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Waste Disposal Practices Of Backyard Poultry Owners In San Jose, Batangas, Philippines

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Abstract: This study aimed to determine the waste disposal practices of the backyard poultry owners in San Jose, Batangas particularly the different problems caused by the disposed backyard poultry waste to the environment, health and sanitation and community. The researchers employed the descriptive research in a quantitative approach to describe and interpret the data collected through survey questionnaire. The 100 respondents of the study were the backyard poultry owners from the three barangays of San Jose, Batangas, 46 from Galamay-Amo, 33 from Lumil and 21 from Palanca. They were chosen through purposive and quota sampling techniques. Majority of them often sold the manure waste to be used as fertilizer and other purposes. They agreed that there were problems, caused by the disposed poultry waste to environment, health and sanitation and community through the environmentally unsound or improper waste disposal. The LGU of San Jose, Batangas may provide effective promotional strategies to encourage poultry owners to practice proper waste disposal.

Keywords: waste disposal, practices, backyard, poultry, environment

Introduction

Waste disposal is a process of throwing and treating solid wastes and offers variety of solutions for recycling items that do not belong to trash. It is how waste can be used as a valuable resource. It is something that each and every household, industries and business owner in the world needs. Waste disposal is the treatment handling, reuse and residual disposition of wastes. The various types of solid wastes are residential, industrial, commercial, institutional, construction and demolition, municipal services, process like manufacturing, and agricultural wastes [1]. In the locality of San Jose, Batangas hundreds of poultry farms were established as these serve as the major source of income for the residents. With this industry, the place has been dubbed as the Egg Basket Capital City of the Philippines. Through the big demand on agricultural crops specifically chicken meat and eggs, there is a rapid growth of poultry farming either commercial or backyard poultry in San Jose, Batangas. According to the local government, one of the problems encountered in this type of business is the indiscriminate waste disposal practices of poultry owners that have led to the different problems especially in environment. One of the social science fields that push community development advocacies is Development Communication. It serves as the integral part of the environmental communication in protection and management of the environment. In this field, Commoner presented the four laws of ecology. The second law is applicable to waste disposal, in which he quoted that everything else must go somewhere. This pertains to waste and its management. Waste becomes part of the environment. It cannot be discarded in the strictest sense of the word. Although it may not end up in one's backyard, it will always end up somewhere. Environmental communication is the study and practices of how individuals and society understand and see messages about environment and human interactions with the environment. It is the application of communication approaches strategies to environment management and protection. Environment Communication emerged from interdisciplinary work involving communication and environment studies [2]. Development Communication may help balancing the top-down and bottom up approaches on this supports effective participation of strategies. In this study, this may serve as an avenue to help the poultry owners to be aware on the different problems that they encounter on improper waste disposal. Communication is also indispensable in conflict management as well as knowledge and information system. This study may a baseline work to produce educational communication platforms. Through disseminating and conducting these communication platforms which is educational in nature it may enhance the practices of backyard poultry owners and may raise awareness among them about the causes and effects improper poultry waste disposal. On this note, as Development Communication specialists and practitioners, they may deem importance for them to take part in contributing to the resolve the existing problem on poultry waste disposal in San Jose, Batangas. This research was conducted as it was observed that problems abound because of the improper waste disposal. The researchers have become interested and wanted to be of help to the Municipal Agriculture Office of the said municipality to determine the condition of poultry farming and help poultry owners to enhance their knowledge on the different consequences they may encounter in the continuous mismanagement practices in disposing of the poultry manure wastes.

Research Objectives

This study determined and assessed the waste disposal practices of the backyard poultry owners in San Jose,

Batangas. Specifically, this aimed to determine and analyze the common disposal practices of backyard poultry owners in San Jose, Batangas, and to determine and assess the problems caused by disposed backyard poultry waste to environment, health and sanitation, and community.

Materials and Methods

This study was conducted among selected barangays in San Jose, Batangas eliciting the respondents' knowledge and practices on poultry waste management. The researchers used the descriptive type of research in a quantitative approach. Survey questionnaire was utilized as the major data gathering instrument. The purposively chosen respondents of this study were residents of barangay Palanca (33), Lumil (21), and Galamay-Amo (46) in San Jose Batangas, who own backyard poultry farm. Those barangays were chosen purposively because it had the most number of backyard poultry (San Jose MLPD, 2015). One hundred respondents (100) were determined through quota sampling in the top three (3) barangays; they had the large number of poultry farm in San Jose, Batangas. The statistical tools used in this research were weighted mean to determine, classify and analyze the common waste disposal practices of backyard poultry owner's and identify problems caused by disposed backyard poultry waste to the environment, health and sanitation, and community. Hypothetical mean range was employed to set for each item with corresponding equivalent range and verbal interpretation.

