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Assessment of Awareness of Livestock Producersabout the Basics of Proper Animal Treatment and Vaccination in North and West Kordofan States

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Abstract

The Study was conducted in the states of North and West Kordofan in five localities, to assess the awareness of livestock producers on the basics of the correct use of veterinary drugs and vaccines, and to show the possibility of harmful effects when misused. A study sample of 234 livestock producers was selected using stratified random sample methods and Chi-Square test. The information was collected by direct questionnaire procedures. The results showed that, a total of 84.3% of the producers are treating their animals by themselves. Only 15.3% of the producers are seeking the help of veterinarians. There is no significant difference (P >0.05) among localities for number of producers depending only buy the veterinary drugs on their knowledge for treating their animals. 76.9%of producers and medicines from veterinary pharmacies which are operated by unauthorized and un-qualified persons. The study also showed that 44.9% of livestock producers do not vaccinate their animals regularly. Most of the livestock producers 61.5% are vaccinating their animals in autumn season; where 75.6% of them refer that to diseases outbreak in this season. The results also showed that, the use and circulation of medicines is often not under direct veterinary supervision, and that posing a risk to public health.

Keywords: livestock producers, Awareness, Treatment, Vaccination, Extension.

Introduction

One of the important problems bothering government authorities is the food safety and health as it is reflected greatly on public health, foreign trade, national budget and economies. Of the most common food pollutants, especially those of animal origin are antibiotics, insecticides, anti-parasite heavy metals, industrial chemicals and atomic radiation (IDF, 1997).

Drug residues, a public health problem, is not only related to the residue or remains of drugs. There are effects of the remains

on public health such as sensitivity and gradual loss of immunity. Many health problems are represented by diseases, like those of the spinal cord, acute anemia, inhibition of the function of internal organs, the appearance of the resisting bacteria and the gene effects (mutations) and cancer…etc. All these called for the intervention of the international organizations (FAO), World Health Organization (WHO)…etc., to impose control on food safety, known as the Maximum Residues Limits (MRL), and Acceptable Daily Intake (ADI). For satisfying these limits, appropriate procedures were adopted in what was called the Good Agricultural Practice (GAP) which would accomplish the procedures of MRL and ADI. These limits would lead to production of healthy and safe food (WHO, 2000, 2001).

2007) cautioned and warned about (OIE, handling of animal health problems by non-vets and stressed veterinary supervision to avoid non-judicious and incorrect uses of medicines for animal treatment to protect humans by healthy food products free of antimicrobial drug residues after the specified withdrawal periods. Veterinary drugs and medicines should be used with care to avoid side effects and adverse reactions as stated by Boisseau (1993) which includes harmful effects, secondary effects, toxicity, intolerance and idiosyncrasy.

Veterinary drugs should be administered under control as WHO (2000) stated (use of animal medicines is strictly controlled by law). This is the time which passes between the last dose given to the animal and the time when the level of residues in tissues (muscle ,liver ,kidney , skin ,fat) or products (milk , eggs , honey) is lower than or equal to MRL (maximum residue level). Unless the withdrawal period has elapsed, the animal and its products must not be used for human consumption. This is supported by and agrees with the Sudan Veterinary Council Act (2004) where veterinary medicine handling by only veterinarians.

Animal breeding and production is still practiced through conventional traditional systems. The system of production depends on natural grazing limited by non- controlled climatic factors, conventional feeding, unstable productivity, traditional breeding systems, limited animal production, uncontrolled financial or economic costs, seasonal irregular production with none or limited future development plans.

Through veterinary services in extension and training (AL Neima 2015) livestock producers could be supplied with information, consultancy and training on how to avoid or control and eradicate animal diseases. Also food safety risks include drug residues, insecticides and environmental pollutants in the primary products .The veterinary services, also, play an important role in enlightenment of the feed producers and processors and others related, on necessary precautions to guarantee feed safety. Present situation of the veterinary services in Sudan is that there is no clear role of the authorized veterinary institutions, neither centrally or in the states, pertaining to regulations of vaccine trading. Personnel working in

veterinary pharmacies are outside the profession and just salesmen (Sudanese or foreigners) and unlicensed for practicing the profession. Responsible use and scientific recommended care are not applied in dispensing of drugs.

The objective of the study was to investigate on the extent of awareness of animal producers on the correct and proper uses of veterinary drugs and vaccines.

