

**INVESTIGATION ON PRODUCTION PERFORMANCE AND MANAGEMENT
SYSTEM OF SWINE IN THE ZILLA PIG FARM, RANGAMATI DISTRICT OF
BANGLADESH**



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PLAGIARISM CERTIFICATE

I myself UkyawonMarma strongly assures that I have been performed all work of this report. Information has been collected from Zilla Pig Farm, Rangamati and National, International Journals, Reference Book and Website. All references are cited duly. No data or information has been copied in any form. Therefore, I reserve entire responsibility of this report.

The Author

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LIST OF CONTENTS

Chapter no	Contents	Page no
	ABSTRACT	6
1.	INTRODUCTION	7-8
2.	MATERIALS AND METHOD	9-10
3.	RESULT AND DISCUSSION	11-17
4.	CONCLUSION	18
5.	REFERANCES	19-20
	ACKNOWLEDGEMENT	21
	BIOGRAPHY	22

LIST OF TABLES

1. Study population statics.....	10
2. Piglet production performances per month (2018-19)	11
3. Selling performance per month (2018-19).....	12
4. Disease prevalence of piglets.....	16

LIST OF GRAPHICAL CHART

1. Type of bred in the farm.....	13
2. Mortality rate of piglets in the farm.....	16

ABBREVIATION

UVH, VS	Upazilla Veterinary Hospital, Veterinary Surgeon
Kg, gm	Kilogram, Gram
DLS	Department of livestock service
%	Percentage
HS	Hemorrhagic septicemia
FMD	Foot and mouth disease

ABSTRACT:

The study was conducted to investigate the production and management system of Zilla Pig Farm, Rangamati district of Bangladesh based on 2018-19 economical year's data. The data was provided by Farm management. Production and management system include housing, feeding, breeding, disease prevalence, vaccination, bio-security, marketing, production performance, management of farm and constrains of pig rearing were investigated in this study. In this study it was found that in the economical year 2018-19 piglet production was quite good and higher production was obtained during May (17.49%). Selling piglet to the local farmer was the main priority of the farm and the highest amount of piglet was sold during January (15.74%). The pigs were reared in semi- intensive system and pigs are fed in pen system. Formulated ration was fed by the farm management. FCR of the pigs in the farm was 3:1. The average litter size, birth weight, post weaning period were 10.1, 1.3kg, 10 kg, and 42 days, respectively. Natural breeding system was followed for the reproduction and maintained male female ratio was 1:10. Mortality rate of piglet during different months in the farm of the year of 2018-19 differs significantly ($P < 0.01$). The highest piglet mortality was observed during July (13.98%). The most prevalent diseases observed in the farm were diarrhea (26.88%), pneumonia (21.51%), HS(13.98%), maggot infestation (10.75%). Sanitation, watering system were better than the local farm of the surrounding area. The economic benefits of farm generated from selling piglets of different age and meat of culling boar and sow which were reproductively inactive. In study it was found that feeding cost was higher than earning of the farm in the mentioned year so targeted revenue was not obtained.

***Key words:* Swine, Zilla Pig Farm, Production performance, Disease prevalence, Formulated ration.**

CHAPTER-1

INTRODUCTION

Bangladesh is one of the most densely populated agricultural countries in the world, although per capita cultivable land is not sufficient (Taylor and Roese, 2006, Sadika *et al.*, 2012). Livestock is one of its components which provide protein, solve unemployment and earn foreign exchange (Taylor and Roese 2006; Cole 1996). Cattle, buffalo and goat are the most common livestock reared under commercial, semi-intensive or household rearing system. However relatively smaller population of sheep, pig and most recently camel and dumba are being reared in some part of the country (Islam *et al.*, 2016). Pigs are fast growing and one of the most prolific livestock breeds (Durranc 2008; Phookan *et al.*,2006). Pigs are considered as the richest source of animal protein at lower cost for the people who consume pork (Hossian *et al.*,2011). In global perspective pigs are reared for production of meat and bristles (Long *et al.*,1990). However, with the advent of nylon, pig bristles have lost its market value (Long *et al.*, 1990). In Bangladesh there is only one government regulated pig farm which is situated at Rangamati and name of farm is ZILLA PIG FARM. It is regulated under DLS and Zilla parishad. Rangamati district is a remote hilly area and a well-known pig rearing locality where pig farming is mostly popularamong indigenous people (Hossain *et al.*, 2011). As a result, exotic breeds like Hampshire, Large White, Large Black, and Oxford are gaining popularity due to high growth potentials (Johnson *et al.*, 2009). So, farm is the only source to collect high productive piglets.