Results and Discussion

Common Waste Disposal Practices of Backyard Poultry Owners. The table 1 shows the common waste disposal practices of backyard poultry owners.

Table 1. *Common Waste Disposal Practices of Backyard Poultry Owners*

	Items	WM	VI
1.	Manure waste is disposed on creek.	2.32	Seldom
2.	Manure waste is treated to produce biogas/methane gas.	1.00	Never
3.	Manure waste is disposed through filtration and converted to fertilizer.	2.18	Seldom
4.	Manure waste is stored temporarily and let it flow through streams with rainwater / current.	1.72	Seldom
5.	Manure waste is left at dumps and let to decompose.	1.48	Never
6.	Manure is placed in pits and covered or buried to prevent bad odor.	1.66	Seldom
7.	Manure waste is stored under poultry/chicken cages.	1.61	Seldom
8.	Manure waste is given freely to neighborhood owners for land application (as fertilizer).	1.32	Never
9.	Manure waste is dried, recycled and mixed as part of animal feed.	1.14	Never
10.	Manure waste is sold to be used for land application (as fertilizer).	3.06	Often

The respondents disclosed that they often sold the manure waste to other interested owners who may use it as fertilizer. This could be the easiest way of the poultry owners to dispose the manure waste. This is an advantageous practice because they profit from waste and able to dispose it well, not harming the environment. They seldom dispose the manure to the creek, filtrate and convert to fertilizer, flow through streams with rainwater or current, and store under chicken cages because they were aware of it's possible bad effects to the environment as a whole, although, it could be noted that there are still some of them who maybe of less care to the environment and still engage in doing it the not so good practice. Lastly, the respondents disclosed that they never leave at dumps and let it decomposed; give the manure waste to be used as fertilizers; dry, recycle and mix as part of animal feed; and treat to produce biogas or methane gas. The results were parallel to what they practice often since they sell the manure to others for profit. As to drying and mixing it to animal feeds and biogas or methane gas production, probably, a community or home-based technology to do the mentioned processes is not readily available yet.

Problems Caused by the Disposed Backyard Poultry Waste. The following tables show the problems caused by the disposed backyard poultry waste in terms of environment, health and sanitation and community.

Environment. The table below shows problems caused by the disposed backyard poultry waste in terms of environment. Some of the respondents practice improper waste disposal that is environmentally unsound and that may lead to the different consequences to our environment. From the listed items on problems caused by the disposed backyard poultry waste affecting environmental condition, it showed that the respondents agreed that disposed poultry waste brought problems. It showed that the respondents are aware on the problems and consequences that they may encounter on improper waste disposal practices**.**

Table 2. *Problems caused by Disposed Backyard Poultry Waste in the Environment*

	Items	WM	VI
1.	Manure waste causes air pollution.	2.88	Agree
2.	Large amount of manure waste pollutes the soil.	2.90	Agree
3.	Manure waste deposits excessive fertilizer/minerals on soil.	2.77	Agree
4.	Over fertilized soil affects the growth of plants.	2.87	Agree
5.	Manure waste contaminates ground water.	2.27	Disagree
6.	Manure waste blocks free flow of water in nearby streams.	2.49	Disagree
	COMPOSITE MEAN	**2.70**	**Agree**

They agreed that large amount of manure wastes pollute the soil, causes air pollution, over fertilized soil affects the growth of plants, and manure waste deposits excessive fertilizer/minerals on soil. This could be possible because poultry waste is a good fertilizer in the soil. Mismanagement of disposing waste will cause soil pollution. Manure waste contains chemicals that are harmful to the soil. Pollution of soil with pathogens and heavy metal is generally caused by poor disposal of manure and occur when waste is stored. Mostly, poultry waste or litter is applied to land near poultry production farms. But with few exceptions, such land management of poultry waste brings risk of soil from pollutants contained of poultry waste. When the large amount of manure waste contaminates the soil it will lead to

