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REPRODUCTIVE FAILURES IN FOOD ANIMALS - A FIVE YEAR RETROSPECTIVE REVIEW

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ABSTRACT

A total of 140 reproductive cases were recorded in food animals at the Teaching and Research farm, University of Agriculture, Abeokuta, between August, 2003 and May, 2008. Of these cases, the cattle, goat, sheep and piggery sections accounted for 14.3, 38.6, 10.7 and 36.4%, respectively. In the cattle section, cases recorded were, calf mortality (30.0%), agalactia (20.0%), mastitis (20.0%), still-birth (20.0%) and maternal mortality (10.0%). Cases recorded in the goat section were kid mortality (40.7%), abortion (24.0%), retained placenta (11.1%), mastitis (5.6%), maternal mortality (5.5%), still-birth (3.7%), paraphimosis (3.7%), agalactia (3.7%) and pyometra (1.9%). In sheep section however, cases recorded were lamb mortality (66.7%), uterine prolapse (6.7%), abortion (6.7%), retained placenta (6.7%), maternal mortality (6.7%) and metritis (6.7%). Cases recorded in the piggery section were piglet mortality (64.7%), infantophagia (7.8%), paraphimosis (5.9%), metritis (3.9%), mastitis (3.9%), stillbirth (2.0%), post parturient paralysis (2.0%), pyometra (2.0%), vesico-vagina fistula (2.0%), maternal mortality (2.0%), abortion (2.0%), and congenital eye defect (2.0%). In conclusion, good management practice, good environmental condition and genetic selection were identified as the bedrock for elimination and prevention of reproductive loss in food animals especially in the area of neonatal loss. Therefore, these three factors most critical in the sustenance of high productivity.

Keyword: Retrospective Review, Reproductive Failure, Food Animals

INTRODUCTION

Food animals are described as animals used in the production of food for humans. It can also include, in common usage, the species and breeds that do supply fiber and hides for human use (Blood *et al*., 2007). Among the species of animals classified as food animals are the cattle, camel, goat, sheep and pig. Cattle generally play a significant role in the development of agricultural sector of national economy in addition to providing the human population with protein gotten from milk and meat (Ndi *et al*., 1993). Cattle population in Nigeria, according to Resource Inventory and Management's report (1993) was put at 13.9 million with southwest geographical zone contributing about 2.8%. World Cattle population was 1.3 billion of which 30% was found in Asia, 20% in South America, 15% in Africa, 14% in North and Central America and 10% in Europe (Cattle Today, 2008).

Goats are one of the smallest domesticated ruminants which have served mankind earlier and longer than cattle and sheep

(Heinlein and Ace, 2005). Of the 460 million goats world wide, Nigeria contributes an estimated 34.4 million (Obi, 1997). Sheep and goats are kept primarily as a source of meat and milk for the owner's family and for sale as a source of cash income, especially in Asia Middle east and Africa where meat and milk constitute the major sources of animal protein. In addition skin and wool provided by the sheep are assets. (Davendra and Burns, 1983; Khan, 2005).

About 25% of the world's 1.14 billion sheep reside between 15^0N and 30^0N, covering the northern half of Africa and southern Asia (FAO, 1986). Present sheep and goat production levels in this region are considered to be low. This is partly because of the harsh regional climate that forces animals to thrive at subsistence level. Of the over 20 million sheep found in Africa humid tropics, about 80% are found in Nigeria (Charray *et al*., 1992).

Total population of pig in Nigeria was put at 7 million (Lefevre, 1998; Babalobi *et al.,* 2007).

More often than not the propagation of food animals is impaired by reproductive failure. (FAO, 1993). Reproductive failure is considered as inability to produce offspring which may be as a result of failure to cycle, to conceive or to carry the foetus to full term following conception (Khan, 2005). Productivity has been shown to be largely dependent on the reproductive performances of animals (FAO, 1993) hence the need to focus on the reproductive potentials of animals on farms.

This study therefore reviewed the recorded reproductive cases of food animals, that is, cattle, goat, sheep and pig, reared at the Teaching and Research Farm of the University of Agriculture Abeokuta, Ogun State, Nigeria.

MATERIALS AND METHODS

This study was carried out by reviewing the reproductive cases recorded at the Teaching and Research Farm of the University of Agriculture, Abeokuta, Ogun State, over a period of five years, between August 2003 and May 2008.

