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Organic Farming in Negros Occidental: Proposed Enrichment

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Abstract - This study determined the extent of implementation of organic farming in some selected areas in the province of Negros Occidental as basis for development of an action plan which would help the farmers in their adoption of the program. In gathering data needed for the study, the researcher-made instrument was used. The instrument was administered to the respondents composed of 10 implementers, 20 organic producers, and 70 organic consumers. The data gathered were statistically treated with the use of mean test to determine the extent of implementation of organic farming. The result of the study revealed that the implementation of organic farming as perceived by the respondents was at moderate extent. Furthermore, this study found out that no significant differences in responses were found to exist on the extent of implementation of organic farming as perceived by the respondents when grouped and compared according to selected variables. It is recommended that the proposed enrichment action plan should be adopted to help farmers on the implementation and their adoption of organic farming.

Keywords - organic farming, enrichment plan, status and implementation

INTRODUCTION

"Two of the biggest battles in today's war that man must conquer, are the battle against starvation and the battle of diseases; and the most effective tool that can combat against this war is in the hands of the farmers."

Park C. Brinkley, 1975

Starvation and poor health are still the two main problems that keep on persisting after more than three decades ago, which threaten the whole world due to the uncontrollable population explosion. As population increases, the need for food tremendously increases, too.

It is in this premise that the agriculture department has been tasked to properly address the problems, considering that it is the only agency that supplies foods needed by mankind in order to survive.

Basically, this is an agricultural revolution that man begun to exercise some control over plant growth, and attempted to concentrate and increase the yield from desirable food plants, His earliest attempts at agriculture doubtless were based on the astute observation that certain accidental disturbances of the land by human activities increase the growth of some useful plants.

Previously in some tropical areas, the so-called- "slash and burn" agriculture consists of little more than cutting and burning clearings in which seeds of various desirable plants are often scattered.

It would have been a small step from such practices to the reduction of competition for the desired plants by simple hoeing of weeds and to the utilization of the fertilizing effects of excreta and other organic waste from human activities.

Modern agriculture differs completely from primitive "slash-and-burn" agriculture. The science of plant breeding has produced a vast diversity of crop varieties that are adapted to various growing conditions, high in yield, resistance to diseases and so forth. Mechanical cultivation and harvesting, improved methods of fertilization and

irrigation, the use of chemical and biological controls against plant and insect pests, weather forecasting and many other technological advances have greatly increased the food that can be produced on a given area of land. Technology has also increased the quality of some crops.

Although man is able to modify many of the conditions of plant growth for the purpose of improving the crop yield that would address to the pressing problems, yet little did they know, that the more they apply those scientifically and chemically prepared fertilizer and pesticides, the more they destroy the soil fertility resulting to poor production. The worst is the health hazard that it created to mankind. This is due to the fact that the crops they have produced have already a strain of chemicals, which eventually poisoned and gradually kills man.

In the same view, Erlich and Erlich (1995) advanced that "the world agriculture today is an ecological disaster area. They carefully bred their plants with natural chemical defenses."

The poisons usually do not taste good to people, although some of the spices, which are used in small quantities, are produced by plants to serve as insecticides. Crops are planted in tight, simple monocultures, inviting pest outbreaks, to which people respond with synthetic pesticides, often killing a higher portion of some non-target insect population than the killing of the target population of pests. These are few hopeful signs that ecologically sound agricultural practice may eventually be adopted.

In response to such aspiration, a new technology has been developed, thus organic farming was borne with its ultimate purpose of producing crops that are chemically free and environmentally friendly. Organic farming is a form of agriculture which avoids or excludes the use of synthetic fertilizers and pesticides, plant growth regulators and other agricultural chemicals. It has been resorted as back to basics, but it addresses multi-dimensional issues on food security, income diversification, food safety, ecological protection and balance, renewable energy and others.

It is on this underlying philosophy that the province of Negros Occidental has adopted the same technology to address the global problem of starvation and diseases.

Henceforth, the adoption of organic farming became the brainchild of the late Governor Alfredo C. Maranon which started since 2000, in cooperation with the Broad Initiative for Negros Development Inc. (BIND), a non government organization working towards sustainable development in the countryside, carried out Million Trees Sustainable Development Program.

