



Scope of Sheep Producers' Awareness on the Economic Values and Development of Sheep Production in North and West Kordofan States

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Abstract

A study was conducted in 2014 - 2015 in North and West Kordofan States, in five localities, to highlight the scope of sheep production awareness on the economic values and producers from the 206 development of sheep productivity. A stratified random sample of two states was selected and the data collected was analyzed by (SPSS) program and Chi-Square test. The main results found, were 84% of the producers are dependent on traditional animal production system; the difference among localities is not statistically significant ($P > 0.05$). Also the results showed that 84% of the producers are dependent on natural grazing, herd structure was unbalanced, no records, the producers practiced mixed breeding, and 90.8% of them are dependent on natural animal health with no veterinary interference. Trading is not according to market demand where 83.5% sell live animals losing the added value but the difference between localities is not statistically significant ($P > 0.05$). Also 86% of the producers do not practice insurance and 82.5% have no society or union affiliations. It is concluded that the economic awareness of the sheep producers in Kordofan States is very low which lead to no benefits to the producer from the methods and means of production improvement in the area, indicating need for more awareness on the economic value of sheep breeding and production.

Keywords: Sheep producers, Awareness, Economics value, Development, Extension.

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Introduction

The importance of livestock producer springs from the socio-economic value of the animal wealth in Sudan. It ranks at 106 million heads, of which 40.2 million heads of sheep (MARFR, 2015). The records of the same reference for 2014

exports were five millions of which 4.4 million were sheep. Sheep export from Sudan stands at 90% of total live animal exports, out of which 26.5% comes from Kordofan States (MARFR, 2014). Desert sheep comprise 65% of the total sheep numbers in Sudan and the Sudanese

sheep are internationally competitive (Babiker *et al.*, 2011).

Livestock provides a source of living and food security for 40% of the population in addition to poverty alleviation and sizable value of export returns, which went up to 750 million dollars according to the MARFR (2014). Sudan ranks the highest for sheep production among the Arab countries, in which sheep number was estimated at 177 million heads, of which Sudan produced 39.6 million (22%) according to the Arab Organization for Agricultural Development (AOAD, 2013).

In spite of all these merits of livestock promotion and development and the high market demand for meat and other animal by-products the production system in Sudan is traditional depending mainly on nomadic pastoral system with low productivity, elevated production cost and low international price competitiveness.

This is mainly due to the low educational level of the producers and none or limited awareness on the economics of production. The animal resources marketing system starts at the primary producer and passes through many mediators and middlemen to the bulk trader, the unit trader and the export outlets. The animals are sold by bulk price and not on weight basis and the agreed price will be known only by the buyer, seller and the mediator. Animal supplies to the markets are changed with season and affected by armed conflicts, environmental factors and political stability (ElNeima, 2015).

It is generally accepted that the role of the middlemen and mediators form a weak point in the livestock marketing system in Sudan, as it hurts the producers who sell animals when they need cash money, while under the present marketing system payment may be delayed. The go-between agents and the traders pass the risks of merchandizing the livestock to the producers, who obtain their money after the final sale of animals or might even not get it at all (El Neima, 2012). The objective of this study was to assess the level of awareness of sheep producers on the economics of production and put some suggestions for elevating awareness taking Kordofan State as a case study. Also, to meet the national policies aiming for more quality animal exports and better food security.

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. The study targeted sheep producers (breeders and herders) and veterinarians (in private and government institutions). The statistical methodology used in this study was the Descriptive method. A survey was run through questionnaires pre-tested, interviews and direct observations; 206 questionnaires were filled in 2014-2015 and a total of 37 interviews were

conducted with 22 veterinarians in the public and 15 in private sector. Stratified Random Sampling technique was adopted for the total sample size (206 livestock producers).

Sample Calculation

A -Total population in North and West Kordofan states was estimated at 2.920.992 persons (National census,

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

2008). Population of livestock producers was estimated at 72% = 2,103,114

B- For estimation of the locality weight related to the total number of livestock producers in the studied localities see (Table 1).

Locality weight was calculated according to the following formula:

Table 1: Estimation of the number of livestock producers in each of the studied localities

	Locality	*Locality population	**Livestock producers
1	Shaikan	540898	389447
2	Sodari	271465	195455
3	El Khowai	178110	128239
4	El Nuhood	256432	184631
5	Ghebaish	290619	209246
	Total	1537524	1107018

*source: National census, 2008 **livestock producers= breeders and herders

C-The sample size for each locality was determined for the animal producers in the five study localities as a percent of 206 animal producers for the study (see Table 2).

