Original Scientific paper
10.7251/AGRENG2001068O
UDC 619 :636.2]:519.2

EFFECTIVENESS OFINDIGENOUS KNOWLEDGE ON CONTROL PRACTICES OF SHEEP AND GOAT DISEASES AND PEST AMONG FARMERS IN IKOLE EKITI, EKITI STATE, NIGERIA

Sunday Idowu OGUNJIMI*, Oluwabunmi HopeOLU-AJAYI, Olajumoke Olanrewaju ALABI**,** Chinewe Mariam EGBUNONU

Department of Agricultural Economics and Extension, Federal University, Oye-Ekiti, Ekiti State, Nigeria
*Corresponding author: sundayogunjimi@fuoye.edu.ng, jimisunday@yahoo.co.uk

ABSTRACT

The study attempts to investigate the level of access, use and effectiveness of indigenous knowledge practices in controlling diseases and pests in sheep and goats among goat and sheep farmers in Ikole-Ekiti, Ekiti State, Nigeria. Data were gathered through interviews scheduled on 90 goat and sheep farmers. The data were analyzed using descriptive statistics tools of frequencies, percentages and means to describe parameters such as age, sex, household size, educational qualification, and farm size. Pearson correlation coefficient was used to determine the relationship between the dependent variable and independent variables. The results revealed that the mean age of the respondents was 58 years and 63.3% of the goat and sheep farmers were females. The farmers in the study area had low contact with extension workers. The main sources of information were family members, friends and neighbours, and radio. Using sandpaper leaf for mange infection and palm oil for bloat was ranked highly effective. The constraint with the highest percentage was inadequate information of the technique used. Based on the result of the Pearson correlation, accessibility had a positive and significant relationship with effective usage of indigenous knowledge practices. Sequel to the findings of the study, it was recommended that agricultural extension services in Ekiti State should make extension agents available in rural areas to educate the farmers on various indigenous knowledge practices.

Key words: Bloat*, diseases, indigenous knowledge, mange, sand paper leaf*

INTRODUCTION

Indigenous knowledge is the local knowledge that is unique to a culture of society. Other names for it include: ‘local knowledge’, ‘folk knowledge’, ‘people’s knowledge’, ‘traditional wisdom’ or ‘traditional science’. This knowledge is passed from generation to generation, usually by word of mouth and cultural rituals, and has been the basis for agriculture, food preparation, health care, education,

conservation and the wide range of other activities that sustain societies in many parts of the world (World health organization, 2001).

Numerous countries have developed national herbal pharmacopoeias to document medicinal plants that have been found to be effective and to further ensure their safety, efficacy and quality. Emphasis should be placed on the need to further exploit the rich and diverse African natural resources, which can contribute to discovery and development of new traditional and orthodox medicines (Luis,2010).

Traditional medicine has demonstrated great potential of therapeutic benefits in its contribution to modern medicine. More than 30% of modern medicines are derived directly or indirectly from medicinal plants. Examples of these medicines are analgesics (aspirin, belladonna); anticancer medicines (vincristine and vinblastine), antihypertensive agents (reserpine); antimalarials (quinine, artemisinin); and decongestants (ephedrine). Traditional medicine is used to control and cure the diseases of animals most especially small ruminants (sheep and goats) which are reared by rural farmers. Sheep and goats are among the major economically important livestock in Nigeria. In Nigeria small ruminants contribute an estimated 35% to the total meat supply. The major breed of sheep is the Yankasa while the West African Dwarf is the major goat breed. Sheep and goats contribute a quarter of the domestic meat consumption; about half of the domestic wool requirements; about 40% of fresh skins and 92% of the value of semi-processed skin and hide export trade. In the southern guinea savanna region of Nigeria like in many parts of the country, small ruminant production and productivity is impeded by various constraints which include health. This constraint can be alleviated or curtailed by modern or western-style technologies such as vaccination, chemoprophylaxis/chemotherapy, feeding animals with formulated rations. Small ruminants in the study area are largely in the hands of rural farmers. Since these farmers are mostly located in the rural areas, they are scarcely aware of veterinary and improved management services. In some cases, many of those who are aware of the services cannot afford to pay for them because they are expensive (Matekaire and Bwakura, 2004). However, the rural small ruminant farmers have developed indigenous methods or technologies for coping with the constraints. Among the various indigenous methods is the use of herbs to manage animal diseases. Which include use of bark of iroko tree (*Milicia excelsa)*/tagiri (*Adenopus breviflorus)*/unripe pawpaw for treating intestinal worms, grind tobacco leaves for tick infestation, igi-erin (*Hunteria unbellata*)/sand paper leaf *(Ficus exasperata)* and palm-oil for mange infestation, shea butter *(Vitellaria paradoxa)* and salt for foot rot, ground alligator pepper *(Aframomum melegueta)* for Oral dehydration therapy, igi emi (*Vitellariav paradoxa)* for wound, palm oil for bloat treatment, oloora bark (*Rauvolfia vomitoria)* combine with palm oil for treating poisonous plants ingestion, fermented ground maize for treating sheep and goat pox, charcoal mill/efinrin *(Ocimum gratissimum* for diarrhea and dysentery, lapalapa (*jathropha curcas*) squeeze and palm oil for treating retained placenta/dystokia(prolonged labour) and wood ash for treating broken horn.