In its entire years of adoption and practice of organic farming, it is imperative that it needs to assess its status, and implementation. Hence, this investigation is conducted.

OBJECTIVES OF THE STUDY

This study aimed to determine the status of organic farming in selected areas in the province of Negros Occidental for calendar year 2007-2008 as perceived by program implementers, organic producers, and organic consumers as basis for proposed enrichment of organic farming.

Specifically, this investigation pursued the following objectives:

1. To determine the status of organic farming in Negros Occidental as perceived by program implementers, and organic producers as to: land area in hectares devoted for organic farming; types of crops produced by organic farming; practices and technology used in organic farming; problems encountered by farmers in practice of organic farming; and sources of information about organic farming
2. To assess the extent of program implementation of organic farming as perceived by program implementers, organic producers and organic consumers
3. To compare the perception of program implementers, organic producers, and organic consumers in the extent of program implementation of organic farming according to the following variable groupings such as: age, gender, educational qualification, length of farming experience, and monthly income

MATERIALS AND METHODS

Research design. In view of the problem under investigation, the descriptive method of research was used. Descriptive research is concerned with the present situation, prevailing conditions, current practices, contemporary events, characteristics of groups, their behavioral patterns and opinions.

It purports to find out qualitatively and quantitatively the existing conditions of relationships, practices that prevail, the beliefs, processes that are going on, the effects that are being felt, or trends that are developing, such as the case of this study.

Research environment. The study was conducted in the province of Negros Occidental, an agricultural province in Negros Island with a land area of 7,926 square kilometers or an equivalent of 7,926,000 hectares. It is composed of 14 cities and 18 municipalities.

The ten (10) selected areas of the study are the municipalities of E.B. Magalona from the north and Binalbagan from the south and the selected cities of Kabankalan, Bago, Bacolod, Talisay, Silay, Cadiz, Sagay and Escalante.

Respondents. The respondents of the study were those who have the actual knowledge and practice in the implementation of organic farming in the province. Considering that organic farming program is still at its infancy stage of its implementation, the respondents from the different categories are scarcely enough that the researcher used the purposive sampling technique.

Ten samples were selected from the implementers group coming from the LGU's and the NGO's in the 10 selected cities and municipalities in Negros Occidental, who actively supervise the program implementation of organic farming by providing training, promotion and development of organic agriculture in the province; 20 organic producers chosen from among farmers recommended by program implementers who adopt the organic farming practices, and 70 organic consumers (7 organic consumers from each 10 selected cities and municipalities) referred to by organic producers. The said organic consumers have knowledge on the implementation and practices of organic farming and at the same time patronize organically- grown products sold in their localities.

The three different classifications of the respondents of the study are actively involved and always participated in the previous and in the recent "Organic Farmers Festival", jointly conducted by the two provinces in Negros Island, spearheaded by the two governors of the island to showcase the different crops produced through organic farming technology.

Table 1. Respondents when grouped according to categories/ variables

Categories/Variables	Groupings	Frequency	Percentage (%)
Age	46 – 71 years old 22 – 45 years old	48 52	52 48
Gender	Male Female	53 47	53 47
Educational Qualification	PhD./Ed. D./ Master's Degree Bachelor's Degree Undergraduate	19 59 22	19 59 22
Length of Farming Experience	21 years and above 16-20 years 11-15 years 6-10 years 0-5 years	23 9 13 15 40	23 9 13 15 40
Monthly Income	P21,000 – P25,000 16,000 – 20,000 11,000 – 15,000 6,000 – 10,000 1,000 – 5,000	14 8 10 34 34	34 8 10 34 34
Respondents' Classification	Program Implementers Organic Producers Organic Consumers	10 20 70	10 20 70

Data gathering instrument. The instrument used in this study for the purpose of gathering necessary data is a researcher-made questionnaire, composed of two major parts. Part I is on the personal information of the respondents from which the respondents were asked to check the boxes provided in the said instrument, if not, supply the necessary information about his/her self.

