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RESEARCH ARTICLE

PRODUCTION AND MARKETING PRACTICES OF BUNCHING ONION (Allium Fistulosum L.) FARMERS IN PANGIL, LAGUNA

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Abstract

Bunching onion cultivation is becoming a popular enterprise in the 4th District of Laguna. A survey was conducted to evaluate the production and marketing practices of bunching onion farmers in Pangil, Laguna. A total of 200 managers and caretakers of bunching onion farms in the study area were identified through purposive sampling. Questionnaire with a combination of close and open-ended questions was used in the interview. Chi- Square was used for testing the correlation and association.Results show that majority of the respondents, who have an average age of 51 years, indicate that bunching onion production is their primary source of income and they have been in farming for no less than 15 years. Less than 50% of the respondents have an average farm size of .5 hectare and majority of them are tenants. Most of the producers were not able to go beyond secondary education and majority, and has no affiliation to any farmers' organization. Also, majority of the respondents have not attended any seminar on bunching onion production.Apart from the demographic profile, the respondents' production and operation management of their bunching onion farms were documented. Marketing management, which includes pricing and selling, was recorded. Results reveal that both growers and *viajeros* are the ones who decide on the price of bunching onions.Based on the data, an average income of Php 436,450.00 can be earned from .5 hectare in one cropping. Return on Sales (ROS) of 90.93% shows that every peso earned from the sale of the product there is a corresponding Php 0.91 centavos net return. Return on Investment (ROI) of 10.02% shows that for every Php 1.00 invested there is a corresponding Php 0.10 centavos net return.The study revealed that the level of yield and profit per hectare per cycle isinfluenced by the educational attainment, household size, and farm size, but are not influenced by age of the respondents. The major problems of the bunching onion farmers are the high price of seeds, insufficient capital, insect pests and diseases. Data revealed that growing bunching onions is profitable and a considerable income can be obtained in 2 to 3 months. Conduct of similar studies on bunching onion production in other towns is recommended to compare the profitability and the practices. Encouraging the farmers to practice companion cropping or any cropping system with higher biodiversity on order to enhance productivity per unit area is likewise recommended. Further, the bunching onion farmers must be organized

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and be extended with applicable trainings and assistance by concerned agencies and entities in order to improve their status and productivity.

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Introduction:-

The "Bunching onion (*Allium fistulosum L.)* Or "murangsibuyas" is a perennial herb member of the onion family, Alliaceae. Usually cultivated as an annual or biennial. It either develops a small, elongated bulb that is similar to leek, or grow slender, elongated pseudostems or tillers to form a vigorous clump. It requires a cool climate, but can also grow in areas without extremes of heat and cold, and excessive rainfall.

It is also commonly known as Welsh onion, green onion, Japanese bunching onion, spring onion, scallion, and salad onion. The species are very similar in taste and odor to the related garden onion, *Allium cepa*, and hybrids between the two exist. Bunching onion does not form a real bulb and possesses fistulosum leaves. Oriental bunching onion has a green leaf portion and a long blanched white stalk portion. The blanched portion can be from a few inches to 20 inches, depending on the varieties. The long-stalk onions are blanched by earthling up during growth. Plants can be harvested for vegetable use at any growing stage. Many Bunching onions can multiply by forming perennial evergreen clumps.(PCARRD), 2013)

Hence, this study was conducted in order to determine the production and marketing strategies employed by the respondent, to analyze the financial status of farmers engaged in bunching onion production, to determine the significant relationship between the level of profitability and demographic profile of the respondents, and to determine the problems encountered in bunching onions production and suggest possible solution.

The Oriental uses of this onion are being used almost daily in the cooking to bring out the sweet and delicious flavor of stir-fry food and soup mostly in Asian, especially in East and Southeast Asia. The long-stalk onions are very tender and well flavored, excellent for stir-fry, sukiyaki, tempura and many Japanese dishes. In Russia, these are commonly added to salad, while in the Philippines, these are used as spices in many Filipino dishes. Aside from culinary use, it is also grown in a bunch as an ornamental plant. Bunching onion is said to reduce or prevent white ant infestation in gardens. In China, diluted pressed juice of bunching is being used as biopesticides against aphids. In addition, the therapeutic qualities attributed to bunching onion are many, especially in Chinese medicine, where it is known to improve eyesight and promote longevity. It is also believed to enhance metabolism, and the function of internal organs. It is further reported to enhance recovery from common colds, headaches, wounds and festering sores. The bunching onions are mostly being planted in a cool climate, but can also grow in areas without extremes of heat, cold and excessive rainfall. Since this is a shallow rooted crop, soils with high inorganic matter give much better results, unless irrigation is available. (Delbert Hemphill, 2012.)

