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Village Chicken Diseases and Predators at Kafa and Benchmaji Zone, South West Ethiopia

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Abstract: An attempt was made to study major village chickens diseases and predators at six farmer kebeles (small administrative unit in Ethiopia):2 from high land, 2 from mid-altitude and 2 from low land agro-ecologies which were boka, butta, beyamo, wareta, bifitu-03 and kujja kebeles consecutively of Adeyo, chena, Gimbo and Guraferda districts of Kafa and Bench Maji Zone, South west Ethiopia. The objective of the study was to assess the existing Village chicken production threatening problems of diseases and predators. Questionnaire survey was carried out on a total of 150 village chickens owners' households. The data were collected by questionnaire, personal observation and interview. Most of interviewed village chicken owners (79%) were males. The major (50%) causes of village chickens mortality is diseases followed by 27% predator (Birds of prey"*chulule*"). The most devastating chicken disease which was main cause of the high chicken mortality in this particular study of free-range systems was Newcastle disease (NCD) 52%, followed by fowl pox (18%). To date there were no any studies conducted in the study district targeted on a comprehensive identification or description of economically important village chickens causes of mortally. Hence, this study will help to give important and feasible recommendation for further improvement of the health system in a sustainable way. Therefore; efforts have to be made to improve the existing village chickens causes of mortally with a holistic and multidisciplinary support of services like; health, husbandry, research, extension and training.

Key words: Village chicken · Diseases · Predators · Kafa and Benchmaji Zone

INTRODUCTION

The world poultry population has been estimated to be about 16.2 billion, with 71.6% in developing countries, producing 67, 718,544 metric tons of chicken meat and 57,861,747 metric tons of hen eggs [1]. In East Africa over 80% of human population live in rural areas and over 75% of these households keep indigenous chickens and Ethiopia is not exception to this situation [2]. The total chicken population in Ethiopia is estimated at 51 million [3]. From the total population of chicken in Ethiopia, 99% are raised under the traditional back yard system of management, while 1% is under intensive management system [4].

Although there is no generally accepted definition for rural poultry production system, the system is characterized by small flocks, minimal input and output and periodic devastation of flocks by diseases [4, 5]. Study by [4, 6, 7] shows poultry production as a key to poverty reduction in the rural poorest sections of society. The production of indigenous village chickens is characterized by many advantages such as good egg and meat flavor, hard shells, high dressing percentages and especially low cost with little special care required for production [8]. In tropical areas village chickens health problems is high due to environmental factors like high temperature and humidity, topography structure of sloppy area exposed to flood so easy to infect soil born diseases, stress factor and air born diseases. And the other major reason is the lack of weakness of animal health services [9]. The objective of this study was to enquire base line information on the current status of major diseases and predator for village chickens in Kafa and Benchmaji Zone, Southern, Nation, Nationality and Peoples Region, south west Ethiopia.

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MATERIALS AND METHODS

Demographic Characteristics of Sampled Households: The household characteristics of interviewed village chicken owner households were presented in Table 1. Accordingly, from the total of 150 interviewed village chicken owners, (79%) were males and (11%) were females. The average age of respondents was 38 years (ranged 15-61). Regarding education level of respondents, 39% were illiterate, 31% had basic education (Reading & writing), 12% had primary education and 9% had secondary education and above. The number of illiterates observed in this study was lower than the reported 82.1% for North-West Ethiopia [10]. The result of the study indicated that 79% of interviewed households were male headed and 11% female headed. Regarding marital status; 89% of interviewed households were married.

Sampling Method and Sample Size: A Multi-stage sampling procedure (purposive & random) was applied for the study, hence the study area was divided in to three agro-ecologies based on altitude as; highland (>2500masl), mid-altitude (1500-2500masl) and low-land (<1500masl). Then two farmer kebeles (the lowest administrative structure in the country) (boka and butta of adiyo district at kaffa zone) from the highland, two farmer kebels from low-land (bifitu-03 and kujja of guraferda district at benchmaji zone) and two farmer kebeles from mid-altitude (beyamo of gimbo district, wareta of chena district at Kaffa zone) were selected purposively. Therefore a total of six representative kebeles (small administrative unit in Ethiopia) were selected.

Agro ecology representation and chicken production potential were the main criterion considered in the selection of study sites. A simple random sampling technique was applied to choose 25 village chicken owner respondents in each of the selected kebeles of highland, mid-land and low-land which is 50 respondents from each agro-ecology which is a total of 150 respondents (chicken owner households) were interviewed using a pre-tested structured questionnaire for this study. Agro ecology representation, chicken production potential and market accessibility were the main criterion considered in the selection of study sites.

Data Analysis: The data was analyzed by using [11] statistical software through simple descriptive statistics like average and percentage and presented in form of tabulation.

