VALUE		
Production	7,379	kg	187,344	70,120	25.39
Area harvested = 0.374 ha					
Number of farms = 7					
<b>CASH COSTS</b>			<b>47,264</b>	<b>17,690</b>	<b>6.41</b>
Planting materials (Bulbs)	112.60	kg	9,466	3,543	1.28
Fertilizers					
Inorganic					
Solid	505.88	kg	7,868	2,945	1.07
Liquid	0.76	l	302	113	0.04
Mulching materials	534.35	kg	391	146	0.05
Pesticides					
Solid	1.34	kg	494	185	0.07
Liquid	5.82	l	3,937	1,474	0.53
Hired Labor	97.66	manday	11,968	4,480	1.62
Rentals:					
Land			824	308	0.11
Machine			916	343	0.12
Fuel and oil			4,678	1,751	0.63
Transport cost of inputs			135	51	0.02
Interest payment on crop loan			4,176	1,563	0.57
Irrigation fee			118	44	0.02
Food expense			1,344	503	0.18
Repairs			420	157	0.06
Others a/			227	85	0.03
<b>NON-CASH COSTS</b>			<b>18,794</b>	<b>7,034</b>	<b>2.55</b>
Planting materials (Bulbs)					
Own produced	229.01	kg	18,626	6,971	2.52
Other laborers' share	8.02	kg	168	63	0.02
<b>IMPUTED COSTS</b>			<b>17,130</b>	<b>6,411</b>	<b>2.32</b>
Operator Labor	37.32	manday	3,939	1,474	0.53
Family Labor	14.73	manday	1,593	596	0.22
Exchange Labor	12.43	manday	1,301	487	0.18
Depreciation			4,788	1,792	0.65
Interest on operating capital			5,508	2,062	0.75
<b>TOTAL COSTS</b>			<b>83,188</b>	<b>31,136</b>	<b>11.27</b>
GROSS RETURNS			187,344	70,120	25.39
RETURNS ABOVE CASH COSTS			140,081	52,430	18.98
RETURNS ABOVE CASH AND NON-CASH COSTS			121,286	45,396	16.44
NET RETURNS			104,156	38,984	14.12
NET PROFIT-COST RATIO			1.25	1.25	1.25

a/ Includes straw/twine

Table 33. Average variable and fixed costs of multiplier and shallot production,  
**Nueva Ecija, 2006**

(peso)

ITEM	PER HECTARE	PER FARM	PER KILOGRAM
<b>VARIABLE COSTS</b>	<b>67,892</b>	<b>25,411</b>	<b>9.20</b>
Planting materials (Bulbs)			
Purchased	9,466	3,543	1.28
Own produced	18,626	6,971	2.52
Fertilizers			
Inorganic			
Solid	7,868	2,945	1.07
Liquid	302	113	0.04
Mulching materials	391	146	0.05
Pesticides			
Solid	494	185	0.07
Liquid	3,937	1,474	0.53
Labor			
Hired Labor	11,968	4,480	1.62
Operator labor	3,939	1,474	0.53
Family labor	1,593	596	0.22
Exchange labor	1,301	487	0.18
Rentals:			
Machine	916	343	0.12
Fuel and oil	4,678	1,751	0.63
Transport cost of inputs	135	51	0.02
Irrigation	118	44	0.02
Food expense	1,344	503	0.18
Repairs	420	157	0.06
Other laborers' share	168	63	0.02
Others	227	85	0.03
<b>FIXED COSTS</b>	<b>15,296</b>	<b>5,725</b>	<b>2.07</b>
Lease rental	824	308	0.11
Interest payment on crop loan	4,176	1,563	0.57
Depreciation	4,788	1,792	0.65
Interest on operating capital	5,508	2,062	0.75
<b>TOTAL COSTS</b>	<b>83,188</b>	<b>31,136</b>	<b>11.27</b>

Table 34. Average costs and returns of multiplier and shallot production  
per hectare by major cost item, selected provinces,  
Philippines, 2006

(peso)

