

## **BIBLIOGRAPHY**

KIMBUNGAN, LIM E. APRIL. 2012. Market Potential of Organic Fertilizers in Tublay, Benguet. Benguet State University, La Trinidad, Benguet.

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## **ABSTRACT**

This study is about the market potential of organic fertilizers in Tublay, Benguet. Survey questionnaire were administered to 100 farmer- respondents and an interview guide were also administered to the producer-respondents who are the beneficiaries of the shredder machines distributed by Department of Labor and Employment (DOLE) through the Municipal Agricultural Office and also includes the other individual and organizational producers.

The organic fertilizers commonly produced are compost, vermicompost and vermicast in monthly production cycle. Most of the produced are for their own consumption and some are for sale. Majority of the producers based their selling price on their cost of production and some based on the consensus decision of Project Management, Japan Agricultural Exchange Council (JAEC), and they sell it at their production site and directly to the farmers.

The common reason of users for using organic fertilizers is that it fertilizes the soil and they mostly make use of compost and vermicompost while only few utilize vermitea.



There is no standard rate of application among users, though farmers intend to increase utilization because it conditions the soil better and it has good effect on plant.

The respondents are willing to pay P100- P150 per sack of compost, P350-P400 per sack of vermicompost, P100 per liter of vermitea, P10 per kilo of vermicast and P150 per sack of mokusaku compost.

The non-users are not using organic fertilizers because they don't know about it and they prefer to buy commercial fertilizers hence, now that they heard about it, majority of them are willing to use organic fertilizers. Most of them intend to use compost, vermicompost and vermicast only if they would be educated and trained more on organic production. Additionally, most of the respondents intend to source organic fertilizers at the Municipal Agricultural Office and produce it on their own.

It is hence recommended that local officials together with the staff of Municipal Agriculture Office must coordinate with government or non-government agencies that advocate organic farming. To educate and train more the farmers about the use and effect of organic fertilizers in farming in order to encourage the farmers more to use organic fertilizers and for the producers to increase their sales as well as their production and to have a common market place for the farmers to know where to buy organic fertilizers and to look upon its commercialization. Further, a follow up study on each organic fertilizer is recommended to have a more clear understanding on each of their market potential.



## RESULTS AND DISCUSSION

### Profile of the Respondents

Table 1 presents the profile of the respondents. For the producer- respondents, they are almost equally distributed from age ranges of 35-44 (27.3%), 45-54 (36.4%), and 55-64 (27.3%) respectively. Majority (36.4%) of the respondents are in Barangay Caponga while the remaining Barangays have 1 (0.9%) producer of organic fertilizers. The producer in each barangay was the beneficiaries of shredders and composting materials from the DOLE through the Municipal Agricultural Office. In terms of gender, all except one were males. For the farmer-respondents, non-users of organic fertilizers comprise most of the 100 respondents with 71 (71.0%) of them belonging to the category while 29 (29.0%) respondents are users. In terms of their ages, they are almost equally distributed from ages 35-44 (29.0%), 45-54 (26%) and 25-34 (24%) respectively.

It is common notion that farming is a male dominated activity, it is surprising to see that 20 (20.0%) of the farmer-respondents are females with 14 of them belonging to non-users. While 80 (80.0%) of the farmer-respondents were males with most (57) of them are non-users.

Most of the respondents however are from barangay Baayan with 22 (22.0%) farmer-respondents which dominates the users 6 (5.4%) and non- users 16 (14.4%) of organic fertilizers, followed by barangay Caponga with 15 (15.0%) respondents respectively.



Table 1. Demographic profile of respondents

PARTICULARS	PRODUCER		FARMERS				TOTAL	
			USER		NON-USER			
	F	%	F	%	F	%	F	%
<b>Age</b>								
<25	-	-	-	-	3	3.0	3	3.0
25-34	1	9.1	7	7.0	17	17.0	24	24.0
35-44	3	27.3	8	8.0	21	21.0	29	29.0
45-54	4	36.4	7	7.0	19	19.0	26	26.0
55-64	3	27.3	6	6.0	9	9.0	15	15.0
65+	-	-	1	1.0	2	2.0	3	3.0
<b>TOTAL</b>	<b>11</b>	<b>100.0</b>	<b>29</b>	<b>29.0</b>	<b>71</b>	<b>71.0</b>	<b>100</b>	<b>100.0</b>
<b>Gender</b>								
Male	10	90.0	23	23.0	57	57.0	80	80.0
Female	1	10.0	6	6.0	14	14.0	20	20.0
<b>TOTAL</b>	<b>11</b>	<b>100.0</b>	<b>29</b>	<b>29.0</b>	<b>71</b>	<b>71.0</b>	<b>100</b>	<b>100</b>
<b>Location</b>								
Ambassador	1	9.1	5	5.0	5	5.0	10	10.0
Ambongdolan	1	9.1	3	3.0	11	11.0	14	14.0
Baayan	1	9.1	6	6.0	16	16.0	22	22.0
Basil	1	9.1	1	1.0	7	7.0	8	8.0
Caponga	4	36.4	5	5.0	10	10.0	15	15.0
Daclan	1	9.1	1	1.0	6	6.0	7	7.0
Tublay Central	1	9.1	5	5.0	9	9.0	14	14.0
Tuel	1	9.1	3	3.0	7	7.0	10	10.0
<b>TOTAL</b>	<b>11</b>	<b>100.0</b>	<b>29</b>	<b>29.0</b>	<b>71</b>	<b>71.0</b>	<b>100</b>	<b>100.0</b>

### Farm Profile

Table 2 presents the profile of the farms. Majority (71.0%) of the farmer-respondents' farms were conventional farm or those who use purely inorganic or commercial fertilizers. Some 24 (24%) were transitional organic farms and only 5 (5%) were purely organic farms. Most of the farmer-respondents have farms that ranges between the 1000-2799 m<sup>2</sup> with 55 (55%) of them belonging to the category. Only one farmer surveyed had a farm of more than 8200 m<sup>2</sup>. Among the users of organic fertilizers, 12 out of 24 of the transitional farmers were practicing organic farming. Most of them, 10 (58.8%), said they had an organic farm



with less than 500 m<sup>2</sup> and 2 (11.8%) of them had a farm of 500-899 m<sup>2</sup> allotted for organic farming. Among the organic practitioner, 3 of them had a farm of 500-899 m<sup>2</sup> allotted for organic farming and only 1 had a farm size of less than 500 and 900-1299 m<sup>2</sup> allotted for organic farming respectively.

While most of the users of organic fertilizers were only practicing organic farming in less than 2 years, 9 (52.9%) out of 17, while 6 (35.3%) of them had been organic farmers with experiences of 2-4 years and only 1 each had experience in organic farming of 5-7 years and more than 11 years respectively.

Table 2. Farm profile

PARTICULARS	USER				NON-USER		TOTAL	
	ORGANIC		TRANSITIONAL		CONVENTIONAL			
	F	%	F	%	F	%	F	%
Type of Farm	5	5.0	24	24.0	71	71.0	100	100
Farm Size (m <sup>2</sup> )								
<1000	2	2.0	5	5.0	25	25.0	32	32.0
1000-2799	2	2.0	15	15.0	38	38.0	55	55.0
2800-4599	1	1.0	1	1.0	7	7.0	9	9.0
4600-6399	-	-	3	3.0	-	-	3	3.0
8200+	-	-	-	-	1	1.0	1	1.0
TOTAL	5	5.0	24	24	71	71.0	100	100
Organic Area (m <sup>2</sup> )								
<500	1	5.9	10	58.8	-	-	11	64.7
500-899	3	17.6	2	11.8	-	-	5	29.4
900-1299	1	5.9	-	-	-	-	1	5.9
TOTAL	5	29.4	12	70.6	-	-	17	100
Length of Time as Organic Practitioner								
<2	2	11.8	7	41.2	-	-	9	52.9
2-4	2	11.8	4	23.5	-	-	6	35.3
5-7	-	-	1	5.9	-	-	1	5.9
11+	1	5.9	-	-	-	-	1	5.9
TOTAL	5	29.4	12	70.6	-	-	17	100



Type, Quantity and Production Cycle  
of Organic Fertilizer Producers

Table 3 presents the type, quantity and production cycle of organic fertilizer producers. Most producers manufacture vermicompost and vermicast organic fertilizers with volume ranges between 1-10 sacks in monthly production cycles with 11 and 9 of the producers manufacturing them respectively. One producer is also manufacturing vermicast with volume ranges between 11-20 sacks monthly. Only one producer manufactures compost and mokusaku compost in monthly production cycle while vermitea is being produced with 1-10L volume in weekly basis.