Following this the current study was undertaken to investigate the production and management system of swine in the Zilla pig farm of Rangamati district.

The objectives of the study is to investigate-

1. Production performance of swine in the farm.
2. Disease prevalence.
3. Economic condition of the farm.
4. Management and other condition of the farm.

CHAPTER-2

MATERIALS AND METHODS

In order to investigate the production performances and management system of farm the information from Zilla Pig Farm, Rangamati were collected.

2.1 Period of study:

The study was undertaken for a period of 3 days dated from 27th November to 29th November. **2.2 Area of study:**

The study was conducted at Zilla pig farm, Rangamati district of Bangladesh. The farm was approximately area of 2 acres. Rangamati is hilly area with sloppy land. This particular region has a temperature between 15-36 degree C and humidity of 76.6%.

2.3 Location of the farm:

The farm is located at the Manikchori Union of Rangamati SadarUpazilla, Rangamati. The farm was established at the time of 1982.



Fig: Front gate of the Zilla pig farm.

2.4 Sample collection:

To investigate the production system of Zilla pig farm, Information of 944 pigs were collected. (Table 1)

Table: 1 Study Population statistics

Groupings	Population
Piglets	772
Boar	16
Sow	135
Gilt	21

2.5 Data collection:

A questionnaire was developed comprising of open and close ended questions. The production data of swine was collected from the Assistant Director and other staff of farm with the help of questionnaire. Data was collected following direct interviews and frequent personal visits. All information was collected at the time of UVH placement.

2.6 Data analysis:

All data collected through questionnaire were inserted in Microsoft Office Excel 2007 and data was analyzed by using data analysis tool from excel.

CHAPTER-3

RESULT AND DISCUSSION

3.1. Swine management practices in farm:

Swine are predominantly managed on free range during the day time and at the night swines are kept in 3 sheds consists with 68 rooms. Feeding method practiced in farm was quite good. Swine are provided by the formulated ration and other nutritious feed. To gain high reproductive performance farm management provided the mother swine extra formulated feed. The weaning periods of piglets were 2.5 months. . Natural breeding system is maintained for the reproduction and the ratio of male and female pig was 1:10.

3.2. Production performance and economical condition of Farm:

The target of the farm was to produce piglet. So, the production performance of the farm in the year of 2018-19 has been mentioned in Table 2. It was found that piglet production was higher during May (17.49%) and lower during January (3.11%). The selling percentage of piglets from farm has been mentioned in Table 3. It was also found that selling rate was higher during January (15.74%) than other month of that year. Graphical presentation also revealed that Oxford sandy and black bred (27.91%) was higher in number than other bred of the farm.

Table 2 .Piglet production performances per month (2018-19)

Months	Frequency	Cumulative frequency	Percentage (%)
July	49	49	6.35%
August	40	89	5.18%
September	41	130	5.31%
October	45	175	5.38%
November	91	266	11.79%

December	132	398	17.10%
January	24	422	3.11%
February	55	477	7.12%
March	74	551	9.59%
April	41	592	5.31%
May	135	727	17.49%
June	45	772	5.83%
Total	772		

Table 3. Selling performances of piglets per month (2018-19)

Months	Frequency	Cumulative frequency	Percentage (%)
July	88	88	12.59%
August	95	183	13.59%
September	56	239	8.01%
October	24	263	3.43%
November	18	281	2.58%
December	51	332	7.30%
January	110	442	17.15%
February	51	493	7.30%
March	50	543	7.15%
April	37	580	5.29%
May	49	629	7.01%