nutrient loading and build-up, it causes nutrient imbalance and adverse effects to environment [4]. Improper waste disposal practices cause air pollution. Stored or disposed poultry waste may cause air pollution because of the poultry waste smell. Food and Agriculture Organization mentioned that there are various gases from animal waste are all major sources of air pollution [5]. The ammonia from waste creates acid that evaporates and causes pollution. In addition, poultry waste is also responsible for greenhouse gas emission; it includes anthropogenic and methane gas which is more potent to climate change. Some respondents dig pits where the manure is stored and covered it to prevent the bad smell. Over fertilized soil affects the growth of the plants. Through these excessive amounts of manure waste that pollutes the ground it affects the growth of plants which may cause crops underdevelopment. Over-fertilization of soil affects the growth of plants is a growing environmental concern. Nowadays, there are several reasons why soil might be over-fertilized. Human activity is often the cause excessive nutrients including over fertilization or the overuse of compost like poultry waste. On the other hand, the respondents disagreed that manure waste blocks free flow of water in nearby streams. They disposed manure waste in creek, and they dig canal to the creek for the waste to pass thoroughly. Some of the respondents are not aware that the manure waste that they disposed on creek and pits can negatively affect the environment, particularly the surface water. The respondents are also not aware that manure waste contaminates groundwater. Various challenges associated with indiscriminate poultry dumping has been reported, nitrates from poultry waste can caused pollution in groundwater which is hazardous to health if consumed. It could also lead to eutrophication of rivers. Poultry waste consist of different chemicals like phosphorous can pollute groundwater if the water table is shallow. Poultry waste dumping can also lead to influx of bacteria into groundwater that was harmful for human when it contaminates the drinking water. All these environmental challenges are imminent if the poor method of poultry waste management was not checked [6]. This proves that dumping too much waste into ground will contaminate the ground water that is harmful to human and environmental health. The local government is aware to these phenomena, and they take responsibility to inform the poultry owners about the effects of poultry waste especially to the ground water which is the source of drinking water. In addition according to the poultry owners that few of them practice covering of manure waste because of some alternative ways of disposing it like selling it to be used as fertilizer. Despite of immense socio-economic benefits in terms of production of eggs, meat and the employment generations often constitute some environment risks to both human and animal lives through water, soil and air pollution. In line with the study of Akanni and Benson states that the waste products are produced in form of hatchery waste, litters and on-farm moralities in this study [7]. Activities in livestock production facilities cause environmental problems such as odor nuisance and land pollution resulting from improperly discharged manure. This study therefore examined the types and quantities of poultry wastes that are generated by the farms and the management strategies being used by the farms. It also assessed the implications of the wastes being generated on the environment. The determinants of the level of impact of poultry wastes on human health were also examined. In line with the cited study, it proves that there were problems caused by the disposed poultry waste in environment. Soil, air and water pollution are the environmental consequences of improper disposal of poultry waste.

Health and Sanitation. The table below shows the respondents' encountered problems caused by the disposed backyard poultry waste in terms of health and sanitation.

***Table 3**. Problems Caused by Disposed Backyard Poultry Waste on Health and Sanitation*

	Items	WM	VI
1.	Odor from manure waste causes respiratory diseases.	2.66	Agree
2.	Odor from manure mixed with air / wind causes loss of appetite.	2.65	Agree
3.	Manure wastes stored in creek or dump pollutes surface water.	2.70	Agree
4.	Manure waste causes fish kill.	2.30	Disagree
5.	Manure waste stored in creek attracts flies that carry diseases to the community/people.	2.92	Agree
6.	Manure waste causes skin allergy, and other skin diseases.	2.42	Disagree
7.	Manure waste contaminates ground water causing diarrhea and other gastrointestinal diseases.	2.51	Agree
8.	Manure waste produces ammonia that pollutes the air.	2.33	Disagree
9.	Manure wastes stored in dump or creek attracts mosquitoes which can transmit malaria, and dengue fever.	2.50	Agree
	COMPOSITE MEAN	**2.55**	**Agree**

Improper disposing of manure waste has a big factor that affects the health and sanitation of the people in the community. The respondents agreed that manure waste caused problems in health specifically respiratory diseases, loss of appetite, water pollution, attracts flies and mosquitoes, diarrhea and other gastrointestinal diseases. This is an indication that the respondents are aware on the possible harmful effects to human health of improper backyard poultry waste disposal. Moreover, they don't believe that backyard poultry waste may cause fish kill, skin allergy and diseases, and air pollution. What they believe and stand for is that as long as they dispose their poultry wastes properly such mentioned problems won't be experienced, and if they will be irresponsible in managing their poultry wastes, a bigger possibility is expected that they will experience such problems that they have agreed. Pollock determined the infectious diseases acquired through rearing practices or consumption of eggs, inappropriate waste management, interaction with pests and predators and nuisance factors such as noise and odor [8]. It showed that poultry operations are commonly source of flies that brings harm to health public. Poultry manure contains chemicals which affect the surface water like nitrogen, phosphorous and other excreted substances such as hormones, antibiotics and heavy metals which are introduced through feed [9]. Leakage and overflow of these substances has the potential to result in contamination of surface water and groundwater resources.