Table 3. Type, quantity and production cycle of organic fertilizers by producers

TYPE OF ORGANIC FERTILIZERS	QUANTITY PRODUCED	PRODUCTION CYCLE			
		WEEKLY		MONTHLY	
		F	%	F	%
Compost	1-10 sacks	-	-	1	9.1
Vermicompost	1-10 sacks	-	-	11	100.0
Vermitea	1-10 L	1	9.1	-	-
Vermicast	1-10 sacks	-	-	9	81.8
	11-20 sacks	-	-	1	9.1
Mokusaku compost	11-20 sacks	-	-	1	9.1

\*Multiple Response



Cost of Production per Type of Organic Fertilizer Produced in the Production Cycle of Organic Producers

Table 4 presents the cost of production per type of organic fertilizer produced in the production cycle of organic producers. It can be seen that most of the respondents rate their cost of production for organic fertilizers in the less than five hundred pesos (<500) range. One producer which produces compost had a production cost for raw materials at about P500 and labor of around P500 to P1500. Most of the producers of vermicompost rate their production cost for raw materials and fuel at about less than five hundred pesos (<500) range and labor of around P500 to P1500 while majority of the producers of vermicast had a production cost for raw materials and labor at about P500. One producer of vermitea and mokusaku compost also rate their raw materials and labor in the P500 to P1500 range.

Table 4. Cost of production per type of organic fertilizer produced in production cycle

TYPE OF ORGANIC FERTILIZERS	PRODUCTION ASPECT	COST OF PRODUCTION (Php)	
		<500	500-1500
Compost	Raw Materials	1	-
	Labor	-	1
Vermicompost	Raw Materials	7	4
	Labor	5	6
	Fuel	8	3
Vermitea	Raw Material	-	1
	Labor	-	1
	Fuel	1	-
Vermicast	Raw Materials	6	5
	Labor	8	2
Mokusaku compost	Materials	-	1
	Labor	-	1
	Fuel	-	1

\*Multiple Response



Utilization of Organic Fertilizers  
Produced by Organic Producers

Table 5 presents the utilization of organic fertilizers produced by organic producers. It can be seen that most of the respondents or producers rate use their produced organic fertilizers for their own consumption. For compost, 1-10 sacks of compost are consumed by a producer with the same number also sold. For vermicompost, most of the fertilizers produced at 1-10 sacks are being consumed by organic producers themselves while 5 of them said that their produce 1-10 sacks are being sold to users of organic fertilizer. Most of the vermicast produce at 1-10 sacks and 1 at 11-20 sacks of vermicast are consumed by organic producers for farming while 5 producers at 1-10 sacks and 1 producer at 11-20 sack sold their product. Vermitea producing farmers consume about 1-10L of vermitea while the same amount is also sold in the market. For the mokusaku compost produced, farmers consume about 1-10 sacks in their farm while they sell the same amount to the market.

Table 5. Ways of utilization of organic fertilizers produced by organic producers

TYPE OF ORGANIC FERTILIZERS	QUANTITY PRODUCED	UTILIZATION			
		OWN CONSUMPTION		FOR SALE	
		F	%	F	%
Compost	1-10 sacks	1	9.1	1	9.1
Vermicompost	1-10 sacks	9	81.8	5	45.5
Vermitea	1-10 L	1	9.1	1	9.1
Vermicast	1-10 sacks	6	54.5	5	45.5
	11-20 sacks	1	9.1	1	9.1
Mokusaku compost	1-10 sacks	1	9.1	1	9.1

\*Multiple Response





Price and Basis for Cost of Organic Fertilizers  
Produced by Organic Producers

Table 6 presents the price and basis of producers for the cost of organic fertilizers produced. Compost is sold by a producer at P100/bag and solely based from the cost of production as determined by the producer. Vermicompost on the other hand is sold at P350/bag by 3 producers and 4 producers at P400/bag on the basis of production cost while only 1 producer sells it at P400/bag as a consensus decision of the project management (JAEC). Vermitea is sold by the producer at P100/L and this selling price is determined solely by the cost of production. Vermicast, on the other hand, is sold by 4 producers at P500/bag and 1 producer at P450/bag based on cost of production and 2 producers sold at P500/bag based on the decision of project management by JAEC. Mokusaku compost is sold at P150/bag by one producer based on cost of production and one producer based from JAEC at the same price. This suggest that prevailing cost of production and market forces are the most common basis for pricing of sold organic fertilizers by producers.

Table 6. Price and basis for cost of sold organic fertilizers by producers

TYPE OF ORGANIC FERTILIZERS	BASIS FOR PRICE	PRICE (Php)					
		100/bag		150/bag		200/bag	
		F	%	F	%	F	%
Compost	Cost of Production	1	9.1	-	-	-	-
		300/bag		350/bag		400/bag	
Vermicompost	Cost of Production	-	-	3	27.3	4	36.4
	Consensus decision of Project Management (JAEC)	-	-	-	-	1	9.1



Table 6. continued...

TYPE OF ORGANIC FERTILIZERS	BASIS FOR PRICE	PRICE (Php)					
		50/L		100/L		150/L	
		F	%	F	%	F	%
Vermitea	Cost of Production	-	-	1	9.1	-	-
		400/bag	450/bag	500/bag			
Vermicast	Cost of Production	-	-	1	9.1	4	36.4
	Consensus decision of Project Management (JAEC)	-	-	-	-	2	18.2
		100/bag	150/bag	200/bag			
Mokusaku compost	Cost of Production	-	-	1	9.1	-	-
	Consensus decision of Project Management (JAEC)	-	-	1	9.1	-	-

\*Multiple Response

#### Market Outlet of Producers of Organic Fertilizers

Table 7 presents the market outlet of producers of organic fertilizer, most of the organic fertilizers produced by the respondents were being sold in their production site while some producer of vermicompost, vermicast and mokusaku compost directly sell their product to the farmers, maybe by made-to-order scheme, and the same organic fertilizers were being sold at the Municipal Agricultural Office. Based from the results, it is an evident that there is no proper or exact place for the producers to market their produced organic fertilizers.



Table 7. Market outlet of producers of organic fertilizer

TYPE OF ORGANIC FERTILIZERS	SELLING LOCATION					
	PRODUCTION SITE		DIRECT TO FARMERS		MUNICIPAL OFFICE	
	F	%	F	%	F	%
Compost	1	9.1	-	-	-	-
Vermicompost	5	45.5	4	36.4	1	9.1
Vermitea	1	9.1	-	-	-	-
Vermicast	5	45.5	2	18.2	1	9.1
Mokusaku compost	1	9.1	1	9.1	1	9.1

\*Multiple Response

Type and Source of Users for Organic Fertilizers

Table 8 presents the utilization of organic fertilizers used by organic farmers in relation to their source. It is surprising to see that most of the organic fertilizers were produced by the farmers themselves and of these farmers, 26 produce mostly compost. Only 3 farmers buy organic fertilizers at the Palew Multipurpose Cooperative. Vermisompost is the next most used organic fertilizer used with 7 of them sourcing it from the Municipal Agricultural Office and also 7 producing their own.

Table 9 presents the type of organic fertilizer used by organic farmers in relation to years of farming. Compost was mostly used by farmers that had 25 to 30 years of experience of farming while respondents that had 20 to 24 years and more than 30 years of farming mostly uses vermicompost. Bulk of the users uses compost followed by vermicompost and vermicast



Table 8. Type of organic fertilizers used by user in relation to their source

TYPE OF ORGANIC FERTILIZERS	SOURCES OF ORGANIC FERTILIZERS							
	MUNICIPAL AGRICULTURAL OFFICE		PALEW MULTIPURPOSE COOPERATIVE		PRODUCE MY OWN		OTHERS	
	F	%	F	%	F	%	F	%
Compost	-	-	-	-	26	89.7	3	10.3
Vermicompost	7	24.1	1	3.4	7	24.1	2	6.9
Vermitea	-	-	1	3.4	2	0.9	-	-
Vermicast	5	17.2	1	3.4	3	10.3	1	3.4
Mokusaku compost	3	10.3	-	-	1	3.4	-	-

\*Multiple Response



Table 9. Type of organic fertilizer used by user in relation to years of farming

TYPE OF ORGANIC FERTILIZER USED	YEARS OF FARMING													
	+30		25-30		20-24		15-19		10-14		5-9		<5	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Compost	5	17.2	7	24.1	5	17.2	4	13.8	3	10.3	3	10.3	2	6.9
Vermicompost	4	13.8	3	10.3	4	13.8	3	10.3	1	3.4	1	3.4	1	3.4
Vermitea	1	3.4	1	3.4	1	3.4	-	-	-	-	-	-	-	-
Vermicast	2	6.9	1	3.4	4	13.8	2	6.9	-	-	1	3.4	-	-
Mokusaku compost	1	3.4	1	3.4	-	-	2	6.9	-	-	-	-	-	-

\*Multiple Response



Table 10 presents the type of organic fertilizer used by organic farmer relating farm size. Most of the respondents use compost followed by vermicompost. Of those with farm sizes less than 1000m<sup>2</sup>, compost (7) and vermicompost (6) were mostly used by them. Farmers with 1000-2799 m<sup>2</sup> of farm size used mostly compost and vermicompost but a number of them (5) also used vermicast, mokusakocompost (3) and vermitea (1). Those farmers with the largest farms (4600-6399m<sup>2</sup>) mostly used compost and vermicompost.

