

BIBLIOGRAPHY

MOC-EG, MARIO Jr. J. April 2012. Perceptions and Attitudes of Vegetable Farmers in Gambang, Bakun, Benguet on the Utilization of Chicken Dung. Benguet State University, La Trinidad, Benguet.

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ABSTRACT

The Study was conducted to: 1) determine the perception of the farmers on the efficacy of chicken dung; 2) determine the perception of the farmers on the ill-effects of chicken dung to human and environment; 3) to determine the attitude of the farmers on the utilization of chicken dung in Gambang, Bakun, Benguet. The study was conducted by actual visitation and personally one on one interview with the 75 respondents. The data was undertaken in November 2011. The questionnaire was served as an interview guide to the farmers. Prepared survey questionnaires were used to gather the data and information imperative to the study on perceptions and attitudes of farmers on the efficacy of chicken dung.

As to the demographic profile of the respondents, almost 80% of the respondents were males. Of the 75 respondents, 57 were married. Furthermore, the youngest respondent has age ranging under the bracket of 16 to 20 years old. Moreover, the greatest number of respondents has ages ranging from 21 to 25 years old. It is worth mentioning that there were five respondents who were more than 60 years old. The findings may imply that farming has no age limit or restriction. As to the highest educational attainment, of the 75



respondents, eight were college graduate and there were at least four who were not able to attend formal education. The greatest number of respondents graduated from high school. According to the respondents who did not finish college, they were constrained by the lack of financial resources. The number of years spent in farming varied among the respondents. Fifty percent of the respondents have almost 10 years of experience in crop production. Furthermore, there were few who produced vegetables for 41 to 50 years.

As to the farm profile of the respondents it is quite amazing that less than 50% of the respondents owned the land that they were farming. There were thirty respondents leasing their farm and at least 10 respondents farm the area for free. Findings show that a great number of the farmers in Gambang, Bakun are not land owners. The Gambang farmers are not as lucky as that in Nutubleng, Buguias. Furthermore, in farm area of the respondents it ranges from .5 hectare to 2 hectares. Majority of the respondents have farm area of .51 hectare to 1 hectare. Ten respondents have farms of more than 1 hectare. The data, however, are based on estimates of the respondents and not from actual measurement.

The greatest number of respondents follows the rate of 100 sacks of chicken dung per hectare on all the four major crops grown in the barangay namely: potato, cabbage, carrots, and broccoli. Most of the respondents produce crops twice a year. As to the number of times of chicken dung application per cropping, all the respondents revealed single application, regardless of crop planted, According to the respondents, chicken dung was used as basal fertilizer.

Most of the respondents claimed that chicken dung makes crops robust. According to the farmers, this is the very reason why they insist on using chicken dung for crop production. Furthermore, more than 50% of the respondents highly believed that chicken



dung boosts crop growth, hasten head formation of cabbage, and increases oil organic content leading to improve soil texture and ability to hold moisture and nutrients. A great majority of the respondents moderately believed that chicken dung improves the physical qualities of crops as to size and color, and it supplies the most essential plant nutrients like Nitrogen, Phosphorus, and Potassium. Accordingly to majority of the respondents, chicken dung shortened maturity of crops, prevented the occurrence of crop diseases, and controlled crop diseases.

As to the perception of the farmers on ill-effect of chicken dung, many respondents highly believed that chicken dung attracted flies and other disease-causing insect, and applying chicken dung with bare hands is harmful to human health. Furthermore, more than 50% of the respondents highly believe that continuous exposure to chicken dung can cause human illness like headaches, dizziness, and respiratory problems. Most of the respondents moderately believe that excessive application of chicken dung increases acidity of the soil thus making it not suitable for crop production. At least 60% of the respondents moderately believe that chicken dung contains disease organism capable of contaminating crops. The perception that chicken dung applied to the farm leaches can pollutes rivers, streams, and ground water; and exposure of chicken dung pollutes the air is moderately believed by more than 50% of the respondents.

Almost all of the respondents claimed that they used chicken dung for as long as they producing vegetables. On the other hand, a great majority of the respondents are willing to shift to other sources of organic matter if chicken dung will be totally banned from the market. On the other hand, almost all of the respondents are willing to attend seminars, trainings, and workshops on chicken dung if ever given a chance.



As to the recommendations of the study, the farmers of Gambang, Bakun must participate to avoid continues exposure of chicken dung in every farmland to minimize ill-effects to human health and environment; As the farmers are all willing to attend any seminar related to chicken dung, all concerned agencies must conduct any training to minimize the ill-effects of chicken dung, also to train them on how use to reach the recommended rate of chicken dung per hectare in every crop.