Material and Methods:

The study was conducted at North and West Kordofan states .Five localities were selected for the study purpose, namely Sheikan and Sodari (from North Kordofan State) and ElKhawi, ElNuhood and Ghebaish (from West Kordofan State). In Kordofan states there are 27,953,256 heads of livestock which is equivalent to 26.4% of the total number of animals in the Sudan(MARFR,2014). The study targeted livestock producers (breeders and herders) and veterinarians (in private and government institutions).The statistical methodology approached in this study was the Descriptive method .A survey was run through questionnaires, interviews and direct observations; 234 questionnaires were filled in 2015 and a total of31 interviews were conducted with 22 veterinarians in the governmental institutions and 9 in private sector. Stratified Random Sampling technique was adopted for the total sample size (234 livestock producers).

Sample Calculation:

A-According to the nationalcensus (2008) the total human population in North Kordofan state (North and West Kordofan states currently) was 2,920,000 including 72% livestock producers (2,103,114).

The selected samples for this study were 234 livestock producers. The samples were selected from 5 localities out of 9 localities (in the two states North and West Kordofan) see table (1). The 5 localities were selected due to: the highest sheep number in the states, the main animal markets and livestock developmental programs are found in those states, lie on the pastoralists traveling roots during autumn from South to North and also lie on the animal trade route from the West to the East.

B-The locality weight related to the total number of livestock producers see Table (1) was calculated according to flowing formula:

$$100 \times \frac{\text{Number of livestock producers in locality}}{\text{Total Number of livestock producers in the (5) study localities}}.$$

C-The sample size for each locality was determined for the animal producers in the five study localities as a percent of 234 livestock producers see Table (1).

D- Sample individuals were selected randomly within each of five study localities, randomly selected from the gathering centers in the localities (animal markets, grazing areas and water points).

Table 1: Human population, number of livestock producers, Locality weight and a numeral of selected producers in the 5 localities of the study

*Source: National census, (2008).

	Locality	* human population	** number of livestock producers	Locality weight	number of selected producers
1	Shaikan	540898	389447	35.2%	82
2	Sodari	271465	195455	17.7%	42
3	El Khowai	178110	128239	11.6%	26
4	El Nuhood	256432	184631	16.7%	39
5	Ghebaish	290619	209246	18.8%	45
Total		1537524	1107018	100	234

**Livestock producers= breeders and herders themselves or through livestock attendant; where they select the drugs and doses under no veterinary supervision. Only 15.3% of producers are seeking the help of veterinarians. There is no significant difference (P >0.05) among localities for number of producers depending only on their knowledge for treating there animal.

Data analysis

Data were tabulated and statistically analysed by Statistical Package of Social Science (SPSS) Version 21 .In addition Chi-square test as advanced analysis were used to calculated the significant difference.

Results

Figure (1) Indicates that the84.3% of the producers are treating their animals by

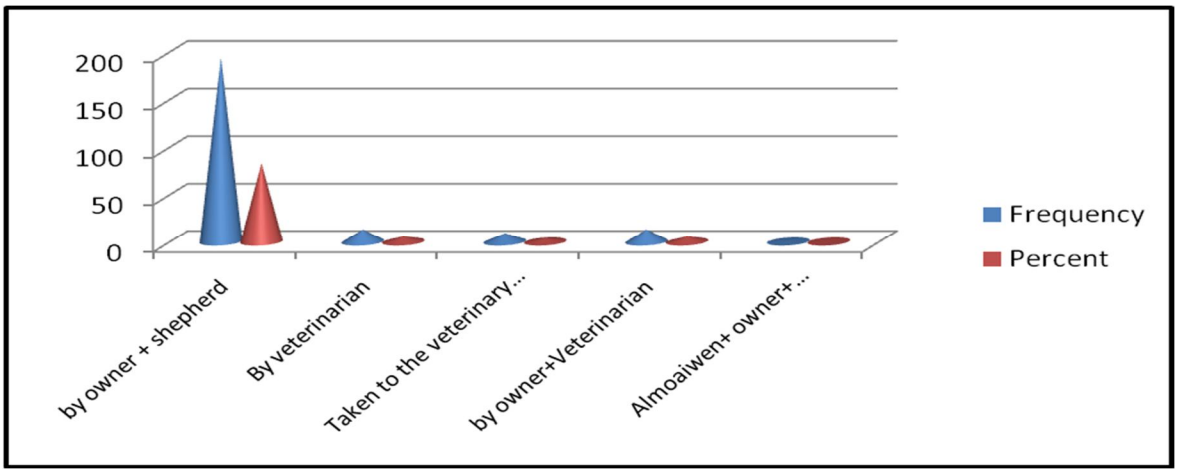

Figure 1: Animals treatment in the study area

Most of livestock producers (88.0%) are treating their animals against parasites (deworming), Table (2) shows 59.8% of them are deworming their animals three times a year.