Those with organic farms found in Table 11, most of the farmers with less than 500 m<sup>2</sup> and 500- 899 m<sup>2</sup> use more compost, followed by vermicompost and vermicast. Those with the largest organic farms, 900-1299m<sup>2</sup>, exclusively used compost and vermicompost.

Table 12 present type of organic fertilizer used by organic farmers in relation to length of time as organic practitioner. The more experience farmers (11+ years) in organic farming exclusively used compost while those who practice organic farming in less than 2 years mostly used compost and vermicompost while there's only one user of vermitea. The most used organic fertilizer considering their years of experience in organic farming is compost followed by vermicompost. This suggests that compost is a viable organic fertilizer which can be produced cheaply by farmers or manufactured commercially by producers. In the long run, as the experience of the organic practitioner widens, preference to compost becomes evident.



Table 10. Type of organic fertilizer used by user in relation to farm size

TYPE OF ORGANIC FERTILIZER USED	FARM SIZE (m <sup>2</sup> )							
	<1000		1000-2799		2800-4599		4600-6399	
	F	%	F	%	F	%	F	%
Compost	7	24.1	17	58.6	2	6.9	3	10.3
Vermicompost	6	20.7	7	24.1	2	6.9	2	6.9
Vermitea	2	6.9	1	3.4	-	-	-	-
Vermicast	3	10.3	5	17.2	2	6.9	-	-
Mokusakucompost	1	3.4	3	10.3	-	-	-	-

\*Multiple Response

Table 11. Type of organic fertilizer used by user in relation to organic farm area

TYPE OF ORGANIC FERTILIZER USED	ORGANIC FARM AREA (m <sup>2</sup> )					
	<500		500-899		900-1299	
	F	%	F	%	F	%
Compost	10	58.8	5	29.4	1	5.9
Vermicompost	8	47.1	3	17.6	1	5.9
Vermitea	2	11.8	1	5.9	-	-
Vermicast	6	35.3	2	11.8	-	-
Mokusaku compost	2	11.8	1	5.9	-	-

\*Multiple Response



Table 12. Type of organic fertilizer used by user in relation to length of time as organic practitioner

TYPE OF ORGANIC FERTILIZER USED	LENGTH OF TIME AS ORGANIC PRACTITIONER (YEARS)							
	<2		2-4		5-7		11+	
	F	%	F	%	F	%	F	%
Compost	9	52.9	6	35.3	1	5.9	1	5.9
Vermicompost	5	29.4	2	11.8	1	5.9	-	-
Vermitea	1	5.9	-	-	-	-	-	-
Vermicast	3	17.6	2	11.8	-	-	-	-
Mokusaku compost	2	11.8	1	5.9	-	-	-	-

\*Multiple Response

Type and Quantity of Organic Fertilizer(s) Used by User

In Table 13, most users make use compost while some uses vermicompost. The respondents use less of vermitea with only 3 of the respondents and only 4 for mokusaku compost. As for the quantity, majority of the organic farmers uses organic fertilizers depending on their needs followed by less than a sack used for farming with 16 respondents.

Table 14 indicates the quantity of organic fertilizer used by user in relation to the years of farming. It is apparent that while the experience in farming of the farmers increases, their preference for organic fertilizers also increases. This is evident from the number of farmers using the different organic fertilizers in their more than 30 years of farming. Also, it is apparent that many of the farmers opined that the quantity of organic fertilizers they use depends on farming conditions.





Table 13. Type and quantity of organic fertilizer(s) used by user

QUANTITY OF ORGANIC FERTILIZERS USED									
TYPE OF ORGANIC FERTILIZERS USED	IT DEPENDS		<1 SACK		1-3SACKS		4-7 SACKS		
	F	%	F	%	F	%	F	%	
Compost	13	44.8	7	24.1	5	17.2	4	13.8	
Vermicompost	9	31.0	3	10.3	4	13.8	1	3.4	
Vermicast	5	17.2	4	13.8	1	3.4	-	-	
Mokusakucompost	3	10.3	1	63.4	-	-	-	-	
	IT DEPENDS		<1 L		1-2 L		3-5 L		
	F	%	F	%	F	%	F	%	
Vermitea	2	6.9	1	3.4	-	-	-	-	

\*Multiple Response



Table 14. Quantity of organic fertilizer(s) used by user in relation to years of farming

QUANTITY OF ORGANIC FERTILIZERS	YEARS OF FARMING													
	30+		25-30		20-24		15-19		10-14		5-9		<5	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%
<b>Compost</b>														
It depends	3	10.3	1	3.4	2	6.9	-	-	1	3.4	-	-	-	-
<1 sack	1	3.4	-	-	1	3.4	1	3.4	1	3.4	-	-	-	-
1-3 sacks	3	10.3	-	-	-	-	-	-	-	-	1	3.4	-	-
4-7 sacks	-	-	-	-	2	6.9	-	-	1	3.4	2	6.9	-	-
>7 sacks	1	3.4	1	3.4	-	-	1	3.4	-	-	-	-	1	3.4
<b>Vermicompost</b>														
It depends	2	6.9	-	-	1	3.4	1	3.4	-	-	-	-	-	-
<1 sack	1	3.4	-	-	1	3.4	1	3.4	-	-	-	-	-	-
1-3 sacks	1	3.4	-	-	1	3.4	-	-	-	-	-	-	-	-
4-7 sacks	-	-	-	-	-	-	-	-	1	3.4	1	3.4	-	-
>7 sacks	-	-	1	3.4	-	-	-	-	-	-	-	-	-	-
<b>Vermitea</b>														
It depends	2	6.9	1	3.4	-	-	-	-	-	-	-	-	-	-
>5 L	1	3.4	-	-	-	-	-	-	-	-	-	-	-	-
<b>Vermicast</b>														
It depends	1	3.4	1	3.4	1	3.4	1	3.4	-	-	-	-	-	-
<1 sack	1	3.4	-	-	1	3.4	1	3.4	-	-	-	-	-	-
1-3 sacks	1	3.4	-	-	-	-	1	3.4	-	-	-	-	-	-
4-7 sacks	-	-	-	-	1	3.4	-	-	-	-	-	-	-	-
<b>Mokusaku compost</b>														
It depends	2	6.9	-	-	1	3.4	-	-	-	-	-	-	-	-
1-3 sacks	-	-	-	-	1	3.4	-	-	-	-	-	-	-	-

\*Multiple Response



Many farmers have farms with 1000-2799m<sup>2</sup> as seen in Table 15 and majority of them speak out that the quantity of organic fertilizers they use depends on farming conditions. However, a great many of them indicated that they use less than one sack and between 1 to 3 sacks of compost and vermicompost and mokusakocompost. One farmer indicated that he uses 4-7 sacks of vermicast for a 1000-2799m<sup>2</sup> farm area.

While most organic farmers have organic farms of less than 500m<sup>2</sup> as seen in Table 16, majority of them speak out that the organic fertilizer they use were less than a sack and also depends on farming conditions. However, some farmers admitted that they use 4-7 sacks of compost and greater than 7 sacks of compost and vermicompost for their organic farms. These higher quantities maybe due to the larger area used for organic farming. This suggests that when organic farm sizes increases, then consumption of organic fertilizers may also increase.

From Table 17, most of the organic farmers belong to the less than two years, 2-4 years and 5-7 years of experiences in organic farming. Only one farmer with more than 11 years' experience of farming using organic fertilizers posted that his consumption of compost depends upon farming conditions. A great many of the <2 and 2-4 years of organic famers uses mostly compost in farming followed by vermicompost. A lesser number of farmers utilize vermitea.