June	70	699	10.01%
Total	699		

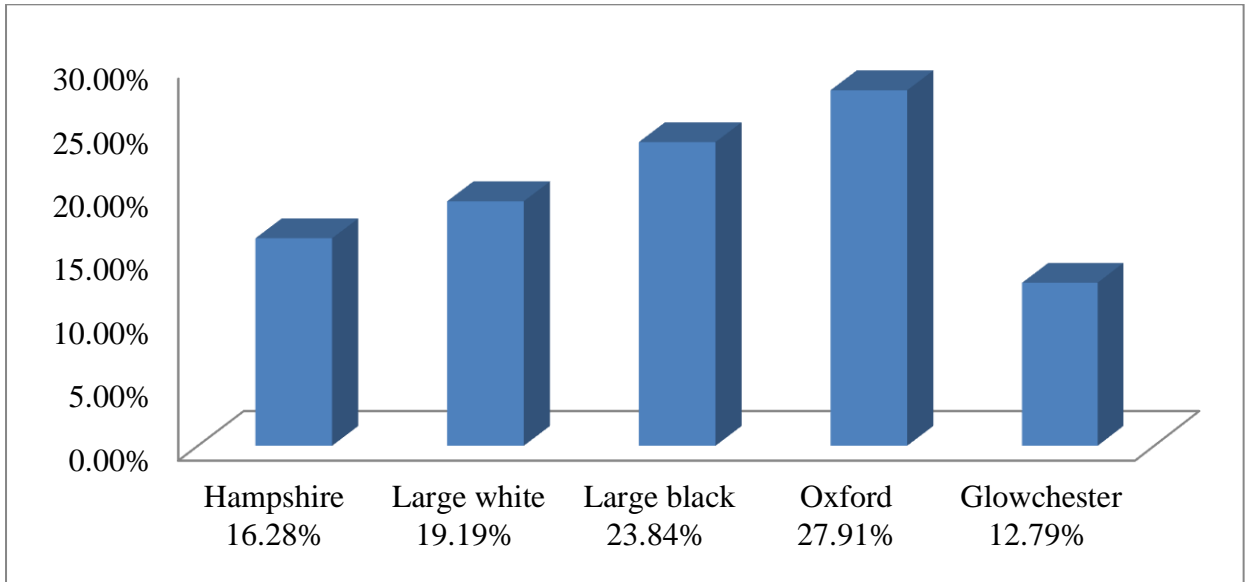


Figure: Type of swine bred in the farm

From data we could say that economic overview of the farm was not satisfactory. During 2018-19 economic year feeding cost of the farm was 42,21,481/- that produced the income of 14,66,500/-. From data we can acknowledged that the targeted revenue was not achieved by the farm.

3.3. Rearing system:

In Zilla pig farm swine are reared in free rang system during day time followed by tin shed housing for the night time. In farm there is no girth system. In day time swine are freely roaming in the farm area and at night swine stay in the shed. In farm pigs are reared in the pen system. Swine are allowed to tumble in nearby clay area during summer. The pen is located to take full advantage of prevailing winds.

3.4. Housing system:

Pig need a warm and dry housing in which they can sleep and rest. Protection against the wind and rain is also important but pigs also need shade (Hossian *et al.*, 2011). Swine need good ventilation but did not like draughts. In winter good straw bed could prevent from getting cold. Also swine did not usually urinated void stool in their sleeping area

(Durranc, 2008). Therefore, a metal house could be like an oven in summer and fridge in winter. Wood is better and there now plastic and similar houses keep them cool in summer and warm in winter. In zilla pig farm housing system consist of 3 sheds. The walls of the sheds are made of concrete cements and roofs are tin shaded. To maintain the temperature of the shed there is watering in the house.

3.5. Sanitation procedure:

Following the birth of piglets mucous from mouth and nostrils of piglets were cleaned and naval cord was dipped cut by the farm management. They use Bioclean, Dettol and bleaching powder for cleaning the floor of the shed. Proper ventilation is needed to remove NH₃, CH₄ and H₂S gases (King and Moore, 2002). To keep clean the farm always four cleaner are present at the farm. They clean the stool and other garbage of shed. They keep the farm always clean.