Green bunching onions are known by several names depending on the region of the country. Some of the names used are "scallions," "green onions," and "spring onions". All these terms can be used for immature onions, but in reality, it is called the "green bunching onion" of commerce that one purchases in the store in the Northwest. Today, it is most likely a different species from that of the bulb onion. Green onions today are most often called *Allium fistulosum*, which is further classified into four taxonomic groups. (Rabinowitch and D. Brewster, 2011)

Methods and Materials:-

This study utilized the descriptive-survey method of research thatis suitable wherever the subjects vary among themselves and one is interested to know the extent to which different condition and situation are detained among these subjects. It also signifies the gathering of data regarding present conditions. A survey is useful in providing the value of facts and focusing attention on the most important things to be reported (Calmorin2007).

This research was conducted at Pangil, Laguna. The bunching onion farmers served as the respondents in this study. Purposive sampling under non-probability sampling was used in different Barangays of Pangil, Laguna. Purposive sampling determines the target populationand the total population to be interviewed by the researcher. The area was comprised of 200 respondents who are manager or caretakers of the production and marketing of bunching onion. Those who was involved in the study were chosen in basis of their knowledge of the information desired and needed by the researcher. Questionnaires was prepared for gathering necessary data in conducting this study.

The questionnaire is written in Filipino. A combination of close and open-ended question was used to gather necessary information regarding the production and marketing practices of the bunching onion farmers. The questionnaires have four parts where first part contains the demographic profile of the respondents, second and third part is about the production management and marketing practices of bunching onion farmers, and the last part pertains to the problems encountered in the production and marketing of bunching onion in their areas as well as the possible solutions that may be implemented to resolve the difficulties being faced by the producers of bunching onion. Interview schedule started from May to June 2016. Selected respondents from Pangil, Laguna and all located Onion producer available in the area was interviewed. For their responses, respondents were given the following 5-point rating scale in the last part of questioner and the corresponding verbal interpretation in frequency and extent of problems encountered of onion farmers.

Raw Score	Range of Score	Verbal Interpretation
5	4.21-5.00	Always / very high extent
4	3.41-4.20	Often / high extent
3	2.61-3.40	Sometimes / average extent
2	1.81-2.60	Rarely / low extent
1	1 - 1.80	Never / very low extent

The descriptive tools used in the study were average, frequency, percentage, and rank. Data was tabulated and statistically analyzedusing Minitab software17. It was then organized, presented and analyzed using simple statistical tools such as mean, percentage, frequency and chi-square and correlation to test the relationship. The yield and income were expressed on per hectare basis and then tested the relationship with the demographic and business variables with the use of simple correlation. The profitability of the business was determined by data gathered.using profitability ratio such as return on investment (ROI) and return on sales (ROS). The formulas were as follows:

Return on Sales

$$ROS = \frac{\text{Net Income}}{\text{Total Sales}} \times 100$$

Return on Investment:

$$ROI = \frac{\text{Net Income}}{\text{Total Expenses}} \times 100$$

Results and Discussion:-

This section presents the distribution of the demographic profile of the respondents in terms of their age, gender, civil status, residence, family size, educational attainment, other source of income, and organizational affiliation.

Table 1 presents the distribution of the respondents by age. Majority of the respondents' age ranged from 51 to 57 years old which has a frequency of 40 while few has age ranging from 28 to 36 years old which has a frequency of 13.5. The mean age of respondents is 29.6 years. On the distribution of the respondents by gendershowed that the majority of the respondents are male which has frequency of 99 while the remaining are female which has a frequency of 49. As to the distribution of the respondents by civil status revealed that the majority of the respondents are married which has a frequency of 132 (89%), seven (7) were single, six (6) are widow/widower and three (3) were separated. For the distribution of the respondents by residence, respondents were distributed from different barangays but the highest numbers were from the Barangay Sulib, which has a frequency of 51 (34.5%). On the distribution of the respondents by family size, majority of the respondents have family members ranging from 1 to 3 which has a frequency of 83 while the least have family member ranging from 13 to 14 which has a frequency of 2. The distribution of the respondents by educational attainment showed that majority are secondary level which has a frequency of 71(48%) while the College level having frequency of 43(29%) and elementary level with frequency of 34(23%) educational attainment.

For the other source of income, majority of the respondents have no other source of income which has frequency of 62 (42%) while frequency of 28(19%) respondents involved in driving and 21 (14%) are engaged in fishing.

Table 1:- Profile of the respondents.