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

Table 2: Estimation of the locality weight and the sample size for each locality's in study areas

No	Locality	Locality weight	Number of livestock Producer selected
1	Shaikan	35.2%	72
2	Sodari	17.7%	37
3	El Khowai	11.6%	25
4	El Nuhood	16.7%	33
5	Ghebaish	18.8%	39
6	Total	100	206

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 calculate the significance of difference.

Results

The study findings showed that the educational level of the sheep producers was low; of which 56.8% were of elementary or primary education level, 39.8% illiterates and 3.4% of high education level.

For management practices 96% use fire branding or cuts to define their animals; most of breeders allow young lambs with ewe-dams for 3-6 months on pasture and

about 70% separate males at 3-5 months of age.

Figure (1) Shows the sheep productions system where 84% of the study sample uses the traditional open grazing production system of which 50.0% , 79.2%, 85.7 % , 90.0% and 94.9% from Sodari , ElKhawi, ElNuhood ,Sheikan and Gebaish respectively. The difference .05). >is not statistically significant (P Out of these 61% fully engaged in animal care and 39% have other jobs than animal care.

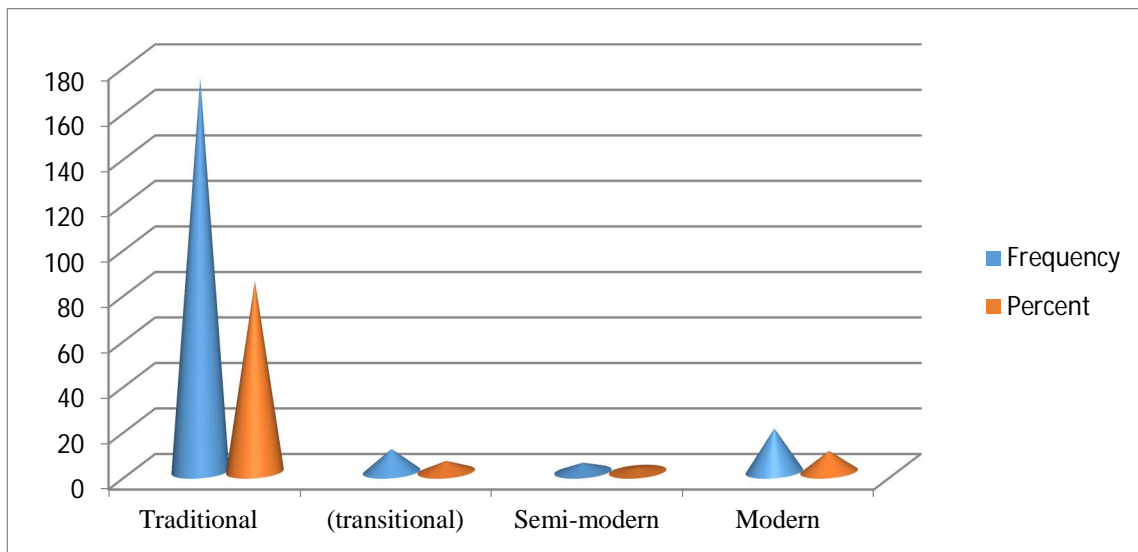


Figure 1: Sheep production system in study areas.

As for the sheep pattern of mobility in the study area, 59% were sedentary, 24.8% nomadic and 16.5% semi nomadic. As for sheep feeding (Table 3) shows 84% depends fully on natural pasture with minimum additives, 12.6% supply

sorghum, cakes and wheat bran, while 3.4% supply sorghum grain only. These additives, though few, are not regularly supplied, 82% of the sample give them only in summer, 2% supply additives daily and the rest have no system.

Table 3: Animal feed sources in the study areas.

Categories	Frequency	Percent
Natural feed(pasture)	173	.084
Corn +oil Cake +flour+ Minerals	26	12.6
Supplementary feed+ Minerals	7	3.4

	Total	206	100.0
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Table (4) shows the awareness and extension services where 65.5% of the producers received none, 22.8% came through the veterinary services and 11.7% from the executed programs but mainly for training agricultural extension workers and veterinary cooperation attendants.

Table 4: Institutional services offered in the study area

	Frequency	Percent
No services	135	65.5
Awareness and training	24	11.7
Veterinary services	46	22.8
Total	206	100.0

From Figure (2) it is noted that 30.1% of the study sample do not go for any improvement method and 24.4% by increasing good appropriate grazing.

