

**EVALUATION OF WASTE MANAGEMENT PRACTICES OF SELECTED
BACKYARD PIGGERY FARMS IN SAN JOSE CITY,
NUEVA ECIJA**

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LIST OF ABBREVIATIONS

AA	Amino Acids
A.O.	Administrative Order
BAS	Bureau of Agriculture Statistics
BOD	Biochemical Oxygen Demand
CP	Crude Protein
CENRO	City Environment and Natural Office
CHO	City Health Office
CNC	Certificate of Non Coverage
COD	Chemical Oxygen Demand
CPDO	City Planning and Development Office
CVO	City Veterinarian Office
DDGS	Dried Distillers Grain with Soluble
DO	Dissolved Oxygen
DOH	Department of Health
DOST	Department of Science and Technology
DENR	Department of Environment and Natural Resource
ECC	Environmental Compliance Certificate
EF	Emission Factor
EMB	Environment Management Bureau
EPA	Environmental Protection Agency
FAO	Food and Agriculture Organization
GI	Germination Index
HLURB	Housing and Land Use Regulatory Board
IPCC	Intergovernmental Panel on Climate Change
ND	Non Detectable
NPI	New Proposed Industry
OEI	Old or Existing Industry
OEMC	Odor Eraser Microbial Concoction

PDBD	Plastic Drum Biogas Digester
PLF	Pig Liquid Fertilizer
PSA	Philippine Statistic Authority
RA	Republic Act
ROI	Return of Investment
SS	Suspended Solids
TAN	Total Ammonia Nitrogen
TCT	Title Certificate of Transfer
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
USDA	United States Department of Agriculture
VFA'S	Volatile Fatty Acids
WHO	World Health Organization

DEFINITION OF TERMS

Ad libitum feeding	is where food is available at all times with the quantity and frequency of consumption being the free choice of the animal.
Ammonia	is a colorless gas with a strong pungent odor. It is easily liquefied and solidified and is very soluble in water.
BOD	means a measure of the approximate quantity of dissolved oxygen that will be required by bacteria to stabilize organic matter in wastewater or surface water. It is a semi-quantitative measure of the wastewater organics that are oxidizable by bacteria. It is also a standard test in assessing wastewater strength.
Biogas	is a mixture of methane (CH ₄), carbon dioxide (CO ₂), and a few minor (but not insignificant) gases such as hydrogen (H ₂), hydrogen sulphide (H ₂ S), and water vapour (H ₂ O).
Biosecurity	is a strategic and integrated approach that encompasses the policy and regulatory frameworks (including instruments and activities) that analyse and manage risks in the sectors of food safety, animal life and health, and plant life and health, including associated environmental risk.
Carbon dioxide	is a colorless, odorless gas that is denser than air and soluble in water.
Chlamydia suis	is a member of the genus <i>Chlamydia</i> . <i>C. suis</i> has only been isolated from swine, in which it may be endemic. Glycogen has been detected in <i>Chlamydia suis</i> inclusions in infected swine tissues and in cell culture. <i>C. suis</i> is associated with conjunctivitis, enteritis and pneumonia in swine.
COD	is a measure of the oxygen equivalent of the organic matter in a water sample that is susceptible to oxidation by a strong chemical oxidant, such as dichromate.
Coliform	are non-pathogenic bacteria that occur in the feces of warm-blooded animals.
Composting	is an aerobic microbial treatment of solid manure. It is a process by which organic waste is converted into organic fertilizer by means of biological activity under controlled conditions.