In the face of rising cost of western-style (modern) medicine and increased concern about development of drug resistant parasites and tissue residues of chemotherapeutic agents, the sustainability of many of these modern technologies in livestock production is seriously called to question. A search for alternative methods of disease control in sheep and goat is therefore, of utmost necessity. Therefore, the study is to assess the effectiveness of indigenous knowledge practices in sheep and goat diseases and pest control. Other objectives include to
(i)describe socio-economic characteristics of sheep and goat farmers in the study area;
(ii) Identify the common pest and diseases of sheep and goats and the indigenous practices used by sheep and goat farmers to control it; examine the sources of information on indigenous practices; and assess the constraints associated with to indigenous knowledge practices.
Hypotheses include:(i)There is no significant relationship between socio-economic characteristics of sheep and goat farmers and effective usage of indigenous knowledge practice.
(iii)There is no significant relationship between farmer`s accessibility to the indigenous practices used in sheep and goat diseases and pest control and effective usage of indigenous knowledge practice.
(iv)There is no significant relationship between constraints associated with indigenous knowledge practices used in sheep and goat diseases and pest control and effective usage of indigenous knowledge practice

MATERIALS AND METHODS

The study was conducted in Ikole local Goverment Area of Ekiti State, southwestern Nigeria, which is largely an agriculture-based state in the country in 2018. Multi-stage sampling procedure was used to select the respondents in the study area. At the first stage, 9 communities were randomly selected from the Local Government Area. The next stage involved snow-ball sampling of 10 respondents from each of the communities to give a total sample size of 90 respondents in all. Primary data were collected directly from sheep and goat farmers through personal interviews with the aid of a interview study designed to obtain information on socio-economic characteristics of the farmers, types of indigenous practices, the sources of indigenous practices used, and constraints to the use of indigenous practices. The data collected were analyzed using descriptive statistics tools of frequencies, percentages, and means to describe parameters such as age, sex, household size, educational qualification, and farm size. Pearson correlation coefficient was used to determine the relationship between the dependent variable and independent variables. To know the level of effectiveness, total scores for each respondent was grouped into 5categories: very effective, effective, partially effective, rarely effective and not effective. The mean score with standard deviation was used to categorize the effectiveness into high, low and moderate. The score of mean plus standard deviation was considered as highly

effective, mean minus standard deviation was considered as low and different between high and low was considered as moderately effective.