RESULTS AND DISCUSSION

This section presents the findings of the study on “perceptions and attitudes of vegetable Farmers in Gambang, Bakun, Benguet on the Utilization of chicken dung”. Specifically, it reflects the demographic profile of the respondents as to gender, civil status, age bracket, highest educational attainment, and number of years in farming. It also includes the perceptions of the farmers on the efficacy of chicken dung for vegetable production; perceptions of the farmers on the ill-effects of chicken dung; and the attitudes of the vegetable farmers on the utilization of chicken dung.

Demographic Profile of Respondents

Table 1 presents the demographic profile of the respondents as to gender, civil status, age bracket, highest educational attainment, and number of years in farming. As to gender, almost 80% of the respondents were males.

The above findings may imply that vegetable production in Gambang, Bakun is dominated by males. Nevertheless, there are still female farmers. Of the 75 respondents, 57 were married. The rest were single.

The youngest respondent had age ranging under the bracket of 16 to 20 years old. Moreover, the greatest number of respondents had ages ranging from 21 to 25 years old. It is worth mentioning that there were five respondents who are more than 60 years old. The findings may imply that farming has no age limit or restriction.

The table also reflects the highest educational attainment of the respondents. Of the 75 respondents, eight were college graduates and there were at least four who were not able to attend formal education. The greatest number of respondents graduated from



Table 1. Demographic profile of the respondents

PROFILE	NO. OF RESPONDENTS N=75	PERCENT (%)
A. Gender		
Male	59	78.70
Female	16	21.30
TOTAL	75	100.00
B. Civil status		
Married	57	76.00
Single	18	24.00
TOTAL	75	100.00
C. Age bracket		
16-20	1	1.30
21-25	24	32.00
26-30	9	12.00
31-35	9	12.00
36-40	11	14.70
41-45	6	8.00
46-50	6	8.00
51-55	2	2.70
56-60	2	2.70
More than 60 yrs. old	5	6.70
TOTAL	75	100.00



Table 1. continued. . .

PROFILE	NO. OF RESPONDENTS N=75	PERCENT (%)
D. Highest Educational attainment		
No schooling	4	5.30
Elementary undergraduate	9	12.00
Elementary graduate	16	21.30
High school undergraduate	15	2.00
High school graduate	20	26.70
College undergraduate	3	4.00
College graduate	8	10.70
TOTAL	75	100.00
E. Number of years in farming		
10 years and below	38	50.70
11-20 years	19	25.30
21-30 years	10	13.30
31-40 years	4	5.30
41-50 years	4	5.30
51-60 years	0	0.00
61-and above	0	0.00
TOTAL	75	100.00

high school. According to the respondents who did not finish college, they were constrained by the lack of financial resources.



The number of years spent in farming varied among the respondents. Fifty percent of the respondents have outmost 10 years of experience in crop production. Furthermore, there were few who produced vegetables for 41 to 50 years.

Farm Profile of the Respondents

Table 2 shows the farm profile of the respondents as to ownership status of the respondents on the area they are farming; area of their farm; bulk of chicken dung applied per area per crop; number of cropping seasons per year; and number of chicken dung application per cropping season.

It is quite amazing that less than 50% of the respondents owned the land that they were farming. Thirty respondents lease the farm and at least 10 respondents farm the area for free. Findings show that a great number of the farmers in Gambang, Bakun are not land owners. According to the respondents, the rent for the farm is an additional burden. It adds much to the production inputs. The Gambang farmers are not as lucky as that in Nutubleng, Buguias. A similar study conducted by Jose (2011) in Natubleng revealed that a great majority of the farmers own the land they are tilling. Only few respondents lease the area. The farm area of the respondents ranges from .5 hectare to 2 hectares. Majority of the respondents had farm area of .51 hectare to 1 hectare. Ten respondents had farms of more than 1 hectare. The data, however, are based on the estimates of the respondents and not from actual measurement.