VARIABLES	FREQUENCY	PERCENTAGE	RANK
Age			
58 – 64 years old	23	15.5	4
51 - 57 years old	40	27.0	1

44 – 50 years old	39	26.4	2
37 – 43 years old	26	17.6	3
28 – 36 years old	20	13.5	5
Mean= 29.6 *TOTAL*	148	100.00	
Gender			
Male	99	67.0	1
Female	49	33.0	2
TOTAL	148	100.00	
Civil Status			
Single	7	5.0	2
Married	132	89.0	1
Widow/Widower	6	4.0	3
Separated	3	2.0	4
TOTAL	148	100.00	
Residence			
Barangay Sulib	51	34.5	1
SitioHalang	48	32.4	3
SitioLamao	49	33.1	2
TOTAL	148	100.00	
Family Size			
1 - 3 Family members	83	56.0	1
4 - 6 Family members	19	13.0	3
7 - 9 Family members	26	18.0	2
10 – 12 Family members	18	12.0	4
13 – 15 Family members	2	1.0	5
TOTAL	148	100.00	
Educational Attainment			
Elementary Level	34	23.0	3
Secondary Level	71	48.0	1
College level	43	29.0	2
TOTAL	148	100.00	
Other source of Income			
Businessman	15	10.0	4
Carpentry	13	9.0	5
Driving	28	19.0	2
Employment	4	3.0	6.5
Fishing	21	14.0	3
Livestock raising	5	3.0	6.5
No other source of income	62	42.0	1
TOTAL	148	100.00	

Organizational affiliation

Table 6 presents the distribution of the respondents by organizational affiliation. Majority of the respondents have noaffiliated organization which has a frequency of 81, while the rest have are affiliated to organizations. These organizations are Spring Onion Farmers with frequency of 37(25%), Samahan ng Magkakalabaw(8%), Samahan ng Magbubukid(7%), and Samahan ng Magtatanim(5%)

Organization Affiliation	Frequency	Percentage	Rank
Spring Onion Farmers	37	25.0	2
Samahan ng Magbubukid	10	7.0	4

Samahan ng Magtatanim		8	5.0	5
Samahan ng Magkakalabaw		12	8.0	3
Without organization affiliation		81	55.0	1
Total	148	100		

Table 6:- Distribution of the respondents by organizations there are affiliated.

Farming Experience

Table 7 presents the distribution of the respondents by farming experience. Data show that most of the respondents have farming experience ranging from 20 to 22 years which has a frequency of 33, while the fewest have farming experience ranging from 1 to 5 with frequency of 10 (8 %).

Table 7:- Distribution of the respondents by farming experience.

No. of years' Experience	Frequency	Percentage	Rank	
20 to 22		49	33.0	1
16 to 19		25	17.0	3
11 to 15		41	27.0	2
6 to 10		23	15.0	4
1 to 5		10	8.0	5
Total	148	100		

Farm Size

Table 8 shows the distribution of the respondents by farm size. Data revealed that the majority of the respondents have a farm size ranging from 0.2 to 0.5 square hectares which has a frequency of 86, while few of them have farm size ranging from 0.6 to 0.8 square hectares with frequency of 8 (5.4%).

Table 8:- Distribution of the respondents by farm size.

Farm Size (Ha)	**Frequency**	**Percentage**	**Rank**	
1.4 to 1.5		33	22.3	2
1.1 to 1.3		12	8.10	3
0.9 to 1.0		9	6.1	4
0.6 to 0.8		8	5.4	5
0.2 to 0.5		86	58.1	1
Total	148	100		

Number of Labor/s

Most of the respondents have no hired laborer, which has a frequency of 73 (49%) while few have a frequency of 4 (3%). Hiring of laborers depends on the farm size in terms of land preparation, fertilizer application, weeds control, irrigation, spray chemicals, harvesting and other maintenance. Because growing of bunching onions is the main source of family income, the usual helpers in the farm are members of the family.

Table 9:- Distribution of the respondents by farm size in hire labors.

No hired labor	**Frequency**	**Percentage**	**Rank**	
5 to 8	20	14.0	3	
3 to 4	4	3.0	5	
2 to 3	17	11.0	4	
1 to 2	34	23.0	2	
0	73	49.0	1	
Total	148	100		

Tenurial Status

Table 10 presents the distribution of the respondents by tenurial status. Data show that the majority of the respondents are tenants, which have a frequency of 102, while the least are lease which has a frequency of 21.

Table 10:- Distribution of the respondents by tenurial status.

Tenurial StatusFrequency	Percentage	Percentage	Rank	
Lease		21	14.19	3
Tenants		102	68.92	1
Land Owners		25	16.89	2
Total	148	100		

Crops Raised

Table 11 presents the distribution of the respondents by crop raised. Aside from bunching onions, farmers' also plant other crops. Data show that majority of the respondents planted rice as the main crop,while the least planted ornamentals.

Table 11:- Distribution of the respondents by crops raised.