Table 2: Frequency of animals deworming in study area

Deworming Frequency	Frequency	Percent
Once per year	24	10.3

Twice per year	24	10.3
Three times per year	140	59.8
When the animal is sick	6	2.5
Monthly	11	4.7
4 times per year	1	.4
No answer	28	12
Total	234	100.0

Table (3) shows that total of 76.9% of the animal producers obtain drugs from veterinary pharmacy.

Table 3: Source of veterinary drugs in North and West Kordofan states

Source of Drugs	Frequency	Percent
Seller in the local markets	30	12.8
From friends	8	3.4
Veterinary Pharmacy	180	76.9
Local market+pharmacy	14	6.0
From friend+ pharmacy	2	.9
Total	234	100.0

Table (4) shows that 44.9% of the sheep producers do not vaccinate their animals 0.05).>regularly with no significant variation in the five localities (P

Table 4: Regularity of vaccination

			Locality					Total
			ElNuhood	Sheikan	Sodari	Ghebaish	ElKhawi	
Vaccinate animals regularly	Yes	Count	24	38	9	25	30	126
		% within locality	49.0%	47.5%	64.3%	64.1%	63.8%	55.0%
	No	Count	8	13	4	3	5	33
		% within locality	16.3%	16.3%	28.6%	7.7%	10.6%	14.4%
	Some time	Count	9	7	1	4	7	28
		% within locality	18.4%	8.8%	7.1%	10.3%	14.9%	12.2%
	When there is an outbreak	Count	8	22	0	7	5	42
		% within locality	16.3%	27.5%	.0%	17.9%	10.6	18.35
	Total	Count	49	80	14	39	47	229*
		% within locality	100.0	100.0	100.0%	100.0%	100.0%	100.0%

* Five livestock producers not answer.

Figure (2) show 52.1% of producers gave various reasons for no vaccination (Vaccination is not important, I do not know the necessary vaccines, the area is too remote/far, Cannot afford the cost of vaccination and no veterinarian).Table (5) show most of the livestock producers (61.5%) are vaccinating their animals in autumn season and 75.6% of them refer that to the emergence of diseases in this season (see Table 6).There is significant variation in regular vaccination of animals in the five localities (P <0.05).

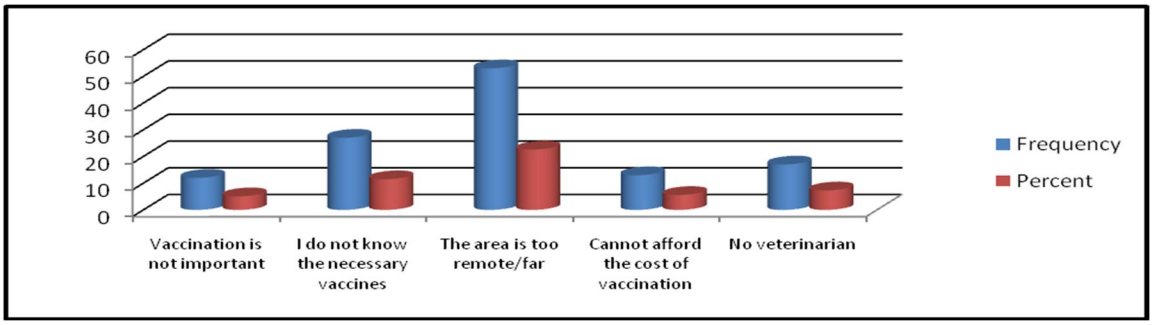

Figure 2: Reasons given by the animal producers for not vaccinating animals regularly in the study area

Table 5: The convenient (best) time for vaccination of animals in the study area

	Frequency	Percent
Autumn	144	61.5
Summer	16	6.8
Winter	35	15.0
Summer and winter	1	.4
Winter and autumn	2	.9
All the year	3	1.3
No answer	33	14.1
Total	234	100.0