Part II of the research instrument is concerned with the status of organic farming composed of five (5) items which include the land area in hectares devoted to organic farming; types of crops produced by organic farming; practice and technology used in organic farming; problems encountered by farmers in the practice of organic farming; sources of information about organic farming.

Part III of the instrument is on the program implementation of organic farming composed of 20 items answerable by very great extent to a negligible extent.

Validity and reliability of the instrument. To ensure the validity the instrument, it was submitted to authorities and experts of the topic for comments and suggestions which were given much consideration in the finalization of the instrument.

To establish the reliability of the instrument, the "test-retest" was adopted and applied to the group of individuals who possessed identical or characteristics with that of the target respondents of the study. In the process thereof, the instrument was conducted to the 20 personnel and workers of the Alter Trade, a private institution that promotes organic farming in the province with a demo- farm at Kabankalan City.

The data gathered were correlated with the use of Pearson Product Moment Coefficient of Correlation with a reliability index of 0.96 which indicated that the instrument used in this study is very highly reliable in comparison to the reliability index prescribed by Bartz (1981) which is 0.80 and above.

Procedures for data analyses. Concerning the status of organic farming as perceived by the program implementers and organic producers, frequency, percentage and rank were used. For the extent of program implementation of organic farming, the weighted mean

was used, since it is the most stable measure for central tendency. For the hypothesis which stated that there is no significant difference existing between the perceptions of both the program implementers and organic producers of the extent of implementation of organic farming when grouped according to selected variables, the Chi-square was used. This statistical tool is adopted by the researcher since it is a technique for determining the significance of the difference between the frequencies, and the individual observations must be independent of each other (Bartz, 1981).

RESULTS AND DISCUSSIONS

The status of organic farming as perceived by the respondents. The first major objective of this study is to present the status of organic farming as perceived by the respondents as to: land area in hectares devoted to organic farming, types of crops produced, practices and technology used, problems encountered by farmers and sources of information about organic farming.

As shown in Table 2, eight (8) of 10 program implementers representing 80%, and 18 of 20 organic producers and farms owners representing 90% devote 1 to 5 hectares of their land to organic farming. There were two (2) respondents who devote 6 to 10 hectares of their land to organic farming, and also two (2) respondents who devote 20 to 25 hectares to organic farming. When taken as a whole, twenty six (26) of the thirty (30) respondents, who represents 86% devote 1 to 5 hectares of their land to organic farming, while the remaining four (4) respondents, two of them devote 6 to 10 hectares, and the other two devote 20 to 25 hectares to organic farming.

As per report of the Research Development and Laboratory Services Section, Office of the Provincial Agriculturist, Province of Negros Occidental in their executive summary of the organic agriculture program (Organik na Negros, 2008) reveals the more than a thousand hectares are devoted into organic farming.

Table 2. Status of organic farming as perceived by the program implementers and organic producers/farm owners

Status	Groupings	Respondents				As A Whole (N=30)	
		Program Implementers (N=10)		Organic Producers/ Farm Owners (N=20)			
		F	%/Rank	F	%/ Rank	f	%/ Rank
1. Land Area in Hectares Devoted to Organic Farming	20-25 hectares 6-10 hectares 1-5 hectares	1 1 8	10 10 80	1 1 18	5 5 90	2 2 26	7 7 86
2. Types of Crops Produced by Organic Farming	Vegetables Fruits Legumes Rice Sugarcane Others	8 7 6 6 3 3	1 2 3.5 3.5 5.5 5.5	17 10 5 16 9 2	1 3 5 2 4 6	25 17 11 22 12 5	1 3 5 2 4 6
3. Practice and Technology Used in Organic Farming	Vermi-Composting Rice Straw/ Rice Hull Plant Borders Mulching Manure and Compost Crop Rotation Cover Cropping Others	8 6 3 8 10 5 4 1	2.5 4 7 2.5 1 5 6 8	11 16 3 8 16 9 6 3	3 1.5 7.5 5 1.5 4 6 7.5	19 22 6 16 26 14 10 4	3 2 7 4 1 5 6 8