RESULTS AND DISCUSSION

Socio-economic characteristics of farmers

The mean age of the sampled sheep and goat farmers was 58 years and the standard deviation was 7.9. Results in the table1 indicate that majority (70.1%) were between the ages of 50 to 70 years. Most of the young able-bodied men had migrated to the urban areas in search of a better life and older generation is left in the rural areas. The implication of this is that the future of livestock production in the study area is uncertain and will decrease drastically. The findings collaborates Ogunjimi and Ajala (2014) findings which indicated that majority of the farmers in Ekiti were above 45 years. Majority (63.3%) of the respondents are females while the remaining (36.7%) are males. This implies that sheep and goat production is female dominated in the study area. The finding collaborate with Olayemi *et al.* (2012) findings that, women are known to be more involved in agricultural activities than men in sub-saharan Africa (SSA) countries. Results also reveals that majority (92.2%) of the respondents are married. Table 1 further show that, 44.5% of the respondents had primary education, (36.6%) of the respondents had secondary education. This attribute is expected to influence the respondent`s perception, awareness and usage of indigenous practices.

The mean flock size for sheep was 8 while that of goat was 13. This implies that majority of sheep and goat farmers were small scale farmers. The result in table 1 also shows that (75.6%) of the farmers had no contact with extension agents in the past one year. Inadequate extension contact might be due to the fact that extension agents were not well-equipped to face the challenges ahead due to inadequate training.

Table 1. Percentage distribution of personal characteristics of respondents

Variables	frequency	Percentage	Mean/std
Age (years)			59.07/7.929
Below 51	18	20.0	
51-60	46	51.1	
61-70	18	20.0	
Sex distribution			
Male	33	36.1	
Female	57	63.3	
Years of schooling			6.67/4.272
Never attend school	19	21.1	
1-6	40	44.4	
7-12	31	34.5	

Source of information of indigenous knowledge practices

The results in Table 2 the show that the farmers are mostly informed by family members (100%), friends and neighbours (86.7%). This was followed by radio (45.6%), television (38.9%), extension agents(35.6%). This implies that the respondents are mostly informed about indigenous knowledge practices by their family members, friends and neighbours. This asserts that informal relationships and face to face interaction leads to effective communication. This correlates with Omogor (2013) that says interpersonal communication dominates our activities at home, office, market and elsewhere. It helps to break the barrier of formal relationships, generate warmth and create harmony that is necessary for socio-economic development.

Table 2. Mean distribution of the respondents on the source of information of indigenous knowledge practices in the control of diseases and pest in sheep and goat

Source of information	Frequency	Percentage
Family members	90	100
Friends and neighbors	78	86.7
Radio	41	45.6
Television	35	38.9
Extension agents	32	35.6
Salesmen	28	31.1
Leaflet/agric news letter	21	23.3
Newspaper	18	20.0

Accessibility to indigenous knowledge practices

Results on the accessibility to indigenous knowledge practices with a grand mean of 4.76(Table 3) indicate that sandpaper leaf *(Ficus exasperata)*, shea butter *(Vitellaria paradoxa)*, Igi-Erin *(Hunteria unbellata)*, wood ash, alligator pepper *(Aframomum melegueta)*, lapalapa *(jathropha curcas)* and oloora *(Rauvolfia vomitoria)* have a mean of 5.00 were highly ranked while fermented maize and unripe pawpaw have a mean of 4.46 and rank 8th. The others are tobacco leaves (mean= 4.43, rank= 10th), palm oil (mean= 4.39, rank=11th) and efinrin *(Ocimum gratissimum)* (mean= 4.33, rank= 12th). This indicates that the indigenous knowledge practices are highly accessible in the study area because they are readily available. This goes in line with (Matlebyane *et al.,* 2010), who reported that herbal medicine offer cheaper, more sustainable, available, reliable and familiar alternatives to imported synthetic drugs.

Table 3. Mean distribution of the respondents on their accessibility to indigenous knowledge practices in the control of diseases and pest in sheep and goat

Accessibility

Indigenous methods	Mean	Rank
Sandpaper leaf	5.00	1st
Shea butter	5.00	1st
Igiemi	5.00	1st
Wood ash	5.00	1st
Alligator pepper	5.00	1st
Jathrophacurcas	5.00	1st
Oloora bark	5.00	1st
Fermented maize	4.46	8th
Unripe pawpaw	4.46	8th
Tobacco leaves	4.43	10th
Palm oil	4.39	11th
Efinrin	4.33	12th

