

Advancing Swine Management in Buenavista, Guimaras: Foundations for Effective Extension Program

Julius T. Vergara

College of Agricultural Sciences, Guimaras State University, Buenavista Guimaras, Philippines

Author Email: julius.vergara@gsu.edu.ph

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Abstract. This research paper was created to assess the management practices of swine raisers in Buenavista, Guimaras. The health of livestock and the economic sustainability of the farming sector in Guimaras, Philippines, are contingent upon the management and disease prevention strategies employed in pig farming. This study employed a descriptive design utilizing quantitative methods to analyze data through frequency counts and percentages, assessing swine management techniques among fifty swine raisers in Buenavista, Guimaras. The sample comprised fifty swine producers, predominantly aged between 46 and 58. Women represented 54% of the respondents, with 60% indicating that their spouses predominantly managed pig farming activities. Moreover, 58% of interviewees indicated they lacked primary authority within their households. Seventy-four percent of participants commenced pig farming between 2012 and 2022, with the majority (ninety-two percent) possessing between one and forty pigs. Seventy-seven percent of farms provide triennial feeding for pigs, indicating a general consistency in feeding practices. Ninety-six percent of all option groups indicated a preference for grower feed and a rejection of swill feeding. Although they adhered to the standards for normal feeding, their sanitation practices were inconsistent; merely 52% reported cleaning pigpens thrice daily, and only 24% utilized disinfectants. A similar trend in recordkeeping was noted: just 64% of pig producers kept a journal of their operations. 84% of respondents indicated their swine efforts were adjacent to a pig-rearing farm.

Keywords: Disinfectant; Feeding line; Hygiene; Pig farming; Pork; Swill feeding.

1.0 Introduction

Raising pigs in the Visayas area of the Philippines is a notable agricultural activity that embodies cultural traditions and economic prospects. The indigenous pig population, especially the Philippine native pigs (PhNP), is essential to local economies and cultural traditions. These pigs are generally reared in low-input systems, frequently as part of familial traditions that have persisted for generations. Studies reveal that households in the Philippines participate in pig husbandry for an average of 20 years, with each family managing approximately five animals (Banayo, 2023). This customary practice provides sustenance and functions as a source of money and social standing within communities (Quintua et al., 2019).

The Visayas region, especially Western and Central Visayas, is distinguished by its significant swine population, with reports showing around 1.14 million heads in Central Visayas alone (Bollido et al., 2022). This region constitutes a substantial segment of the national swine inventory, underscoring its significance in the nation's pork supply chain. The demand for pork is notably elevated, with a significant portion of the population consuming it (Bollido et al., 2022). The pig farming sector encounters obstacles, such as veterinary care issues and antibiotic residues in swine waste, which threaten human health and the environment (Ymas, 2023).

Management and disease prevention techniques for pig farming in Guimaras, Philippines, are crucial for maintaining livestock health and the industry's economic sustainability. Due to the region's distinctive agricultural environment, management strategies must be customized to local requirements, encompassing biosecurity protocols, antibiotic stewardship, and disease surveillance. Biosecurity is essential for regulating swine health and averting disease outbreaks. Establishing stringent biosecurity measures can markedly diminish the likelihood of disease spread within and among farms. This encompasses measures such as regulating farm access, upholding hygiene standards, and guaranteeing that equipment and vehicles are disinfected before accessing pig housing areas (Kouam et al., 2019). Maintaining a closed herd can reduce the influx of diseases from external sources, which is especially crucial in areas such as Guimaras, where smallholder farms may possess few resources for disease management (Mallioris, 2023).

Consequently, it is essential to conduct training programs for farmers on enhancing swine management methods to prevent disease and boost output. The researcher aims to investigate management methods among swine raisers to establish a foundation for building an extension program that would enhance their swine production management. This research report aimed to assess the management techniques of swine producers in Buenavista, Guimaras.

2.0 Methodology

2.1 Research Design

A descriptive research design was used, employing the quantitative method in analyzing data using frequency counts and percentages. A Universities Federation for Animal Welfare (UFAW) (2022) questionnaire was adapted and used as a data-gathering tool. The one-on-one interview was conducted to ensure the accuracy of the answers given by the interviewees. Moreover, addressing the sensitivity of some questions and the need for clear, sharp, and explicit answers compel the need for a personal interview approach.