Table 15. Quantity of organic fertilizer(s) used by user in relation to farm size

QUANTITY OF ORGANIC FERTILIZERS	FARM SIZE (m <sup>2</sup> )							
	<1000		1000-2799		2800-4599		4600-6399	
	F	%	F	%	F	%	F	%
Compost								
It depends	1	3.4	6	20.7	-	-	-	-
<1 sack	1	3.4	2	6.9	-	-	1	3.4
1-3 sacks	1	3.4	2	6.9	1	3.4	-	-
4-7 sacks	2	6.9	3	10.3	-	-	-	-
>7 sacks	-	-	1	3.4	2	6.9	1	3.4
Vermicompost								
It depends	-	-	4	13.8	-	-	-	-
<1 sack	1	3.4	2	6.9	-	-	-	-
1-3 sacks	-	-	1	3.4	1	3.4	-	-
4-7 sacks	2	6.9	-	-	-	-	-	-
>7 sacks	-	-	-	-	-	-	1	3.4
Vermitea								
It depends	-	-	3	10.3	-	-	-	-
3-5L	-	-	-	-	1	3.4	-	-
Vermicast								
It depends	-	-	4	13.8	1	3.4	-	-
<1 sack	1	3.4	2	6.9	-	-	-	-
1-3 sacks	-	-	1	3.4	-	-	-	-
4-7 sacks	-	-	1	3.4	-	-	-	-
Mokusaku compost								
It depends	-	-	3	10.3	-	-	-	-
1-3 sacks	-	-	1	3.4	-	-	-	-

\*Multiple Response



Table 16. Quantity of organic fertilizer(s) used by user in relation to organic farm area

QUANTITY OF ORGANIC FERTILIZERS	ORGANIC FARM AREA (m <sup>2</sup> )					
	<500		500-899		900-1299	
	F	%	F	%	F	%
<b>Compost</b>						
It depends	2	11.8	1	5.9	-	-
<1 sack	4	23.5	-	-	-	-
1-3 sacks	3	17.6	-	-	1	5.9
4-7 sacks	1	5.9	1	5.9	1	5.9
>7 sacks	1	5.9	1	5.9	1	5.9
<b>Vermicompost</b>						
It depends	1	5.9	-	-	-	-
<1 sack	3	17.6	-	-	-	-
1-3 sacks	-	-	-	-	2	11.8
>7 sacks	1	5.9	-	-	-	-
<b>Vermitea</b>						
It depends	1	5.9	-	-	-	-
3-5L	-	-	-	-	1	5.9
<b>Vermicast</b>						
It depends	1	5.9	-	-	-	-
<1 sack	2	11.8	-	-	-	-
1-3 sacks	-	-	1	5.9	-	-
4-7 sacks	-	-	-	-	1	5.9
<b>Mokusakucompost</b>						
It depends	1	5.9	-	-	-	-
1-3 sacks	-	-	-	-	1	5.9

\*Multiple Response



Table 17. Quantity of organic fertilizer(s) used by user in relation to the length of time as organic practitioner

QUANTITY OF ORGANIC FERTILIZERS	LENGTH OF TIME AS ORGANIC PRACTITIONER (YEARS)							
	<2		2-4		5-7		11+	
	F	%	F	%	F	%	F	%
<b>Compost</b>								
It depends	1	5.9	1	5.9	-	-	1	5.9
<1 sack	3	17.6	1	5.9	-	-	-	-
1-3 sacks	3	17.6	-	-	1	5.9	-	-
4-7 sacks	1	5.9	2	11.8	-	-	-	-
>7 sacks	1	5.9	2	11.8	-	-	-	-
<b>Vermicompost</b>								
It depends	1	5.9	-	-	-	-	-	-
<1 sack	3	17.6	-	-	-	-	-	-
1-3 sacks	-	-	1	5.9	1	5.9	-	-
>7 sacks	-	-	1	5.9	-	-	-	-
<b>Vermitea</b>								
It depends	1	5.9	-	-	-	-	-	-
3-5L	-	-	1	5.9	-	-	-	-
<b>Vermicast</b>								
It depends	1	5.9	-	-	-	-	-	-
<1 sack	2	11.8	-	-	-	-	-	-
1-3 sacks	1	5.9	-	-	-	-	-	-
4-7 sacks	-	-	1	5.9	-	-	-	-
<b>Mokusakucompost</b>								
It depends	1	5.9	-	-	-	-	-	-
1-3 sacks	-	-	1	5.9	-	-	-	-

\*Multiple Response



### Price Ranges Acceptable to the User

Table 18 presents the acceptable price among the users of organic fertilizers. Fair price ranges for organic fertilizers indicates that most farmers accepts a price range of P100- P150/sack of compost, P350- P400/sack of vermicompost, P100/liter of vermitea, P10/kilo of vermicast and P150/sack of mokusaku compost. These prices, obviously less than the prevailing market prices, indicate the proverty and predicament of farmers in Benguet which might be a reason for their adherence to conventional farming, using commercial fertilizers.

Table 18. Price ranges of organic fertilizers acceptable to user

TYPE OF ORGANIC FERTILIZERS	UNIT QUANTITY	PRICE RANGES (Php)								TOTAL	
		F	%	F	%	F	%	F	%	F	%
		P100		P150		P200		P>200			
Compost	Per sack	13	44.8	15	51.7	1	03.4	-	-	29	100
		P300		P350		P400		None			
Vermicompost	Per sack	7	24.1	9	31.0	8	27.6	5	17.2	29	100
		P100		P150		P200		P>200			
Vermitea	Per litre (L)	20	69.0	7	24.1	1	3.4	1	3.4	29	100
		P8		P9		P10		P>10			
Vermicast	Per kilo (kg)	6	20.7	8	27.6	14	48.3	1	3.4	29	100
		P100		P150		P200		P>200			
Mokusaku compost	Per sack	13	44.8	14	48.3	2	6.9	-	-	29	100
		P100		P150		P200		P>200			

### Reasons for Utilization of Organic Fertilizers



Table 19 presents the reasons for utilization of organic fertilizers in relation to the type of farmers. Most farmers indicated that their main reason in using organic fertilizers is that it makes the soil fertile by increasing the nutrient contents of the soil physical properties with 15 are transitional farmers and 3 are organic practitioners. Respondents also indicated that organic fertilizers conditions and improves the soil to hold the soil structure and it increases the ability of the soil to hold water and nutrients are the second most frequent answer among transitional and organic practitioners.

Table 19. Reasons of user for use of organic fertilizers

REASONS FOR USE	TYPE OF ORGANIC FARMER			
	TRANSITIONAL		ORGANIC	
	F	%	F	%
Makes the soil fertile by increasing the nutrient contents of the soil physical properties	15	51.7	3	10.3
Conditions and improves the soil to hold the soil structure	14	48.3	2	6.9
Increase the ability of the soil to hold water and nutrients	14	48.3	2	6.9
Provides better aeration	11	37.9	1	3.4
Increase the number of leaves per plant	4	13.8	-	-
Increase the leaf area	4	13.8	1	3.4
Controls pest	7	24.1	2	6.9
All of the above	9	31.0	2	6.9
Other reason	3	10.3	1	3.4

\*Multiple Response





Some users said that their other reason for utilizing organic is that it is safe for human consumption and it lessens the cost for farm inputs. This implies that transitional and organic farmers are aware of the benefits that organic fertilizers give to the soil and subsequently the plants and their produce. This may suggest that a continuous educational campaign among farmers coupled with technical support may increase the use of organic fertilizers by farmers.

Table 20 presents the reasons for utilization of organic fertilizers in relation to the years of farming. Surprisingly, farmers with 20 to more than 30 years of experience in farming rate that their reason for using organic fertilizers conform to the first three reasons in the table, that is, “it increases the nutrient contents of the soil physical properties”, “conditions and improves the soil to hold the soil structure” and “increase the ability of the soil to hold water and nutrients”. This suggests that as farmers become more experienced, their knowledge of farming using organic fertilizers also increases.

Table 21 presents the reasons for utilization of organic fertilizers in relation to the farm size. Farmers mostly have farms with 1000 m<sup>2</sup> to 2799m<sup>2</sup> farm sizes as found in Table 20 and their main reasons for using organic fertilizers still conform to previous findings from other tables, that is, their reasons include “it increases the nutrient contents of the soil physical properties”, “conditions and improves the soil to hold the soil structure” and “increase the ability of the soil to hold water and nutrients” with 1000-2799m<sup>2</sup> checking these reasons. Of those with larger farms, 4600-6399m<sup>2</sup>, farmers also indicated the same reasons of using organic fertilizers. These suggest that regardless of farm size, farmers have the same opinion in using organic fertilizers.