Crop	Frequency	Percentage	Rank	
Rice		98	66.22	1
Ornamentals		8	28.38	3
Vegetables		42	5.40	2
Total	148	100		

Farm Site

Figure 4 presents the distribution of the respondents by farm site. It shows that majority of the respondents' farm site is located in the rice field, while the others are near the house and public road.

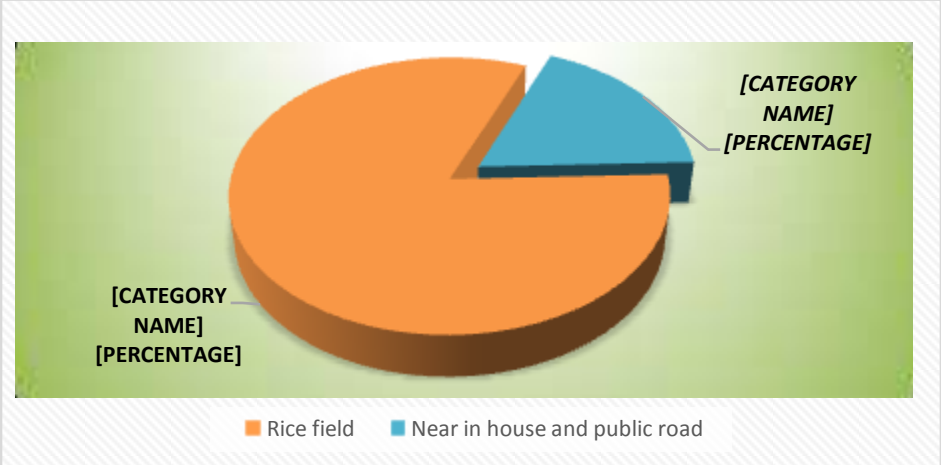

Figure 4:- Distribution of the respondents by farm site.

Extension Exposure

Figure 5 presents the distribution of the respondents in terms of their extension exposure like training and seminars. Majority of the respondents have no seminars attended which have a frequency of 112 and while the others have seminars attended having frequency of 36.

These seminars include Agriculture Extension Summit/Rice Production, Bamboo Production, Bio-natural inputs/Bio-organic inputs, OA Training, fertilizer application, IPM, Vermi composting, Vermi culture, and others.

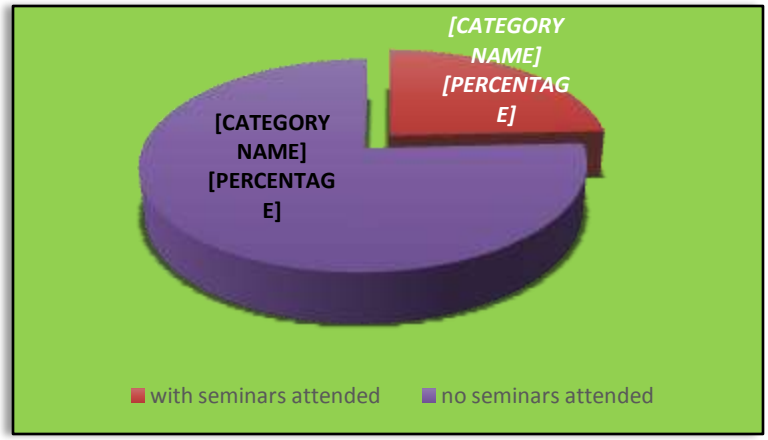

Figure 5:- Distribution of the respondents by extension exposure.

Production and Management Practices

Variety Selection

Out of 148 respondents, 111(75%) chose Semi macao variety that can be used in both dry and wet season as this variety were able to produce 12-16' tall stalks in an approximate of 1500-2000 seeds in packet and reaches its maturity within 60 – 90 days.On the contrary, only 37(25%) chose the Macao variety during the same seasons because it produce tender leaves with 10-12' stalks inapproximate of 1600-1700 seeds in packet and reaches its maturity within 60-80 days or 2 ½ months.

Table 14:- Distribution of the respondents by variety of onion raised.

Varieties	Frequency	Percentage (%)	Rank
Macao	37	25.0	2
Semi Macao	111	75.0	1
Total	148	100	

Seedling Production

For seedling production, use seeds or basal tillers as planting materials. A 350-500 m2 seedbed can produce enough seedlings for one hectare. Incorporate 1 kg/m2 animal manure, and rice hull or rice straw on top of seedbed to control harmful microorganisms. Line sow 2-4 kg seeds in rows set across the bed 5 cm apart. Distribute seeds thinly and evenly to control damping off. Cover seeds slightly with compost. Mulch with rice straw or grass clippings. Maintain adequate soil moisture. Do not over-irrigate. Protect seedbed from direct sunlight and rain with nylon net or removable plastic tunnels.