2.2 Research Locale

This study focused on the municipality of Buenavista, Province of Guimaras. Buenavista is located at the northern tip of Guimaras Island and is one of the five towns comprising the Province of Guimaras. The northern and northwestern parts of the town overlook Panay Island, and the north-eastern portion faces Negros Island. It is two miles away from Iloilo City and four miles from Negros. The municipality is separated from the former by the Iloilo Strait and by the Guimaras Strait from the latter. The Municipality of Buenavista has 36 barangays, composed of 17 coastal barangays and 19 inland barangays. Seven (7) barangays were classified as urban, and 29 were classified as rural barangays. It has a total of 6,320.7509 hectares of agricultural land.

2.3 Research Participants

The researcher used the purposive sampling technique since the respondents were already identified as swine raisers in the municipality of Buenavista. They were identified based on the list of swine raisers from the municipality's Department of Agriculture. Interviews and small group discussions were conducted to gather data and information from the participants.

2.4 Research Instrument

Profile of the swine raisers (age, sex, pig, position in the household, involvement in pig raising, number of animals raised, and year started in pig raising) management information, and disease preventive strategies were simultaneously collected on the municipality using the questionnaire of the Universities Federation for Animal Welfare (UFAW) (2022) adopted and utilized by the researcher.

2.5 Data Gathering Procedure

The researcher secured a letter of request for permission to conduct the study to the municipality's respective office, especially the Department of Agriculture (DA); thus, the researcher also sent a letter to the respective swine raisers. Furthermore, in gathering information from the raisers mentioned above, the researcher and trained enumerators have translated the words in the questionnaire according to the dialect the animal raisers spoke. The instrument used was subjected to the face validation technique, also known as validation by jury opinion. This will require that the test instrument be presented to a jury of experts for their opinion on whether the instrument

could gather the needed data as intended. The researchers developed a survey questionnaire with inputs based on interviews and feedback discussion.

2.6 Ethical Considerations

The author followed ethical principles in conducting the research and preparing the manuscript. All the data, which include personal identification and responses, are recorded and kept, and treated as a record with high confidentiality. The content of the questionnaires was discussed first to let them understand and know what data would be collected from their responses. They answered the questions voluntarily.

3.0 Results and Discussion

3.1 Profile of the Swine Raisers

Table 1 shows the distribution of animal raisers according to the age of Buenavista. The largest age group among respondents is 46-58, comprising 54% of the sample. This age group is considered active in swine raising, resilient, and ready to accept modern technologies in swine raising. Following this, the age group 59-71 constitutes 18%. Most raisers of this age group are still active and experienced, but they are more traditional and cannot easily adopt modern technologies. The 33-45 age group represents 16%, and the 72 and above group represent 10%. The smallest age group is 20-32, making up only 2%. This implies that very few young people intend to engage in swine raising. As supported by the findings of Qui et al. (2020), information on age is needed because the age of farmers plays a significant role in their farming practices and productivity. Older farmers might be more engaged in traditional practices, affecting their adaptability to modern farming techniques and disease management strategies (Olana, K. O. A., and Baldrias, L. R., 2022). Moreover, younger farmers may be more inclined to adopt innovative practices and technologies than their older counterparts, who might rely on traditional methods (Widayati et al., 2018).

Table 1. Distribution of swine raisers according to age

Age	Frequency	Percentage
20-32	1	2
33-45	8	16
46-58	27	54
59-71	9	18
72-Above	5	10

Data revealed that females slightly outnumber males at 54%. Male involvement is 46%. In a farm setting, most females or wives facilitated the feeding, providing water, and cleaning of the pig pen. Because most of the male farmers have other farming activities aside from swine raising, it implies that females actively participate in swine farming in Buenavista. This is consistent with findings from other agricultural contexts that women often participate in less visible, supportive tasks (Smyth et al., 2018). For instance, women may be involved in feeding, cleaning, and caring for the pigs, but their contributions are frequently undervalued and not formally recognized (Bollido et al., 2022).