As to the rate chicken dung (sacks) used, the greatest number of respondents follows the rate of 100 sacks of chicken dung per hectare on all the four major crops grown in the barangay namely: potato, cabbage, carrots, and broccoli. According to the respondents, the more chicken dung they applied the greater the yield and the higher the



Table 2. Farm profile of the respondents

PROFILE	NO. OF RESPONDENTS N=75	PERCENT (%)
A. Ownership status		
Owned	35	46.70
Leased	30	40.00
Farmed for free	10	13.30
B. Farm area(ha)		
.5 and below	20	26.70
.51 - 1.0	45	60.00
1.01 – 1.50	4	5.30
1.51 and above	6	8.00
C. Rate of chicken dung applied per crop (sacks per hectare)		
Potato		
100	32	42.70
200	2	2.70
300	2	2.70
400	1	1.30
500 and above	1	1.30
Cabbage		
100	22	29.30
200	6	8.00
300	1	1.30



Table 2. continued. . .

PROFILE	NO. OF RESPONDENTS (N=75)	PERCENT (%)
Carrots		
100	15	20.00
200	1	1.30
Broccoli		
100	11	14.70
200	3	4.00
D. Number of cropping seasons per year		
Once	2	2.70
Twice	48	64.00
Thrice	25	33.30

quality. Relatively, Mitchell et al. cited that using poultry manure as fertilizer can be done successfully so as long as you apply it to match the nutrients needed by your crops. However, he pointed out that in areas where poultry farming is common, the amount of chicken manure produced can actually cause over-fertilization; thus he suggested having the soil professionally tested to determine the nutrient content before applying manure for fertilization. Moreover, he claimed that composting the manure before using is important because of the high nitrogen content, which can be harmful to plants in high concentrations.

Furthermore, the findings support the claim of Buya-an as cited by Cariño (2009) that farmers still prefer using raw chicken manure and they do not mine to understand



scientific explanations as to its ill-effects since the results of their harvest show otherwise. Chicken manure makes the soil black and healthy and the plants robust. Figure 3 shows sample of chicken dung used by the vegetable farmers.



Figure 3. Sample of chicken dung used by vegetable farmers for crop production

On the number of cropping seasons per year, a great majority of the respondents produced crops twice a year. Moreover, there were 25 respondents who claimed to have been producing crops three times a year. At least two respondents produced crops once a year. According to the respondents, irrigation is one major factor to consider in crop production. Those who own well-irrigation farms can produce vegetables the whole year round unlike those rain fed areas that can only be farmed twice if not once.

Another factor cited by the respondents is financial resources. As such, the fate of their second cropping relies on the performance of the first. In other words, if they gain profit from their first cropping, they will use it for the second. However, the absence of profit from the first cropping will hinder upcoming agricultural activities.

As to the number of times of chicken dung application per cropping, all the respondents revealed single application, regardless of crop planted, According to the respondents, chicken dung is used as basal fertilizer.

Perception of Farmers on the Efficacy of Chicken Dung for Vegetable Production

Table 3 shows the perception of Gambang farmers on the efficacy of chicken dung for vegetable production. As shown in the Table, most the respondents claimed that chicken dung makes crops robust. According to the farmers, this is the very reason why they insist on using chicken dung for crop production. This supports the claim of Mr. Jose Andiso, a Buguias farmer and president of the Buguias Farmers Federation, as cited by Governor Nestor B. Fongwan that his field often yield good harvest of potatoes because of chicken dung. Similarly, Hogh-Jensen (2000) stated that manure can be one of the greatest assets for a home gardener. Although chicken manure is too strong to be used row in Flowers or vegetables, it can be composted or converted to “black gold”.

Furthermore, more than 50% of the respondents highly believed that chicken dung boosts crop growth, hasten head formation of cabbage, and increases oil organic content leading to improve soil texture and ability to hold moisture and nutrients.



Table 3. Perception of farmers on the efficacy of chicken dung for vegetable production

PERCEPTION	HIGHLY BELIEVE		MODERATELY BELIEVE		DO NOT BELIEVE	
	n	%	n	%	n	%
Chicken dung increases soil organic content leading to improve soil texture and ability to hold moisture and nutrients	39	52.00	35	46.70	1	1.30
Chicken dung supplies the most essential plant nutrient – NPK	26	34.70	49	65.30	0	0.00
Chicken dung improves the chemical properties of the soil and prevents possible effects of erosion	31	41.30	37	49.30	7	9.30
Chicken dung boosts crop growth	46	61.30	29	38.70	0	0.00
Chicken dung makes crops robust	57	76.00	18	24.00	0	0.00
Chicken dung hasten head formation of cabbage	43	57.30	32	42.70	0	0.00
Chicken dung shortens maturity of the crops	31	41.30	44	58.70	0	0.00
Chicken dung improves physical qualities of crops as to size and color	24	32.00	51	68.00	0	0.00
Chicken dung prevents occurrence of crop diseases	32	42.70	42	56.00	1	1.30
Chicken dung controls crop diseases	34	45.30	39	52.00	2	2.70