ITEM	ILOCOS NORTE	NUEVA ECIJA
Cash costs	44,084	47,264
Non-cash costs	29,950	18,794
Imputed costs	18,884	17,130
Total costs	92,918	83,188
Average yield (kg / ha)	7,579	7,379
Gross returns	179,859	187,344
Returns above cash costs	135,775	140,081
Returns above cash and non-cash costs	105,825	121,286
Net returns	86,941	104,156
Net profit-cost ratio	0.94	1.25
Cost per kilogram	12.26	11.27

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Table 35. Average costs and returns of red creole and yellow granex production, **Three Selected Provinces**, 2006

ITEM	PER HECTARE			PER FARM (P)	PER KILOGRAM (P)
	QUANTITY	UNIT	VALUE		
Production	9,535	kg	220,937	130,498	23.17
Area harvested = 0.591 ha					
Number of farms = 198					
<b>CASH COSTS</b>			<b>69,398</b>	<b>40,990</b>	<b>7.28</b>
Planting materials (Seeds)	5.67	kg	18,389	10,862	1.93
Fertilizers					
Organic	228.13	kg	609	360	0.06
Inorganic					
Solid	971.24	kg	14,356	8,480	1.51
Liquid	0.41	l	158	93	0.02
Mulching materials	232.15	kg	57	34	0.01
Pesticides					
Solid	2.92	kg	944	557	0.10
Liquid	6.16	l	4,184	2,472	0.44
Hired Labor	99.79	manday	16,641	9,829	1.75
Land tax			370	218	0.04
Rentals:					
Land			1,638	968	0.17
Machine			679	401	0.07
Animal			158	93	0.02
Tools and equipment			92	54	0.01
Fuel and oil			4,723	2,790	0.50
Transport cost of inputs			380	224	0.04
Interest payment on crop loan			1,929	1,139	0.20
Electricity			4	2	b/
Irrigation fee			565	334	0.06
Red bag			904	534	0.09
Food expense			797	471	0.08
Repairs			1,817	1,073	0.19
Others			3	2	b/
<b>NON-CASH COSTS</b>			<b>5,123</b>	<b>3,026</b>	<b>0.54</b>
Harvesters' share	2.52	kg	76	45	0.01
Other laborers' share	7.72	kg	208	123	0.02
Landowner's share	206.50	kg	4,730	2,794	0.50
Lease rental	6.86	kg	109	64	0.01
<b>IMPUTED COSTS</b>			<b>20,187</b>	<b>11,924</b>	<b>2.12</b>
Operator Labor	26.16	manday	3,809	2,250	0.40
Family Labor	16.43	manday	2,179	1,287	0.23
Exchange Labor	3.98	manday	442	261	0.05
Depreciation			2,256	1,333	0.24
Interest on operating capital			8,854	5,230	0.93
Rental value of owned land			2,646	1,563	0.28
<b>TOTAL COSTS</b>			<b>94,709</b>	<b>55,940</b>	<b>9.93</b>
GROSS RETURNS			220,937	130,498	23.17
RETURNS ABOVE CASH COSTS			151,540	89,508	15.89
RETURNS ABOVE CASH AND NON-CASH COSTS			146,416	86,482	15.36
NET RETURNS			126,229	74,558	13.24
NET PROFIT-COST RATIO			1.33	1.33	1.33

a/ Includes straw/twine

b/ Less than 0.01

Table 36. Average variable and fixed costs of red creole and yellow granex production,  
**Three Selected Provinces, 2006**

(peso)