Table 6: Reasons for selecting the specified vaccination time

	Frequency	Percent
The emergence of diseases	177	75.6
Presence of animals around villages	18	7.7
Colder air	8	3.4
lack of feed	7	3.0
No answer	24	10.3
Total	234	100.0

The study explain ,lack of veterinary services or non-existence of the services at all in some areas in the two largest sheep exporter states in Sudan; where 29.4% of the available veterinary services are veterinary hospitals, 13.2% veterinary units and 8.5% private sector (where veterinary units do not have a veterinarians, but veterinary technicians

or assistant veterinarians). There is a wide variation in the availability, level and use of the veterinary services in the five localities. The difference is statistically .0.05).<significant (P

Veterinary services are mostly provided in a comprehensive and general manner for all types of livestock and its producers. There are no specialized veterinary services available for each kind of animals separately (92.9% of veterinary institutions and other related institutions are providing general services for livestock).

Discussion:

The study showed that 84.3% of the animal producers practice animal treatment by themselves. The regulations of the Veterinary Council Sudan, (2004) states that animal treatment is strictly limited to veterinarians; animal health care is limited under the care and supervision of veterinarians to avoid risks on the public health through technical veterinary mistakes. Boisseau (1993) defined these mishaps as, side effects, adverse drug reactions, harmful effect, toxicity, intolerance and idiosyncrasy. WHO (2000) supported the above by stating that continuous administration of antibiotics in the treatment of different diseases in cattle, sheep and goats may result in antibiotic resistant microbial strains that do not respond to treatment when needed. Hazard of livestock producers treating their animals by themselves is also boosted by the uncontrollable availability of drugs, medicines and forgery vaccines in livestock markets of the remote and marginal areas, some pharmacies or drug stores run by non-qualified and non-specialized staff. The disease-map of the General Administration of Animal Resources- North Kordofan (2009) and the reports of the disease in 2014 noted the highest rate of parasitic infection and feed toxicity in the states.

The study noted that the livestock producers do not follow or stick to these directives; they do not follow the regular programmed vaccination, until the appearance of an outbreak or increased mortality. It was noted that the time or duration of vaccination is only limited to times of disease appearance or epidemic outbreak, where the health and immunity of the animals are diminishing, and the effectiveness of vaccines is accordingly weak.

This occurs though it is well stated in vaccination regulations that animals should not be vaccinated unless are in good environment and good health through regular programmed vaccination or for compulsory vaccination when an epidemic outbreaks in the surrounding area. This was stressed by Montasir (2012) and (Baggot, 1992) who stated the importance of sticking to the health regulations for the up keeping of vaccines and their safety for use, proper storage, vaccination time, dose, need for boosting dose or use for effective immunity.

The study also showed that veterinary services are very limited and far short for the localities; a sizeable portion (51%) of animal producers lack veterinary services in two big animal resources reserves of North and West Kordofan States. This is more witnessed in certain remote areas and especially in remote grazing areas. This is in agreement with the reports of the Committee of Assessment of the situation of

the Animal Sector in North Kordofan (2011) and in agreement with Tambi *et al.*, (1997) who reported the limited veterinary staff working in the pastoral production systems and concentration of the private veterinary clinics and pharmacies in urban or semi urban areas.

Many factors, including awareness on the importance of vaccination, the lack of information among the livestock producers on the serious negative effects and drug misuse, remoteness of some areas, availability of the veterinary service on time on site, probability of the high cost and other reasons all forced the livestock producers to depend on themselves and rely on their own knowledge and experience for animal treatment. Sara (2012) stated that extension activities represent important part of total veterinary services introduced to pastoralists especially during vaccination activities and makes delivery of veterinary services where it is easier to make contact with the pastoralists. Treatment and vaccination has positive effect on animal health. Additionally, restricted grazing has negative impact on animal performance. Therefore extension services have a good role in sustaining community animal health.

Conclusion and Recommendations

The study concludes that there is a big lag in the awareness of animal owners and herders about judicious and proper use of drugs and vaccines.

We recommend an intensification of counseling and outreach to producers with the foundations of the correct and proper use of medicines and vaccines by government institutions; also the study showed the extent of economic and health losses (resulting from the misuse of animal drugs and vaccines) could be improved through symposia, training and guidance courses in the animal breeding areas. For continuation of control and follow-up of veterinary services in production areas, it is necessary to activate the laws and regulations that limit the use or trading of veterinary medicines or vaccines without direct veterinary supervision.

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