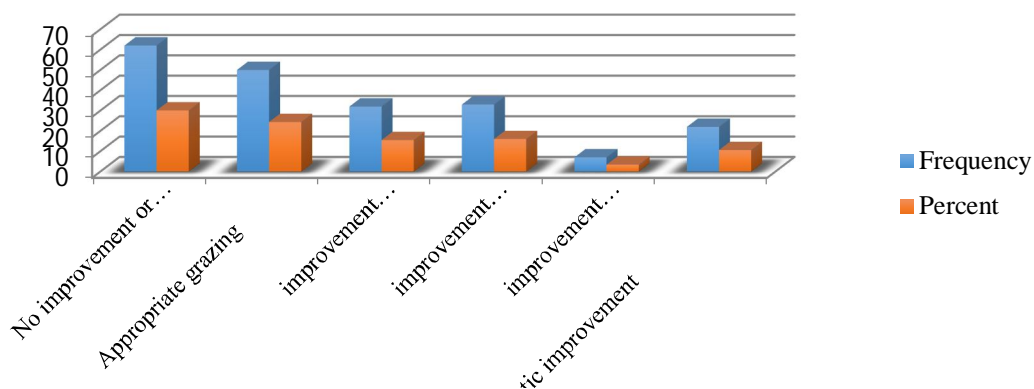


Figure 2: Methods of increasing sheep productivity by the producers in the study area

Table (5) shows the degree of participation of the producers in the preparation, processing and execution of the institutional development programs and projects. The active and effective participation was very low at only 10.7% and 6.8% for limited participation.

Table 5: Participations of the sheep producers in the institutional development programs and projects in the study area

Participation	Frequency	Percent
No participation	170	.582
Limited participation	14	6.8
Active participation	22	10.7
Total	206	100.0

Considering the returns and value of sheep and sheep products the study showed (Figure 3) that 83.5% of the producers sell live animals losing the added value but the difference in

localities is not statistically significant ($P > 0.05$); 10.7% sell live animals in addition to milk and meat and only 5.8% process products and sell them raw.

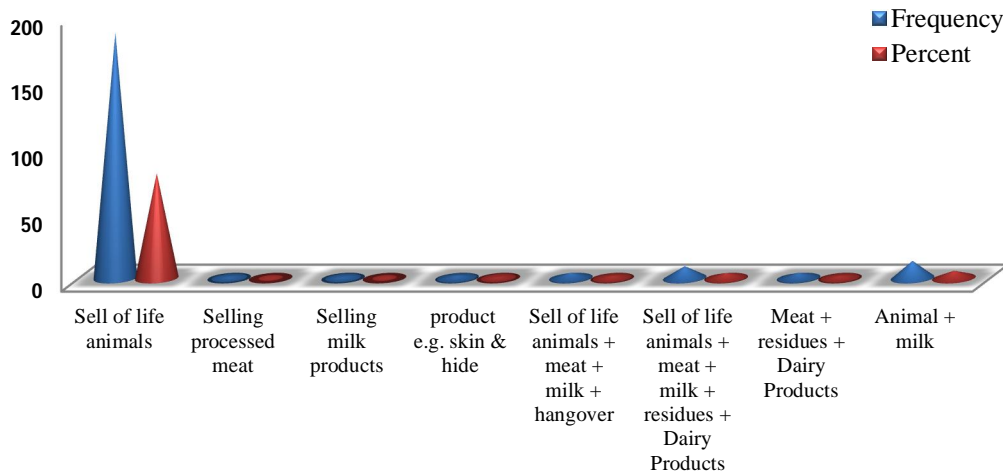


Figure 3: Economic benefit from sheep and their products in the study area

Marketing of sheep is not on weight basis but on phenotypic appearance and practical experience of traders and middle men for fixing the suitable price. As for belonging or engagement with any production societies, groups or unions 60% of the sheep producers indicated no knowledge about any. To decrease breeding risk by insurance 86% of the producers do not go for insurance and the remaining 20% refuse it.

Discussion and Recommendations

The study showed that awareness of the sheep producers was very weak as indicated by the low educational levels and dependence on traditional open grazing production system which agrees with Dagash (2005) and (Khattab and Awad, 2005). Khlooj Investment Company Report (2011) stated that

producers do not make use of crops and agricultural products when available abundantly by collection and preservation to meet feed shortage periods and as such over consume or use large volumes of natural pasture. The report also stated producers do not use any techniques for improving the nutritive value of the feed stuffs.