ITEM	PER HECTARE	PER FARM	PER KILOGRAM
<b>VARIABLE COSTS</b>	<b>76,906</b>	<b>45,425</b>	<b>8.07</b>
Planting materials (Seeds)			
Purchased	18,389	10,862	1.93
Fertilizers			
Organic	609	360	0.06
Inorganic			
Solid	14,356	8,480	1.51
Liquid	158	93	0.02
Mulching materials	57	34	0.01
Pesticides			
Solid	944	557	0.10
Liquid	4,184	2,472	0.44
Labor			
Hired Labor	16,641	9,829	1.75
Operator labor	3,809	2,250	0.40
Family labor	2,179	1,287	0.23
Exchange labor	442	261	0.05
Rentals:			
Machine	679	401	0.07
Animal	158	93	0.02
Tools and equipment	92	54	0.01
Fuel and oil	4,723	2,790	0.50
Transport cost of inputs	380	224	0.04
Electricity	4	2	a/
Irrigation fee	565	334	0.06
Red bag	904	534	0.09
Food expense	797	471	0.08
Repairs	1,817	1,073	0.19
Harvesters' share	76	45	0.01
Other laborers' share	208	123	0.02
Landowner's share	4,730	2,794	0.50
Others	3	2	a/
<b>FIXED COSTS</b>	<b>17,802</b>	<b>10,515</b>	<b>1.87</b>
Land tax	370	218	0.04
Lease rental	1,747	1,032	0.18
Interest payment on crop loan	1,929	1,139	0.20
Depreciation	2,256	1,333	0.24
Interest on operating capital	8,854	5,230	0.93
Rental value of owned land	2,646	1,563	0.28
<b>TOTAL COSTS</b>	<b>94,709</b>	<b>55,940</b>	<b>9.93</b>

a/ Less than 0.01

Table 37. Average costs and returns of red creole production, **Ilocos Norte**, 2006

ITEM	PER HECTARE			PER FARM (P)	PER KILOGRAM (P)
	QUANTITY	UNIT	VALUE		
Production	9,105	kg	200,316	7,612	22.00
Area harvested = 0.038 ha					
Number of farms = 5					
<b>CASH COSTS</b>			<b>46,116</b>	<b>1,752</b>	<b>5.06</b>
Planting materials (Seeds)	3.68	kg	12,895	490	1.42
Fertilizers					
Inorganic	650.00	kg	11,055	420	1.21
Mulching materials	3,210.53	kg	1,995	76	0.22
Pesticides					
Solid	2.45	kg	1,303	50	0.14
Liquid	5.53	l	3,211	122	0.35
Hired Labor	5.26	manday	684	26	0.08
Rentals:					
Land			3,158	120	0.35
Machine			2,368	90	0.26
Tools and equipment			789	30	0.09
Fuel and oil			5,132	195	0.56
Food expense			632	24	0.07
Repairs			2,895	110	0.32
<b>NON-CASH COSTS</b>			<b>31,842</b>	<b>1,210</b>	<b>3.50</b>
Landowner's share	1,447.37	kg	31,842	1,210	3.50
<b>IMPUTED COSTS</b>			<b>26,548</b>	<b>1,009</b>	<b>2.92</b>
Operator Labor	97.21	manday	12,637	480	1.39
Family Labor	51.08	manday	6,640	252	0.73
Depreciation			2,287	87	0.25
Interest on operating capital			4,983	189	0.55
<b>TOTAL COSTS</b>			<b>104,506</b>	<b>3,971</b>	<b>11.48</b>
GROSS RETURNS			200,316	7,612	22.00
RETURNS ABOVE CASH COSTS			154,200	5,860	16.94
RETURNS ABOVE CASH AND NON-CASH COSTS			122,358	4,650	13.44
NET RETURNS			95,810	3,641	10.52
NET PROFIT-COST RATIO			0.92	0.92	0.92

Table 38. Average variable and fixed costs of red creole production,  
Ilocos Norte, 2006

(peso)

ITEM	PER HECTARE	PER FARM	PER KILOGRAM
<b>VARIABLE COSTS</b>	<b>94,078</b>	<b>3,575</b>	<b>10.33</b>
Planting materials (Seeds)			
Purchased	12,895	490	1.42
Fertilizers			
Inorganic			
Solid	11,055	420	1.21
Mulching materials	1,995	76	0.22
Pesticides			
Solid	1,303	50	0.14
Liquid	3,211	122	0.35
Labor			
Hired Labor	684	26	0.08
Operator labor	12,637	480	1.39
Family labor	6,640	252	0.73
Rentals:			
Machine	2,368	90	0.26
Tools and equipment	789	30	0.09
Fuel and oil	5,132	195	0.56
Food expense	632	24	0.07
Repairs	2,895	110	0.32
Landowner's share	31,842	1,210	3.50
<b>FIXED COSTS</b>	<b>10,428</b>	<b>396</b>	<b>1.15</b>
Lease rental	3,158	120	0.35
Depreciation	2,287	87	0.25
Interest on operating capital	4,983	189	0.55
<b>TOTAL COSTS</b>	<b>104,506</b>	<b>3,971</b>	<b>11.48</b>