4. Problems Encountered by Farmers in the Practice of Organic Farming	Availability of Quality Seeds	3	5	9	3	11	3.5
	Availability of Organic Fertilizers	3	5	7	5	10	5.5
	Lack of Product Certification	8	1	16	1	24	1
	Lack of Government Support System	7	2	14	2	21	2
	Lack of NGO's Support	5	3	6	6	11	3.5
	Limited Product Outlet	3	5	5	7	8	7
	Marketability of Product	2	6.5	8	4	10	5.5
	Insects/Pests Control	2	7.5	1	8	3	8
5. Sources of Information about Organic Farming	Radio Broadcast	2	7.5	6	5.5	8	6
	T.V. Broadcast	2	7.5	5	7	7	7
	Primer/Printed Materials/	5	3	6	5.5	11	5
	Leaflets/Flyers	4	4.5	0		4	8
	Posters/Billboards	6	2	9	4	15	3
	Technology	18	1	18	1	36	1
	Demonstration	4	4.5	12	2	16	2
	NGO's Training/Seminar	3	6	11	3	14	4
	Department of Agriculture Training Seminar						
	Farmers and Traders						

In terms of types of crops, both the program implementers and organic producers/farm owners ranked vegetables as first in being produced through organic farming, fruits is rank 2 for program

implementers, while rice for organic producers /farm owners. Legumes and rice rank 3.5 for program implementers and fruits rank 3 for organic producers/farm owners. Crops such as legumes, sugarcane and others are included on top five types of crops produced through organic farming. When taken as a whole, the top five crops produced through organic farming are the following: vegetables rank 1, rice rank 2, fruits rank 3, sugarcane rank 4, and legumes rank 5.

The finding that the top five crops produced through organic farming are vegetables, rice, fruits, sugarcane and legumes is supported by the executive summary report of the Office of the Agriculturist, that organic farming produced organic rice, vegetables, sugarcane, fruit trees and coffee and continue to increase due to high cost of chemical fertilizers, degradation of environment and increasing demand for organic products. While Negros Occidental is basically a sugarcane producing province, organic sugar is still a long way in being the top organically grown product.

As to practices and technology used in organic farming, the program implementers perceived that manure and compost rank 1, followed by vermi-composting and mulching which tied at 2.5, rice straw/rice hull rank 4, crop rotation rank 5, cover cropping rank 6, plant borders at rank 7 and others which rank 8.

The organic producers/farm owners perceived that rice straw/rice hull and manure and compost tied in rank 1.5, vermi-composting at rank 3, crop rotation rank 4, mulching rank 5, cover cropping rank 6, and plant borders and others tied at rank 7.5. When taken as a whole, as to practices and technology used in organic farming, manure and compost rank 1, rice straw/rice hull rank 2, vermi-composting rank 3, mulching rank 4, crop rotation rank 5, cover cropping rank 6, and plant borders rank 7.

The finding of the study is supported by the program of the Office of Provincial Agriculturist 2007-2008 which conducted continuous hands-on trainings/symposium on Vermi production/composting.

As to the problems encountered by farmers in the practice of organic farming, the top five (5) are: lack of product certification, lack of government support system, lack of NGO's support, the availability of quality seeds and availability of organic fertilizers and limited product outlets. The least problems encountered by farmers are

product marketability and insects and pests control which were tied at 7.5

As to the perception of organic producers/owners with regard to problems encountered, lack of product certification, availability of quality seeds and product marketability ranks 1, 2 and 3, respectively. The least encountered problem is the insect and pest control which ranked 8.

With regard to sources of information about organic farming, the perceptions of program implementers shows that NGO's training / seminars ranked first, followed by technology demonstration, primer/ print materials and leaflets ranked second and third respectively. It shows that information with regards to organic farming is available anytime when needed.

The least perceived source is the radio and TV broadcast which ranked last. This can be gleaned that information with regard to organic farming is not readily available on air and visual media.

When taken as a whole, the problem encountered by farmers in the practice of organic farming which rank 1, is lack of product certification, followed by lack of government support system.