RESULTS

A total of 140 reproductive cases were recorded in food animals at the Teaching and Research farm, University of Agriculture, Abeokuta, Ogun State between August, 2003 and May, 2008. (Table 1).

Of these cases, the cattle, goat, sheep and piggery sections accounted for 14.3, 38.6, 10.7 and 36.4%, respectively. In the cattle section, cases recorded were, calf mortality (30.0%), agalactia (20.0%), mastitis (20.0%), still-birth (20.0%) and maternal mortality (10.0%). Cases recorded in the goat section were kid mortality (40.7%), abortion (24.0%), retained placenta (11.1%), mastitis (5.6%), maternal mortality (5.5%), still-birth (3.7%), paraphimosis (3.7%), agalactia (3.7%) and pyometra (1.9%). In sheep section however, cases recorded were lamb mortality (66.7%), uterine prolapse (6.7%), abortion (6.7%), retained placenta (6.7%), maternal mortality (6.7%) and metritis (6.7%). Cases recorded in the piggery section were piglet mortality (64.7%), infantophagia (7.8%), paraphimosis (5.9%), metritis (3.9%), mastitis (3.9%), stillbirth (2.0%), post parturient paralysis (2.0%), pyometra (2.0%), vesicovagina fistula (2.0%), maternal mortality (2.0%), abortion (2.0%), and congenital eye defect (2.0%). The number of occurrences of

the different reproductive cases within the five years of retrospective study is presented in Table 1 and Figures 1 to 4.

Table 1: Reproductive cases at the Teaching and Research Farm, UNAAB between 2003 and 2008

Disease conditions	Cattle	Goat	Sheep	Pig	Total	%
Vesico vaginal Fistula	0	0	0	1	1	0.7
Mastitis	4	3	0	2	9	6.4
Abortion	0	13	1	1	15	10.7
Still birth	4	2	0	1	7	5.0
Infantophagia	0	0	0	4	4	2.9
Neonatal mortality	6	22	10	33	71	50.7
Paraphimosis	0	2	0	3	5	3.6
Agalactia	4	2	0	0	6	4.4
Uterine prolapse	0	0	1	0	1	0.7
Maternal mortality	2	3	1	1	7	5.0
Pyometra	0	1	0	1	2	1.4
Metritis	0	0	1	2	3	2.1
Post parturient paresis	0	0	0	1	1	0.7
Retained placenta	0	6	1	0	7	5.0
Neonatal congenital defect	0	0	0	1	1	0.7
Total	**20**	**54**	**15**	**51**	**140**	**100**