Table 39. Average costs and returns of red creole and yellow granex production, **Pangasinan**, 2006

ITEM	PER HECTARE			PER FARM (P)	PER KILOGRAM (P)
	QUANTITY	UNIT	VALUE		
Production	10,776	kg	258,564	158,500	23.99
Area harvested = 0.613 ha					
Number of farms = 100					
<b>CASH COSTS</b>			<b>71,257</b>	<b>43,681</b>	<b>6.61</b>
Planting materials (Seeds)	6.25	kg	21,816	13,373	2.02
Fertilizers					
Organic	147.31	kg	651	399	0.06
Inorganic					
Solid	922.57	kg	13,701	8,399	1.27
Liquid	0.39	l	133	81	0.01
Mulching materials	264.27	kg	32	19	a/
Pesticides					
Solid	2.79	kg	1,013	621	0.09
Liquid	4.87	l	3,493	2,141	0.32
Hired Labor	93.35	manday	17,684	10,840	1.64
Land tax			214	131	0.02
Rentals:					
Land			1,796	1,101	0.17
Machine			108	66	0.01
Fuel and oil			6,307	3,866	0.59
Transport cost of inputs			431	264	0.04
Interest payment on crop loan			1,038	637	0.10
Electricity			2	1	a/
Irrigation fee			342	210	0.03
Red bag			710	435	0.07
Food expense			699	429	0.06
Repairs			1,089	667	0.10
<b>NON-CASH COSTS</b>			<b>9,054</b>	<b>5,550</b>	<b>0.84</b>
Harvesters' share	2.17	kg	73	45	0.01
Other laborers' share	2.50	kg	76	46	0.01
Landowner's share	383.03	kg	8,753	5,366	0.81
Lease rental	10.20	kg	153	94	0.01
<b>IMPUTED COSTS</b>			<b>20,432</b>	<b>12,525</b>	<b>1.90</b>
Operator Labor	23.61	manday	3,258	1,997	0.30
Family Labor	11.68	manday	1,454	891	0.13
Exchange Labor	1.32	manday	143	88	0.01
Depreciation			2,743	1,681	0.25
Interest on operating capital			9,364	5,740	0.87
Rental value of owned land			3,470	2,127	0.32
<b>TOTAL COSTS</b>			<b>100,743</b>	<b>61,755</b>	<b>9.35</b>
GROSS RETURNS			258,564	158,500	23.99
RETURNS ABOVE CASH COSTS			187,307	114,819	17.38
RETURNS ABOVE CASH AND NON-CASH COSTS			178,252	109,269	16.54
NET RETURNS			157,821	96,744	14.65
NET PROFIT-COST RATIO			1.57	1.57	1.57

a/ Less than 0.01

Table 40. Average variable and fixed costs of red creole and yellow granex production,  
Pangasinan, 2006

(peso)

ITEM	PER HECTARE	PER FARM	PER KILOGRAM
<b>VARIABLE COSTS</b>	<b>81,966</b>	<b>50,245</b>	<b>7.61</b>
Planting materials (Seeds)			
Purchased	21,816	13,373	2.02
Fertilizers			
Organic	651	399	0.06
Inorganic			
Solid	13,701	8,399	1.27
Liquid	133	81	0.01
Mulching materials	32	19	a/
Pesticides			
Solid	1,013	621	0.09
Liquid	3,493	2,141	0.32
Labor			
Hired Labor	17,684	10,840	1.64
Operator labor	3,258	1,997	0.30
Family labor	1,454	891	0.13
Exchange labor	143	88	0.01
Rentals:			
Machine	108	66	0.01
Fuel and oil	6,307	3,866	0.59
Transport cost of inputs	431	264	0.04
Electricity	2	1	a/
Irrigation	342	210	0.03
Red bag	710	435	0.07
Food expense	699	429	0.06
Repairs	1,089	667	0.10
Harvesters' share	73	45	0.01
Other laborers' share	76	46	0.01
Landowner's share	8,753	5,366	0.81
<b>FIXED COSTS</b>	<b>18,777</b>	<b>11,510</b>	<b>1.74</b>
Land tax	214	131	0.02
Lease rental	1,948	1,194	0.18
Interest payment on crop loan	1,038	637	0.10
Depreciation	2,743	1,681	0.25
Interest on operating capital	9,364	5,740	0.87
Rental value of owned land	3,470	2,127	0.32
<b>TOTAL COSTS</b>	<b>100,743</b>	<b>61,755</b>	<b>9.35</b>