3.6. Feeding and watering system:

In Zilla pig farm, Rangamati pigs were feed by a formulated ration. Farm management gave the pigs and pregnant swine extra feed. Formulated ration was full of energy, protein and other vitamin supplement. Formulated ration contain-

Ingredients	Percentage
Maize	25%
Rice bran	56.5%
Soya bean meal	5%
Protein concentrate	5%
DCP	1.25%
Limestone	1.25%
Salt	.5%
Vitamins	.5%

Carrot, pumpkin and other nutritious vegetable was provided during pregnancy. Farm management gave each piglet 250 gm feed for a day and 1-3 kg to the mature animal. Probiotics was provided by farm to young piglets to ensure proper digestion. The supply of water is available for 24 hours. In shed feeding and watering pen were present which filled with water always. In pregnancy time mother sow were provided extra protein supplement to give healthy piglets.

3.7. Reproductive performance:

The information about reproductive performance of pigs in the Zilla pig farm of Rangamati has been given below-

- Sexual maturity: Boar - 10 months.
Sow - 8 months.
- Mean litter number- 11 to 13.
- Mean litter weight- 300gm.

Sows moved to estrous 3- 10 days after weaning of litter. Reproductive performances of exotic bred in the farm have studied by different researcher (Christenson, 1986; Nandakumar *et al.* 2003; Nandakumar *et al.* 2004; Nath *et al.*, 2002; Phookan *et al.*, 2006; Prakash *et al.*, 2008; English *et al.*, 1984; Kumari *et al.* 2008; Young *et al.*, 1976 and Tummaruk *et al.*, 2004). Least squares mean gestation period obtained by Nath *et al.*, (2002) and Prakash *et al.*, (2008).

3.8. Disease prevalence:

Reports indicate that abscess, botulism, bovine viral diarrhoea, brucellosis, bursitis, coccidiosis, cystic ovaries, hematoma, lameness, laminitis, listeriosis, mastitis, meningitis, metritis are common diseases for pigs (Peter *et al.* 2007). In current study, it is revealed that the main cause for the mortality of piglets in the farm were diarrhea. Disease prevalence of the farm in the year of 2018-19 has been mentioned in Table 4. Graphical representation showed that higher mortality was observed during July (13.98%). In the study it is also revealed that diarrhea (26.88%) is the most common disease in the farm. In farm maggot infestation, pneumonia, anorexia and other disease also present. Diseased pigs were isolated in the isolation shed and treated with Anora, DB vitamin, SP- vet, Irondex. In the farms pigs are vaccinated for FMD, HS and Anthrax

at the age of 4 months.. Deworming was also done at the interval of 3 months with Albendazole, Triclabendazole, levamezole which was supplied by DLS.

Table 4. Disease prevalence of swine in Farm

Diseases	Frequency	Cumulative frequency	Percentage (%)
Diarrhea	25	25	26.88%
HS	13	38	13.98%
Maggot infestation	10	48	10.75%
Pneumonia	20	68	21.51%
Anorexia	17	85	18.28%
FMD	8	93	8.60%
Total	93		

