Indigenous Control of 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.

Keywords: 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 12. Indigenous practices relate to breeding, mating, stock management and replacement. According to Akullo et. al 13 there were interesting findings in the use of indigenous knowledge in chicken production such as;

1. 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.
2. 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 “sotok” (coccidiosis). Chicks 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[11] listed and discussed thousands of such plants that are used in traditional veterinary practice in Africa. In Nigeria, Nwude and Ibrahim[12] 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 Chavinduka as cited by Guye[10], however, depends on the active ingredient to be extracted and on the route of administration, studies by Ibrahim et. al.[13]. 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[16]. The Fulani’s wash their cattle with infusion of Sesbania aculeata before traversing a tsetse fly belt. Other measures recorded by Walter and Dietrich[18] as cited by Adekunle et al.[11]. Include:

a. nomads avoid an area known to be infested with ticks
b. 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.
c. burning of pastures known to be infested with ticks
d. snady trees were avoided in case of ticks infestation
e. 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[9]. Etuk[7] 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.

1. To determine the demographic characteristics of poultry farmers in the study areas.
2. To identify some indigenous strategies or methods used to control mites in poultry in the study area.
3. To estimate cost implications of veterinary services and drugs in the course of production.
4. To identify common breeds of birds attack by mite.
5. 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.

MATERIAL AND METHOD

The study was carried out in Ogun State Nigeria. The study areas were Erigo, Ijara, 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-iwowe, Mamu, Awa, Atikori, Ojowo in Ijebu-north local government Area. The study 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 study 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 AND DISCUSSION

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 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.
Table 1: Gender of the respondents

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>7</td>
<td>18.4</td>
</tr>
<tr>
<td>Male</td>
<td>31</td>
<td>81.6</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>100.0</td>
</tr>
</tbody>
</table>

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

Table 2: level of education

<table>
<thead>
<tr>
<th>Level of education</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No formal education</td>
<td>1</td>
<td>2.6</td>
</tr>
<tr>
<td>Primary education</td>
<td>3</td>
<td>7.9</td>
</tr>
<tr>
<td>Secondary education</td>
<td>6</td>
<td>15.8</td>
</tr>
<tr>
<td>Tertiary education</td>
<td>24</td>
<td>63.2</td>
</tr>
<tr>
<td>Others (did not indicate level of education)</td>
<td>4</td>
<td>10.5</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 3: type of enterprise.

<table>
<thead>
<tr>
<th>Enterprise</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layer</td>
<td>22</td>
<td>57.9</td>
</tr>
<tr>
<td>Mixed</td>
<td>8</td>
<td>21.1</td>
</tr>
<tr>
<td>Broiler</td>
<td>4</td>
<td>10.5</td>
</tr>
<tr>
<td>Cockerel</td>
<td>4</td>
<td>10.5</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 4: farm size

<table>
<thead>
<tr>
<th>Farm Size</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-500</td>
<td>6</td>
<td>15.8</td>
</tr>
<tr>
<td>500-1000</td>
<td>9</td>
<td>23.7</td>
</tr>
<tr>
<td>1000-1500</td>
<td>12</td>
<td>31.6</td>
</tr>
<tr>
<td>1500-upward</td>
<td>11</td>
<td>28.9</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>100.0</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Indigenous Methods</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dried neem leaves</td>
<td>3</td>
<td>7.9</td>
</tr>
<tr>
<td>Nicotiana Tabacum ochres</td>
<td>10</td>
<td>26.30</td>
</tr>
<tr>
<td>Allium cepa (onion)</td>
<td>10</td>
<td>26.30</td>
</tr>
<tr>
<td>Allium sativum (garlic)</td>
<td>3</td>
<td>7.9</td>
</tr>
<tr>
<td>Mammea americana</td>
<td>2</td>
<td>5.3</td>
</tr>
<tr>
<td>Piper nigrum (black pepper)</td>
<td>10</td>
<td>26.3</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>100.0</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Common Methods (Modern And Local)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative protection</td>
<td>17</td>
<td>44.8</td>
</tr>
<tr>
<td>Local ways (&quot;ewe gbangbose&quot;)</td>
<td>11</td>
<td>28.9</td>
</tr>
<tr>
<td>Chemical</td>
<td>10</td>
<td>26.13</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 7: Socio cultural values of mites

<table>
<thead>
<tr>
<th>Ritual or Ceremony</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>17</td>
<td>44.7</td>
</tr>
<tr>
<td>No</td>
<td>21</td>
<td>55.3</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>100.0</td>
</tr>
</tbody>
</table>

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%).

Table 8: taboo association with mites

<table>
<thead>
<tr>
<th>Taboo are associated with Mites</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>23</td>
<td>60.5</td>
</tr>
<tr>
<td>No</td>
<td>15</td>
<td>39.5</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 9: useful product from mites

<table>
<thead>
<tr>
<th>Useful Products From Mites</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>26</td>
<td>68.4</td>
</tr>
<tr>
<td>No</td>
<td>12</td>
<td>31.6</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 10: percentage distribution of birds often attacked by mites breeds

<table>
<thead>
<tr>
<th>Breeds</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light breeds</td>
<td>8</td>
<td>21.1</td>
</tr>
<tr>
<td>Heavy breeds</td>
<td>14</td>
<td>36.8</td>
</tr>
<tr>
<td>All breeds</td>
<td>16</td>
<td>42.1</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>100.0</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Variables</th>
<th>Revenue</th>
<th>Pearson correlation</th>
<th>Significant(2-tailed)</th>
<th>P&gt;0.05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veterinary services</td>
<td>N</td>
<td>.083</td>
<td>.787</td>
<td></td>
</tr>
<tr>
<td>Turn over</td>
<td>Significant(2-tailed)</td>
<td>.787</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profit</td>
<td>N</td>
<td>13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

From the table, 42.1 percent 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=.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
ccale 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 Nwude and Ibrahim[19] 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.[8], Kuye[14] 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[13] that
indigenous knowledge of a given population is that
which reflect the experiences based on traditions and
more recent experiences with modern technologies.
Adedi pe et. al. [1], observed the need for
complementarities of modern technology with
indigenous knowledge for crop production, for crop
disease protection[1] and crop pest control[4].

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=.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[11]. This also corroborate the view of Akullo
et. al.[11], that indigenous technical knowledge products
are cheap and available and sometimes can be effective
like modern technologies Akullo et. al.[11].

**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.

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