Usage of indigenous knowledge practices

Data from the Table 4 revealed that majority of the farmers are using all the indigenous knowledge mentioned to control diseases and pests in sheep and goat but in order of ranking, alligator pepper and palm oil (mean= 4.67, rank= 1st) came first, followed by igi emi, fermented maize and wood ash (mean= 4.62, rank= 3rd). The others include sand paper leaf (mean= 4.60, rank= 6th), oloora bark (mean= 4.58, rank= 7th), unripe pawpaw (mean= 4.57, rank= 8th), tobacco leaves (mean= 4.57, rank= 8th), efinrin (mean= 4.57, rank= 8th), Shea butter (mean= 4.56, rank= 11th) and lapalapa (mean= 4.52, rank= 12th). This finding shows that most of the indigenous knowledge practices are highly used in the study area.

Table 4. Mean distribution of the respondents on their usage of indigenous knowledge practices in the control of diseases and pest in sheep and goat

Indigenous methods	Mean	Rank
Alligator pepper	4.67	1st
Palm oil	4.67	1st
Igiemi	4.62	3rd
Fermented maize	4.62	3rd
Wood ash	4.62	3rd
Sandpaper leaf	4.60	6th
Oloora bark	4.58	7th
Unripe pawpaw	4.57	8th
Tobacco leaves	4.57	8th
Efinrin	4.57	8th
Shea butter	4.56	11th
Jathrophacurcas	4.52	12th

Effectiveness of indigenous knowledge practices

The Table 5revealed the indigenous practices in descending other of effectiveness: sandpaper leaf (mean= 4.98, rank=1st), palm oil (mean= 4.77, rank= 2nd), shea butter (mean= 4.66, rank= 3rd), igi erin (mean= 4.62, rank= 4th), tobacco leaves (mean= 4.59, rank= 5th), fermented maize (mean= 4.53, rank= 6th), unripe pawpaw (mean= 4.43, rank= 7th), wood ash (mean= 4.42, rank= 32 8th), alligator pepper (mean= 4.33, rank= 9th), lapalapa (mean= 4.33, rank= 9th), efinrin (mean= 4.28, rank= 11th) and oloora bark (mean= 4.09, rank= 12th). The findings resulted in a grand mean of 4.40 and standard deviation of 0.20. The results shows IKPs wereeffective except *Rauvolfia vomitoria*that has low level of effectiveness. This might be as a result of availability and commonality of the materials such as palm oil, shea butter, wood ash and pawpaw could be a factor enhancing their usage and hence effectiveness.

Table 5. Mean distribution of the respondents on the effectiveness of indigenous knowledge practices in the control of diseases and pest in sheep and goat

Indigenous methods	Mean	Rank	Decision
Sandpaper leaf	4.98	1st	Highly effective
Palm oil	4.77	2nd	Highly effective
Shea butter	4.66	3rd	Highly effective
Igiemi	4.62	4th	Highly effective
Tobacco leaves	4.59	5th	Moderately effective
Fermented maize	4.53	6th	Moderately effective
Unripe pawpaw	4.43	7th	Moderately effective
Wood ash	4.42	8th	Moderately effective
Alligator pepper	4.33	9th	Moderately effective
Jathrophacurcas	4.33	9th	Moderately effective
Efinrin	4.28	11th	Moderately effective
Oloora bark	4.09	12th	Less effective

Constraints to indigenous knowledge practices

Table 6 shows the factors militating against the utilization of indigenous knowledge practices by the farmers in the study area. The constraint ranking first is inadequate information of usage techniques (mean= 1.99, rank= 1st) followed by lack of proper management skill method (mean= 1.22, rank= 2nd), inadequate credit facilities (mean= 1.16, rank= 3rd), inadequate know how (mean= 1.13, rank= 4th), inadequate infrastructural facilities (mean= 1.13, rank= 4th). It can be interpreted that most of the respondents in the study faced the series of constraints which could influence the effective usage of indigenous knowledge practices.