a/ Less than 0.01

Table 41. Average costs and returns of red creole and yellow granex production, **Nueva Ecija**, 2006

ITEM	PER HECTARE			PER FARM (P)	PER KILOGRAM (P)
	QUANTITY	UNIT	VALUE		
Production	8,165	kg	179,420	106,996	21.97
Area harvested = 0.596 ha					
Number of farms = 93					
<b>CASH COSTS</b>			<b>67,423</b>	<b>40,207</b>	<b>8.26</b>
Planting materials (Seeds)	5.04	kg	14,620	8,719	1.79
Fertilizers					
Organic	318.25	kg	565	337	0.07
Inorganic					
Solid	1,026.13	kg	15,092	9,000	1.85
Liquid	0.44	l	186	111	0.02
Mulching materials	186.44	kg	79	47	0.01
Pesticides					
Solid	3.07	kg	865	516	0.11
Liquid	7.59	l	4,952	2,953	0.61
Hired Labor	107.23	manday	15,542	9,269	1.90
Land tax			543	324	0.07
Rentals:					
Land			1,459	870	0.18
Machine			1,305	778	0.16
Animal			333	198	0.04
Tools and equipment			190	114	0.02
Fuel and oil			2,972	1,772	0.36
Transport cost of inputs			325	194	0.04
Interest payment on crop loan			2,920	1,741	0.36
Electricity			6	4	b/
Irrigation fee			814	485	0.10
Red bag			1,123	669	0.14
Food expense			906	540	0.11
Repairs			2,619	1,562	0.32
Others a/			7	4	b/
<b>NON-CASH COSTS</b>			<b>687</b>	<b>410</b>	<b>0.08</b>
Seeds					
Harvesters' share	2.91	kg	81	48	0.01
Other laborers' share	13.51	kg	354	211	0.04
Landowner's share	7.13	kg	191	114	0.02
Lease rental	3.19	kg	61	36	0.01
<b>IMPUTED COSTS</b>			<b>19,896</b>	<b>11,865</b>	<b>2.44</b>
Operator Labor	28.74	manday	4,388	2,617	0.54
Family Labor	21.56	manday	2,966	1,769	0.36
Exchange Labor	6.94	manday	774	462	0.09
Depreciation			1,718	1,025	0.21
Interest on operating capital			8,304	4,952	1.02
Rental value of owned land			1,745	1,040	0.21
<b>TOTAL COSTS</b>			<b>88,005</b>	<b>52,481</b>	<b>10.78</b>
GROSS RETURNS			179,420	106,996	21.97
RETURNS ABOVE CASH COSTS			111,997	66,789	13.72
RETURNS ABOVE CASH AND NON-CASH COSTS			111,310	66,379	13.63
NET RETURNS			91,414	54,514	11.20
NET PROFIT-COST RATIO			1.04	1.04	1.04

a/ Includes straw/twine

b/ Less than 0.01

Table 42. Average variable and fixed costs of red creole and yellow granex production,  
**Nueva Ecija, 2006**

(peso)