*multiple responses

The table also reflects that a great majority of the respondents moderately believed that chicken dung improves the physical qualities of crops as to size and color, and it supplies the most essential plant nutrients like Nitrogen, Phosphorus, and Potassium. Accordingly



to majority of the respondents, chicken dung shortens maturity of crops, prevents occurrence of crop diseases, and controls crop diseases. Almost fifty percent of the respondents moderately believed that chicken dung improves the chemical properties of the soil and prevents possible effects of erosion. On the other hand, there were few respondents who do not believed on the efficacy of chicken dung. Nevertheless, these farmers were still using it for crop production. Figure 4 shows the closer look of chicken dung used by vegetable farmers.



Figure 4. Closer look of chicken dung used by vegetable farmers

Perception of Farmers on the Ill-effects of Chicken Dung

The perception of Gambang farmers on the ill-effects of chicken dung is reflected in Table 4. As shown in the table, a great majority of the respondents highly believed that

chicken dung attracts flies and other disease-causing insect, and applying chicken dung with bare hands is harmful to human health. Furthermore, more than 50% of the respondents highly believe that continuous exposure to chicken dung can cause human illness like headaches, dizziness, and respiratory problems. Relatively, Cariño voiced the claim of the residents of Shilan, La Trinidad that today's campaign toward organic agriculture has challenged the credibility of chicken dung as an organic farm input. It has revived calls for its ban due to its obnoxious smell and health threat such as headaches, dizziness, nausea, vomiting and other respiratory discomforts. Figure 5 shows the truckload of chicken dung displayed in Shilan, Tublay, Benguet.



Figure 5. Truckload of chicken dung displayed in Shilan, Tublay, Benguet

Table 4. Perception of farmers on the ill-effects of chicken dung

PERCEPTION	HIGHLY BELIEVE		MODERATELY BELIEVE		DO NOT BELIEVE	
	n	%	n	%	n	%
When applied fresh, chicken dung can burn tender crop roots and vegetation	16	21.30	58	77.30	1	1.30
Excessive application of chicken dung increases acidity of the soil thus making it not suitable for crop production	11	14.70	63	84.00	1	1.30
Chicken dung contains disease organisms capable of contaminating crops	29	38.70	45	60.00	1	1.30
Continuous exposure of chicken dung can cause human illness like headaches, dizziness, and respiratory problems	40	53.30	34	45.30	1	1.30
Applying chicken dung with bare hands is harmful to human health	47 62.70		28	37.30	0	0.00
Chicken dung attracts flies and others disease-causing insects	48 64.00		27	36.00	0	0.00
Chicken dung applied to the farm leaches and pollutes rivers, streams, and ground water	35 46.70		39	52.00	1	1.30
Exposure of chicken dung pollutes the air	33	44.00	41	54.70	1	1.30

*Multiple responses

Most of the respondents moderately believed that excessive application of chicken dung increases acidity of the soil thus making it not suitable for crop production. At least 60% of the respondents moderately believed that chicken dung contains disease organism



capable of contaminating crops. The perception that chicken dung applied to the farm leaches can pollutes rivers, streams, and ground water; and exposure of chicken dung pollutes the air is moderately believed by more than 50% of the respondents. On the other hand, there is one respondent who do not believe on the ill-effects of chicken dung neither on human beings nor the environment.

The findings relate to the claim of Geneston as cited by Asio (2010) that fresh manure is not desirable for garden use because its high level of nitrogen can burn the plants. An over abundance of this gas could produce negative plant growth and possible destroy the plants. It should the aged before using. Figure 6 shows the chicken dung exposed in Gambang, Bakun, Benguet.



Figure 6. Exposed chicken dung at the farm land in Gambang, Bakun, Benguet

Attitude of Farmers on the Utilization of Chicken Dung

Table 5 shows the attitude of the Gambang farmers on the utilization of chicken dung for vegetable production. As reflected on the table, almost all of the respondents claimed that they used chicken dung for as long as they producing vegetables. According to the respondents, they had been using chicken dung since they engaged in vegetable production and they could hardly find a substitute.

On the other hand, a great majority of the respondents were willing to shift to other sources of organic matter if chicken dung will be totally banned from the market. At least two respondents claimed that they used chicken dung for as long as supply last.