Table 2. Distribution of swine raisers according to sex

Sex	Frequency	Percentage
Male	23	46.0
Female	27	54.0

The majority of respondents (58%) identified themselves as "other" in the household, possibly indicating they were not the head of the household. This group consists mostly of wives and other household members involved in swine raising. The 42% had identified themselves as the head of the household. This implies that the management of swine raising at home is not solely the responsibility of the head of the household. It involves other members who feed, clean and care for the pigs. As supported by Carter et al. (2017) regarding household dynamics, the roles and responsibilities associated with pig farming can vary significantly based on gender and family structure. Research emphasizes the importance of understanding gender norms and decision-making processes within households, noting that men and women may have different perceptions and responsibilities regarding pig farming.

Table 3. Distribution of swine raisers according to position in the household

Position	Frequency	Percentage
Head	21	42.0
Other	29	58.0

Most pig farming responsibilities fall on wives, with 60% of respondents indicating them as in charge. A significant portion (36%) reported that the head of the household was in charge, while smaller percentages indicated that others did not respond. This implies that even the heads of households are the decision-makers and managers of livestock operations; they support the wives who are responsible for conducting management activities to make their pigs healthy and productive. Bollido et al. (2022) reported that women may be involved in feeding, cleaning, and caring for the pigs.

Table 4. Distribution of swine raisers according to involvement in pig-raising

Involvement	Frequency	Percentage
Head	18	36.0
Respondents	0	0.0
Wife	30	60.0
Other	2	4.0

Most respondents (92%) own between 1 and 40 piglets. A small proportion (6%) own between 41 and 80 piglets. Only one respondent reported owning between 81 and 20 piglets. The number of piglets they raise is limited by their available resources, experience, and family members involved in swine raising. This implies that most respondents can manage only 41–80 piglets, and very few can handle the operation with 41–120 piglets, as supported by Okello et al. (2021), farmers in the Visayas often face challenges such as poverty, which limits their ability to invest in better breeding stock, feed, and veterinary care. The economic viability of pig farming is closely linked to market access and the ability to sell pig products profitably. When farmers perceive pig farming as a viable income source, they are more likely to invest in their operations, leading to increased piglet production (Nguyen-Thi-Duong et al., 2022).

Table 5. Distribution of swine raisers according to the number of piglets raised

Number of piglets	Frequency	Percentage
1-40	46	92.0
41-80	3	6.0
81-120	1	2.0
121-above	0	0.0

Most respondents (74%) started keeping pigs between 2012 and 2022, indicating a relatively recent engagement in pig farming. Some respondents (16%) started between 2001 and 2011. Fewer respondents started between 1990 and 2000 or from 2023 onwards. The farmers' experience relies on the length of time they have been in the business. It implies that as they are involved for more years, the more they will know about management, biosecurity, feeding, and disease treatments. This is further supported by Motsa'A et al. (2019), who found that a majority of farmers with extensive experience in pig farming were more likely to implement effective feeding and housing practices, which are essential for optimal production.

Table 6. Distribution of swine raisers according to year started in pig raising

Year Started	Frequency	Percentage
1990-2000	1	2.0
2001-2011	8	16.0
2012-2022	37	74.0
2023-present	4	8.0

3.2 Pig Management Information

Table 7 shows that the watering frequency varies among respondents: The majority (77%) provide water to their pigs three times a day. Other frequencies include 4 times (12%). Giving water twice a day and with free access is 8%. The data implies that the raisers understand the need for water for the pigs; almost all are given water 3-4 times a day. Water is important to pigs because of its functions: facilitating digestion, maintaining body temperature, promoting blood circulation, lubricating the skeletal system, aiding in milk production for sows, and many others.

Table 7. Access of pigs to water

Access	Frequency	Percentage
Free access	4	8.0
2 x a day	4	8.0
3 x a day	36	77.0
4x a day	6	12.0

Novak et al. (2020) confirmed that the frequency of water provision to pigs is a critical factor influencing their overall health, welfare, and productivity. Pigs, being prandial drinkers, exhibit a strong correlation between their eating and drinking behaviors, with studies indicating that up to 75% of their daily water intake occurs during feeding bouts. Inadequate water availability can lead to decreased drinking behaviors, adversely affecting their hydration and overall well-being.