ITEM	PER HECTARE	PER FARM	PER KILOGRAM
<b>VARIABLE COSTS</b>	<b>71,256</b>	<b>42,493</b>	<b>8.73</b>
Planting materials (Seeds)			
Purchased	14,620	8,719	1.79
Fertilizers			
Organic	565	337	0.07
Inorganic			
Solid	15,092	9,000	1.85
Liquid	186	111	0.02
Mulching materials	79	47	0.01
Pesticides			
Solid	865	516	0.11
Liquid	4,952	2,953	0.61
Labor			
Hired Labor	15,542	9,269	1.90
Operator labor	4,388	2,617	0.54
Family labor	2,966	1,769	0.36
Exchange labor	774	462	0.09
Rentals:			
Machine	1,305	778	0.16
Animal	333	198	0.04
Tools and equipment	190	114	0.02
Fuel and oil	2,972	1,772	0.36
Transport cost of inputs	325	194	0.04
Electricity	6	4	a/
Irrigation	814	485	0.10
Red bag	1,123	669	0.14
Food expense	906	540	0.11
Repairs	2,619	1,562	0.32
Harvesters' share	81	48	0.01
Other laborers' share	354	211	0.04
Landowner's share	191	114	0.02
Others	7	4	a/
<b>FIXED COSTS</b>	<b>16,750</b>	<b>9,989</b>	<b>2.05</b>
Land tax	543	324	0.07
Lease rental	1,520	906	0.19
Interest payment on crop loan	2,920	1,741	0.36
Depreciation	1,718	1,025	0.21
Interest on operating capital	8,304	4,952	1.02
Rental value of owned land	1,745	1,040	0.21
<b>TOTAL COSTS</b>	<b>88,005</b>	<b>52,481</b>	<b>10.78</b>

a/ Less than 0.01

Table 43. Average costs and returns of red creole and yellow granex production per hectare  
by major cost item, selected provinces, Philippines, 2006

(peso)

ITEM	ILOCOS NORTE	PANGASINAN	NUEVA ECIJA
Cash costs	46,116	71,257	67,423
Non-cash costs	31,842	9,054	687
Imputed costs	26,548	20,432	19,896
Total costs	104,506	100,743	88,005
Average yield (kg/ha)	9,105	10,776	8,165
Gross returns	200,316	258,564	179,420
Returns above cash costs	154,200	187,307	111,997
Returns above cash and non-cash costs	122,358	178,252	111,310
Net returns	95,810	157,821	91,414
Net profit-cost ratio	0.92	1.57	1.04
Cost per kilogram	11.48	9.35	10.78

Table 44. Percentage distribution of onion produce by disposition item, selected provinces, Philippines, 2006

DISPOSITION ITEM	ALL 3 PROVINCES	ILOCOS NORTE	PANGASINAN	NUEVA ECIIJA
Sold/To be sold	92.80	80.45	92.79	96.61
Harvesters' share	0.04	0.13	0.02	0.03
Other laborers' share	0.08	0.05	0.02	0.16
Landowner's share	2.43	4.92	3.55	0.08
Lease rental	0.06		0.10	0.04
Home consumption	0.66	0.69	0.57	0.77
To be used for seeds	1.13	9.51	0.01	0.14
Given away	1.14	1.73	0.86	1.36
Wastage	1.66	2.52	2.08	0.81

Table 45. Percentage of onion farmers reporting problems on production, selected provinces, Philippines, 2006

PRODUCTION PROBLEM	ALL 3 PROVINCES	ILOCOS NORTE	PANGASINAN	NUEVA ECIJA
Pests and diseases	51.33	47.00	77.00	30.00
High cost of seeds	58.67	19.00	92.00	65.00
High cost of fertilizers	83.00	87.00	93.00	69.00
High cost of other inputs	28.00	28.00	35.00	21.00
Bad weather/Natural calamities	48.67	40.00	30.00	76.00
Home consumption		47.00	77.00	30.00
Lack of capital	39.33	48.00	34.00	36.00
Poor Road/ Inadequate transport facilities	6.00	5.00	8.00	5.00
Lack of water/ Problems on irrigation	12.33	29.00		8.00
Poor soil condition	3.00	2.00	2.00	5.00
Low quality/ Unavailability of seeds	12.33	19.00	2.00	17.00
Absence of technical assistance	0.67	2.00		

Table 46. Percentage of onion farmers reporting on major buyer of produce, selected provinces, Philippines, 2006

BUYER	ALL 3 PROVINCES	ILOCOS NORTE	PANGASINAN	NUEVA ECIJA
Agent	23.33	2.00	14.00	54.00
Wholesaler	50.00	56.00	53.00	41.00
Retailer	8.00	9.00	2.00	13.00
Wholesaler-Retailer	24.33	33.00	34.00	6.00
Exporter	0.33	1.00		
Consumer	4.00	12.00		