Table 20. Reasons of user for use of organic fertilizers in relation to years of farming

REASONS FOR USE	YEARS OF FARMING													
	+30		25-30		20-24		15-19		10-14		5-9		<5	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Makes the soil fertile by increasing the nutrient contents of the soil physical properties	5	17.2	3	10.3	5	17.2	3	10.3	1	3.4	-	-	1	3.4
Conditions and improves the soil to hold the soil structure	5	17.2	1	3.4	5	17.2	3	10.3	1	3.4	-	-	1	3.4
Increase the ability of the soil to hold water and nutrients	6	20.7	1	3.4	4	13.8	3	10.3	1	3.4	-	-	1	3.4
Provides better aeration	4	13.8	-	-	4	13.8	2	6.9	1	3.4	-	-	1	3.4
Increase the number of leaves per plant	2	6.9	-	-	1	3.4	1	3.4	-	-	-	-	-	-
Increase the leaf area	-	-	-	-	2	6.9	2	6.9	1	3.4	-	-	-	-
Controls pest	4	13.8	-	-	2	6.9	3	10.3	-	-	-	-	-	-
All of the above	3	10.3	-	-	-	-	1	3.4	3	10.3	3	10.3	1	3.4
Other reason	1	3.4	-	-	2	6.9	-	-	1	3.4	-	-	-	-

\*Multiple Response



Table 21. Reasons of user for use of organic fertilizers in relation to farm size

REASONS FOR USE	FARM SIZE (m <sup>2</sup> )							
	<1000		1000-2799		2800-4599		4600-6399	
	F	%	F	%	F	%	F	%
Makes the soil fertile by increasing the nutrient contents of the soil physical properties	1	3.4	14	48.3	1	3.4	2	6.9
Conditions and improves the soil to hold the soil structure	1	3.4	12	41.4	1	3.4	2	6.9
Increase the ability of the soil to hold water and nutrients	1	3.4	12	41.4	1	3.4	2	6.9
Provides better aeration	-	-	11	37.9	-	-	1	3.4
Increase the number of leaves per plant	2	6.9	2	6.9	-	-	-	-
Increase the leaf area	1	3.4	3	10.3	1	3.4	-	-
Controls pest	1	3.4	7	24.1	1	3.4	-	-
All of the above	6	20.7	4	13.8	-	-	1	3.4
Other reason	2	6.9	1	3.4	1	3.4	-	-

\*Multiple Response



Table 22 presents the reasons for utilization of organic fertilizers in relation to the organic farm area of the users. Most organic farmers with less than 500m<sup>2</sup> of organic farm area reasoned that their use of organic fertilizers are “it increases the nutrient contents of the soil physical properties”, “conditions and improves the soil to hold the soil structure” and “increase the ability of the soil to hold water and nutrients” with 10, 10 and 9 of respondents respectively. These results still conforms to the previous results from other tables.

Table 23 presents the reasons for utilization of organic fertilizers in relation to the length of time as organic practitioners. Farmers reason for use of organic fertilizers are the same with previous tables, that is, “it increases the nutrient contents of the soil physical properties”, “conditions and improves the soil to hold the soil structure” and “increase the ability of the soil to hold water and nutrients”. Surprisingly, 5 or 29.4% of the <2 years category, indicated that their reason is that it controls pests. This might be attributed to organic farming education through seminars they attended since their years of experience in using organic fertilizers does not warrant this result.

Overall, (19 to 23) result show that organic fertilizers is used by most respondent to increase the nutrient contents of the soil physical properties, conditions and improves the soil to hold the soil structure, and to increase the ability of the soil to hold water and nutrients.



Table 22. Reasons of user for use of organic fertilizers in relation to organic farm area

REASONS FOR USE	ORGANIC FARM AREA (m <sup>2</sup> )					
	<500		500-899		900-1299	
	F	%	F	%	F	%
Makes the soil fertile by increasing the nutrient contents of the soil physical properties	10	58.8	2	11.8	1	5.9
Conditions and improves the soil to hold the soil structure	10	58.8	2	11.8	-	-
Increase the ability of the soil to hold water and nutrients	9	52.9	2	11.8	-	-
Provides better aeration	6	35.3	2	11.8	-	-
Increase the number of leaves per plant	1	5.9	-	-	-	-
Increase the leaf area	1	5.9	-	-	-	-
Controls pest	5	29.4	1	5.9	-	-
All of the above	1	2.1	3	17.6	1	5.9
Other reason	3	5.9	-	-	-	-

\*Multiple Response



Table 23. Reasons of user for use of organic fertilizers in relation to length of time as organic practitioner

REASONS FOR USE	LENGTH OF TIME AS ORGANIC PRACTITIONER (YEARS)									
	<2		2-4		5-7		+11			
	F	%	F	%	F	%	F	%		
Makes the soil fertile by increasing the nutrient contents of the soil physical properties	7	41.2	3	17.6	1	5.9	-	-		
Conditions and improves the soil to hold the soil structure	7	41.2	2	11.8	1	5.9	-	-		
Increase the ability of the soil to hold water and nutrients	6	35.3	2	11.8	1	5.9	-	-		
Provides better aeration	5	29.4	1	5.9	-	-	-	-		
Increase the number of leaves per plant	1	5.9	-	-	-	-	-	-		
Increase the leaf area	1	5.9	-	-	-	-	-	-		
Controls pest	5	29.4	-	-	-	-	-	-		
All of the above	4	23.5	2	11.8	-	-	1	5.9		
Other reason	3	17.6	1	5.9	-	-	-	-		

\*Multiple Response



## Intentions of the User to Increase Utilization of Organic Fertilizers

Table 24 presents the respondents intentions to increase the utilization of organic fertilizers related to the different demographic areas.

Comparing the number of farmers who intends to increase usage of organic fertilizers with those who do not intend to increase considering their years of farming indicated 23 (79.3%) against 6 (20.7%) and most of the respondents that are willing to increase their utilization have +30 years and 20-24 years of farming experience. Looking at the results in Table 24, this suggests that experience in farming tends to increase their tendency to use more organic fertilizers.

For the length of time as organic practitioner, more farmers intend to increase their use of organic fertilizers as compared to those who do not intend with 15 against 2 odds comprising a percentage difference of 76.4%. Indicative in Table 24 is the result that more organic farmers belonging to the <2 and 2-4 years categories intent to increase their use of organic fertilizers, having been schooled in the global trend of organic farming. This might suggest that continuous education and training of organic farmers is also necessary.

Comparing results between those who intend to increase against those who do not intend considering farm sizes, 23 against 6 odds is seen. Smaller farm sizes tend to increase their organic fertilizer consumption as compared to those with larger farms. This might be attributed to the cost of organic fertilizers which is prohibitive for larger farm areas.

Smaller organic farm areas tend to increase their organic fertilizer consumption more than those with larger areas with <500 m<sup>2</sup> category having the lions share. Odds considering this category give a 15 to 2 indicative of the preponderance of organic fertilizers to organic farmers.



More transitional farmers tend to increase use of organic fertilizers as compared to organic farmers themselves with odds of 20 to 3. This suggests the popularity of organic fertilizers among Benguet farmers.

Table 24. Intention of user to increase volume of utilization of organic fertilizers

PARTICULARS	INTENTION OF THE FARMER TO INCREASE UTILIZATION OF ORGANIC FERTILIZERS				TOTAL	
	WILL INCREASE		NO INTENTION TO INCREASE		F	%
	F	%	F	%		
<b>Years of Farming</b>						
+30	5	17.2	3	10.3	8	27.6
25-30	2	6.9	-	-	2	6.9
20-24	6	20.7	-	-	6	20.7
15-19	3	10.3	1	3.4	4	13.8
10-14	3	10.3	1	3.4	4	13.8
5-9	3	10.3	-	-	3	10.3
<5	1	3.4	1	3.4	2	6.9
<b>TOTAL</b>	<b>23</b>	<b>79.3</b>	<b>6</b>	<b>20.7</b>	<b>29</b>	<b>100</b>
<b>Length of Time as organic Practitioner (Years)</b>						
<2	7	41.2	2	11.8	9	52.9
2-4	6	35.3	-	-	6	35.3
5-7	1	5.9	-	-	1	5.9
11+	1	5.9	-	-	1	5.9
<b>TOTAL</b>	<b>15</b>	<b>88.2</b>	<b>2</b>	<b>11.8</b>	<b>17</b>	<b>100</b>
<b>Farm Size (m<sup>2</sup>)</b>						
<1000	7	24.1	-	-	7	24.1
1000-2799	11	37.9	6	20.7	17	58.6
2800-4599	2	6.9	-	-	2	6.9
4600-6399	3	10.3	-	-	3	10.3
<b>TOTAL</b>	<b>23</b>	<b>79.3</b>	<b>6</b>	<b>20.7</b>	<b>29</b>	<b>100</b>

Table 24. continued...