The findings of this investigation is true due to the fact that it was only last June 2008 that the Internal Guarantee System was established in each pilot organic village to answer the question of the community as to who will vouch that the products are truly organic. In doing so, the integrity of the products and as well as the interest of the farmers are safeguarded. Furthermore, the conduct and participation in organic farmers' festival, agro-fairs, and displays in "Organik na Negros" market are some of the effective strategies in marketing the chemical-free products from the communities and also from other organic growers/producers and partners in organic agriculture program.

As to the perception of organic producers/owners on the sources of information for organic farming, shows that NGOs training /seminars ranked first, followed by Department of Agriculture sponsored seminars and information by word of mouth from farmers and traders ranked second and third respectively, while the least perceived source is TV broadcast. This can be due to the reason that farmer folks have limited access to TV and/or that electrification does not reach yet the remote areas.

When taken as a whole, the source of information about organic farming is through NGOs training/seminar, which rank 1. This implies the active involvement and advocacy of NGOs on organic farming as a healthy option.

This finding is supported by the program due to the fact that series of symposia, forum and trainings are continuously conducted and participated by different organic advocates and practitioners like NGOs, Private Organizations, farmers, agriculturists, local officials and private individuals.

Extent of program implementation of organic farming as perceived by the respondents. The second major concern of this study is to determine the extent of program implementation of organic farming as perceived by the respondents as a whole and when grouped according to classification as: program implementers, organic producers/owners and organic consumers.

In this regard, Table 3 presents the data according to items in the data-gathering instruments. Table 3 shows that generally, the extent of program implementation of organic farming as perceived by the respondents is to a moderate extent with an overall mean score of 3.12.

Similar perceptions with a weighted mean of 2.64 to 3.25 were found in the following aspects: accessible through media; monitor/ supervise regularly in coordination the LGUs; financial support extended to farmers; the province providing other technical support resources needed in education; available program inputs; area planted with suitable crops and maintained in good condition; the provision of village for administration office of the program; training rooms that are adequate to meet the needs of trainee population; and equipment, instructional supplies and materials are updated.

Whereas, in terms of NGO's well defined organic farming program of implementation, the support of local government on the implementation of the various programs along organic farming; the varying strategies in implementing and integrating activities in the province, municipalities and cities; the dissemination of program on organic farming; the orientation of the agriculturists or organic technologies; the simple and well-defined program; the provision for an extensive and sufficient support from the NGOs on farming technology were perceived to be at a great extent.

Table 3. The extent of program implementation of organic farming as perceived by the respondents

Items	Weighted Mean of Responses						As a Whole	
	Program Implement-ers		Farm Own-ers		Organic Consumers			
	X̄	**I**	**X̄**	**I**	**X̄**	**I**	**X̄**	**I**
1. The NGOs have a well- defined organic farming program for implementation by local communities	3.70	GE	4.15	GE	2.72	ME	3.52	GE
2. The local officials support the various programs along organic farming	3.80	GE	4.O	GE	3.18	ME	3.66	GE
3. Provincial, City and Municipal programs vary from one another in the integration of different activities	3.70	GE	3.85	GE	3.36	ME	3.64	GE
4. Program along organic farming is widely disseminated	3.90	GE	3.55	GE	3.23	ME	3.56	GE
5. Local agriculturists are well-oriented with the trends along organic farming technologies	3.70	GE	3.40	ME	3.32	ME	3.47	GE
6. The program are well –defined and are easy to understand	3.80	GE	3.60	GE	3.30	ME	3.57	GE
7. The NGO is sufficiently extensive to provide present farming technology needs	4.30	GE	3.70	GE	3.28	ME	3.76	GE
8. The program is accessible through media	3.60	GE	3.10	ME	2.80	ME	3.17	ME
9. Conduct technical seminars/training/ and or regular meetings to farmers	3.70	GE	3.20	ME	3.33	ME	3.41	GE

