

Comparative Study of Controlling Mite in Poultry Farming in Ogun State Nigeria

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Abstract: The study dealt with indigenous control of mites in poultry farms in some selected Local Government Area of Ogun state Nigeria. It was carried out to determine the demographic characteristics of poultry farmers in the study areas, identify some indigenous strategies or methods used to control mites in poultry, estimate the cost implications of veterinary services or drugs used in the course of production, determine the socio-cultural values of the mites to poultry farming household and community. The study was carried out in three local government areas in the state namely; Ijebu North East Local Government, Odogbolu Local Government and Ijebu North Local Government Area. Purposive sampling technique was used to select 38 poultry farmers in the study areas. Structured questionnaire and personal interviews were administered to gather information from the respondents. Descriptive statistics and correlation analysis were used to analyse the data. The results of the study revealed that indigenous strategies used to control poultry mites comprise of *Nicotiana tabacum* (26.3%) whole part which is burnt into ash, *Allium cepa* (26.3%) and *Piper nigrum* (black pepper 26.3%). These are rubbed on the feathers of the chicken, when considering both modern and local methods; administrative (44.8%) protection is commonly used method. This method set forth the guiding principles for development and implementation of integrated pest management (IPM) e.g. creating awareness of less toxic mites management techniques, for example indigenous control. As regards social cultural value a mite is used for ritual and ceremony (44.7%), taboo is associated with mites (60.5%) and useful products could be obtained from mites (68.4%). The hypothesis of the study revealed that no significant correlation between cost implication veterinary, services and drugs and turn over profit ($R=0.83$, $N=13$, $P>0.05$), the implication is that indigenous strategies or methods may significantly influence profit margin in poultry farming.

Key words: Indigenous control • Mite • Poultry farming

INTRODUCTION

Many rural communities keep some form of livestock and all have development strategies to keep their animals healthy and disease free.

These practices include many effective remedies and techniques that are uniquely culturally adapted, locally available and often cheaper than conventional methods [1]. Indigenous practices relate to breeding, mating, stock management and replacement. According to Akullo *et al.* [2] there were interesting findings in the use of indigenous knowledge in chicken production such as;

- When a brooding hen abandons the eggs completely because of mites infestation, farmers put dry banana leaves in a mortal and position it near a fireplace to enhance the eggs brooding process. The eggs are regularly turned and eventually the chicks are hatched.
- Farmers prepare and place a small bottomless basket to encourage hens to lay more eggs and hatch many chicks. The baskets are placed in a small round hole lined with dry banana leaves. The eggs are removed regularly to increase the number of eggs laid. Secondly chickens are fed on a mixture of millet and

paraffin to prevent “sotoka” (coccidiosis). Chickens infected with coccidiosis are also injected with or given mixture of ash, ground pepper and water to drink.

Over the years, livestock farmers in Africa have learnt a great deal about animal diseases/ ailments and have explored the potentialities of many medicinal plants in combating disease of their stocks. Bizimana [3] listed and discussed thousands of such plants that are used in traditional veterinary practice in Africa. In Nigeria, Nwude and Ibrahim [4] noted that about 92 of such plants tested revealed biological activities. Different parts of the plant are utilized and can be prepared in many ways. The mode of preparation according to Guye [5], however, depends on the active ingredient to be extracted and on the route of administration, studies by Ibrahim *et al.* [6]. Further revealed that in some cases, the same plant could serve as a cure and as a preventive when given in different doses. In another instances, different plants are used for treatment and as prophylaxis. In the prevention of some livestock diseases, some rural stock owners actually vaccinate their animals. Many societies have forms of controlling ectoparasites of livestock. In some, small fires are lit besides resting cattle, so that smoke drives insect’s away [1]. The Fulani’s wash their cattle with infusion of *Sesbania aculeata* before traversing a tsetse fly belt. Other measures recorded by Walter and Dietrich [7] as cited by Adekunle *et al.* [8]. Include:

- Nomads avoid an area known to be infested with ticks
- Before leaving their enclosures in the morning, women and children collect ticks from the animals and throw these ticks into a fire burning near the entrance to the enclosures.
- Burning of pastures known to be infested with ticks
- Snady trees were avoided in case of ticks infestation
- Animal were fed with plants containing high level of salt, thus the ticks fall off.

In the control of ectoparasites in poultry, ash from the burnt leaves of pawpaw (*Carica papaya*) or tobacco plant (*Nicotiana tabacum* and *Nicotiana rustica*) is rubbed on the feathers of chicken to prevent infestation [4]. Etuk [9] NIRT studied the efficiency of *Heliotropium Indicum L.* in the treatment of sarcoptic mange in pigs. He observed that three applications of the fresh herb juice of *Heliotropium indicum* was effective for mange treatment in pigs.