Most respondents (94%) feed their pigs three times daily, ensuring regular feeding, and very few practice giving it twice daily. No raisers give their pigs free access to feed or practice an ad libitum feeding system. Feeding them freely and more times a day can improve their feeding efficiency and average daily gain. The more they have access to feed, the more they can maintain their energy and nutrient levels in their bodies. They will eat less and gain more.

Table 8. Feeding schedule practiced by the swine raisers

Schedule	Frequency	Percentage
Free access	0	0
2 x a day	3	6.0
3 x a day	47	94.0

As supported by Le Naou et al. (2014), pigs that are fed multiple times a day tend to exhibit improved growth rates compared to those on less frequent feeding schedules. A study indicated that pigs fed six times daily had better feed efficiency than those fed twice daily, suggesting that increased meal frequency can enhance nutrient absorption and utilization.

Table 9. The practice of swill feeding

Swill feeding	Frequency	Percentage
Yes	2	4.0
No	48	96.0

It is good to note in Table 9 that only 4% of respondents practice swill feeding. Most of the raisers said no (96%), and this is a very notable management practice. Swill feeding is the practice of feeding pigs leftovers or food waste (fresh or cooked) from household kitchens, restaurants, or processing plants. It is not allowed because it can be a good source of disease transmission, especially African swine fever. A research finding confirmed that swill feeding is highly discouraged during the ASF disease outbreak to prevent viral transmission. Studies have shown that improper management of swill can lead to outbreaks, as seen in various countries where swill was linked to disease transmission (Bansal et al., 2017; Schembri et al., 2006; Dione et al., 2015).

Grower feeds are the most commonly used feeding line, reported by 40% of respondents. Starter pellets are used by 32% of respondents, and lactating feeds are used by 26% of respondents. By knowing the feeding lines used, the type of population of pigs that the raisers have in their pigpens can be easily identified. Based on the responses, there is a higher population of grower pigs (91–120 days old), followed by a population of starter pigs (35–90 days), and a presence of breeders, especially lactating sows. This implies that the raisers are following the recommended feeding guide because, by this practice, it can be assured that the pigs under their care are provided with the needed nutrients for growth and better performance.

Table 10. Feeding lines used by swine raisers to feed their pigs

Feeding line	Frequency	Percentage
Starter	16	32.0
Grower	20	40.0
Lactating	13	26.0
No response	1	2.0

Furthermore, as reported by Sung (2024), and Soleimani & Gilbert (2020), the importance of adhering to feeding guidelines for pigs is multifaceted, impacting growth performance, health, and overall productivity. Proper nutrition is essential for optimizing growth rates and feed efficiency, which are critical for the economic viability of pig farming. Research indicates that the formulation of diets must consider various factors, including the breed, growth stage, and specific nutritional requirements of pigs.

All raisers responded that they have a regular cleaning schedule, as presented in Table 11, but at different frequencies. The most common cleaning frequency is three times (52%) daily. Others responded the whole week (22%), any time of the day (20%), and twice a day (6.0). This implies that all the raisers are already aware of the importance of maintaining the cleanliness of the pigpens at different frequencies.

Table 11. Cleaning schedule of the pigpens by the raisers

Cleaning schedule	Frequency	Percentage
2 times	3	6.0
3 times	26	52.0
Anytime	10	20.0
Whole week	11	22.0

As supported by Singh (2023), regular cleaning can help reduce the exposure of pigs to contamination and harmful microorganisms capable of causing pig diseases. Leaving animal waste inside the pens longer will provide a good breeding ground for pathogens and may increase methane gas production, which may cause respiratory disease. The presence of urine and pig manure may also cause contamination of feeds and drinking water. Also, regular cleaning practices can mitigate the risks associated with pathogens that thrive in contaminated environments, such as the African Swine Fever (ASF) virus and other zoonotic diseases.

Table 12 presents the survey results on the use of disinfectants. Only 24% confirmed using disinfectant, and 68% are not cleaning the pigpens. Most of them are using only water without any disinfectant mixed with it. Disinfectant is a chemical substance used to kill harmful microorganisms, and it will stay longer on surfaces in the pens, thus preventing the reoccurrence of pathogens. It implies that only a few of the swine raisers appreciated the importance of disinfectant in cleaning pigpens.