PARTICULARS	INTENTION OF THE FARMER TO INCREASE UTILIZATION OF ORGANIC FERTILIZERS				TOTAL	
	WILL INCREASE		NO INTENTION TO INCREASE		F	%
	F	%	F	%		
Organic Area						
<500	10	58.8	1	5.9	11	64.7
500-899	4	23.5	1	5.9	5	29.4
900-1299	1	5.9	-	-	1	5.9
<b>TOTAL</b>	<b>15</b>	<b>88.2</b>	<b>2</b>	<b>11.8</b>	<b>17</b>	<b>100</b>
Type of Farming						
Organic	3	10.3	2	6.9	5	17.2
Transitional	20	67.0	4	13.8	25	82.8
<b>TOTAL</b>	<b>23</b>	<b>79.3</b>	<b>6</b>	<b>20.7</b>	<b>29</b>	<b>100</b>

Respondent's Reasons of Increase  
Utilization of Organic Fertilizers

Table 25 presents the reasons why the respondents will increase utilization of organic fertilizers in relation to years of farming. Most farmers said that increasing the volume of utilization of organic fertilizers is necessary because it has good effect on plants, it conditions the soil better and it increases fertility on the soil. Of these reasons, many respondents belong to the 30+ years and 20-24 years farming experience. This suggests that as farming experience increases the beneficial effects of organic fertilizers become apparent to farmers.

Table 26 presents the reasons why the respondents will increase utilization of organic fertilizers in relation to farm size. Farmers with smaller farm sizes tend to increase their usage of organic fertilizers, those that are belonging to the <1000 m<sup>2</sup> and



Table 25. Reasons of user for increase of volume of organic fertilizers in relation to years of farming

REASONS FOR INCREASE OF VOLUME FOR UTILIZATION	YEARS OF FARMING													
	+30		25-30		20-24		15-19		10-14		5-9		<5	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Expansion of farm area	3	10.3	-	-	1	3.4	2	6.9	2	6.9	3	10.3	1	3.4
Good effect on plant	7	24.1	1	3.4	6	20.7	3	10.3	2	6.9	4	13.8	2	6.9
Conditions the soil better	7	24.1	1	3.4	4	13.8	3	10.3	2	6.9	4	13.8	2	6.9
Increase fertility	6	20.7	-	-	5	17.2	3	10.3	2	6.9	2	6.9	1	3.4
Depends on the need of the plant	3	10.3	1	3.4	4	13.8	3	10.3	1	3.4	-	-	-	-
Other reason	2	6.9	-	-	-	-	-	-	-	-	-	-	-	-

\*Multiple Response



Table 26. Reasons of user for increase volume of organic fertilizers in relation to farm size

REASONS FOR INCREASE OF VOLUME FOR UTILIZATION	FARM SIZE (m <sup>2</sup> )							
	<1000		1000-2799		2800-4599		4600-6399	
	F	%	F	%	F	%	F	%
Expansion of farm area	4	23.5	6	35.3	-	-	2	11.8
Good effect on plant	5	29.4	15	88.2	2	11.8	3	17.6
Conditions the soil better	6	35.3	12	70.6	2	11.8	3	17.6
Increase fertility	6	35.3	12	70.6	-	-	1	5.9
Depends on the need of the plant	2	11.8	9	52.9	1	5.9	-	-
Other reason	1	5.9	-	-	-	-	1	5.9

\*Multiple Response

1000-2799 m<sup>2</sup> category with 15 (88.2%) of them said that it has good effect on plants and 12 (70.6%) claims that it conditions the soil better. Also, a great many of the farmers indicated that it increases fertility of the soil as one of their reasons. For the other reason, farmers that have less than 1000 m<sup>2</sup> and 4600-6399m<sup>2</sup> mentioned that it lessens the cost for farm inputs.

Table 27 presents the reasons why the respondents will increase utilization of organic fertilizers in relation to organic farm area. Organic farms with smaller areas use organic fertilizers on the knowledge that “it has good effect on plants”, “it conditions the soil better”, and “it increases fertility”. Others reasoned out that it lessens the cost for farm inputs and no bad effect on the health. However larger organic farms, 900-1299m<sup>2</sup>,



reasoned that it is due to “expansion of farm area”, “good effect of plants” and “it conditions the soil better”.

Table 28 presents the reasons why the respondents will increase utilization of organic fertilizers in relation to the length of time as organic practitioner. The top three reasons why farmers will increase volume for utilization of organic fertilizers include “it has good effect on plants”, “it conditions the soil better”, and “it increases fertility”. Of those with the mentioned reasons, most of them belong to the <2 years of experience in organic farming and 2-3 years’ experience. This further suggests that conventions, trainings and education are effective tools in promoting organic farming.

Table 27. Reasons of user for increase of volume of organic fertilizers in relation to organic farm area

REASONS FOR INCREASE OF VOLUME FOR UTILIZATION	ORGANIC FARM AREA (m <sup>2</sup> )					
	<500		500-899		900-1299	
	F	%	F	%	F	%
Expansion of farm area	1	5.9	4	23.5	1	5.9
Good effect on plant	8	47.1	3	17.6	1	5.9
Conditions the soil better	9	52.9	2	11.8	1	5.9
Increase fertility	7	41.2	1	5.9	-	-
Depends on the need of the plant	6	35.3	-	-	-	-
Other reason	2	11.8	-	-	-	-

\*Multiple Response



Table 28. Reasons of user for increase of volume of organic fertilizers in relation to length of time as organic practitioner

REASONS FOR INCREASE OF VOLUME FOR UTILIZATION	LENGTH OF TIME AS ORGANIC PRACTITIONER (YEARS)							
	<2		2-4		5-7		11+	
	F	%	F	%	F	%	F	%
Expansion of farm area	2	11.8	3	17.6	-	-	1	5.9
Good effect on plant	6	35.3	5	29.4	1	5.9	-	-
Conditions the soil better	7	41.2	4	23.5	1	5.9	-	-
Increase fertility	6	35.3	2	11.8	-	-	-	-
Depends on the need of the plant	4	23.5	2	11.8	-	-	-	-
Other reason	1	5.9	1	5.9	-	-	-	-

\*Multiple Response

#### Reasons of Respondents for Not Using Organic Fertilizers

Table 29 presents the reason of non- usage of conventional farmers in relation to the years of farming. Education might be a strategy that could be employed in encouraging farmers to use organic fertilizers since most of them “do not know about it” with 55 of respondents indicating the category. Preference for commercial fertilizers, the second in the hierarchy, with 40, this might be attributed to the high cost of organic fertilizers as compared to commercial ones. This is followed by “don’t know where to buy” with 18. This result relates to the previous findings in this study that there is no proper place for organic fertilizer producers to sell their produce. Contradicting in this table is that the more experience farmers “do not know about” organic fertilizers.



Table 29. Reasons for non-usage of organic fertilizers in relation to years of farming

REASONS FOR NON- USAGE OF ORGANIC FERTILIZERS	YEARS OF FARMING													
	+30		25-30		20-24		15-19		10-14		5-9		<5	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Do not know about it	9	12.7	8	11.3	10	14.1	8	11.3	8	11.3	9	12.7	3	4.2
Can't afford it	4	5.6	3	4.2	2	2.8	1	1.4	4	5.6	2	2.8	1	1.4
Don't know where to buy	8	11.3	1	1.4	2	2.8	-	-	1	1.4	5	7.0	1	1.4
Prefer to buy commercial fertilizer	6	8.5	5	7.0	7	9.9	4	5.6	11	15.5	6	8.5	1	1.4
Other reason	4	5.6	-	-	-	-	-	-	1	1.4	1	1.4	-	-

\*Multiple Response



Looking at this result, however, it might be attributed to uneducated or not being informed due to weak information drive by concerned agencies.

Table 30 presents the reason of non- usage of conventional farmers in relation to the farm size. Most farmers have farm sizes of less than 1,000 to 2,799 m<sup>2</sup> with most of them reasoned that they “do not know about it” and that they “prefer to buy commercial fertilizers” respectively. This suggests that uneducated and being uninformed and low cost of commercial fertilizers might be the reasons why farmers do not use organic fertilizers. Farm size might not affect the respondents’ reasons, however, one farmer with farm size of 4600-6399 m<sup>2</sup> prefer to buy commercial fertilizers than organic fertilizers.

Table 30. Reasons for non-usage of organic fertilizers in relation to farm size

REASONS FOR NON- USAGE OF ORGANIC FERTILIZERS	FARM SIZE (m <sup>2</sup> )							
	<1000		1000-2799		2800-4599		4600-6399	
	F	%	F	%	F	%	F	%
Do not know about it	21	29.6	28	39.4	6	8.5	-	-
Can't afford it	5	7.0	10	14.1	2	2.8	-	-
Don't know where to buy	5	7.0	9	12.7	4	5.6	-	-
Prefer to buy commercial fertilizer	19	26.8	19	26.8	2	2.8	1	1.4
Other reasons	-	-	4	5.6	1	1.4	-	-

\*Multiple Response



### Distribution of Non-user Respondent's Willingness to Use Organic Fertilizers

In Table 31, most of those who are willing to use organic fertilizers are more experienced farmers with those of 30+ year of experience in farming having 14 (19.7%) out of 56. More farmers were willing to use organic fertilizers as compared to those who signified not to despite being informed with an odds ratio of 56 to 15 or a percent difference of 57.8%. Based from the table considering years of farming, it seems that greater experience either contributes to willingness to use organic fertilizers and/or not to use organic fertilizers. This may be attributed to stubbornness or practicality of farmers not using organic fertilizers.