This paper intends to study some of the indigenous strategies or methods as they relate to the control of mites in poultry farming. As a result the following specific objectives are raised for the study.

- To determine the demographic characteristics of poultry farmers in the study areas.
- To identify some indigenous strategies or methods used to control mites in poultry in the study area.
- To estimate cost implications of veterinary services and drugs in the course of production.
- To identify common breeds of birds attack by mite.
- To determine the socio-cultural values of the mite to poultry farming household or community.

Hypothesis: There is no significant relationship between cost of veterinary services or drugs and profit.

MATERIALS AND METHODS

The study was carried out in Ogun State Nigeria. The studied areas were Erigo, Ijari, Erunwon, Atan, Irewon, Idomila, all in Ijebu North East Local Government Area of the State. Ikangba in Odogbolu Local Government Area of the State. Oru, Ago-iwoye, Mamu, Awa, Atikori, Ojowo in Ijebu-north local government Area. The studied areas were located within the tropics precisely ogun state, Nigeria along latitude 6*north and 8*north and longitude 2.5* east and 5* east and it covers about 16,400 square-kilometers. Purposive sampling techniques were used to select 38 poultry farmers in the studied areas. Structured questionnaire to gather information from the respondents. Descriptive statistics, which include percentages, frequency distribution and correlation analysis were used to determine whether or not it is more profitable to use indigenous method rather than the conventional chemical control method.

RESULTS

From the table 81.6% of the respondents were male and 14.7% were female.

Table 2 shows that majority of the respondents have tertiary education.

Table 3 revealed that 57.7% of the respondents were rearing layers, while 10.5% were rearing broilers and 21.1% combined both enterprises.

Table 4 shows that farm size ranges from one bird to above 1500 birds. 15.8% of the respondents have farm size ranging from 0-500 birds, 23.7% were keeping

Table 1: Gender of the respondents

Respondents	Frequency	Percentage
Female	7	18.4
Male	31	81.6
Total	38	100.0

Table 2: level of education

Level of Education	Frequency	Percentage
No formal education	1	2.6
Primary education	3	7.9
Secondary education	6	15.8
Tertiary education	24	63.2
Others (did not indicate level of education)	4	10.5
Total	38	100.0

Table 3: type of enterprise

Enterprise	Frequency	Percentage
Layer	22	57.9
Mixed	8	21.1
Broiler	4	10.5
Cockerel	4	10.5
Total	38	100.0

Table 4: farm size

Farm Size	Frequency	Percentage
0-500	6	15.8
500-1000	9	23.7
1000-1500	12	31.6
1500-upward	11	28.9
Total	38	100.0

Table 5: Percentage distribution of indigenous strategies used in controlling poultry mites

Indigenous Methods	Frequency	Percentage
Dried neem leaves	3	7.9
<i>Nicotiana Tabacum</i> orches	10	26.3
<i>Allium cepa</i> (onion)	10	26.3
<i>Allium sativum</i> (garlic)	3	7.9
<i>Mammes americana</i>	2	5.3
<i>Piper nigrum</i> (black pepper)	10	26.3
Total	38	100.0

Table 6: Percentage distribution of common methods (modern and local) in the control of mites

Common Methods (modern and Local)	Frequency	Percentage
Administrative protection	17	44.80
Local ways (“ewe gbongbose”)	11	28.90
Chemical	10	26.13
Total	38	100.0

Table 7: Socio cultural values of mites

Ritual or Ceremony	Frequency	Percentage
Yes	17	44.7
No	21	55.3
Total	38	100.0

Table 8: taboo association with mites

Taboo Are Associated with Mites	Frequency	Percentage
Yes	23	60.5
No	15	39.5
Total	38	100.0

Table 9: useful product from mites

Useful Products from Mites	Frequency	Percentage
Yes	26	68.4
No	12	31.6
Total	38	100.0

Table 10: percentage distribution of birds often attacked by mites

Breeds	Frequency	Percentage
Light breeds	8	21.1
Heavy breeds	14	36.8
All breeds	16	42.1
Total	38	100.0

Table 11: There is no significant relationship between veterinary services or drugs and poultry profit

Variables		Revenue
Veterinary services or drugs	Pearson correlation	0.083
Turn over	Significant(2-tailed)	0.787
Profit	N	13

P>0.05

500-1000 birds, 31.6% have farm size ranging from 1000-1500 birds, while 28.9% have farm size ranging from 1500 birds and above. This is an evidence that most of the respondents were small to medium scale poultry farmers.