Producers do not keep any records pertaining to production or reproduction and depend on phenotypic appearance and personal knowledge and experience for selecting replacement animals for herd building or reproductive parameters improvement. This is confirmed by Khattab and Awad (2005), who also added herdsmen exchange breeders' male between herds without medical testing or veterinary examination which might lead

to decrease fertility or spread and dissemination of reproductive diseases. The study showed that animals have low or limited economic value as 89% of the study sample, sell live animals or by-products for local consumption when they need cash. Merchandizing is not according to market demand or requirement.

Most sold animals are those of low quality, size or extended age. Most producers lack knowledge on quality for market consumption locally, regionally or internationally. The marketing system is traditional through mediators and middlemen based on phenotype and personal observation and in a system where the traders get more returns than producers and breeders.

The study showed limited efforts by the government institutions to promote production and quality but with no or limited attention to producers training and effective organized programs to strengthen producers weak and very limited consideration of the economics of production and best utilization of available resources. This is well noted by Okeyo (2000) who stated that in spite of the local and international care and attention to improve local species it is still deficient and that well designed programs in those projects put in application for local species improvement, producers' involvement was at minimum.

Yassin (2010) in a study in North Kordofan noted high degree of response by rural people to participate in their community organizations and different development programs. This agrees with

Khalid (2002), who stated in his research "The local groups in the heart of the problem" that education extension and attention to lack of self-effectiveness by the producers to improve production and productivity are factors of inefficiency of livestock directed projects and animal resources promotion. These notes and findings agrees with the Extension and Transfer of Technology Directory-MARFR reports (2012), which stated behavior, culture and limited involvement and participation of the producers and training shortage weakened livestock development programs. This also agrees with Sara (2012) who stated that limited extension training programs affected production negatively.

The study found that sheep management in the pastoral system of sheep raising in the study area and generally in all

- Kordofan states was characteristic by:
- Adaptation to the environment to ensure subsistence more than making economic values.
 - based on risk averting strategies by keeping large herd sizes whenever possible and keeping different herd species more than for purely economic purposes.
 - all produces used fodder according to season and price in market which means there was no awareness about proper feeding and this conduct could have been harmful where deficiency diseases can occur.
 - adaptation to the institutional environment expressed by communal grazing systems and keeping animals for

social obligations and personal prestige by keeping large animal units irrespective of quality market demand or production cost.

The study results showed that in the present situation of the sheep breeders and producers in North and West Kurdofan States awareness on the economics of animal production, the economic value of sheep and how to improve them is very weak. Through reasoning analysis of lack of improvement of sheep producers in both it was clear that the social, cultural and environmental effects were limited and not statistically significant. This may be due to no or limited effective organized programmes to strengthen the producer weak and very limited consideration of the economics of production and best utilization of available resource. This agrees with Oaklay and Graforth (1985), Swanepoel (1993), Tadro (1994), and Mulwa (2008), on the role of participation and project change effect on the producers. These also agree with the Extension and Transfer of Technology Direction- MARFR (2012), which stated that behavior, culture and limited involvement and participate of producers and training shortage weakened livestock development programmes. Jazairy et.al, (1992) stated that participation is based on people's awareness of their social entitlements an economic opportunities which improves them from dependency to self-reliance and to have a role in decision making. On comparison of the breeding and production systems among the localities no statistical difference was

found. The prevailing sheep production system is the traditional open grazing in all the localities irrespective of the many tribal and cultural variations. Migration effect was not statistically significant and was limited as pertaining to lack of animal production system development in all management practices being traditional of sedentary, semi-sedentary or nomadic in all the different climates and environments.

For sticking to regular veterinary care or regular vaccination, this was null and limited to personal experience and producer knowledge in animal care and treatment and was not bound by available veterinary services. Both Shaikan and ElKhowi localities have government veterinary hospitals, private veterinary centers for services, roads and transport means, yet still regular vaccination is low and most of the producers depend on themselves for animal treatment at equal ratios to the localities which lack these services.

It was observed that herd numbers in the village started to decrease and the herd management and care became family rather than tribal affair. One or more families care for and manage their herds collectively. Family members specially the youth tended to refrain from ownership and building new herds and from management. Reason given being animal production as an activity or business is tiresome and economically unprofitable according to their opinions which lead them to divert to other income sources (trade, gold mining, emigration to outside countries etc.). This indicates

threat of loss and disappearance of local experience in animal breeding and management which is important pillars for animal production in Sudan.

This situation maximizes the importance of raising the producer awareness on the economic value of livestock in general and sheep in particular being one of the main foreign export pillars of the country. Producer's awareness on the economic value of livestock is a necessity to boost the national economy rather than keeping animals as a store value for self-sufficiency.

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