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The Sustenance of Ekiti Rural Women's Economy: Identifying the flora species in livestock healthcare system

Gladys Modupe Kayode[1], Racheal Omowunmi Ajayi[2] and Oyin Oluwasesan Oladele[2]

[1]Department of Adult Education and Community Development,
Ekiti State University, Ado-Ekiti, Nigeria E-mail: joshua.kayode@eksu.edu.ng

[2]Department of Plant Science and Biotechnology, Ekiti State University, Ado-Ekiti, Nigeria

Abstract

The potentials of livestock in the sustenance of the economy of rural women of Ekiti State, Nigeria was examined in this study. Semi structured questionnaire guides were used to interview 240 selected rural women from the three zones of the state. The interviews were focus, conversational and two-way in communication. The demography and values of livestock reared, diseases experienced by the livestock as well as the flora species used in the management of the diseases were identified. Similarly parts of the plants used including the methods of preparation of the flora-derived medicine were also identified. The perceptions of the women on the use of flora species were documented. The results obtained identified seven different livestock reared by the women respondents. These animals were observed to have culinary, socio-economic, cultural and spiritual values in the lives of the rural dwellers. Also while incentives to enhance their productions abound in the state, pests and diseases tend to affect their productivity. Veterinary services were poor in the state, however the women have considerable ethno-veterinary knowledge of flora species that they use to maintain the health of the animals. A total of 42 flora species belonging to 28 families were reportedly being

utilised for health maintenance of the livestock. These flora-derived medicines were found to be safe for the livestock, effective, affordable and readily available. Strategies that would enhance sustainable contributions of livestock to the economy of the rural women were suggested.

Keywords: Ethno-veterinary, medicinal, culinary, cultural, spiritual

Introduction

It is now widely acknowledged that rural women maintained cordial relationship with the environment hence they are widely knowledgeable on the renewable natural resources in their surroundings (Kayode 2006).Thus the varieties of flora and fauna species in the environment are effectively utilized by rural women for rural economies, one of which include livestock keeping. Livestock keeping is a branch of farming system which deals with the domestication and rearing of animals for either consumption or for revenue generation.

Previous study by Salkowsti (2007) asserted that livestock farming is one of the cheapest and easiest branches of farming that provides numerous benefits for its rearers. The wastes from the animals are good sources of organic manure, detached feathers of birds and animal skin are used for local fur, wool and leather production. Animals are good sources of protein such as meat or egg. Livestock serve as a means of income generation; in addition, animals are also used for performing sacrificial rites during traditional ceremonies amongst others. Thus livestock contributed tremendously to the rural economy (Stringer and Pingali 2004).

Recent initiatives revealed that livestock rearing is largely a woman's job. Women take responsibility for cutting fodder, cleaning sheds, milking dairy animals, processing animal products and looking after the health of the herd (Arshad 2010). Thus, any effort aimed at alleviating poverty without active participation of women is destined to fail. Unless women are allowed to exploit their potential, the rural scene will remain unchanged. At present, the art of livestock keeping in Ekiti State, Nigeria, is affected by a lot of challenges that result to diseases outbreak that are infectious and deadly. Schelzer (2003) had earlier enumerated some of these challenges, in rural areas, to include dirty environments, unhealthy food and waters, inadequate ventilation, and non-isolation of affected animals.

Also, a gross dearth of veterinary doctors abounds in Ekiti State. The only veterinary hospital in the state is located in the state capital. Thus, veterinary treatment is difficult to obtain by resource poor farmers. Hence, animal health maintenance is skewed towards the use of plant based medicine. This is referred to as ethnoveterinary that is the sum total of all the knowledge and practice, whether explicable or not, used in the knowledge and practice, diagnosis, prevention and elimination of physical, mental or social imbalance and relying exclusively on practical experience and observation handed down from generation to generation, whether verbally or in writing (WHO 1997; Ameyan et. al. 2005).