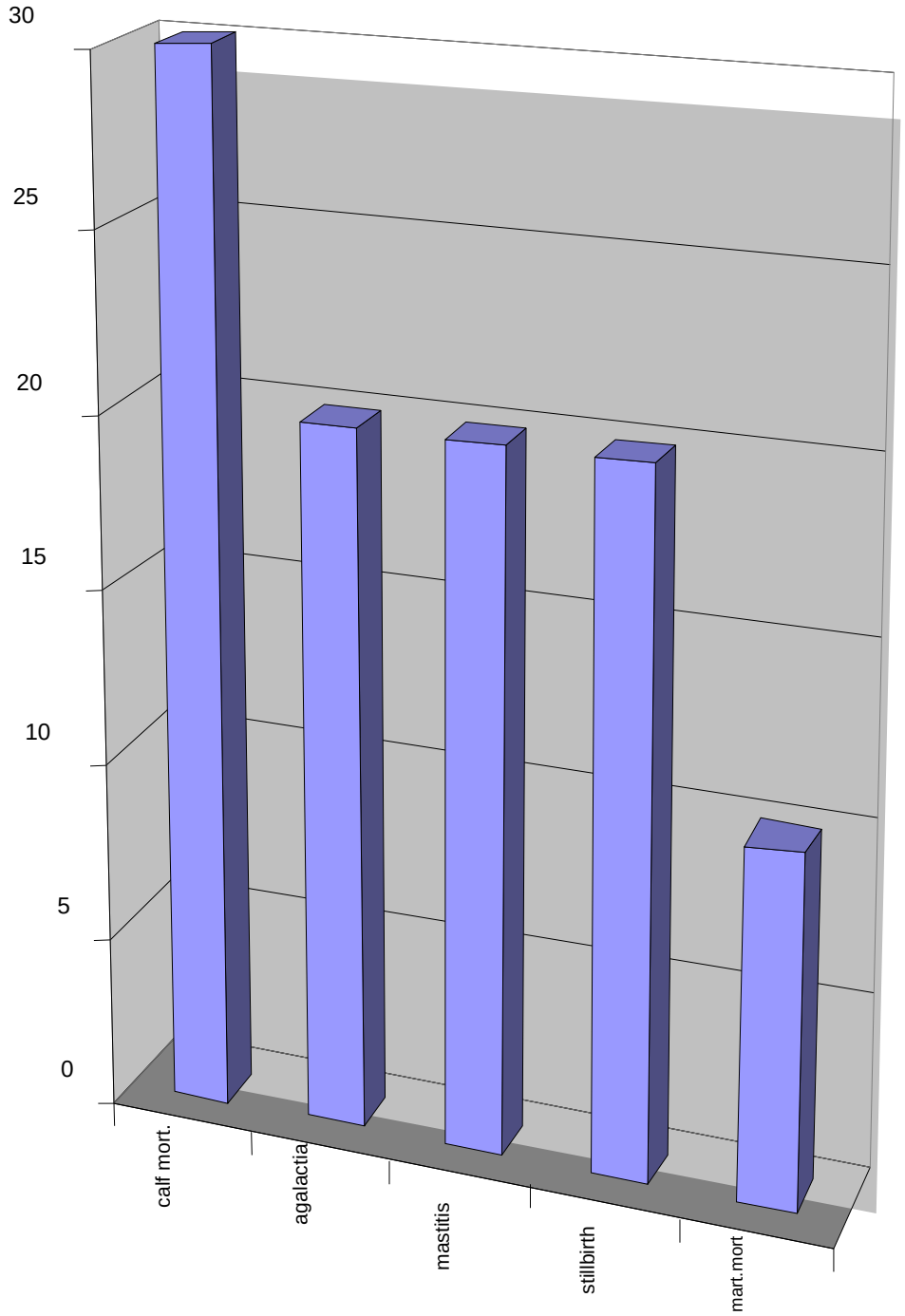

Figure 1: Reproductive cases at the cattle unit of Teaching and Research Farm, UNAAB between 2003 and 2008

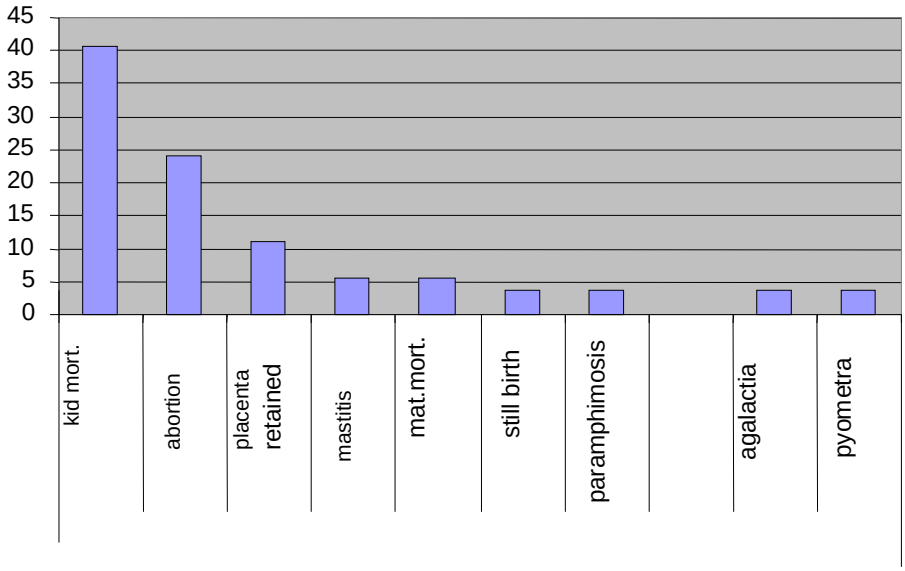

Figure 2: Reproductive cases at the goat unit of Teaching and Research Farm, UNAAB between 2003 and 2008