Cryptosporidium	a parasitic coccidian protozoan found in the intestinal tract of many vertebrates, where it sometimes causes disease.
DO	is essential for the survival of fish and other aquatic organisms. It is the amount of oxygen dissolved in the water bodies.
Effluent	is a general term denoting any wastewater, partially or completely treated, or in its natural state, flowing out of a manufacturing plant, industrial plant or treatment plant.
Emission Factor	is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant.
<i>Escherichia coli</i>	a bacterium commonly found in the intestines of humans and other animals, where it usually causes no harm. Some strains can cause severe food poisoning, especially in old people and children.
Eutrophication	is the enrichment of an ecosystem with chemical nutrients, typically compounds containing nitrogen, phosphorus, or both.
Excreta	waste matter discharged from the body, especially feces and urine.
<i>Giardia</i>	protozoa infection in swine is rare, but it does cause disease in humans. Contaminated water is the main source of <i>Giardia</i> spp.
Hazardous wastes	are hereby defined as substances that are without any safe commercial, industrial, agricultural or economic usage and are shipped, transported or brought from the country of origin for dumping or disposal into or in transit through any part of the territory of the Philippines.
Hydrogen sulfide	is a gas associated with the decomposition of swine manure and this is toxic.
Methane	An odorless, colorless, flammable gas, CH ₄ , the major constituent of natural gas, that is used as a fuel and is an important source of hydrogen and a wide variety of organic compounds.
Methemoglobinemia	is a blood disorder in which an abnormal amount of methemoglobin is produced.
<i>Pfiesteria piscicida</i>	a toxic microorganism that can kill fish and can likewise endanger human lives.

pH	signifies the acidity or alkalinity of the matter being tested.
Phenols	a toxic substance causing denaturation of proteins.
Slurry	is a mixture of urine, feces, feeds and cleaning/bathing water that consists primarily of nitrogen compounds.
<i>Streptococcus</i>	this is the most important streptococcal infection of pigs and is usually seen in nursing or recently weaned piglets. The disease usually is characterized by septicemia, acute meningitis, polyarthritis, polyserositis, or bronchopneumonia.
Surfactants	a substance that tends to reduce the surface tension of a liquid in which it is dissolved.
TDS	is the term used to describe the inorganic salts and small amounts of organic matter present in solution in water. The principal constituents are usually calcium, magnesium, sodium, and potassium cations and carbonate, hydrogen carbonate, chloride, sulfate, and nitrate anions.
Transmissible gastroenteritis	virus causes vomiting and profuse watery diarrhea after exposure to contaminated swine manure.
TSS	are solids in water that can be trapped by a filter. TSS can include a wide variety of material, such as silt, decaying plant and animal matter, industrial wastes, and sewage.
Volatile Fatty Acids	one of the main reasons manure has an objectionable odor. VFA's are an intermediate product in the formation of biogas.

EVALUATION OF WASTE MANAGEMENT PRACTICES OF SELECTED BACKYARD PIGGERY FARMS IN SAN JOSE CITY, NUEVA ECIJA¹

HANNA H. PUNZALAN

ABSTRACT

Background: Animal manure is valuable resources that can provide nutrients such as phosphorus and nitrogen for crops and fish production and input for biogas production but, if not managed properly, can pose serious negative impact on the environment. This study aims to evaluate if the waste management practices of the 40 selected backyard piggery owners in San Jose City are environmental hazards and determine the extent of compliance of backyard piggery owners to existing environmental laws related to wastes disposal systems. **Methods:** The data were obtained through observations and checklist type questionnaire. The analysis was based on the quantitative descriptions of the respondents. **Results:** Based on the result, 66.875% or majority of the hog raisers respondents are practicing inappropriate waste disposal strategies for both solid and slurry by discharges that are being disastrous or drained of untreated effluent and manure into creeks, irrigation canals, rice fields, fish pond and in open spaces within piggery premises. Furthermore the disposal of hazardous solid waste such as dead animals and veterinary was buried without cover, directly into creek and open air burning was among the unacceptable waste management disposal systems. Moreover, 75% of backyard piggery farms have high ammonia level and 25% low ammonia level was detected inside the piggery barn using laundered t-shirt as a filter agent. **Conclusions:** The result of the study showed that present waste management disposal practices of the hog growers in the study area contribute environmental pollutions and human health hazards. Finally, results showed that some respondents (66.875%) did not have enough understanding, knowledge, and awareness on existing environmental laws on proper waste disposal strategies.

Keywords: Waste Management, Environmental Laws, Quantitative Descriptions, Slurry

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