The use of medicinal plants in the treatment of diseases have generated renewed interest in recent times, as herbal preparations are increasingly been used in livestock healthcare system (Akerele 1996; Chan et. al., 2006). Previous assertions by Maxwell et. al. (1995); Eluyoba (1997); Shimomura et. al. (1997) and Omoseyindemi (2003) asserted that at least 80% of people in the developing countries depend largely on indigenous practices for the control and treatment of various diseases affecting both humans and animals.

The Nigerian forests are rich in medicinal plants species that are rich in chemical compounds which are constantly used by rural women and other native veterinarians in treating diverse diseases in livestock (Shimomura et. al. 1997; Okigbo et. al., 2009). The ingredient and nature or raw materials of plant species are known to local villagers through personal experience and ancestral prescriptions as they have been used regularly from one generation to the other (Martin 1995). Medicinal plants have an added advantage unlike the orthodox medicine, such that they have fewer or no side effects, available at free or minimal cost since they grow in surrounding areas. They are holistic in nature, readily available, accessible, easy to prepare and administered at little or no cost at all (Shimomura et. al. 1997).

In addition to the above, orthodox medicine are not available in the rural areas but urban centres of the state hence extra costs are often incurred on transportation to purchase them. Also, the use of chemicals is costly (Anjawalla et. al. 2014). Indeed, Kamanula et. al. (2010) asserted that most farmers in developing countries are resource-poor and have neither the means nor the skill to handle chemicals appropriately. Quite often, the chemicals are adulterated by dilution (Kayode et. al. 2016) and can be dangerous to the animals. The erratic supply of the synthetic chemicals (Asawalam and Hassanah 2006) further constituted disincentives to their utilization. Thus the use of flora species is the only option available to the rural dwellers (Van Burden and Robinson 1997). The plants contain multiple constituents

(Liu et al. 1995) that have effect-enhancing, side effect neutralizing potentials (Eluyoba 1997). Thus herbal remedies are considered relatively safe for use (Shimomura et. al. 1997).

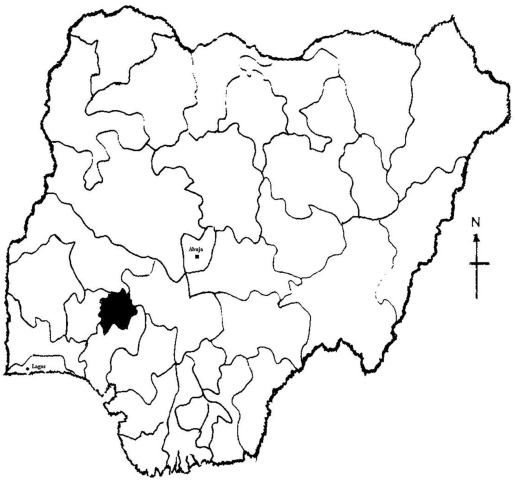
Some of these plants are no longer in abundance due to bush burning, deforestation and environmental disturbance. Also, the indigenous knowledge that develops within a given community through observation and real life experience over a period of time is communicated orally or otherwise, from one generation to the other (Felix et. al. 2009). Unfortunately, there is gross dearth of undocumented traditional knowledge of herbal remedies used to treat diseases in most culture (Edeoga 2001; Gurio-Fakim 2006). Thus the objectives of this study are to take inventory and identify livestock kept by respondents in the study area, take inventory of diseases affecting the livestock and identify the plants used to control/prevent each of the diseases.

Materials and Methods

Description of the Study area

This study was carried out in in Ekiti State, Nigeria. The state has a total land area of about 5,887.890km^2. It has a population of 2,384,212 (NPC 2010). The state has two climatic seasons, a raining season, from April to October and a dry season, from November to March. It has a total annual rainfall of about 1400mm (Oluwatayo 2008) and a temperature range of between 21^{0}C and 28^{0}C. The state has tropical rainforest vegetation in the south and a derived savannah in the northern parts. The population is predominantly farmers (Adebayo 2013).

Ekiti state is divided into three political zones as Ekiti Central, Ekiti North and Ekiti South and 16 local government areas (LGAs). Ekiti Central zone consists of Ado, Efon, Ekiti West, Ijero and Irepodun/Ifelodun LGAs, Ekiti North zone consists of Ido/Osi, Ilejemeje, Ikole, Oye and Moba LGAs and Ekiti South zone consists of Ekiti East, Ekiti South West, Emure, Gbonyin, Ikere and Ise/Orun LGAs (Fig.1 A and B).