Besides, all the respondents were willing to attend seminars, trainings, and workshops on chicken dung if ever given a chance. According to the respondents, one reason for their continuous use of chicken dung is their ignorance on its ill-effects. Furthermore, they also do not know other source of fertilizer that can help in their vegetable production.



Table 5. Attitudes of the farmers on the utilization of chicken dung

ATTITUDE	NO. OF RESPONDENTS (N=75)	PERCENT (%)
Use chicken dung as long as I am farming	73	97.30
Use chicken dung as long as supply last	2	2.70
Willing to shift to other organic matter sources if chicken dung is totally banned from the market	63	84.00
Willing to attend seminars, training and workshops on the ill-effects of chicken dung	75	100.00

*Multiple responses



SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The study was on the perception and attitudes of vegetable farmers in Bakun, Benguet. It was conducted purposely in Gambang, Bakun, Benguet to identify the demographic profile of the respondents, farm profile of the respondents, perceptions of farmers on the efficacy of chicken dung, their perceptions on the ill-effects of chicken dung, and attitudes on the utilization of chicken dung. The study was actual visits and personally one on one interview with the 75 respondents. The data was undertaken in November 2011. The questionnaire was served as interview guide to the farmers. Prepared survey questionnaires were used to gather the data and information imperative to the study on perceptions and attitudes of farmers on the efficacy of chicken dung.

On this study almost 80% of the respondents are males. Nevertheless, there are still female farmers. Of the 75 respondents, 57 are married. The rest are single. Furthermore, the youngest respondent has age ranging under the bracket of 16 to 20 years old. Moreover, the greatest number of respondents has ages ranging from 21 to 25 years old. It is worth mentioning that there are five respondents who are more than 60 years old. The findings may imply that farming has no age limit or restriction. As to the highest educational attainment, of the 75 respondents, eight are college graduate and there are at least four who are not able to attend formal education. The greatest number of respondents graduated from high school. According to the respondents who did not finish college, they were constrained by the lack of financial resources. The number of years spent in farming varied among the respondents. Fifty percent of the respondents have outmost 10 years of



experience in crop production. Furthermore, there were few who produced vegetables for 41 to 50 years.

As to the farm profile of the respondents it is quite amazing that less than 50% of the respondents own the land that they are farming. Thirty respondents lease the farm and at least 10 respondents farm the area for free. Findings show that a great number of the farmers in Gambang, Bakun are not land owners. According to the respondents, the rent for the farm is an additional burden. It adds much to the production inputs. The Gambang farmers are not as lucky as that in Nutubleng, Buguias. Furthermore, in farm area of the respondents it ranges from .5 hectare to 2 hectares. Majority of the respondents have farm area of .51 hectare to 1 hectare. Ten respondents have farms of more than 1 hectare.

The greatest number of respondents follows the rate of 100 sacks of chicken dung per hectare on all the four major crops grown in the barangay namely: potato, cabbage, carrots, and broccoli. According to the respondents, the more chicken dung they apply the greater the yield and the higher the quality. Relatively, Mitchell et al. cited that using poultry manure as fertilizer can be done successfully so as long as you apply it to match the nutrients needed by your crops.

A great majority of the respondents produce crops twice a year. Moreover, there are 25 respondents who claimed to have been producing crops three times a year. At least two respondents produce crops once a year. According to the respondents, irrigation is one major factor to consider in crop production. Those who own well-irrigation farms can produce vegetables the whole year round unlike those rain fed areas that can only be farmed twice if not once. As to the number of times of chicken dung application per cropping, all



the respondents revealed single application, regardless of crop planted, According to the respondents, chicken dung is used as basal fertilizer.

Most the respondents claimed that chicken dung makes crops robust. According to the farmers, this is the very reason why they insist on using chicken dung for crop production. Furthermore, more than 50% of the respondents highly believe that chicken dung boosts crop growth, hasten head formation of cabbage, and increases oil organic content leading to improve soil texture and ability to hold moisture and nutrients. A great majority of the respondents moderately believe that chicken dung improves the physical qualities of crops as to size and color, and it supplies the most essential plant nutrients like Nitrogen, Phosphorus, and Potassium. Accordingly to majority of the respondents, chicken dung shortens maturity of crops, prevents occurrence of crop diseases, and controls crop diseases. Almost fifty percent of the soil and prevents possible effects of erosion. On other hand, there are few respondents who do not believe on the efficacy of chicken dung. Nevertheless, it's amazing that these farmers still use it for crop production.