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Table 47. Perceived average right price for farmers' produce and percentage of farmers reporting by price range, selected provinces, Philippines, 2006

PROVINCE	AVERAGE PRICE PER KILOGRAM	PRICE RANGE ( peso / kg)				
		15-20	21-30	31-40	41-50	51 AND ABOVE
All 3 Provinces	39.10	5.33	27.67	29.67	25.00	6.33
Ilocos Norte	42.52	12.00	21.00	19.00	27.00	15.00
Pangasinan	41.66		9.00	51.00	37.00	3.00
Nueva Ecija	32.52	4.00	53.00	19.00	11.00	1.00

Table 48. Percentage of onion farmers reporting problems on marketing of produce, selected provinces, Philippines, 2006

PROVINCE	LIMITED BUYER/ MARKET OUTLET	COMPETITION WITH IMPORTED SUPPLY IN THE MARKET	UNSTABLE PRICE	LOW PRICE
All 3 Provinces	6.67	49.33	67.67	65.33
Ilocos Norte	8.00	47.00	70.00	85.00
Pangasinan	4.00	41.00	88.00	58.00
Nueva Ecija	8.00	60.00	45.00	53.00

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Table 49. Percentage of onion farmers who availed loans for onion production by source, selected provinces, Philippines, 2006

PROVINCE	COOPERATIVE	BANK	PRIVATE INDIVIDUAL
All 3 Provinces	0.67	4.67	19.00
Ilocos Norte	1.00	3.00	10.00
Pangasinan		9.00	12.00
Nueva Ecija	1.00	2.00	35.00

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Table 50. Percentage of onion farmers who consulted/used advice of government and private extension agents, selected provinces, Philippines, 2006

PROVINCE	GOVERNMENT EXTENSION AGENTS	PRIVATE EXTENSION AGENTS
All 3 Provinces	19.67	14.33
Ilocos Norte	14.00	2.00
Pangasinan	26.00	35.00
Nueva Ecija	19.00	6.00

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Table 51. Percentage distribution of onion farmers reporting on the plan of operation, selected provinces, Philippines, 2006

PROVINCE	MAINTAIN CURRENT OPERATION	EXPAND OPERATION	OTHERS a/
All 3 Provinces	54.67	36.33	9.00
Ilocos Norte	56.00	39.00	5.00
Pangasinan	56.00	28.00	16.00
Nueva Ecija	52.00	42.00	6.00

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a/ Include shifting to other crops, reduce farm area and stop planting onion

Table 52. Percentage of onion farmers reporting on the recommendations for further improvement of onion industry, selected provinces, Philippines, 2006

PROVINCE	PRICE SUPPORT	STOP IMPORTATION OF ONION	LOWER THE PRICE OF AGRICULTURAL INPUTS	CREDIT ASSISTANCE	INPUT SUBSIDY	OTHERS a/
All 3 Provinces	34.67	29.00	22.00	7.33	6.33	20.67
Ilocos Norte	49.00	20.00	10.00	1.00	11.00	21.00
Pangasinan	22.00	45.00	29.00	10.00	4.00	20.00
Nueva Ecija	33.00	22.00	27.00	11.00	4.00	21.00

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a/ Include conduct of seminar to farmers, provide high quality seeds, technical assistance, irrigation system for onion, strengthen market for onion and improvement of infrastructures

# **ANNEXES**

Annex Table 1. Average quantity applied per hectare of onion farm by solid fertilizer users, by variety planted, selected provinces, Philippines 2006

(kilogram)

