

## Public Health Implication of Gastrointestinal Parasites of Pigs in Kwara State, Nigeria

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**Abstract:** Gastrointestinal parasites are among the most devastating diseases of livestock. However, the diseases are often over looked because clinical symptoms are rarely apparent, losses of production occur mainly from retarded growth, delayed fertility and productivity. Pigs are among the abundant livestock potential of Nigeria. Usefulness of pig include, source of protein for human consumption, employment generation through pig farming, processing and marketing and revenue generation with significant contribution to the nation gross domestic product. Pig industry in Nigeria is faced with constraint of disease, cultural and religious factors. The study was carried out in October 2013 to March 2014. A total of 920 pigs were examined, 95% (874) were exotic breed while 5% (46) were local breed of pig. Out of 920 sampled pigs, 55% had *Hydrostrongylus rubidus*, 23% *Ascaris Suum*, 17% *Taenia Solium* and 5% had *Trichuris Suis*. There was no significant difference between male and female pig. The high rate of parasitic infection observed in this study was due to poor management practices and lack of routine deworming in most farms visited. Cysticercosis remains a major zoonosis from piggery in Kwara State Nigeria.

**Key words:** Gastrointestinal parasites, pigs, public health implication, Kwara State, zoonosis

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### INTRODUCTION

The Swine Industry has witness an unprecedented increase in production and consumption over the past decade. This positive development means an increase in provision of animal protein for human consumption, employment generation, poverty reduction, contribution to the nation's gross domestic product and general economic growth.

Swine Industry in developing countries with particular reference to Nigeria is faced with a number of constraints among which are diseases, religious, cultural and environmental factors (Fabiya, 1979; Mutua *et al.*, 2007).

Gastrointestinal parasites lives within the host's gastrointestinal tract, extending from the mouth through the oesophagus, stomach, small and large intestine down to the rectum mainly helminth but protozoan parasites also inhabit the gastrointestinal tract (Junaidu and Adamu, 1998). Three classes of helminthes contribute to the disease entity namely Nematodes, Trematodes and Cestodes, often encountered in piggery in Nigeria (Adejimi and Harrison, 2008).

Helminthic disease are important but often neglected because clinical symptoms are rarely apparent, losses of

production occur mainly from retarded growth and delayed fertility. They constitute a major impediment to efficient and profitable livestock production (Over *et al.*, 1992). Objectives of this study are to diagnose clinically the incidence of gastrointestinal parasitism by faecal examination to show which of these parasites are the commonest in the study area.

### MATERIALS AND METHODS

**Study area:** Kwara State is located in the North central geo-political zone of the country with Ilorin as the capital city. It lies on latitude 8°31'N and longitude 4°35'E. It shares boundaries with Oyo, Ekiti, Kogi, Niger and Osun States. The 2006 national census report indicates that human population in Kwara state was 2,371,089.

**Sampling method and specimen collection:** Random sampling of pigs on the farms visited which were mainly private farms owned by Christian within the state. Faecal sample were collected directly from the rectum by the use of spatula into the universal bottle. Sample were labeled and brought back to the laboratory, kept in the refrigerator until examination usually within 48 h.

**Faecal examination:** The eggs were floated in a counting chamber which was dispensed with the aid of Pasteur pipette, the counting chamber is made of two glass slides, separated by three or four narrow transversely placed strip of glass. This method uses a special counting chamber which is filled with a suspension of faeces in a salt solution. The eggs float to lie immediately below the upper glass of the chamber while the debris sinks to the floor of the chamber. The chamber is searched with the microscope focused on the debris which is grossly out of focus and quite indistinct. The suspension of faeces to be examined is run into each chamber until it is full then each marked area is examined under the low power of microscope and the number of eggs seen is counted.

**McMaster egg-counting technique:** The 1 g of faeces, soaked in 30 mL of saturated salt solution for each sample. After grinding and shaking the sample with pestle and mortar, turned into a sieving chamber and the filtrate collected. With the aid of a wide pipette 8 mL run into the counting chamber, filling all the spaces, the eggs rise to the top so that they are all in focus against the upper slide. The second chamber was also filled with the filtrate using wide pipette. The number of eggs within both ruled area in the chamber were counted and added together. The number of eggs per gram of faeces was calculated by multiplying the total number of eggs in two squares (chambers) of McMaster slides by 100. Factors influencing egg count include consistency and quantity of the faeces (Ames, 1996). Student's t-test was used to evaluate statistical significance of some of the findings.

## RESULTS AND DISCUSSION

A total of 920 pigs were examined for evidence of parasitism. The 874 (95%) exotic breeds, 46 (5%) local or indigenous (Table 1). While 506 (55%) had *Hyostrongylus rubidis*, 212 (23%) *Ascaris suum*, 156 (17%) *Taenia solium*, 46 (5%) *Trichuris suis* (Table 2). *Hyostrongylus rubidis* have the highest prevalence in exotic breeds while *Trichuris suis* is the least common. All the local pigs examined carried significant level of parasitism while 681 (78%) of the exotic breeds were infected, 193 (22%) did not have evident of parasitic burden in their faeces. The mean value for local pigs was 1730/g of faeces while the mean level of parasitism in the exotic breed was 580 g of faeces (Table 3).

The severity of parasitic burden is evident by the egg count via McMaster egg-count technique, extreme

Table 1: Breed distribution of sampled pigs in Kwara State, Nigeria (January to March 2014)

No. of pigs	Breed of pigs
46	Local
194	Duroc
310	Landrace
370	Largewhite

Table 2: Prevalence of helminth in sampled pigs in Kwara State, Nigeria (January to March 2014)

No. of pigs	Percentage	Types of helminth
506	55	<i>Hyostrongylus</i>
212	23	<i>Ascaris suum</i>
156	17	<i>Taenia solium</i>
46	5	<i>Trichuris suis</i>

Table 3: Parasitic burden of sampled pigs in Kwara State, Nigeria (January to March 2014)

Breed of pigs	Parasitic load
Local	1730 g/faeces
Exotic	580 g/faeces

emaciation is associated with heavy infestation while light infestation causes unthriftiness and stunted growth. Husbandry Method significantly affect the level of parasitic burden while the local breed had high parasitic burden, the intensively reared ones had relatively low. Poorly fed animal are highly susceptible to the effect of parasites (Adejimi and Harrison, 2008).

This study provides baseline information that may be useful in planning a proper control programme for gastrointestinal parasites thereby providing hygienic and disease free pork for public consumption. There is need to adopt intensive system of management in order to increase productivity and maximize profit.

## CONCLUSION

An effective antihelminthic treatment programme, good management practices which incorporate ideal housing system, feeding, hygiene and sanitary measures should be put in place by farmer, scavenging pig production should be discouraged, meat inspection practices should be enforced by all stakeholders in the meat industry and pork must be cooked thoroughly before consumption. Further, studies are required for better understanding of epidemiology of parasitism in man and animal.

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