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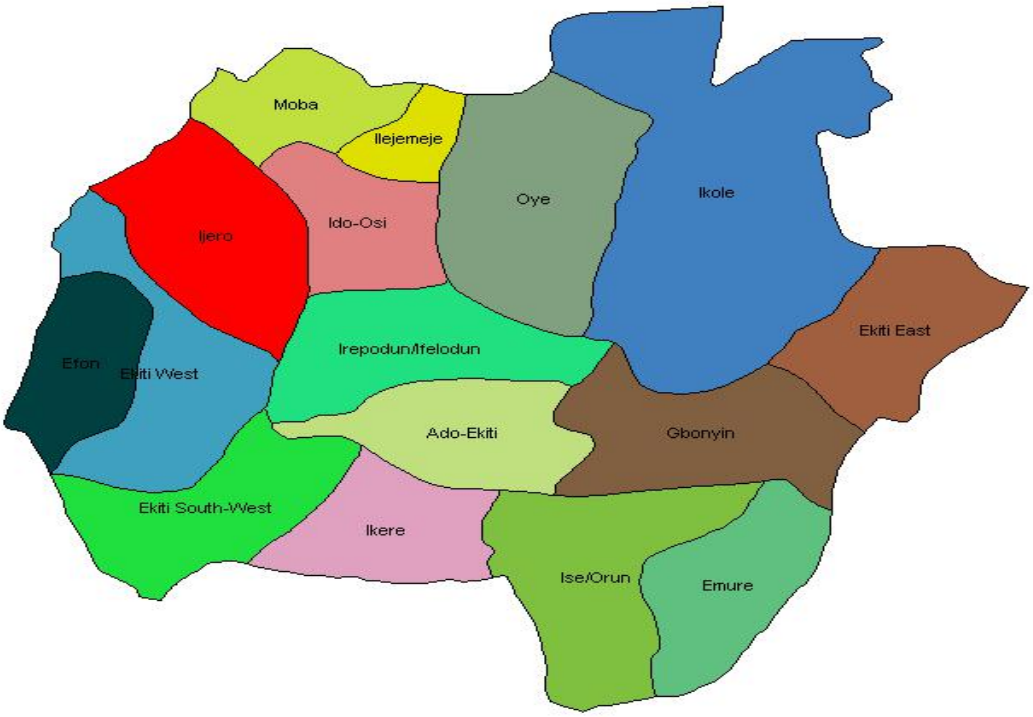

B

Fig. 1. A. Map of Nigeria showing Ekiti State

B. Ekiti State of Nigeria showing the Local Government Areas

Sampling Technique and Data Collection

Two LGAs were selected from each zone for the study. In each LGA, four farm settlements were selected (Table 1). These settlements were rural and purposely selected to be those that were relatively far from urban influence. The LGAs used were Ijero and Efon LGAs in Ekiti

Central zone, Oye and Moba LGAs in Ekiti North zone, Ise/Orun and Ekiti South West LGAs in Ekiti South zone.

Table 1: List of communities sampled in Ekiti State, Nigeria

Zone	Local Government Area	Communities Used	No. of Women Interviewed
Ekiti Central	Ijero	Sakoro, Ologboodu, Kajola and Oke Oko	40
	Efon	Araromi, Aladura, odofin and Aro	40
Ekiti North	Moba	Epe, Iro, Alarasa and Osan	40
	Oye	Dakowa, Igbo-Ero, igbo-Ogbe and Oke-Otin	40
Ekiti South	Ekiti South West	Aba Efon, Elejofi, Igunrin and Omipupa	40
	Ise/Orun	Afolu, Kajola, Obada and Ogbese	40

In each settlement, 10 women were selected randomly and interviewed with the aid of semi-structured questionnaire matrix. The interviews were focused, conversational and two-way in communication. The demography and values of livestock reared, diseases experienced by the livestock as well as the flora species used in the management of the diseases were identified. Similarly parts of the plants used including the methods of preparation of the flora-derived medicine were also identified. The perceptions of the women on the use of flora species were documented. They were also made to compare the use of flora species with chemicals used in the management of livestock in the study area. Voucher specimens of the identified flora species were collected and later identified and deposited to the herbarium of the Department of Plant Science and Biotechnology, Ekiti State University, Ado- Ekiti, Nigeria.