10. Monitor/supervise regularly in coordination with the LGU	3.50	GE	3.35	ME	3.06	ME	3.31	ME
11. Financial support is extended to farmers	3.30	ME	2.50	ME	2.69	ME	2.83	ME
12. The province provide other technical support services needed like education, and etc.	3.30	ME	3.40	ME	3.06	ME	3.25	ME
13.There is availability program inputs	2.70	ME	3.05	ME	3.08	ME	2.94	ME
14. The area is planted with suitable crops and maintained in good condition	2.80	ME	3.85	GE	2.98	ME	3.21	ME
15. The village/ municipality has a provision for administrative office for the program	2.6	ME	2.55	ME	2.89	ME	2.68	ME
16. Training rooms are adequate to meet the needs of trainee population	2.7	ME	2.7	ME	2.51	ME	2.68	ME
17. Farm technology laboratories are adequate and conform to accepted standard	2.2	LE	2.25	LE	2.7	ME	3.28	LE
18. Necessary farm equipment and facilities are in good working condition	2.0	LE	1.54	LE	3.24	ME	2.14	LE
19. Equipment, instructional supplies and materials are up-to-date	3.5	GE	1.75	LE	3.24	ME	2.83	ME
20. Instructional devices are in good working condition at all times	2.2	LE	2.4	LE	2.85	ME	2.48	LE
Mean of Mean Scores	**3.25**	**ME**	**3.10**	**ME**	**3.02**	**ME**	**3.12**	**ME**

In view of these findings, it can be disclosed that the program on organic farming is moderately implemented. The result may have been brought by the inadequacy and insufficiency of the information drive, land and materials equipment as well as the technology, considering that technology transfer concerning the implementation plays a vital role in the success of the program.

Specifically, when the respondents were classified according to program implementers, it revealed that a perception toward program implementation of organic farming is moderate extent with a mean score of 3.25**.** Similar finding was found in organic producers/owners with a mean score of 3.10 interpreted as moderate extent.

Differences in the Extent of Program Implementation of Organic Farming in Some Areas of the Province of Negros Occidental

One of the major concerns of this study is to determine whether or not significant differences existed in the extent of program implementation of organic farming when grouped and compared according to variable groupings.

The result indicates that the obtained Chi-Square value of 0.0257 for age; 0.0579 for gender; and 0.0533 for educational qualification are not significant at .05 alpha level with 1 degree of freedom since they failed to reach or exceed the mark-off point of 3.84. For the Chi-Square results 0.8643 and 0.7098 for the length of farming experience and the monthly income respectively are not also significant at the same level of significance with 4 degrees of freedom, thus it is found to be not significant also for the same reason that it failed to reach the mark-off point of 9.49.

Similar finding was also found in the comparisons between and among the implementers, producers and the consumers since the result is only 0.3272 at .05 alpha level with 2 degrees of freedom, because it failed to reach the mark-off point of 5.95.

Accordingly, the null hypothesis concerning the significant differences that exists is therefore confirmed. Based on these findings it can be stated that the extent of implementation of organic farming as perceived by the respondents when they were grouped and compared according to their corresponding variable groupings is more or less the same.

CONCLUSIONS

Based on the findings of the study, respondents positively responded on organic farming regardless of their age, gender, educational qualifications, length of farming experience and monthly income. Total land area is still limited to organic farming. While among the types of crops produced, program implementers and organic producers perceived that vegetables ranked 1. As to practices and technology used, compost ranked first followed by rice straw and rice hulls, and manure respectively. With regard to problems encountered by farmers, lack of product certification prevails most. The source of information about organic farming was addressed by NGO's trainings/ seminars.

This implies the limited land area devoted to organic farming and the unavailability of product certification hampers the implementation of organic farming program of the province. In the same manner that availability of funds from the LGU's and NGO's must be prioritized being one of the thrusts of the provincial government to alleviate poverty and improve food security of its people.

On the other hand, there were no significant differences found in the extent of program implementation of organic farming as perceived by the three respondents. Therefore organic farming in Negros Occidental will still be implemented and intensified to ensure the success of the program. The LGUs and NGOs should collegially unite to empower farmers to produce sufficient, affordable, environmentally friendly products and nutritious, healthy food for Filipino.