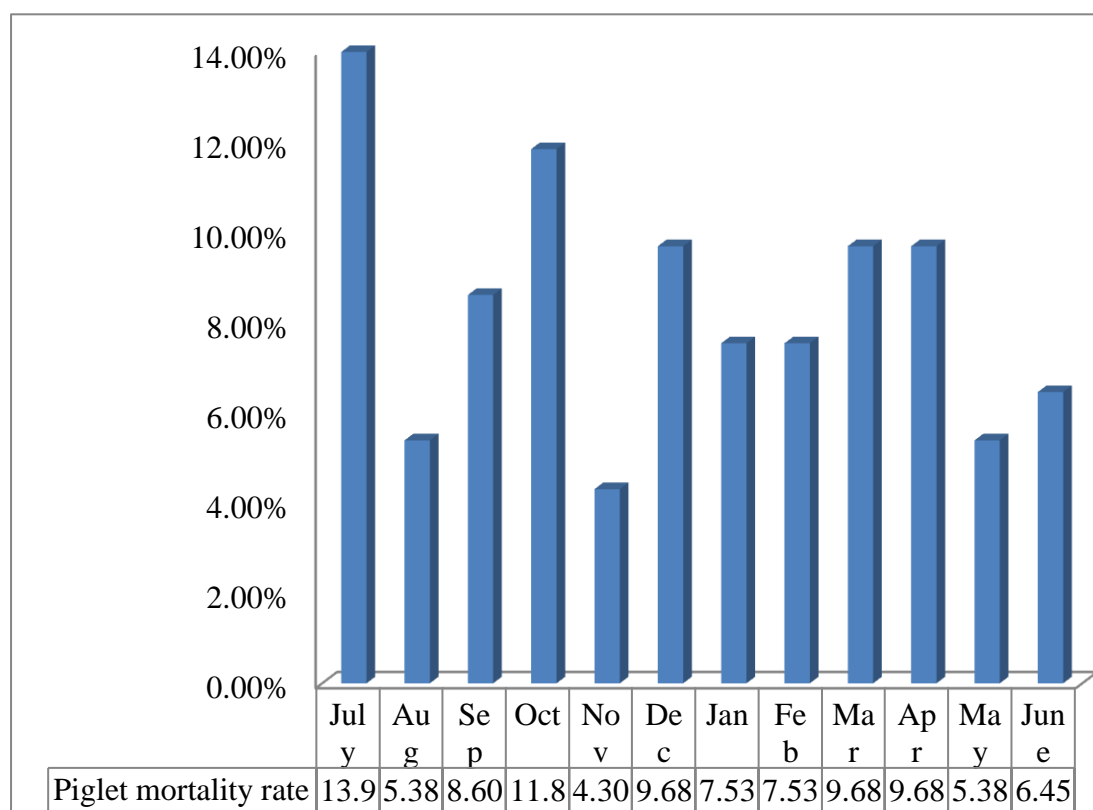


Figure: Mortality of piglet in the farm

3.9. Marketing system of swine and piglets:

Zilla pig farm was established to increase the productivity of indigenous pig. The target of the farm was to produce piglets and provide piglets to the indigenous people for pig farming. Selling prize of piglets at various age are given below-

Age of piglets	Prize
45 days	2,000/-
60 days	2,500/-
75 days	3,000/-
90 days	3,500/-
105 days	4,000/-

Farm also sells culled pigs at the rate of 160 taka per kg for boar meat and 150 taka per kg for sow meat. Zilla parishod give subsidy to the poor people in the prize of piglets. So they can buy piglets.

3.10. Constraints of pig production:

Bangladesh is a Muslim rich country. Pork is prohibited in Islam religion. Muslim peoples are not interested in pig farming. Pigs are omnivorous and voracious animal. They require more feed daily. For the rural pig owner, it is difficult to meet up their demands for feed. As a result, pigs in Rangamati are suffering from malnutrition. The major feedstuffs of pigs that available are of low quality, which do not meet their productive and reproductive performances. The maximum pig population of the study area was indigenous type which has low productivity in comparison to exotic breed. Moreover, high mortality of piglets was another constraint. Young piglets fail to suckle their mother and gradually become weak and finally die. The farm owners have limitations in the knowledge of vaccination. Pigs in family level farming often face diseases like FMD, HS and anthrax. There is no opportunity for diagnosis of diseases in rural areas due to lack of laboratory facilities.

CHAPTER-4

CONCLUSION

Swine rearing methods and feeding practice in farm were found satisfactory. Farm management practices modern technique of housing and feeding system. In farm mortality rate of piglets are high due to disease and killing of own piglets by mother. Government should more imply strategies to develop 'Zilla pig farm'. Development of the farm can improve the economic condition the people the surrounding area. DLS should provide more manpower for development of the farm. Rangamati Pig Farm works in hand to hand with farmers to prosper the condition. Train the local pig farmer on the scientific methods of swine rearing is considered as one of them. But it is to mention, due to religious restriction, there is no established pork marketing system which in general, hinders pork production.

CHAPTER-5

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BIOGRAPHY

I am Ukyawon Marma. I am the student of 20th Batch and an intern veterinarian under faculty of veterinary medicine in Chattogram Veterinary and Animal Sciences University. I have passed Secondary School Certificate (SSC) in 2012 (5.00) followed by Higher Secondary Certificate (HSC) in 2014. I am come from Rajosthali, Rangamati. In the future, I would like to work as a veterinary practitioner and do research on clinical animal diseases in Bangladesh.