Also group interviews were conducted in each community. Each group was made up of at least 4 women respondents and five groups' interviews were conducted in each LGA. The group interviews are used to determine the group consensus on the responses of the individual respondents. Key informants, made up of officials of Agriculture Development Project, Ministries of Agriculture and Health, and Departments of Agriculture and Health in the LGAs were identified and interviewed. Secondary information was obtained from records, journals and internet.

Results

The results revealed that all the women respondents in this study were livestock rearers. They were mostly of working age of 20 to 60 years old (Table 2), adherents of the two major religions-Christianity and Islam, illiterates (69%) and were involved in agriculture (97%). Table 3 revealed the rank order of the livestock reared by the respondents. Seven different livestock were identified but fowl, goat and sheep were mostly favoured. All the animals were managed through the free range system where the animals were left to scavenge for food. The women preference (Table 3) was borne out primarily of the economic values of these livestock. The livestock were of culinary advantage as source of animal protein and were perceived to be cheap to feed and maintained in term of health, possessed short-time economic turn-over rates and required little capital to start off (Table 4). Livestock was also observed to have economy of time, were traditionally and spiritually valued. Field observation revealed that while the feed were essentially farm by-products and agricultural wastes, health maintenance were mostly flora dependent.

Also the livestock have diverse economic returns in the study area. Most of the women (68%, Table 5) sell more than 50% of their livestock every year and thus generated more than 20% of the household income (90%). Table 5 also revealed that over 60% of the women retained and utilized the income so generated from livestock themselves while some add the income to the family revenue. The use of livestock as insurance against sudden economic exigencies is also practised in the study area. Over 70% of the women had used livestock as bail out in more than 5 occasions.

Table 2: Socio-economic classification of rural women sampled in Ekiti State, Nigeria

Feature	Description	Proportion (%) of Respondents*			
		EC	EN	ES	Average
Age (Yrs)	< 20	3	6	5	5
	20-60	76	74	81	77
	>60	21	20	11	17
Religion	Christian	54	58	62	58
	Moslem	38	42	36	39
	Others	8	-	2	3
Education	Literate	30	38	25	31
Status	Illiterate	70	62	75	69
Occupation	Agriculture	98	96	96	97
	Non-agriculture	2	4	4	3

*Figures were percentages calculated to nearest whole numbers

Table 3: Rank order of livestock kept by sampled rural women of Ekiti State, Nigeria

S/n	Livestock	Population			
		EC	EN	ES	Total
1.	Fowl	480	452	494	1426
2.	Goat	200	268	239	707
3.	Sheep	160	164	148	472
4.	Pig	104	68	72	244
5.	Duck	46	42	34	122
6.	Turkey	23	14	21	58

7. Rabbit	10	8	14	32

Table 4: Perception of rural women sampled on livestock rearing in Ekiti State, Nigeria

Rank	Description	Proportion (%) of Respondents
1.	Have culinary advantage as protein	100%
2.	Cheap to maintain	
	(a) in terms of feeding	96%
	(b) in terms of health management	96%
3.	Possess short-time economic turn-over	95%
4.	Little capital required for start off	94%
5.	Little time required	92%
6.	Have cultural role	90%
7.	Have spiritual value	88%

*Figures were percentages calculated to nearest whole numbers

Table 5: Economic values of livestock reared by sampled rural women of Ekiti State, Nigeria

Description	Proportion (%) of Respondents
(a) Economic returns	
Sell less than 50% of livestock owned every year	32%
Sell more than 50% of livestock owned every year	68%
(b) Proportion of household income	
Generate less than 20% from livestock	10%
Generate more than 20% from livestock	90%
(c) Domiciliation and utilization of income	
Retain income from livestock	63%
Add income to family revenue	37%