Found in Table 31 is also the effect of farm size to the willingness to use or not to use organic fertilizers. Most, 56 (78.9%), of the respondent said that they are willing to use organic fertilizers. Majority of the farmers had less than 1000m<sup>2</sup> and 1000-2799m<sup>2</sup> farm sizes with 20 and 29 respondents respectively. Result of this comparison is inconclusive whether farm size affects the decision of the farmers to use or not to use organic fertilizers. However, one farmer with more than 8,200m<sup>2</sup> farm size decided to use organic fertilizers.





Table 31. Distribution of non-user respondent's willingness to use organic fertilizers

PARTICULARS	RESPONDENTS WILLINGNESS TO USE				TOTAL	
	WILLING		NOT WILLING		F	%
	F	%	F	%		
<b>Years of Farming</b>						
+30	14	19.7	4	5.6	18	25.4
25-30	9	12.7	-	-	9	12.7
20-24	9	12.7	4	5.6	13	18.3
15-19	3	4.2	2	2.8	5	7.0
10-14	11	15.5	4	5.6	15	21.1
5-9	7	9.9	1	1.4	8	11.3
<5	3	4.2	-	-	3	4.2
<b>TOTAL</b>	<b>56</b>	<b>78.9</b>	<b>15</b>	<b>21.1</b>	<b>71</b>	<b>100.0</b>
<b>Farm Size (m<sup>2</sup>)</b>						
<1000	20	28.2	5	7.0	25	35.2
1000-2799	29	40.8	9	12.7	38	53.5
2800-4599	6	8.5	1	1.4	7	9.9
>8200	1	1.4	-	-	1	1.4
<b>TOTAL</b>	<b>56</b>	<b>78.9</b>	<b>15</b>	<b>21.1</b>	<b>71</b>	<b>100.0</b>



### Type and Volume of Organic Fertilizers Intended by the Non-user to Use

Table 32 presents the type and volume of organic fertilizers intended for use of conventional farmers. Most conventional farmers intended to use compost and vermicompost. The least intended to be use is vermitea. As for the quantity of organic fertilizers intended for use, most of the farmers indicated that they don't know yet and it would depend on the need of their plants.

Table 33 presents the type of organic fertilizers intended for use of conventional farmers in relation to the years of farming. The most type of organic fertilizer intended for use by the conventional farmers is compost and vermicompost while the least intended for use is vermitea. Of those who signified to use compost and vermicompost, most of the farmers had 30+ years of experience indicating that they intend to use these organic fertilizers upon being properly informed.

Table 34 presents the type of organic fertilizers intended for use of conventional farmers in relation to the farm size. Most farmers have farm sizes of <1000m<sup>2</sup> and 1000-2799m<sup>2</sup>. Of these farmers, most intend to use compost and vermicompost with 28 (34.9%) and 19 (26.8%) respectively of the respondents. The least of which is vermitea over all farm sizes. Most farms seem to be smaller in size and most indicated that they intend to use compost and vermicompost, however, one farmer with >8200m<sup>2</sup> farm indicated that he will use compost for his farm. This result might be attributed to the lower cost and commercial availability of compost and vermicompost



Table 32. Type and volume of organic fertilizers intended by non-user to use

VOLUME INTENDED FOR USE	TYPE OF ORGANIC FERTILIZERS									
	COMPOST		VERMICOMPOST		VERMITEA		VERMICAST		MOKUSAKU COMPOST	
	F	%	F	%	F	%	F	%	F	%
1 litre(L)	-	-	-	-	2	2.8	-	-	-	-
10 kg	1	1.4	-	-	-	-	-	-	-	-
>1 sacks	1	1.4	-	-	-	-	-	-	-	-
1-3 sacks	13	18.3	11	15.5	-	-	-	-	1	1.4
4-7 sacks	7	9.9	5	7.0	-	-	-	-	1	1.4
>7 sacks	-	-	1	1.4	-	-	-	-	-	-
Don't know	14	19.7	8	11.3	3	4.2	7	9.9	7	9.9
It depends on need of plants	15	21.1	12	16.9	4	5.6	8	11.3	8	11.3
It depends on price	2	2.8	3	4.2	3	4.2	2	2.8	2	2.8

\*Multiple Response



Table 33. Type of organic fertilizers intended by non-user to use in relation to years of farming

TYPE OF ORGANIC FERTILIZERS	YEARS OF FARMING													
	+30		25-30		20-24		15-19		10-14		5-9		<5	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Compost	15	21.1	8	11.3	10	14.1	1	1.4	9	12.7	7	9.9	3	4.2
Vermicompost	13	18.3	6	8.5	5	7.0	1	1.4	8	11.3	5	7.0	2	2.8
Vermitea	5	7.0	1	1.4	-	-	1	1.4	3	4.2	2	2.8	-	-
Vermicast	4	5.6	4	5.6	2	2.8	1	1.4	3	4.2	2	2.8	-	-
Mokusaku compost	6	8.5	3	4.2	1	1.4	1	1.4	3	4.2	4	5.6	1	1.4

\*Multiple Response



Table 34. Type of organic fertilizers intended by non-user to use in relation to farm size

TYPE OF ORGANIC FERTILIZERS	FARM SIZE (m <sup>2</sup> )							
	<1000		1000-2799		2800-4599		>8200	
	F	%	F	%	F	%	F	%
Compost	19	26.8	28	39.4	6	8.5	1	1.4
Vermicompost	15	21.1	19	26.8	6	8.5	-	-
Vermitea	6	8.5	5	7.0	1	1.4	-	-
Vermicast	8	11.3	7	9.9	1	1.4	-	-
Mokusakucompost	9	12.7	8	11.3	2	2.8	-	-

\*Multiple Response

#### Perceived Sources of Non-user for Organic Fertilizers

Table 35 presents the perceived sources of organic fertilizers by conventional farmers. Majority of the respondents are going to produce their own compost. Most conventional farmers perceive that they will source vermicompost, vermicast and mukosaku compost at the Municipal Agricultural Office. A great many of conventional farmers also said that they can source vermicompost and compost through the Barangay Hall as long as there are willing to produce. Most of the farmers who intended to use vermitea perceived to source from Palew Multipurpose Cooperative. For the overall, farmers perceived that they might source these organic fertilizers at the Barangay Hall, Municipal Agricultural office or through their own production. This result is interesting, on that, it only indicates that there is no proper or exact market place where farmers could definitely buy or source organic fertilizers.



Table 35. Perceived sources of non-users for organic fertilizers

PERCEIVED SOURCES	TYPE OF ORGANIC FERTILIZERS									
	COMPOST		VERMICOMPOST		VERMITEA		VERMICAST		MOKUSAKU COMPOST	
	F	%	F	%	F	%	F	%	F	%
Municipal Agricultural Office	-	-	26	36.6	1	1.4	8	11.3	16	22.5
Palew Multipurpose Cooperative	-	-	2	2.8	9	12.7	-	-	-	-
Barangay Hall	9	12.7	12	16.9	-	-	1	1.4	3	4.2
Other Store	8	11.3	3	4.2	-	-	-	-	-	-
Produce my Own	37	52.1	6	8.5	3	4.2	4	5.6	4	5.6
Other source	3	4.2	2	2.8	1	1.4	1	1.4	1	1.4

\*Multiple Response



### Factors that will Convince the Non- user Willingness to Use Organic Fertilizer

Table 36 presents the factors why they will use organic fertilizers in relation to the years of farming. Majority of the conventional farmers said that they intended to use organic fertilizers only if they will be educated, informed and trained more on organic production using organic fertilizers. The 13 (18.3%) and 12 (16.9%) of the respondents has 20 to 24 years and 10 to 14 years farming experience respectively. Other reasons given by the respondents include, if they tried and tested it, and if recommended by organic production experts respectively. However, one farmer with 15- 19 years of farming indicated that he will never use organic fertilizers.

Table 37 presents the factors why they will use organic fertilizers in relation to the farm size. Considering farm sizes, respondents come up with their top three reasons for using in the future organic fertilizers which are “being educated and trained on organic production”, “recommended by organic production experts” and “tried and tested” respectively. Of these reasons, most have farms in the  $<1000\text{m}^2$  and  $1000\text{-}2799\text{m}^2$  categories. Of the farms in the  $2800\text{-}4599\text{m}^2$  and  $4600\text{-}6399\text{m}^2$  categories, most of them also opined the same top three reasons. This is indicative that regardless of farm sizes, the reasons for future use of organic fertilizers by farmers are the mentioned reasons above. However, only one farmer with  $1000\text{-}2799\text{m}^2$  farm size indicated that he will never use organic fertilizers.