Table 6. Mean distribution of the respondents on the constraints of indigenous knowledge practices in the control of diseases and pest in sheep and goat

Constraints	Mean	Rank
Inadequate information on usage techniques	1.99	1st
Lack of proper management skill method	1.22	2nd
Untimely credit facilities	1.16	3rd
Inadequate know how	1.13	4th
Inadequate infrastructural facilities	1.13	4th
Inadequate storage facilities	1.12	6th
High cost of materials	1.11	7th
Inadequate credit facilities	1.10	8th

Testing of hypothesis

The correlation result between the socio-economic characteristics of the farmers in the study area and effective usage of indigenous knowledge practice in the control of disease and pests in sheep and goats shows that age ($r=0.243$ $p\leq0.01$), schooling ($r=0.139$ $p\leq0.01$) and house size ($r=0.182$ $p\leq0.01$) had a positive and significant relationship with usage of indigenous knowledge practice. This shows that the higher their age, level of education, house size, and extension contact, the higher their usage of indigenous knowledge practices. The correlation result in Table 7 shows that source of information ($r=0.191$ $p\leq0.01$) had positive and significant relationship with usage of indigenous knowledge practices. Information is a veritable tool when it comes to usage of indigenous knowledge practices. This shows that the more they have access to information, the higher their level of usage. The results in Table 7 shows that accessibility ($r=0.595$ $p\leq0.01$) had a positive and significant relationship with the usage of indigenous knowledge practices. This indicates that the higher accessibility to indigenous knowledge practice, the higher the usage of indigenous knowledge practices.

Table 7. Correlation analysis between respondent's personal socio-economic characteristics and effective usage

Variables	Correlation coefficient(r)	Coefficient of determinant (r^2)
Age	0.243**	0.021
Schooling	0.139**	0.021
Extension contact	0.095	0.371
House size	0.182**	0.083
Source of information	0.191**	0.072
accessibility	0.595**	0.354

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

CONCLUSION

Based on the findings of this research work, it can be concluded that use of herbs to manage animal diseases were highly effective in controlling diseases and pests of sheep and goats followed by fermented maize and unripe pawpaw. Furthermore, indigenous knowledge practices are being used and effective in the control of diseases and pests in sheep and goats.. However there was low contact between the sheep and goat farmers and extension agents recorded hence efforts should be made by governmental and non- governmental organizations in training the farmers on knowledge of indigenous practices and usage techniques. Furthermore, programmes that are related to knowledge of farming activities should be aired late in the evening on radio and television when the goat and sheep farmers will be able to listen or watch. There is also need for government and non-government organization to provide credit facilities for the preservation of indigenous practices for future use.

REFERENCES

Luis G.S. (2010).The decade of African traditional medicine: progress so far, African Health Monitor, 14, 4-6.

Matlebyane M, M., Ng'ambi J. W. W.,Aregheore E. M.(2010). Indigenous knowledge (IK) ranking of available browse and grass species and some shrubs used in medicinal and ethno-veterinary practices in ruminant livestock production in Limpopo province, South Africa. Livestock Research for Rural Development, 22, Article #54. Retrieved February 19, 2019, from http://www.lrrd.org/lrrd22/3/matl22054.htm

Matekaire T., Bwakura T. M. (2004). Ethnoveterinary medicine: A potential alternative to orthodox animal health delivery in Zimbabwe. International Journal Applied Research in Veterinary Medicine,2 (4), 269-273.

Olayemi F.F., Adegbola J.A., Bamishaiye E.I., Awugu E.F. (2012). Assessment of post-harvest losses of some selected crops in eight local government areas in rivers state, Nigeria. Asian J. rural dev. 2(1),13-23

Omogor M. (2013). Channels of information acquisition and dissemination among rural dwellers. International Journal of Library and Information Science, 10,306-312.

Ogunjimi S.I., Ajala A.O. (2014). gender access and usage of mobile phones among cocoa farmers in osun state, Nigeria, 7-56.

World Health Organization (2001). Promoting the Role of Traditional Medicine in Health Systems: A Strategy for the African Region. WHO Regional Office for Africa, Temporary location, Harare, Zimbabwe. (Document AFR/RC50/9 and Resolution AFR/RC50/R3).