(d) Insurance for economic exigencies	
Served as bail out in less than 5 occasions	28%
Served as bail out in more than 5 occasions	72%

*Figures were percentages calculated to nearest whole numbers

The women acquired their starting-off livestock through diverse sources (Table 6). Livestock were received as gifts, usually from in-laws, friends and relations. 42% of women claimed to have primarily received such gifts mostly fowls and goats. 20% attributed their start-off livestock to articles of wedding engagement offered to their family during engagement ceremonies, mostly goats. 27%, 15% and 10% of the respondents respectively sourced their start-off livestock from the market as the primary, secondary and tertiary sources. Goat, sheep and dock dominated the livestock in this category. Foster ownership where livestock are given out to another person to rear. The offspring from such livestock are then divided between the actual owners and the foster-owners. 11%, 10% and 10% of the respondents obtained their livestock through this method as their primary, secondary and tertiary source

The use of flora based medicine for the livestock was perceived as affordable, effective, safe, easy to prepare and dependable (Table 7). A total of 42 flora species belonging to 28 families were reportedly being utilised their health maintenance (Table 8). The family Asteraceae had the highest frequency of occurrence among these species. Table 7 revealed that leaves, flowers, seeds, stems, stem barks, roots, root barks, fruits, rhizomes and bulbs were used. Similarly, latex and extracts from the plants were used. Various diseases such as dermatitis and other skin diseases, cough, ulcer, arthritis, rheumatism, fever, conjunctivitis, coccidiosis were being managed with the identified flora species. Similarly, pests such as worms, lice and other ectoparasites were also managed. Conditions such as cold, indigestion, loss of appetite, delay in ejection of placenta, bleeding and snake bites (Table 8) were also treated. These species were found available in the study area.

Table 6: Sources of initial (start-off) livestock by sampled rural women in Ekiti State, Nigeria

Sources	Proportion (%) of Respondents*			Animals**		
	1^0	2^0	3^0	1	2	3
Gifts	42	3	-	Fowl	Goat	-
Article of Engagement	20	-	-	Goat	-	-
Purchase	27	15	10	Goat	Sheep	Duck
Foster	11	10	10	Goat	Sheep	Pig

*Figures were percentages calculated to nearest whole numbers

Table 7: Flora species used for the management of livestock as identified by sampled rural women in Ekiti State, Nigeria

S/N	Species Name		Family
	Botanical	**Vernacular**	
1	*Acacia nilotica*	Baani	Mimosaceae
2	*Acanthospermum hispidum*	Dagunro	Asteraceae
3	*Aframomum melegueta*	Atare	Zingiberaceae
4	*Agerantum conyzoides*	Imi-esu	Asteraceae
5	*Allium cepa*	Alubasa	Liliaceae
6	*Alliun sativum*	Ayu	Alliaceae
7	*Aloe vera*	Alofera, Ahan erin	Asphodelaceae
8	*Argemone Mexicana*	Egun Arugbo	Papavaraceae
9	*Asparagus racemosus*	Epa Ikun	Liliaceae
10	*Azadirachta indica*	Dongoyaro	Meliaceae

11	*Bambusa arundinaceae*	Oparun	Poaceae
12	*Butea monosperma*	Eyinata	Papilionaceae
13	*Calotropis procera*	Bomubomu	Asclepiadaceae
14	*Carica papaya*	Ibepe	Caricaceae
15	*Chromolaena odorata*	Akintola	Asteraceae
16	*Citrus aurantium*	Osan ganyingayin	Rubiaceae
17	*Cocos nucifera*	Agbon	Aracaceae
18	*Cucurbita pepo*	Elegede	Cucurbitaceae
19	*Cucurbita klaineana*	Apako	Cucurbitaceae
20	*Cynodon dactylon*	Koko igba	Poaceae
21	*Datura metel*	Gegemu	Solanaceae
22	*Delonix regia*	Sekeseke	Caesalpiniaceae
23	*Elaesis guineensis*	Ope eyin	Arecaceae
24	*Garcinia kola*	Orogbo	Clusiaceae
25	*Gossypium arboretum*	Owu	Malvaceae
26	*Hibiscus rosasinensis*	Erinmado	Malvaceae
27	*Holoptelia grandis*	Ayo	Ulmaceae
28	*Jatropha gossipiifolia*	Lapalapa pupa	Euphorbiaceae
29	*Mangnifera indica*	Mangoro	Anarcadiaceae
30	*Moringa oleifera*	Mooringa	Moringaceae
31	*Nicotiana tabacum*	Taba	Solanaceae
32	*Ocimum basilicum*	Efinrin wewe	Lamiaceae
33	*Ocimum gratissimum*	Efinrin nla	Lamiaceae
34	*Piper guineense*	Iyere	Piperaceae