Table 36. Reasons of non-user for future use of organic fertilizers in relation to years of farming

IF YOU WILL NOT USE, WHAT WILL CONVINCEN YOU TO USE ORGANIC FERTILIZERS?	YEARS OF FARMING													
	+30		25-30		20-24		15-19		10-14		5-9		<5	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Become affordable	6	8.5	5	7.0	4	5.6	1	1.4	3	4.2	2	2.8	1	1.4
Advertised	5	7.0	1	1.4	6	8.5	3	4.2	5	7.0	2	2.8	-	-
Tried and tested	9	12.7	6	8.5	3	4.2	4	5.6	8	11.3	4	5.6	3	4.2
Recommended by organic production experts	10	14.1	7	9.9	6	8.5	2	2.8	6	8.5	5	7.0	2	2.8
If I will be educated or trained more on organic production using organic fertilizers.	11	15.5	9	12.7	13	18.3	4	5.6	12	16.9	9	12.7	3	4.2
Never to use	-	-	-	-	-	-	1	1.4	-	-	-	-	-	-
Other reasons	-	-	1	1.4	-	-	-	-	-	-	-	-	-	-

\*Multiple Response





Table 37. Reasons of non-user for future use of organic fertilizers in relation to farm size

IF YOU WILL NOT USE, WHAT WILL CONVINCE YOU TO USE ORGANIC FERTILIZERS?	FARM SIZE (m <sup>2</sup> )							
	<1000		1000-2799		2800-4599		4600-6399	
	F	%	F	%	F	%	F	%
Become affordable	6	8.5	14	19.7	2	2.8	-	-
Advertised	9	12.7	11	15.5	2	2.8	-	-
Tried and tested	12	16.9	22	31.0	3	4.2	-	-
Recommended by organic production experts	18	25.4	15	21.1	5	7.0	-	-
If I will be educated or trained more on organic production using organic fertilizers.	23	32.4	30	42.3	7	9.9	1	1.4
Never to use	-	-	1	1.4	-	-	-	-
Other reason	-	-	1	1.4	-	-	-	-

\*Multiple Response



## SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

### Summary

This study was conducted to determine the market potential of organic fertilizers in Tublay, Benguet. It aimed to: identify the producers of organic fertilizers in Tublay, Benguet; determine the organic fertilizers they are producing and their volumes of production; determine their market outlets; determine the users and non-users of the organic fertilizers in the area; determine the source of users of organic fertilizer(s) and the quantity they apply per time period; identify price ranges that is acceptable to them; determine the reasons of non-users for not using and the conditions would encourage them to use organic fertilizers.

The study was conducted using survey questionnaire for user and non users of organic fertilizers and the producers has been personally interviewed using an interview guide. The gathered data were statistically analyzed and interpreted according to the objectives of the study. Statistical tools used in describing the data were statistics like: frequency counts and percentage.

Most of the producer are from Caponga and most are male with age ranging most to 25 to 64 years old. The producer in each barangay was the beneficiaries of shredders and composting materials from the DOLE through the Municipal Agricultural Office.

Most producers manufacture organic fertilizers in monthly production cycles, except for vermitea which is produce in weekly basis. Most of the respondents rate their cost of production for organic fertilizers in the less than five hundred pesos (<500) range. Producers of vermicompost, vermicast, vermitea and mokusakocompost also rate their raw materials and labor in the less than P500 range and P500 to P1500 range and most of



them use their produced organic fertilizers for their own consumption.

The producers based their selling prices from their production costs and by consensus decision by the Japan Agricultural Exchange Council (JAEC) and they also indicated that most of them sell their produce at their production site and directly to farmers by made-to-order scheme.

Most of the respondents were conventional farmers with 71 (71%) while 24 (24%) are transitional farmers and only 5 (5%) respondents were practicing organic farming.

Most users are from Barangay Baayan and Caponga and most of them are male with age ranges most to 25 to 54 years old.

Most of the non- users are from Barangay Baayan and most of them are male with age ranges most to 25 to 54 years old.

Most of the farmer-respondents have farms that ranges between the 1000-2799 m<sup>2</sup> with 55 (55%) of them belonging to the category. Only one farmer surveyed had a farm of more than 8200 m<sup>2</sup>. Among the users of organic fertilizers, majority of them had an organic farm with less than 500 m<sup>2</sup> and only 1 had a farm size of 900-1299 m<sup>2</sup> allotted for organic farming respectively.

While most of the users of organic fertilizers were only practicing organic farming in less than 2 years, 9 (52.9%) out of 17, while 6 (35.3%) of them had been organic farmers with experiences of 2-4 years and only 1 each had experience in organic farming of 5-7 years and more than 11 years respectively.

Users of organic fertilizers, mostly makes use compost and vermicompost. On the volume of organic fertilizers use, they said that it depends on the farming conditions. However, many of them indicated that they use less than one sack and between 1 to 3 sacks of



compost, vermicompost and mokusakocompost. One farmer indicated that he uses 4-7 sacks of vermicast for a 1000-2799m<sup>2</sup> farm area.

Most of the respondent that practice <2 and 2-4 years as organic famers uses mostly compost in farming followed by vermicompost. A lesser number of farmers utilize vermitea.

Most farmers accept a price range of P100-P150/sack of compost, P350- P400/sack of vermicompost, P100/liter of vermitea, P10/kilo of vermicast and P150/sack of mokusakocompost.

Most of the users indicated that their main reason in using organic fertilizers is that it increases the nutrient contents of the soil physical properties, it conditions and improves the soil to hold the soil structure and it increases the ability of the soil to hold water and nutrients.

Majority of the users intend to increase their utilization of organic fertilizers because of expansion of farm area, it has good effect of plants and it conditions the soil better.

Most of the conventional farmers said that they don't use organic fertilizers because they do not know about it (organic farming and fertilizers) and they prefer to buy commercial fertilizers.

On the other hand, majority of them intend to use organic fertilizers such as compost, vermicompost and vermicast and they will source it at Municipal Agricultural Office and through their own production. However, they said that they will only use organic fertilizers if they would be educated or trained more on organic production, if it is recommended by organic production experts and if they tried and tested it.



## Conclusions

Based on the results, the following conclusions were drawn:

1. Most of the producers are from Barangay Caponga and only one female was producing. Each of the other barangays has 1 producer with age ranging most to 25 to 64 years old.

2. Most of the producers rate their produced organic fertilizers for their own consumption and some was for sale. Most producers manufacture compost, vermicompost, vermicast and mukosaku compost in monthly production cycles, with most of them produces a quantity of 1-10 sacks and few produces 11-20 sacks. Vermitea is being produce in weekly basis, with a quantity of 1-10L.

3. Most of the producers sold their products in their production site while some producer of vermicompost, vermicast and mokusaku compost directly sell their product to the farmers, maybe by made-to-order scheme, and the same organic fertilizers were being sold at the Municipal Agricultural Office. Based from the results, it is an evident that there is no proper place for organic fertilizer producers to market their products.

4. The non-users were conventional farmers while users are the transitional farmers and organic practitioners. In each of the barangays, more non-users are mostly found than the users.

5. Most users produce their own organic fertilizers and some source organic fertilizers at the Municipal Agricultural Office while few users and source at the Palew Multipurpose Cooperative. Users only apply organic fertilizers depending on their needs. This means that no dominant answer on the quantity they apply per time period.



6. The acceptable price range to the respondents for compost is P100-P150/sack; P350- P400/sack for vermicompost; P100/liter for vermitea; P10/kilo for vermicast; and P150/sack for mokusakocompost.

7. Most non- user respondents don't use organic fertilizers because they do not know about it (organic farming and fertilizers) and they prefer to buy commercial fertilizers. However, they would be willing to use organic fertilizers only if they would be educated or trained more on organic production, if it is recommended by organic production experts and if they tried and tested it.

### Recommendations

Based on the conclusion, the following are recommended:

1. Local officials together with the staff of Municipal Agriculture Office must coordinate with government or non-government agencies that advocate organic farming. To educate and train more the farmers about the use and effect of organic fertilizers in farming through conducting seminars, farm demo and giving some free organic fertilizers for the farmers to try and test it in their respective farms in order to encourage the farmers more to use organic fertilizers and for the producers in the area to increase their sales and production.

2. Producers must have a common place where they can settle and market their produced product in order for the farmers to know where to buy organic fertilizers and to look upon its commercialization

3. A follow up study on each organic fertilizer is recommended to have more clear understanding on each of their market potential.



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