FERTILIZER	MULTIPLIER AND SHALLOT			RED CREOLE AND YELLOW GRANEX			
	ALL 2 PROVINCES	ILOCOS NORTE	NUEVA ECIJA	ALL 3 PROVINCES	ILOCOS NORTE	PANGASINAN	NUEVA ECIJA
Organic Fertilizer a/	159.66	181.91		228.13		147.31	318.25
Inorganic Fertilizer	683.19	707.90	505.88	971.24	650.00	922.57	1,026.13
Urea (45-0-0)	48.32	55.05		13.25		8.97	18.03
Urea (46-0-0)	109.48	116.76	57.25	246.37		302.40	185.29
Ammonium Sulfate (21-0-0)	249.07	275.80	57.25	169.30	394.74	262.64	65.36
Ammonium Phosphate (16-20-0)	95.12	100.40	57.25	150.11		106.04	199.33
Complete (14-14-14)	130.39	120.64	200.38	379.27	226.32	231.44	543.18
Complete (16-16-16)	44.35	31.91	133.59	4.93		2.46	7.66
Complete (15-15-15)	0.28	0.32		0.72	5.26	1.04	0.34
Complete (19-19-19)	0.53	0.59	0.15	0.39	18.42	0.47	0.24
Muriate of Potash (0-0-60)	4.67	5.32		6.81		7.05	6.58
Others b/	0.98	1.12		0.08	5.26	0.05	0.10

a/ Include bio-earth, bonena, chicken manure, plantimate and siglat

b/ Include calcium nitrate, crop giant (15-15-30), gravac, growmore (4-0-48), complete (20-20-20), redeem and semager

Annex Table 2. Average quantity applied per hectare of onion farm by liquid fertilizer users,  
by variety planted, selected provinces, Philippines 2006

(liter)							
VARIETY PLANTED / PROVINCE	HEAVY GREEN	AGROWELL (15-7-7)	COMPLETE (20-20-20)	BAYFOLAN (11-8-6)	PHOSPHOROUS	OTHERS a/	TOTAL
<b>Multiplier and Shallot</b>							
All 2 Provinces	3.85				0.77	0.86	5.48
Ilocos Norte	16.67					0.40	17.07
Nueva Ecija					1.00	1.00	2.00
<b>Red Creole and Yellow Granex</b>							
All 3 Provinces	0.06	0.24	0.12	0.53		0.50	1.45
Ilocos Norte							
Pangasinan			0.07	1.19		0.36	1.62
Nueva Ecija	0.11	0.43	0.16			0.62	1.31

a/ Include atonik, ANAA, biozome, complete (14-14-14), farmer's friend and gravac

Annex Table 3. Average quantity of nutrients applied per hectare of onion farm by fertilizer users, by variety planted, selected provinces, Philippines, 2006

VARIETY PLANTED / PROVINCE	NITROGEN		PHOSPHOROUS		POTASSIUM	
	KILOGRAM (kg)	LITER (l)	KILOGRAM (kg)	LITER (l)	KILOGRAM (kg)	LITER (l)
<b>Multiplier and Shallot</b>						
All 2 Provinces	166.206	0.013	44.868	0.013	28.623	0.013
Ilocos Norte	175.922	0.056	42.617	0.056	25.700	0.056
Nueva Ecija	96.976		60.907		49.456	
<b>Red Creole and Yellow Granex</b>						
All 3 Provinces	232.938	0.118	84.094	0.083	58.166	0.072
Ilocos Norte	119.263		36.368		36.763	
Pangasinan	248.308	0.145	54.253	0.109	37.282	0.085
Nueva Ecija	216.338	0.096	117.240	0.062	81.322	0.062

Annex Table 4. Average quantity applied per hectare of onion farm by pesticide users, by variety planted, selected provinces, Philippines 2006

VARIETY PLANTED / PROVINCE	HERBICIDE / WEEDICIDE	INSECTICIDE		FUNGICIDE	
	LIQUID (l)	SOLID (kg)	LIQUID (l)	SOLID (kg)	LIQUID (l)
<b>Multiplier and Shallot</b>					
All 2 Provinces	2.62	0.52	1.19	2.17	0.12
Ilocos Norte	2.49	0.39	1.12	2.50	0.04
Nueva Ecija	3.53	1.27	1.62	0.35	0.67
<b>Red Creole and Yellow Granex</b>					
All 3 Provinces	3.21	1.67	2.75	2.11	0.20
Ilocos Norte	2.74		2.79	2.45	
Pangasinan	2.67	0.64	1.98	2.78	0.23
Nueva Ecija	3.82	2.95	3.61	1.28	0.16



Department of Agriculture

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