Table 5 above indicates that *Nicotiana tabacum* (whole tobacco plant) burnt into ash 26.30%, *Allium cepa* (onion), 26.30% and *Piper nigrum* (black pepper) 26.30% were the most commonly indigenous methods or strategies used in controlling mites, which are rubbed on the feathers of the chickens. These were followed by dried neem leaves, *Allium sativum* (garlic) 7.9%, while *Mammea americana* 5.3% was the least used strategy in the control of poultry mites.

It is evidence from Table 6 above that administrative protection is the most Commonly used method in the control of mites (44.85), followed by chemicals (28.9%), while local ways constitute the least common strategy in the control of mites (26.3%).

From table above 44.7% of the respondents indicated that mites is used for ritual or ceremony, while 55.3% of the respondents indicated otherwise, however, 60.5% of the respondents agreed that taboo is associated with mites while 39.5% of the respondent did not agree. In the same vein, 68.4% of the respondents agreed that useful products could be derived from mites.

Table 10 indicated that, 42.1% of the respondents agreed that mites affected on breeds of chicken whether light or heavy while 36.8% (heavy breeds) and 21.1% (light breeds) respectively. Relationship exists between veterinary services or drugs and turns over profit in poultry farming. The implication is that indigenous strategies or methods may significantly influence profit margin in poultry farming.

Research Hypothesis

Table 11: revealed significant relationship correlation between cost of veterinary services or drugs and turn over profit ($r=0.083$; $N=13$ $P>0.05$). Therefore the null hypothesis stated above is accepted meaning that no significant relationship exist between veterinary services or drugs and turn over profit in poultry farming. The implication is that indigenous strategies or methods may significantly influence profit margin in poultry farming.

DISCUSSION AND CONCLUSION

The study on indigenous control of mites in poultry farming in Ogun state revealed that the demographic characteristics of the respondents were male(81.6%) and female(18.4%), level of education, majority of the respondents have tertiary education, type of enterprise(57.9%) of the respondents were rearing layers, while (10.5%) were rearing broilers and 21% combined both enterprises. The farm size ranges from one bird to 1500 birds. This is an evidence that most of the respondents were small scale to medium poultry farmers. The finding revealed that the indigenous strategies used to control poultry mites comprises of *Nicotiana tabacum* which is burnt into ash, *Allium cepa* (26.30%) and *Piper nigrum* (black pepper) 26.30%. These are rubbed on the feathers of the chickens. This is in line with findings of [4] that ecto-parasites in poultry are controlled with the ash from the burnt leaves of pawpaw (*Carica papaya*) and or tobacco plant (*Nicotiana tabacum* and *Nicotiana rustica*) which is rubbed on the feathers of the chicken to prevent infestation. This results was corroborated by Chejew *et al.* [10], Kuye [11] that *Nicotiana tabacum* whole plant is used to control various insects (such as

mites) and *Allium cepa* is effective against mites and ticks, anti-feedant and repellent actions against some insects pests.

The study also revealed that administrative protection (44.8) is the most commonly used method (i.e. considering both modern and local method) in the control of mites, followed by chemicals (28.9%), while local way constitute 26.3%. this to buttress the view expressed by Haverkort and de Zeeuw [12] that indigenous knowledge of a given population is that which reflect the experiences based on traditions and more recent experiences with modern technologies. Adedipe *et al.* [13], observed the need for complementarities of modern technology with indigenous knowledge for crop production, for crop disease protection [14] and crop pest control [15].

Social cultural value of mites, 44.7% of the respondents agreed that mites is used for ritual or ceremony, 60.5% of the respondents agreed that taboo is associated with mites, 68.4% agreed that useful products could be obtained from mites.

The hypothesis of the study revealed no significant correlation between cost veterinary services or drugs and turn over profit ($r=0.083$, $N=13$, $P>0.05$). As a result the null hypothesis is accepted which indicate that no significant relationship exists between veterinary services or drugs and turn over profit in poultry farming. The implication is that indigenous strategies or methods may significantly influence profit margin in poultry farming. For instance, the use of neem extracts has been found to contribute significantly to the income of farmers [16]. This also corroborate the view of Akullo *et al.* [2], that indigenous technical knowledge products are cheap and in most cases cost free in monetary terms, thus, enhancing farming profit. Indigenous knowledge promotion can be successful because they are cheap and available and sometimes can be effective like modern technologies Akullo *et al.* [17].