35	*Pterocarpus osun*	Osun	Papilionaceae
36	*Senna fistulosa*	Aidantoro	Caesalpiniaceae
37	*Spondias mombin*	Iyeye	Anacardiaceae
38	*Talinum triangulare*	Gbure	Portulacaceae
39	*Terminalia catappa*	Eso Oyinbo	Combretaceae
40	*Vernonia amygdalina*	Ewuro	Asteraceae
41	*Zingiber officinale*	Ata-ile	Zingiberaceae
42	*Ziziphus mucronata*	Eekanase-adiye	Rhamnaceae

Table 8: Modes of utilising the identified flora species by sampled rural women of Ekiti State, Nigeria

S/N	Species	Disease Cured / Pest	Parts Used	Mode of Administration
1	*Acacia nilotica*	Wound	Stem bark	Bark of *Azadirachta indica* and bark of *Acacia nilotica* are grounded then mixed with water to form paste and animals are given to drink
2	*Acanthospermum hispidum*	Skin diseases	Leaves	Grind and mix with water to paste and apply on the skin on the animal body.
3	*Aframomum melegueta*	Coccidiosis	Seeds	Grind the seeds to powder and give to fowl to drink with water
4	*Agerantum conyzoides*	Dermatitis and other skin diseases	Leaves	Boil the leaves and bathe the animal with the extract.
5	*Allium cepa*	Worm	Bulbs	Bulbs and leaves are grounded

		Cough	and leaves Bulbs	together to form paste and the animals are given to drink Bulbs are made into paste and mixed with mustard seed paste for animals to drink
6	*Alliun sativum*	Worm	Seeds	The seeds are grounded into paste and given to the animals to drink
7	*Aloe vera*	Ulcer and wound Diarrhoea	Leaves	The leaves gel is extracted and given to the animals to drink Extract the gel and give to the animal
8	*Argemone Mexicana*	Rheumatism	Leaves and fruits	The juice extracted from leaves and fruit is given to animal to drink
9	*Asparagus racemosus*	Arthritis	Root	Root is grounded into power then mixed with milk and the animals is given to drink and rubbed at the affected area
10	*Azadirachta indica*	Wound	Stem bark	Bark of *Azadirachta indica* and bark of *Acacia nilotica* are grounded then mixed with water to form paste and animals are given to drink
11	*Bambusa arundinaceae*	Diarrhoea	Leaves and rhizome	Fresh leaves and rhizome is made into paste and it is given to animal to drink
12	*Butea monosperma*	Diarrhoea	Flowers	The flower is boiled and filtered. The filtrate is given to the animal to drink

13	*Calotropis procera*	Difficult delivery Snake bites	Flowers Latex	The paste of flowers is mixed with water to drink Milky latex of plants is applied externally on snake bite
14	*Carica papaya*	Constipation Worm	Latex Leaves	The latex is given to the animal to drink Boil the leaves and give the extract to animal to drink
15	*Chromolaena odorata*	Wounds, rashes and insect repellent	Leaves	The leaves is grounded into paste and then apply externally on the animals but toxic to cattle
16	*Citrus aurantium*	Skin rashes	Fruits	The affected area is scraped then the fruit juice is applied on it
17	*Cocos nucifera*	Worm	Fruits	Freshly grounded fruit juices is given to the animas to drink
18	*Cucurbita klaineana*	Cough	Leaves	The leaves juice is extracted then given to the animal to swallow
19	*Cucurbita pepo*	Bleeding	Leaves	The leaves juice is extracted and given to the animals to drink
20	*Cynodon dactylon*	Low lactation Conjunctivitis	Aerial parts Leaves	The aerial plant is given as fodder to the animals to increase milk quantity and quality Leaves juice of this plant is drop in the eyes of the animal every morning