Great majority of the respondents highly believed that chicken dung attracts flies and other disease-causing insect, and applying chicken dung with bare hands is harmful to human health. Furthermore, more than 50% of the respondents highly believed that continuous exposure to chicken dung can cause human illness like headaches, dizziness, and respiratory problems. Most of the respondents moderately believed that excessive application of chicken dung increases acidity of the soil thus making it not suitable for crop production. At least 60% of the respondents moderately believed that chicken dung contains disease organism capable of contaminating crops. The perception that chicken dung applied to the farm leaches can pollutes rivers, streams, and ground water; and



exposure of chicken dung pollutes the air is moderately believed by more than 50% of the respondents. On the other hand, there is one respondent who do not believed on the ill-effects of chicken dung neither on human beings nor the environment.

Almost all of the respondents claimed that they will use chicken dung for as long as they producing vegetables. According to the respondents, they have been using chicken dung since they engaged in vegetable production and they can hardly find a substitute. On the other hand, a great majority of the respondents are willing to shift to other sources of organic matter if chicken dung will be totally banned from the market. At least two respondents claimed that they will use chicken dung for as long as supply last.

All the respondents are willing to attend seminars, trainings, and workshops on chicken dung if ever given a chance. According to the respondents, one reason for their continuous use of chicken dung is their ignorance on its ill-effects. Furthermore, they also do not know other source of fertilizer that can help in their vegetable production.

Conclusions

Based on the findings, the following conclusions are made:

1. Vegetable production in Gambang, Bakun is not only for males, females are also engaged in farming.
2. Not all vegetable producers in Gambang, Bakun are land owners.
3. Chicken dung was always used by the Gambang farmers despite the ill-effects.
4. Chicken dung will always be used by the Gambang farmers for as long as supply exists in the market.



Recommendations

Based on the conclusions, the following recommendations are forwarded:

1. The farmers of Gambang, Bakun must participate to avoid continues exposure of chicken dung in every farm land to minimize ill-effects to human health and environment.
2. As the farmers are all willing to attend any seminar related to chicken dung, all concerned agencies must conduct any training to minimize the ill-effects of chicken dung, also to train them on how use to reach the recommended rate of chicken dung per hectare in every crop.



LITERATURE CITED

- ASIO, V. 2006. Response of corn to chicken dung and rice hull ash application and mycorrhizal fungi inoculation. *Annals of Tropical Research* 26: 23-36. Retrieved Feb. 2011 from http://www.ehow.com/list_7519874_uses-chicken-dung.html.
- CARIÑO, D. 2009. Chicken Manure Trade in Benguet areas. Retrieved Oct. 04, 2009 from www.chickenmanure.com.
- FONGWAN, N. 2009. Chicken dung Trade Stinks in Benguet areas. Retrieved May 15, 2009 from <http://www.newsinfo.inquire.net/enguent-areas-97k>.
- HOGH-JENSEN, E. 2000. Chicken Manure and Increases. Retrieved Dec. 2010 from <http://www.ofrf.org/o3p12.pdf>.
- JOSE, R. 2011. Perceptions and attitudes of vegetable farmers in Natubleng, Buguias, Benguet on the utilization of chicken dung. Unpublished undergraduate thesis. Benguet State University, La Trinidad, Benguet. P. 32
- LAMPKIN, N. H. 1994. Methods of Manure Management. Retrieved Dec. 2010 from <http://www.kursusinfo.life.ku.methods.paf.ashx>.
- LAUREAN, C. 2010. Greg's Theory on typhoid Fever, Chicken dung Manure Caused. Retrieved December 10, 2010 from <http://www.philstar.com/articleId=63774>.
- PARNES, R. 1990. Fertile Soil, A Grower's Guide to Organic. Retrieved March 16, 2009 from <http://www.likinghub.elsevier.com/retrieve/pii/SO167880999991778>.
- PARNES, R. 1990. Soil Fertility, and Composting, Retrieved Feb. 2009 from <http://www.msucare.com/crops/comhort/orfanic-soil.html>.
- SATTLER AND WISTINGHAUSEN, 1992. Poultry Manure as a Fertilizer Source, Retrieved Feb. 2009 from http://www.fao.org/poultry/environment_manure.pdf.
- WUHAN, B. 1998. Chicken Dung Cleans up Soil Contaminated with oil. Retrieved Feb. 2009 from http://newshopper.sulekha.com/news_1045496.htm.