Recommendation: Current development and research have found that improved technologies are un-affordable by poor farmers; therefore:

- Research should find ways of identifying, collecting and validating indigenous methods of pest control in poultry farming.
- Such information must be stored in a form that is retrievable for use and or reference by future generations.

- Farmers should show interest in promoting all aspects of indigenous knowledge application and utilization, especially for treating poultry birds using local herbs, proper poultry birds feeding, mechanism of preventing pests and diseases in order to improve, output reduce cost and increase profit margin.
- Promising indigenous methods of controlling poultry mites in the study areas could be encourage by training, sensitization on the benefits through exchange visits, field day exhibitions, radio programmes and production of books on indigenous technical knowledge and study tour to other parts of the country.

Finally, indigenous knowledge should be balance with modern technology,, in order to solve the problems of domestic food demand deficits, increasing production of white meat to provide adequate protein in diets.

REFERENCES

1. Mathias-Mundy, E. and C. McCorkle, 1989. Ethno Veterinary Medicine. An Annotated Bibliography. Bibliographies in Technology and Social change No 6. Ames, IOWA. Technology and Social Change Program, IOWA State University.
2. Akullo, D., Kanzikwera R. Birugi P. Alumu, L. Aliguma and M. Berwogezam, 2003. Indigenous knowledge in agriculture: A case study of the challenges in sharing knowledge of pest generations in a globalize context in Uganda. National agriculture research organization, Ehtebbe Uganda.
3. Bizimana, N., 1994. Traditional veterinarian practices in Africa. Published by co-operation of republic of Germany, pp: 1-502.
4. Nwude, N. and M.A. Ibrahim, 1980. Plant used in traditional practices in Nigeria Journal of Veterinary Pharmacology and Therapy's, 3: 261.
5. Guye, E.F., 2005. The role of family poultry in poverty alleviation, food security and promotion of gender equality in rural Africa. Outlook on agriculture, 129(2): 129-136.
6. Ibrahim, M.A, N. Nwude, Y.O. Aliu and R.A Ogunsusi, 1984. Yield and chromosome content of ammioviانا in relation to nitrogen and phosphorus supply. Zatschri ft feur-pflanzemaehrung and boden Kunde, 147(4): 517-525.
7. Walter, A. and F. Dietrich, 1992. Role of Traditional Medicine among Nomads of Somolia. Tradtional Veterinary Practice in Agrica. GT2 243, Eschborn, Germany.
8. Adekunle, O.A., O.I. Oladele and T.O. Olukaiyeja, 2002. Indigenous Control Methods for Pests and Diseases of Cattle Northern Nigeria. Livesotck Research for Rural Development, 14(2): 66-75.
9. Etuk, I.F., G.S. Ojewola and S.F. Abasekong, 2006. Performance of Muscovy Ducks under three management systems in South-Eastern Nigeria. Intl. J. Poultry Sci., 5(5): 474-476.
10. Chejew, V., S. Hiranmusaphon and S. Sriharan, 1988. Alternatives to chemical pest control, ATA and HDF Bangkok, Thailand, pp: 205.
11. Kuye, 1999. Stimulating food security through the use of biopesticides in Nigeria. In Y.C Fabiyi and E.O Idowu (eds) poverty alleviation and food security Nigeria NAAE, Ibadan, pp: 174-179.
12. Haverkort, B. and H. de Zeeuw, 1992. Development of technologies towards sustainable agriculture: Institution implications. In W.M River and D.J. Gustafson (eds) agricultural extension worldwide institution evolution and forces of change pp: 231-242. New York Elsvier science publishing company. Kegan Paul international New York, USA.
13. Adedipe, N.O., P.A. Okuneye and I.A. Ayinde, 2004. The relevance of local and indigenous knowledge for Nigerian agriculture. Paper presented at the international conference on poridging scales and epistemologies. Linking local knowledge with global science in multi-scale assessments, march 19, 2004, Alexandria, Egypt.
14. Fadina, O.O. and S. Ogunyemi, 2002. The Potentials of Farmers Indigenous Knowledge for the Control of Plant Diseases in Linking Formal and Informal Science for Sustainable Development, pp: 232 - 233. Proceedings of the Gender and Science and Technology Association Regional Conference, Abuja, Nigeria, pp: 418.
15. Altieri, M., 1991. Traditional farming in Latin American. The Ecologist, 21: 93-96.
16. Jostani, M.C. and K.P. Shrivasta, 1981. Neem Insecticide for the Future. Chemistry, Toxicology and Future Strategy, Pesticides, 15: 12-20.