Plate 2:- Actual photo of bunching onions seed.

Land Preparation

Thorough land preparation requires 1-2 plowing and harrowing operations. One month prior to land preparation, apply about 30 cm layer of rice hull over entire field and burn for about two weeks. Incorporate burnt rice straw/hull during land preparation. Burnt rice straw/hull reduces occurrence of weeds and diseases, and improves soil texture. Apply 10-15 bags animal manure prior to bed preparation. Prepare 1 m wide beds. Fertilize and mulch with rice straw prior to transplanting.

Plate 3:- The land preparation of bunching onions in Sulib, Pangil, Laguna(**a.** after harvesting of rice, **b.** burning the rice field,**c**. land cultivation, d. ready for making plot or onions bed).

Transplanting

Water the seedbeds well prior to transplanting. Gently uproot seedlings to prevent root damage. Apply 5-7 bags 14-14-14 as basal fertilizer. Trim top portion of the leaves prior to transplanting to reduce transpiration and increase plant survival. Transplant in seedbeds at a distance of 10 cm x 15 cm. Use markers to provide proper spacing and to facilitate transplanting. Two finger or index finger may be used to make holes and plant deep enough. Care must be taken not to damage the basal portion of the plant. Press the soil lightly around the basal portion. Make sure that the root is in full contact with the soil. Irrigate the field before and after transplanting.

Plate 4:- Mrs. Carlota transplanting bunching onions at 6:00 o'clock a. m.planting bunching onions, B. sorting of planting material).

Fertilization

The practice of fertilizer application was observed in bunching onions production to ensure regular and good harvest. The distribution of respondents according to fertilizer used is shown in Table 15 which indicate that most of the respondents used urea and complete with frequency of 125(84.4%) while the rest of the farmers used urea only with the frequency of 23(16%). Apply three bags of urea (46-0-0) three weeks after transplanting. Repeat two weeks thereafter if soil fertility is low.

Table 15:-Distribution of respondents according to fertilize used.

Fertilizers	Frequency	Percentage	Rank
Urea and complete fertilizer	125	84.4	1
Urea only	23	16.0	2
Total 148	100		

Irrigation

Onion farmers practice irrigation so that the crops would grow regularly. Bunching onion is irrigated early in the morning. Table 16 shows that most of the respondents, 98 or 66.22% get their water supply through deep wells, while 29 (19.59%) get from irrigation and 14% used river as a source of water. Bunching onion requires adequate moisture to obtain steady, continuous and desirable growth. Irrigate daily during dry seas.

Table 16:- Distribution of the respondents by source of water in onion.

Sources of water	Frequency	Percentage	Rank
Deep well	98	66.22	1
River	21	14.19	3
Irrigation	29	19.59	2
Total 148	100		

Weeds and Pest Control

Table 17 presents the distribution of the respondents by controlling weeds, pest and diseases Data show that the majority of the respondents chose chemicals for controlling weeds, pests and diseases which have a frequency of 97 (65.54%) while the least have a 51(34.46%) for Physical, Mechanical, Biological and Cultural Control.

Table 17:- Distribution of the respondents by weeds and pests control in onions.

Weeds and pest control	Frequency	Percentage	Rank
Biological and Cultural control	51	34.46	2
Chemical control	97	65.54	1
Total 148	100		

Pest and disease Management

Although generally a healthy crop, bunching onion is affected by diseases common to alliums, such as purple blotch and downy mildew. To minimize occurrence, the following is recommended: proper irrigation to regulate humidity within the field; eliminate debris from previous crop; remove infectedleaves; practice crop rotation; and spray compost tea. Compost tea is prepared by fermenting compost for 10-14 days. The effluent is sprayed to control foliar diseases. The beet army worm and the American bollworm are the more serious pests. To control, spread rice hull ash over the field and spray hot pepper extract. For onion thrips, use agricultural spreader, or spray with insecticidal soap. Practice strict sanitation and cultivation to reduce damaging effects of pests and diseases.

Plate 7:- The pests and diseases that attack bunching onions (a. beet armyworm, b. American bollworm, c. spider mite d. black fly (Aphids).

Aside from these, Department of Agriculture suggests to control pests and diseases to some farmers apply the chemical pest control. Almost half of respondents continue to use chemical control to weeds, pest and diseases which have frequency of 97(65.54%). Used insecticides includeSevin, Karate, Machete, Malathion, Lannate, Actara, Decis and Selectron, 2,4-D Ester and Triple-8.

Plate 8:- Chemicals used in weeds, pest and disease control.