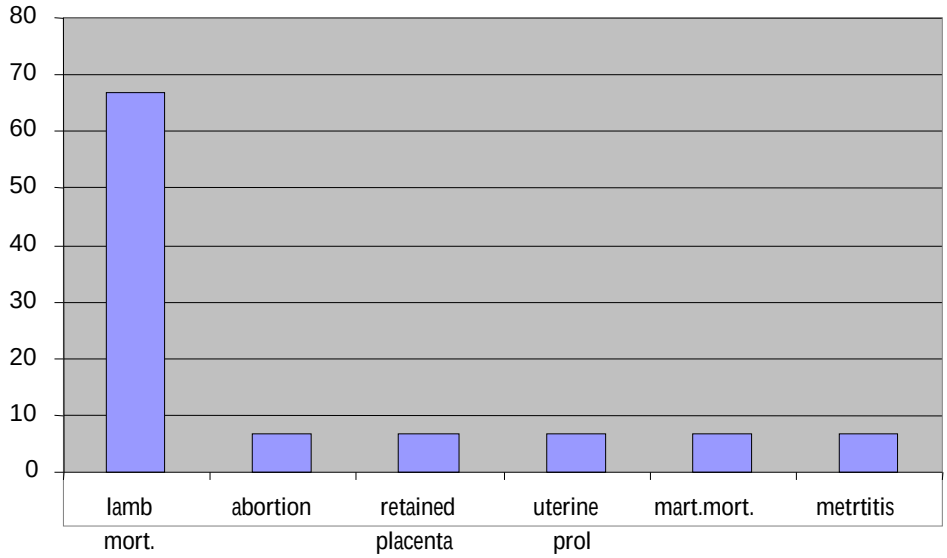

Figure 3: Reproductive cases at the sheep unit of Teaching and Research Farm, UNAAB between 2003 and 2008

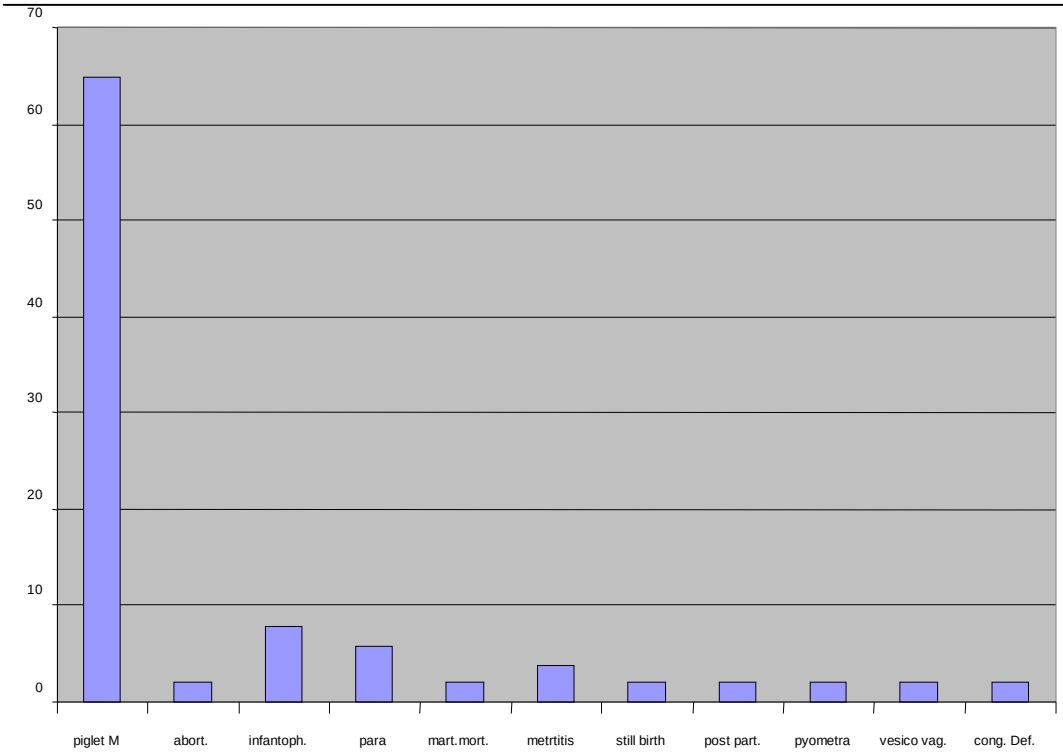

Figure 4: Reproductive cases at the pig unit of Teaching and Research Farm, UNAAB between 2003 and 2008

DISCUSSION

Reproductive wastage is normally considered to cover all losses from mating to the first breeding of the offspring. Reproductive wastage is caused by environmental, genetic, disease and management factors which operate with different severities and in different combinations. These factors interfere with ovulation, fertilization or implantation and during gestation and parturition (Kasali *et al*., 1988). The major reproductive wastage recorded among all the food animals in this study was in the area of neonatal mortality.