RECOMMENDATIONS

Some important courses of actions that are related to, but not with the scope of this study, are worth recommending. These are cited below:

1. LGU and community officials promote sustainable agriculture that encompasses many different production methods, systems, and approaches that aim to meet the goals of profitability, stewardship, and quality life. One of those approaches, is organic farming. Community approach in the implementation

of the project is more effective and holistic rather than giving it to individual farmers. This approach involves the active participation of the farmers from planning, implementation, monitoring and assessment of the project.

2. Community leaders could also establish Internal Quality Guarantee System in the different municipalities and cities that will vouch their organic products.
3. Close coordination with the local government units/chief executives, field technicians and farmers is very important to attain the success of project implementation of organic farming.
4. On the basis of the findings and conclusions of the study, the researcher strongly recommends the proposed enrichment action plan to be adopted to help farmers in the implementation and their adoption of organic farming.
5. The support of LGUs, NGOs and other private sectors are also needed in providing information caravans, trainings and seminar-workshops on organic farming dissemination.

LITERATURE CITED

Alcantara, C.G., and Molina, C.C.
2003 "Organic farming trainings at village Ane-I and Patrocenio, Claveria, Misamis Oriental." A Dissertation, MOSCAT, Claveria, Misamis Oriental.

Ardales, Venancio B.
1992 "Basic concepts and methods in res**earch**." Quezon City, Philippines: Great Book Trading.

Bartz, Albert E.
1981 **"**Basic statistical concepts**,"** 2nd Edition, New York: McMillan Publishing Company.

Belisario, Patrick.
2007 **"**Organic farming can spur more business prospects**,"** visayandailystar.com/2007/September/06/businessnews1.html

Bueren, Lammerts van.
2002 "Ecological concepts in organic farming and their consequences for organic crop," Netherlands.

Carbonnel, Nenita.
2007 "Learning organic agriculture in a park," Agriculture Magazine.

Cariño, Delmar.
2008 "Organic goods: high demand, low supply," Business Monday.

Davis, S.F.
2007 "Organic foods." Journal of food science, Canada.

Colting, Rogelio.
2008 "3rd Cordillera organic agriculture congress," Acomprehensive report.

Cochingco, Carmencita.
2006 "Agusan del Sur leads promotion of organic, natural & bio-dynamic farming technology systems in Caraga Region."

Dogeno, Ma. Sigrid O.
2005 "1st Negros island organic farmers' festival", Agriculture Magazine, Manila Bulletin Publication.

Erlich, Paul R. and Ann Erlich.
1995 "Population resources environment issues in human ecology, " USA, W.H. Freeman and Co.

Fernandez, Pamela G.
2001 "Biodynamic farming history and principles," UPLB.

Galarrita, G. and De la Cerna, E.
2003 "Escaping poverty through sustainable agriculture: A case study of an upland farmer in San Roque. Tongantongan,

Valencia City." Xavier University, A Dissertation.

Henares, Pamela.
2006 "Buru-Buru Vermi-Farm," PHILSUTECH Association.

Milestad, Rebecka.
2003 "Building farm resilience: The prospects and challenges of organic farming," Swedish University of Agricultural Sciences, Uppsala, Sweden.

Osip, C.A., et al.
2003 "Technology commercialization on high value vegetables, young corn and potato production," Department of Agriculture.

Robertson J.F.
2001 "An urgent need for change. Holyrood, 56, 29th October 2001.

Villaruel, Ruben, et al.
2004 "Vegetable training manual," Department of Agricultural Communication and Department of Agronomy, UP College of Agriculture.

Villegas, Lina G.
2004 "Vermicomposting: A Key to Organic Farming," UPLB, National Crop Research Development Center, Los Baños, Laguna.

Wendell, Barry.
2008 "One thing to do about Food: A forum, "The Nation, Washington, DC.

http://www.bayanihan.org/html/article.php

http://www. soil association org/nsf/living/what is organic/html

http://www.ifoamorg/principles/index/html

http://www.ocf.berkeley.edu/organictext/html

http://www.environment.gov.au/biodiversity

http://www.en.wikipediaorg/sustainable agriculture

http://www.ns.umich

http://www.visayandailystar.com/2007/April/27/topstory3.html

http://www.agnet.org/library/eb/558/

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