21	*Datura metel*	Cold Wound	Fruits Leaves and roots	Ripen fruits is made into paste then given to cattle to drink The roots and leaves are prepared into paste and applied externally on the affected parts of the animals
22	*Delonix regia*	Fever	Stem barks	Stem bark extracts is mixed with *Allium sativum* (garlic) and *Piper nigrum* (black pepper) and given to the to the animals to drink
23	*Elaesis guineensis*	Lice	Stem	Burn the palm trees to ashes and pour it on the house of the fowl
24	*Garcinia kola*	Cough	Seeds	Grind the seeds to powder and mixed with food for the animals or mix with water for the animal to drink.
25	*Gossypium arboretum*	Use as Tonic	Leaves	Boil the leaves for the animals to drink .
26	*Hibiscus rosasinensis*	Itching	Stem bark	Stem bark is grounded well and mix with water and given to the animal.
27	*Holoptelia grandis*	Ecto-parasites	Leaves	Leaves juice is applied on the animal skin for ecto-parasites
28	*Jatropha gossipiifolia*	Skin diseases and wounds	Leaves	Obtain the juice and apply on affected animal skin.
29	*Magnifera indica*	Indigestion	Fruits	The fruit is made into paste and given with wheat bread to the animals for consumption

30	*Moringa oleifera*	Diarrhoea Ulcers	Leaves Roots	Leaves paste is given to the animals to drink Juice from the roots of this plant is given to the animals to swallow
31	*Nicotiana tabacum*	Cough	Leaves	The leaves is put in the fire and the animals inhales the smoke
32	*Ocimum basilicum*	Coughs and cold	Leaves	The fresh leaves is boiled and the water is given to the animals to swallow
33	*Ocimum gratissimum*	Diarrhoea and worm	Leaves	The leaves is grounded into paste and given to the animals to swallow
34	*Piper guineense*	Coccidiosis	Seeds	Grind or boil the seeds and give to fowl to drink
35	*Pterocarpus* *Osun*	Dermatitis and other skin infection	Barks	Grind and mix with water, rub on affected animal body.
36	*Senna fistula*	Indigestion Constipation Loss of appetite	Pods Pods leaves	The pod is grounded into paste and given to the animals to swallow The paste of pod is given to the animals to digest Leaves are made into paste along with mustard seed to be taken by the animal
37	*Spondias mombin*	Child birth (For quick	Leaves	Give the leaves to the animal to eat or give the extract

		ejection of placenta)		squeezed from the leaves to the animal to drink.
38	*Talinum triangulare*	Ulcer	Leaves	Give it to goat/sheep, cattle to eat raw.
39	*Terminalia catappa*	Lice	Leaves and Barks	Boil the leaves and barks and use the extract to bath animals.
40	*Vernonia amygdalina*	Worms and fever Dysentery	Leaves Leaves	The leaves extract is given to the animals to expel worms and to cure fever Squeeze the leaves and give the extract to the animal to drink
41	*Zingiber officinale*	Diarrhoea	Fruits	The fruits is grounded with water to form a paste and then given to the affected animals to drink
42	*Ziziphus mucronata*	Skin rashes	Leaves	Leaves paste is mixed with oil of *Linum usitassiimum* and applied all over the affected area

Table 9: Rank order of the perceptions of sampled Ekiti State rural women on the botanically-derived pesticides in Ekiti State, Nigeria

Rank	Description	Proportion (%) of Respondents
1.	They are affordable / readily available	100
2.	They are effective	99

2.	They are safe for livestock	98
4.	They are easy to prepare and use	97
5.	They are dependable	96

Discussion

This study confirms that rural women are well familiar with plant resources in their environment (Table 2). Baker (2010) asserted that women were on ground hence have considerable knowledge of their environment. Similarly Kayode et. al. (2016) stressed the dependency of rural dwellers on the natural resources of the environment. Though women in this study belonged to different socio-economic classes yet these features were found not to be pre-requisites to their environmental mindedness. This observation confirmed the previous assertion of Kayode and Dada (2015) on the environmental consciousness of the rural dwellers.