Table 1: Demographic characteristics of sampled households

Variable	N	Category	Proportion (%)
Sex	150	Male	79
		Female	11
Educational	150	Illiterate	39
status		Religious	11
		primary education	12
		secondary education & above	9
		Reading and writing	35
Family size	150	<15 years	35.7
		>15 years	64.3
Marital status of house holds	150	Married	89
		single	9
		divorced	0.5
		widowed	1.5

Table 2: Description of the study area

№	Measurements	Adeyo	Gimbo	Chena	Guraferda
1	Altitude	1800-2800	800-1800	1851-1900	750-1800
2	Main soil Type	Clay, loam, sandy	sandy clay loam	Clay, loam, clay loam	Sandy, sandy clay, clay
3	Mean annual rainfall	1150	1170	1190	1145
4	Mean annual Temperature	19.5	18.5	21.5	30.5
5	Average land size	2.75	1.7	1.8	2.1
6	Latitude (NS):	$07^0$17'316"	$07^0$26'71"	$07^0$21'69"	$06^0$48'66"
7	Longitude (EW):	$036^0$22'243"	$036^0$20'54"	$036^0$23'32"	$035^0$14'96"

Table 3: Causes of birds mortality and season of occurrence

		Kaffa zone			Bench maji zone	
		Highland(N=50), (>2500 masl)	Midland(N=50), (1500- 2500 masl)		Lowland(N=50), (<1500 masl)	
		Districts				
Variables		Adeo	Chena	Gimbo	Guraferda	Overall, %
Causes of Village chicken mortality (%)	Birds of prey"*chulule*"	26.4	29	30	24	27
	Cats and dogs	5	11.8	9.8	14.3	10
	Wild animals "fox, shelemetemate, aner(*halaro*)"	10.4	6	1	8.2	7
	Diseases	56.7	47	50.5	45	50
	Accident	2	6.2	8.7	8.5	6
Types of diseases (%)	Newcastle	56	51	53	48	52
	Fowl pox	12	18	21	16	18
	Coccidosis	27	23	19	25	23
	others	5	8	7	11	7
Season frequently disease occurred (%)	Sep-Nov.	12.6	9	17	7	11
	Dec-Feb.	4	2.5	0	14	6
	March-may	2	0.5	0	3	1
	June-Aug.	81.4	88	83	76	82

RESULTS AND DISCUSSION

Diseases and Predators: The study revealed that New castle Disease (NCD) was identified as more popular and economically significant infectious viral disease of chickens in the study. The major causes of death for village poultry production were commonly disease (mainly New Castle Diseases locally known as "Fengil", followed by predation. High incidence of chicken diseases, mainly Newcastle Disease (NCD), is the major and economically important constraint for village bird's production system [12]. Mortality of village birds due to disease outbreak is higher during the long rainy season, mainly in June-August (82%) and September-November (11%). [12, 13] also reported that NCD is one of the major infectious diseases affecting productivity and survival of village chicken in the central highlands of Ethiopia. It was also reported by [14] that NCD was the single major health constraint, which cause heavy mortality and morbidity to village chicken and affects productivity of the system in the country which is also agrees with the finding of [15-17].

Predators were listed alongside diseases as major cause of bird's death. The predation is strongly associated with the rainy season. The predators include primarily birds of prey such as vultures, which prey only on chicken and wild mammals such as fox, *shelemetemate*, aner (*halaro*), which prey on mature birds as well as chicks [14]. Predators such as birds of prey (locally known as "Culullee") (27%), cats and dogs (10%) and wild animals (7%) were identified as the major causes of village poultry in Kaffa and Benchmaji zone of Ethiopia. The result is in line with the finding of [18], that predators such as birds of prey (locally known as "Culullee"), cats as well as dogs and wild animals respectively in decreasing order were identified as the major causes of village poultry in rift valley of Oromia, Ethiopia. The major routes of contamination and spread of NCD from village to village are contact between chicken during scavenging and exchange of chicken from a flock where the disease is incubating and during marketing. [10] also reported that predation is one of the major constraints in village chicken production in northwest Ethiopia.

Research work in some African countries such as Benin, Burkina Faso, Mauritania. and Tanzania [19-22] reported that Newcastle is the most devastating disease in village chickens. The common disease reported in the study area was similar with the previous findings that were reported 15 years back.

However, Newcastle became the major reason for the loss caused by disease; this mainly because farmers in the area have no proper prevention mechanism and do not have proper vaccination program to their chicken. There is also a favorable condition for the transmission of the diseases, which is likely associated with the nature of the rearing practice. This is because local keepers in the surveyed area rear scavenging poultry with, relatively no separate housing, no veterinary services and high degree of contact with the neighbor chicken.

CONCLUSION AND RECOMMENDATION

Indigenous village chickens are raised mainly under different their life threatening problems like epidemic disease and predator's. A periodic disease outbreak (epidemic) is common limiting factors that affect performances of village chickens in the study area. Disease like New castle Disease (NCD) is a major health problem of village chickens, so to improve the current situation: Owner need to be introduce with the basic knowledge of animal health management, Using data generated from this study, which could be serve as basic line information, strategic disease control scheme should be develop to fight Causes of economically significant infectious viral disease of village chickens and related sources their mortality.

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