Harvest Maturity

Bunching onions are typically ready for harvest 50 to 60 days or 2½ months after planting, after seeding, depending on market preference. The most commonly used measure of harvest maturity are size of the plant and bulb diameter. The plant should have fully grown crisp green leaves with a minimum length of 30 cm (12 in). In some cultivars, the leaf length may extend up to 60 cm (24 in). Green onions should be harvested when they reach the proper bulb diameter for the particular market. Bunching onions should be harvested prior to bulb formation, with at least 5 cm (2 in) of white shank. The stem thickness should be slightly larger than the diameter of a pencil. Shallots should be harvested when the bulb at the base of the plant is 0.6 cm to 1.3 cm (¼ in to ½ in) in diameter and for the tillering type, planting material for the next cropping season can be left in the field.

Harvest Methods

Green onions should be carefully harvested by hand pulling the plant from the soil with the thumb, forefinger, and index finger clasped around the base of the plant. They should not be pulled by the leaves, as tearing and tissue damage will occur. The onions should be put directly into the field container and ideal harvest containers are well-ventilated plastic crates. Reed baskets or wooden crates can be used if they are lined with newspaper to protect against abrasion damage to the delicate leaves. Field sacks should not be used for collection of green onions as tissue damage and over-heating may occur. Green onions that are injured, diseased, or unmarketable shouldbe culled and not mixed with the marketable ones.

Preparation for Market

Bunching onions are highly perishable and should be prepared for market within several hours after harvest.

Cleaning/Washing

Damaged, broken, or partially yellow leaves should be removed from the green onion bunch prior to washing. For some market destinations, the green tops are trimmed to a length of 30 cm (12 in). Trimming should be done gently to avoid crushing of the leaf tissue. Bunching onions should be washed in clean, properly sanitized water to remove soil particles, dirt, and surface stains.

Sorting

There are no grade standards for bunching onions in the domestic market. However, the plants should be sorted into different quality classes. Green onion quality is best based on size, thickness of the stem or bulb, straightness, leaf color, amount of surface blemishes, and uniformity of plants within the bunch. Additional quality indices are the amount of insect damage, tissue injury, and incidence of decay. High quality green onions should be fresh and turgid, and have an appropriate leaf length.

Bunching

Green onions are usually bunched prior to packing. The number of individual plants per bunch depends on the market destination and type of green onion (bunching or scallion). For domestic markets, green onions are usually

wrapped into large bunches of 25 to 30 plants per bunch. Either soft textured string or rubber bands can be used as wrapping material, and there are usually two wraps per bunch.

Marketing Management
Marketing management includes pricing, selling and distribution through marketing channel.

Most of the respondents said that in terms of pricing the viajeros and growers meet and bargain on price until a price acceptable to both of them in reached. Price depends on the season. A month of September to November is when price of bunching onions production are highest. This is also the reason of the high production. Bunching onion prices usually ranges from 100.00 to Php 120.00 per kilo. The lowest price is in December, where bunching onion are usually sold at 10-25 per kilo.

Selling
All of the respondents have their contact buyers, which are the viajeros who transport and sell the bunching onions in Divisoria and/or Balintawak markets. Respondents set aside some harvest, usually the rejects for family and relatives consumption. The viajeros and the growers have their meeting place, which is the waiting shed. The grower waits for the contact buyer to pick-up the products.

Marketing Channel
The marketing channel for bunching onions is shown in Figure 6. It shows how the product from producers reaches the consumers. The arrows indicate the direction of movement.

The producer does the planting up to the harvesting handling. The viajeros is the bulk buyer where the retailers or final consumers can buy products. Retailer is the convenient person where final consumer can buy in small amount of the product. Final consumer is the final destination of the product. They buy the product for consumption purposes.

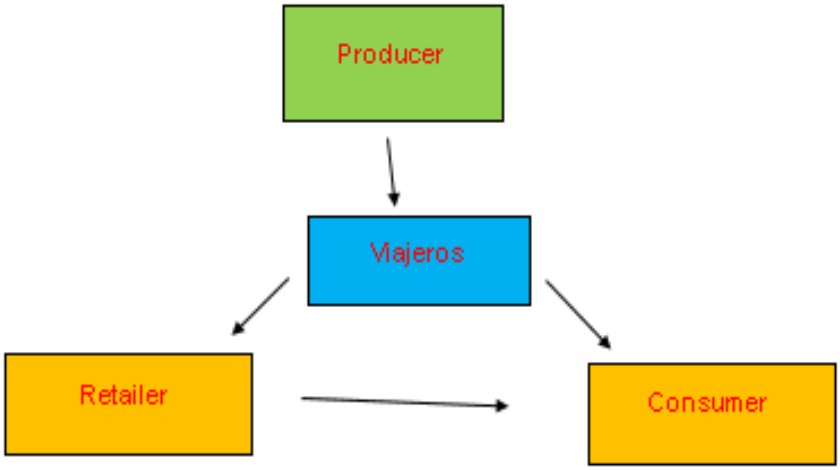

Figure 6:- Marketing channel for bunching onions.