A total of seven different livestock were kept in this study however preferences were skewed towards fowls, goats and sheep (Table 3). These animals were easily fed with products from the farms most of which were supposedly wastes. They reproduced easily with minimal gestation periods and ready demand abounds for them within the study area thereby enhanced the economic returns obtainable from them.

Livestock rearing constitutes important assets to the rural women. This study revealed that livestock are kept for diverse purposes in the study area. These include productive purposes as food security and income generations as well as the non-productive purposes such as insurance against economic exigencies (Table 5), culture and spiritual utilizations (Table 4). Previous study by Ayoade et. al. (2009) has revealed that women are noted for keeping livestock in Nigeria. This is equally true of other developing countries. For example, Flintan (2008) documented participation of women in livestock management in different parts of the

world. Also, Niamer-Fuller (1994) asserted that more than three-quarters of livestock-related tasks in Asia are the responsibility of women. Herath (2008) asserted that in Nepal, 90% of women are engaged in livestock production.

The results obtained from this study revealed that the women respondents utilised diverse sources to commence their livestock rearing practise (Table 6). The act of given out livestock is common in the study area. Field observation carried out during this study revealed that old women, grandmothers and great grandmother are often involved in this practise. Also, during wedding engagement, female goats are often given to the bride as part of the wedding rites. The new wives were expected to rear such livestock. All the identified livestock are also available, in the local markets, for purchase. Some of the rural women took advantage of this to purchase livestock for rearing. Goat, sheep and duck were livestock mostly sourced through this medium. Foster ownership was dominated by goat, sheep and pig.

Results from this study revealed that apart from the social role of livestock as items of wedding rites, they have cultural and spiritual roles. Thus supporting the previous assertion of Moyo et. al. (2010). In the study area goats are slaughtered as an important aspect of funeral rites. Also sheep are slaughter by the adherent of Islam as an important requirement of their faith during *sallah*. Fowls are favourite meals during Christmas, birthday and other celebrations in the study area. All these increase demands for livestock and thus constitute favourable incentives for livestock rearing in the study area.

Livestock productivity is being hindered by pests and diseases in the study area. The state has only one veterinary hospital that is located very far from most parts of the state. Also a gross dearth of veterinary officers abounds in the state hence animal healthiness is skewed toward the use of flora species. Ethno veterinary knowledge is passed from one generation to another. This study revealed that the women were well familiar with flora species with ethno veterinary values. However, with the gradual decline in the population of old women and increase in environmental destruction, the need to document these flora species and also provide a data base that would ensure their sustainable utilization so that they will be available to present and future generations of women in the study area. The respondents believed in the efficacies of these flora species (Table 9), they are safe for the animals to use and are readily available in the study area.

Conclusion and Recommendations

This study revealed that livestock species play very important economic, social and cultural functions for rural households of the study area. They contribute to improve income and of women in the rural areas. They help on food supply, family nutrition, family income, asset savings and sustainable agricultural production, family and community employment, ritual purposes and social status. Pests and diseases, the major constraints to livestock production in the study area, were mostly maintained through the use of flora species by the women.

Consequent on the above, governments should evolve micro-credit schemes where interest-free or low interest loans would be offered to rural women to enhance their livestock rearing. They should train more manpower on livestock management. Rural women should be organised into co-operative societies for effective distribution of credits and subsidies. Regular educative programmes should be organised to train women on modern approach to livestock rearing. The destruction of the environment should be controlled. Botanical gardens, where flora species with medicinal values could be domesticated, should be established in each senatorial zone of the state. Also there is need for public awareness on the danger inherent in biodiversity loss. Sustainable and non-destructible harvesting of flora species methods should be utilized during harvesting of plant materials. The indigenous knowledge of rural women on the rearing of livestock should be properly documented.

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