Table 12. Use of disinfectant in cleaning the pig pen

Using disinfectant	Frequency	Percentage
Yes	12	24.0
No	34	68.0
No response	4	8.0

Research findings discussed that disinfectants are vital in reducing microbial loads in the environment, which can otherwise lead to infections and compromised animal welfare. For instance, studies have shown that effective disinfection protocols can significantly reduce the presence of pathogens such as *Salmonella* and *Brachyspira hyodysenteriae*, which are notorious for causing severe health issues in pigs (Gómez-García et al., 2022; Martelli et al., 2017; Argüello et al., 2011). Applying disinfectants, particularly after thorough mechanical cleaning, is essential to eliminate residual pathogens that may survive in the environment (Zigo et al., 2020; Argüello et al., 2011).

64% of respondents claimed that they kept logbooks or records for their pigs, indicating monitoring of their pig farming practices. However, 36% said they are not keeping records, as shown in Table 13. This implies that most of the swine raisers in Buenavista have already practiced record keeping.

Table 13. Record keeping

Practice Record Keeping	Frequency	Percentage
Yes	32	64.0
No	18	36.0

As suggested by Staaveren et al. (2017), as a raiser, it is important to keep records of your daily activities and future activities to monitor operations if you are doing them on time. Record keeping in pig raising is a fundamental practice that significantly enhances management efficiency, animal welfare, and farm productivity.

Accurate and systematic documentation of various aspects of pig farming, such as health status, breeding, feeding, and growth performance, allows farmers to make informed decisions that can lead to improved outcomes. For instance, studies have shown that farms with robust record-keeping practices tend to have better management standards, which correlate with lower incidences of issues such as tail-biting and other welfare concerns.

As shown in Table 14, 84% of respondents reported that neighboring pigs were present near their swine project. This implies that their swine projects were vulnerable to disease transmission. As supported by Patterson et al. (2022) and Filippitzi et al. (2017), the occurrence of pigs near the distance of other pigs will affect the biosecurity of your area. Raising pigs away from neighboring pigs is a crucial practice that significantly enhances biosecurity, animal health, and overall farm productivity. This separation helps mitigate the risk of disease transmission, which is particularly important in highly contagious diseases such as African Swine Fever (ASF) and Porcine Reproductive and Respiratory Syndrome (PRRS). The proximity of pigs can facilitate the spread of pathogens, as studies indicate that higher animal densities correlate with increased disease prevalence.

Table 14. Presence of neighboring pigs

With neighboring pigs	Frequency	Percentage
Yes	42	84.0
No	8	16.0

4.0 Conclusion

The researcher concluded that swine raisers in Buenavista, Guimaras, demonstrate consistent feeding practices but exhibit less diligence in cleaning and sanitation. Women predominantly manage pig farming, though many respondents are not the primary decision-makers in their households. The recent growth in pig farming highlights the need for better management practices, especially in hygiene, biosecurity, and recordkeeping. An extension activity for "Sustainable Swine Management Training/Workshop," tailored specifically for swine raisers in Buenavista, Guimaras, is recommended. This activity would focus on improving hygiene, biosecurity, and recordkeeping practices that shall include (1) practical demonstrations of effective cleaning techniques and sanitation protocols to minimize disease risks; (2) basic biosecurity practices to reduce disease transmission, including isolation procedures for new or sick animals; (3) hands-on sessions where participants learn to set up barriers or footbaths; (4) train swine raisers on simple and effective methods for tracking feed, medication, and breeding schedules; (5) supply templates or tools (e.g., record books or digital options) to assist with consistent data logging; (6) include a session focusing on building confidence in decision-making related to swine farming; (7) encourage discussions that highlight women's valuable role and provide strategies for more active participation in household decision-making; (8) encourage peer group meetings where swine raisers can discuss progress, share experiences, and support each other in implementing improved practices.

5.0 Contributions of Authors

This paper is solely authored. The author conducted editing, writing, data analysis, and encoding.

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7.0 Conflict of Interests

The author declares no conflicts of interest concerning this article's research, authorship, and publication.

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