Problems encountered by farmers in bunching onion productions
Table 18 and 19 shows the frequency and the extent of the problems encountered by the farmers in production, marketing and finance. Based on the respondents' frequency, problems encountered are the highest price of seeds/seedlings, many competitors and lack of capital at a frequency of always. The extent problems encountered by the farmers are the highest price of seeds/seedlings, the place of buyers is very far and lack of capital at an above average extent.

The overall frequency and extent of problems encountered by the farmers by production, marketing and finance were at average with grand mean score are 3.9 in frequency. Problem encountered by farmers level is sometimes and grand mean extent problem encountered by the farmers level was 3.51 for above average extent.

Table 18:- The frequency of problems encountered by the farmers by production, marketing and finance.

Production	**Weighted Mean**	**Verbal Interpretation**	**Rank**
1.1 Price of seed/seedlings	4.89	Always	1
1.2 Availability of seeds	3.27	Sometimes	5
1.3 Pest and diseases	4.56	Always	3
1.4 Calamity/disaster	4.68	Always	2
1.5 Lack of fertilizer, water and chemicals	4.08	Often	4
Average Weighted Mean	**4.28**	**Always**	

Marketing	**Weighted Mean**	**Verbal Interpretation**	**Rank**
2.1 There are few customers/buyers	3.15	Sometimes	4
2.2 There are many competitors			
2.3 The price are changing	4.57	Always	1
2.4 The place of buyers is very far			
2.5 The buyers are cheating	3.93	Often	2
	3.19	Sometimes	3
	2.19	Seldom	5
Average Weighted Mean	**3.41**	**Often**	

Financial	**Weighted Mean**	**Verbal Interpretation**	**Rank**
3.1 Insufficiency of capital	4.91	Always	1
3.2 Capital shortage	4.29	Always	3
3.3 it is very difficult to look for a financer	4.88	Always	2
3.4 There is no financer			
3.5 High interest of loan	2.44	Seldom	5
	3.53	Often	4
Average Weighted Mean	**4.01**	**Often**	

Table 19:- The extent of problems encountered by the farmers by production, marketing and finance.

Production	**Weighted Mean**	**Verbal Interpretation**	**Rank**
1.6 Price of seed/seedlings	4.10	Above average extent	1
1.7 Availability of seeds	2.95	Average extent	5
1.8 Pest and diseases	4.79	Very high extent	3
1.9 Calamity/disaster	4.62	Very high extent	2
1.10 Lack of fertilizer, water and chemicals	4.90	Above average extent	4
Average Weighted Mean	**4.07**	**Above average extent**	

Financial	**Weighted Mean**	**Verbal Interpretation**	**Rank**
3.1 Insufficiency of capital	4.28	Very high extent	1
3.2 Capital shortage	3.08	Average extent	3
3.3 It is very difficult to look for a financer	2.11	Below average extent	4
3.4 There is no financer	2.02	Below average extent	5
3.5 High interest of loan	3.57	Above average extent	2
Average Weighted Mean	**4.01**	**Above average extent**	

Marketing	**Weighted Mean**	**Verbal Interpretation**	**Rank**

2.1 There are few customers/buyers	2.16	Below average extent	4
2.2 There are many competitors	2.91	Average extent	3
2.3 The price are changing	2.94	Average extent	2
2.4 The place of buyers is very far	3.05	Average extent	1
2.5 The buyers are cheating	1.18	Very low extent	5
Average Weighted Mean 2.45	**Below average extent**		

Financial Management

This section presents the financial management that includes the cost and return analysis for bunching onions. Assumptions and the test of relationship using correlation are also presented.

Cost and return of producing bunching onions

The cost and return were based on the data and assumption gathered from the respondents.Table 20 shows the average of bunching onion per hectare and per cycle. One cycle of bunching onions isconsisting of 2 ½ months or 3 months. This showsthat the average harvest per cycle in the field is 6,200 kg. Average income of bunching onions is Php 589,000.00 per cycle, average of total cost/expenses of bunching onion is Php 65,887.50 and the average net income per cycle in the field is Php 532,290.00 of bunching onion production.

Table 20:- Distribution of the respondents by average volume of harvest per ha/per cycle.