Lamb mortality was very high (66.7%) and is in agreement with the findings of Kasali *et al*., 1988, who reported that lamb mortality accounts for serious losses in sheep production and is, thus, a major factor reducing profitability of sheep farming. The neonatal mortality records of 64.1%, 40.7% and 30% in pig, goat and cattle units respectively were very high. In the United Kingdom, neonatal mortality was responsible for approximately 35% of all sheep losses in the late 70s (Howe, 1976) equivalent to a loss before weaning of £26 million. Since deaths in the first week of life cause 75% of this loss (Whitelaw, 1976), the cost of neonatal mortality was approximately £20 million per year in the UK in the 1970s.

In tropical Africa, lamb mortality has been reported (Otesile *et al*., 1982; Njau *et al*., 1988; Traoré and Wilson, (1988). In Cameroon, lamb mortality rates of 68.4% and 37.5% had been reported in local and exotic

breeds of sheep (Ndamukong, 1985), with the majority of these deaths occurring on the first day of life. Studies in Ethiopia indicate perinatal lamb mortality of 18% (Njau *et al*., 1988). Post-natal lamb losses ranging from 12% to 68% had also been observed (Otesile *et al*., 1982; Gautsch, 1988). Since the biological and economic efficiency of sheep production is influenced by the number of lambs reared per ewe (Haresign, 1985), mortality-related production losses are very significant, particularly in view of the contribution of sheep and goats to the household economies of the agricultural populations of the tropics (Jones, 1972).

Early sheep losses have been attributed to neonatal mortality including starvation, abortion, stillbirth, infectious diseases, accidental death or loss, predators and congenital defects (Eales *et al*., 1983). Among the infectious causes of abortion *Chlamydia psittaci* (enzootic abortion of ewes) and *Toxoplasma gondii* are of major importance in Britain and in Africa (Zain-Eldin *et al*., 1985). Leptospiral organisms also cause abortions, stillbirths and death of weak newborn lambs (Ellis, 1983) but the main serotypes have not been identified.

Perinatal kid mortality was reported in 281 dead kids from a Red Sokoto goat flock by Ojo (2006). Kid management from birth to breeding is an essential component of the dairy goat enterprise while the doe herd and the kid management programme have the greatest effect on the long term productivity of the dairy goat herd. The importance of these kids is the fact that they represent a genetic resource necessary to replenish the herd gene pool which has a changing composition due to death, culling and sales for breeding stock. Therefore, kid mortality had a direct effect on selection pressure, that is, the percentage of kids which must be retained as replacements. Maintaining low mortality from birth to weaning should be the primary objective of the kid management.

Abortion arising from infections is about the major cause of infertility in food animals which ultimately contribute to reproductive failure (Noakes *et al*., 2001). For example, in a detailed study of 5488 ewes by some workers, 6.4% suffered true reproductive losses of which 3.4% were barren, 2.4% aborted, 0.3% were mated repeatedly, but failed to conceive and 0.3% were anoestrous (Noakes *et al*., 2001). Kibirige and Diteko (2008) in a retrospective study of disease occurrence in goat and sheep in Botswana during a 10-year period confirmed 8.5% average percentage positive of abortions and still births.

But in this study, neonatal death was the predominant problem encountered and investigation confirmed that a combination of disease condition and nutritional deficiencies contributed to this.

All the reproductive cases enlisted during this 5-year period were investigated and treated accordingly in all the food animal units and effective measures were put in place to check further reproductive wastages.

CONCLUSION

In conclusion, good management practice, good environmental condition and genetic selection are highly essential for elimination and prevention of reproductive loss in food animals especially in the areas of neonatal loss (Noakes *et al*., 2001). Therefore, it is pertinent that these three factors are kept in view in order to have and sustain high productivity.

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