Community. The table below shows the respondents' encountered problems caused by the disposed backyard poultry waste in terms of community.

***Table 4**. Problems caused by Disposed Backyard Poultry Waste*

	Items	WM	VI
1.	Complaints on improper disposal of poultry wastes are filed in the barangay	2.79	Agree
2.	Nearby industries, food stalls and other non-poultry businesses are affected by waste disposal practices and odor carried by air/wind.	2.79	Agree
3.	Residents live inconveniently in the community because of disposal practices.	2.98	Agree
4.	The community is not clean because of the disposal practices.	2.80	Agree
5.	The manure waste can affect the cleanliness in the community.	2.95	Agree
	COMPOSITE MEAN	**2.86**	**Agree**

The respondents agreed that because of improper disposing of manure waste from backyard poultry, can affect the community. Through the big demand in agricultural products like eggs and chicken meat, most residents of San Jose, Batangas, established their own poultry farm either backyard or commercial. Some of the respondents encountered that there are complaints filed in the barangay due to improper waste disposal. The unnecessary odor from manure wastes cause conflict and problems among people in the community. They encounter complaints about the odor but they resolve it through conversation in the barangay promising that they will try to do other ways of disposing manure waste to eliminate or avoid problems. There may be instances that no one complaints about the odor of poultry manure because most of the residents in San Jose, Batangas have the same poultry business. The nearby industries, food stalls and other non-poultry businesses are affected by waste disposal practices and odor carried by air. There are other businesses besides poultry farming, and they admit most of the affected residents or establishments are schools and food stalls nearby their poultry farm. One of the visible effects of this improper practice is that it attracts flies that go to the food stalls. These flies are carriers of different diseases. The respondents agreed that residents live inconveniently in the community because of disposal practices. Aside from poultry owners, nearby residents are also affected from the farm, even if San Jose, Batangas is known for their poultry industry for many years. The odor emanating from poultry farm still affects the way of living of community people. The bad smell of improperly disposed waste causes to people to become less interested to live and settle in the community. They chose not to waste money and time to invest in place to avoid the consequences investors may encounter. The respondents also agreed that the manure waste can affect the cleanliness in the community. This shows that improper disposing of waste is a big concern among residents. This may also affects the tourism and attractiveness of a community. Lastly, they admitted that when it rains, those wastes stored in some pits overflows to the creeks, causing problems to community people as a whole.

Conclusion

It is undeniable that backyard poultry, as a business platform, helps a lot the respondents' everyday living. From there, they get profit which they use to sustain their basic and other needs. It is 21st century already, but still the practices on poultry of the respondents seem to be as old as their backyard. In some point, the old school or classic practices are still relevant to be done today, but then, people may also open their minds to new possibilities and try new technological advancements to a better future. Moreover, the problems brought by improper poultry waste disposal are simply a manifestation of lack of discipline and good attitude towards work and utilization of new or advanced poultry farming technologies. As per results, it is but natural to have an adverse effect to the environment, health and sanitation, and community.

Recommendation

Based on the findings and conclusions of the study, the following are the recommendations: The San Jose Local Government may conduct benchmarking activities to institutions with established scientific knowledge on poultry farming, and from there, use it as groundwork or basis in designing a viable operational plan to improve the respondents' perception on the use of new and advanced poultry technology practices. The LGU of San Jose, Batangas may provide effective promotional strategies to encourage poultry owners to practice proper waste disposal. This could be in a form of educational communication platforms like seminars, trainings and workshops. It may be included in the operational plan to be of help to poultry owners whether commercial or backyard poultry, to enhance their knowledge and practices on the proper poultry waste disposal. San Jose LGU may also seek help or establish partnerships and linkages among agricultural institutions in the national or international levels like the Department of Agriculture, Agricultural Training Institute, and Food and Agriculture Organization for further help and assistance in developing the good practices of poultry owners. The results may be written into a project proposal, to be submitted to the concerned agricultural institutions and organizations, for their perusal and consideration and for funding and implementation in the San Jose LGU. It may be a way to be of help in protecting and conserving the environment while sustainably using its resources.

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