Farm Size (Ha)	**Volume harvest per cycle(kg) in peso**	**Total sales per cycle in peso**	**Total owner cost or expenses per hectare**	**Net Income**
1 to 1.5	8500-10,000t/ha	950,000.00	100,000.00	850,000.00
0.8 to 0.9	7500-8000 kg	760,000.00	70,000.00	690,000.00
0.6 to 0.7	6000-7000 kg	665,000.00	50,000.00	615,000.00
0.4 to 0.5	2500-5000 kg	475,000.00	43,550.00	431,450.00
0.2 to 0.3	700 - 1000 kg	95,000.00	20.000.00	75,000.00
Average	**6,200kg**	**589,000.00**	**65,887.50**	**532,290.00**

Cost and return of producing bunching onions in half hectare

Table 21 shows the average cost and return of 0.5/ half-hectare-producing bunching onions per cycle. The production gives the respondents a reasonable profit. Based on the data, the average sale of bunching onions is Php480, 000.00 per cycle is expected to be realized average expenses of Php 43,550 was incurred and averaged income of Php 436,450.00. Return on Sale (ROS) of 90.92% shows that every peso sale attained, there is a corresponding Php 0.91 centavos net return. Return on Investment (ROI) of 10.02% shows that every Php 1.00 total investment there is a corresponding Php 0.10 centavos net return.

Table 21:- Income statement of Bunching Onion (One cropping in 0.5/half hectare).

PARTICULARS		AMOUNT (PHP)
Sales		
Sales of Bunching Onion	4,000 kls /4 tons x Php 120 =	Php 480,000.00
TOTAL SALES		***Php 480,000.00***
Less Operating Expenses		
Seeds	Php 7,000.00	
Plowing	Php 7,000.00	
Harrowing	Php 1,000.00	
Planting	Php 2,450.00	
Fertilizer	Php 3,600.00	
Pesticide	Php 1,500.00	
Wages (Salaries of Laborer)	Php 17,500.00	
Land Rent	Php 3,500.00	
	Php 43,550	
TOTAL EXPENSES		***Php 43,550.00***
NET INCOME		Php 436,450.00
ROS (%)		90.93
ROI (%)		10.02

Note: Family labor is not included in the computation of expenses.

Influence of Demographic Profile of the Farmers to Yield and Profitability

To determine if profit level is affected by the demographic characteristics, test of relationship between age, household size, farm size, and educational attainment and yield and profit per ha per cycle in the field was tested.

Result of analyses in Tables 22 and 23 revealed that the amount of yield per hectare per cycle of the respondents is influenced by the household size and farm size. The bigger household size results a lower yield because the capital is short for every day needs in a bigger household size while the smaller household size results a higher yield and not influenced by age and educational attainment in yield per hectare per cycle. While the amount of profit per hectare per cycle of the respondents is influenced by the educational attainment and also influenced by household, size and farm size in profit per hectare per cycle because bigger household size and small farm size result a lower yield that result also a lower profit. However, if if the farmers have bigger household size and have smaller farm size in terms by educational attainment in college level influence in terms of profit because they have strong ability to market or deal with the buyers that result to high profit and not influence by age of the respondents.

This result shows that the principles of economies of scale operate in bunching onions productions. It means that it can produce one unit of output at lower cost than when a smaller business is operated.

Table 22:- Relationship between demographic characteristics and yield per hectare per cycle.

Variables tested for relationship		Statistical value	p	Relationship
Age and yield/ha/cycle in the field	r =	0.127	0.123	Not significant
Household size and yield/ha/ cycle in the field	r =	0.779	0.002	Significant
Farm size and yield/ha/cycle in the field	r =	0.913	0.000	Significant
Educational attainment and yield/ha/cycle in the field	x^2 =	3.050	0.218	Not significant

Table 23:- Relationship between demographic characteristics and profit per hectare per cycle.

Variables tested for relationship		Statistical value	p	Relationship
Age and profit/ha/cycle in the field	r =	0.137	0.096	Not significant
Household size and profit/ha/ cycle in the field	r =	0.947	0.000	Significant
Farm size and profit/ha/ cycle in the field	r =	0.903	0.000	Significant
Educational attainment and profit/ha/cycle in the field	x^2 =	11.544	0.003	Significant

Conclusions:-

Based on the study, it is therefore concluded that growing ofbunching onions is profitable and a good source of income in short period of time about 2 to 3 months. This is because they practice water supply through deep well farming. There is a high demand or production for bunching onion in the months of September and November. this is also when prices are in maximum. It is further concluded that the age of the respondents has no significant influence on the yield and income of bunching onions growers except educational attainment, household size and farm size that directly affects in yield and profit on per cycle per hectare basis. The bigger the farm size, the higher the yield and profit. It was suggested that individuals who want to engage in this kind of business should have more

knowledge in the production and profitability of growing bunching onions. Further studies regarding bunching onions in other towns are also recommended to compare the profitability and the practices.

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