



Sanitary portrayal of the animal husbandry in the south of Lebanon

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Graphical Abstract

Composition of the population used for the study

LOCATION	N° FARMS	COWS	BULLS	CALVES	SHEEP	GOATS	PIGS	HORSES	DOGS	CATS	TOTAL ANIMALS
Deir Mitan	2	9			85	80	15		1		170
Wazzani	15	129	1	41	526	9	25	1			744
Blata	6	12		4	6	850	10	2	3		883
Marjayoun	11	102		18	15	20	30		9		204
Ebal el-Sag - Waza	16	127		6	151	630	2780	6	3	1	3654
El Hebbelrech	2	31		20					3		54
Eshalbe - Deir Dinnan	14	89		18	5	1	15				140
Kafar Kala	20	50		24	33			2			157
Haula	20	80		5	130	608	30	3			856
Wata Khisan	9	31		13	240	215					1001
Ain Arab - Wazzani	14	143		98	87	307					437
TOTAL	320	643	1	277	1217	2020	2861	14	21	1	7878

Abstract.

Livestock farming is a very important economic activity throughout Western Asia, mainly in Lebanon, where work opportunities are limited and 60% of the rural population depends on animal products as their main means of subsistence. Livestock activity, besides being a source of food, contributes to generate income through the sale of animal products, which often cover the requirements of the most disadvantaged families. Analyzing the state of the different livestock farms in rural areas of southern Lebanon is the purpose of this paper. This study was carried out in the province of Nabatiye, collecting data of 7,878 animals present in 109 farms in the area. Nowadays, the sector is suffering serious problems such as the progressive reduction in the number of animals, the reduction of grassland areas and the increase in the price of concentrated feed and forages, which triggers an increase in the cost of production. In addition, the poor management of animal products and the weak animal health system in Syria is affecting negatively this sector. The current situation of the livestock in Lebanon shows a weakened system due to the low level of herdsman training, that affects to the management of the farm, the state of animals health and the quality and safety of the animal products, specifically milk.

Introduction

Livestock farming is a very important economic activity throughout Western Asia, mainly in Lebanon, where work opportunities are limited and 60% of the rural population depends on animal products as their main means of subsistence. Livestock activity, besides being a source of food, contributes to generate income through the sale of animal products, which often cover the requirements of the most disadvantaged families. That is why the state of animal health is very important for rural development.

Materials and Methods

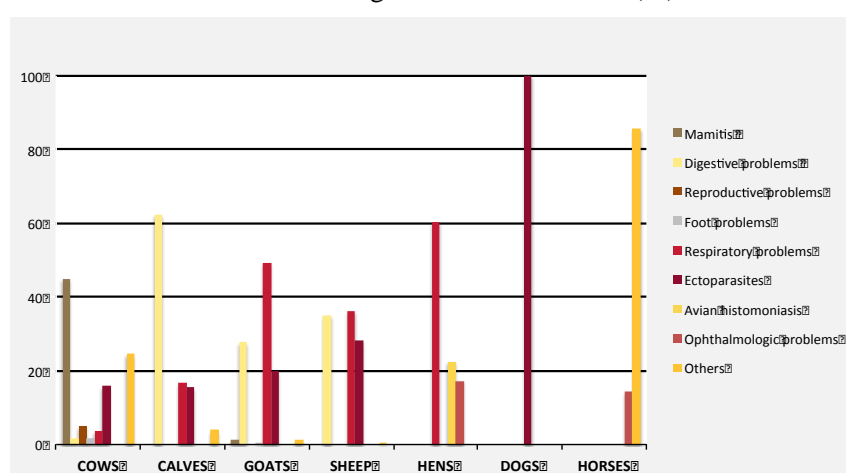
The project was carried out in Nabatiye, a province located in southern Lebanon, between 20 October and 2 November, 2015. The animals used for the present study are 840 cows and 277 calves of the Holstein breed, mostly; 1,237 sheep belonging to the Awassi breed, fat-tailed, or a hybrid of Awassi-Baladi; 2,620 goats, mainly from the Baladi and Shami breeds, rustic breeds of the local population; 2,863 hens, 14 horses and 23 dogs.

The development of the study includes the following phases:

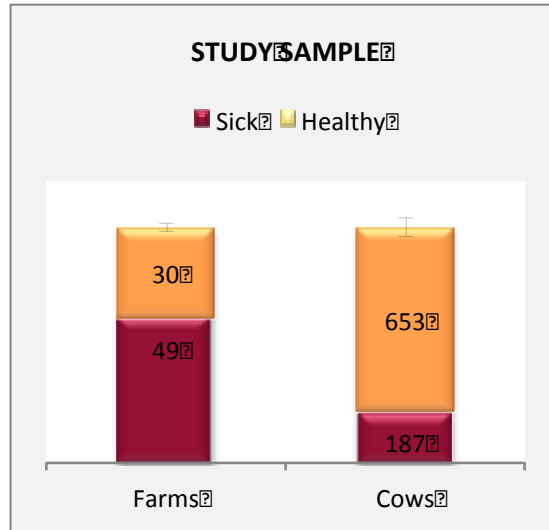
1. Drafting a questionnaire to collect general information on the location of the holding, the name of the owner, the number and composition of the herds, general observations, possible diagnoses and the treatment administered.
2. Visit the small villages of Nabatiye, Deir Mimes, Wazzani, Blate, Marjayoun, Ebel el Saqi, Klayaa, El Hebbariech, Ethaibe, Deir Siriane, Kafer Kela, Houla, Wata Khiam and Ain Arab-Wazzany. The extension of these villages is approximately 1,058 square kilometers, considered a representative sample of Lebanese production conditions.
3. Visit of 109 farms of different animal species that add a total census of 7,878 animals. In each farm, an animal and environmental inspection is carried out and the data is recorded in the questionnaire.
4. Decision on the health assistance to be provided (routine veterinary practices in our country, such as deworming, treatment of diseases and hygienic-sanitary measures).
5. Advice to the farmer according to their management practices, condition of their facilities and delivery a poster of management practices and hygiene.
6. Once in Spain, a search for information in the databases is carried out again PUBMED, Sciencedirect, Ministry of Defense and FAO, where the keywords are: Lebanon, animal production and livestock farms, used in both Spanish and English. In addition, a literature search is carried out on animal diseases in Lebanon, resulting in failure due to lack of information.
7. Finally, the results obtained are analyzed for subsequent statistical evaluation through the Microsoft Office Excel program.

Results and Discussion

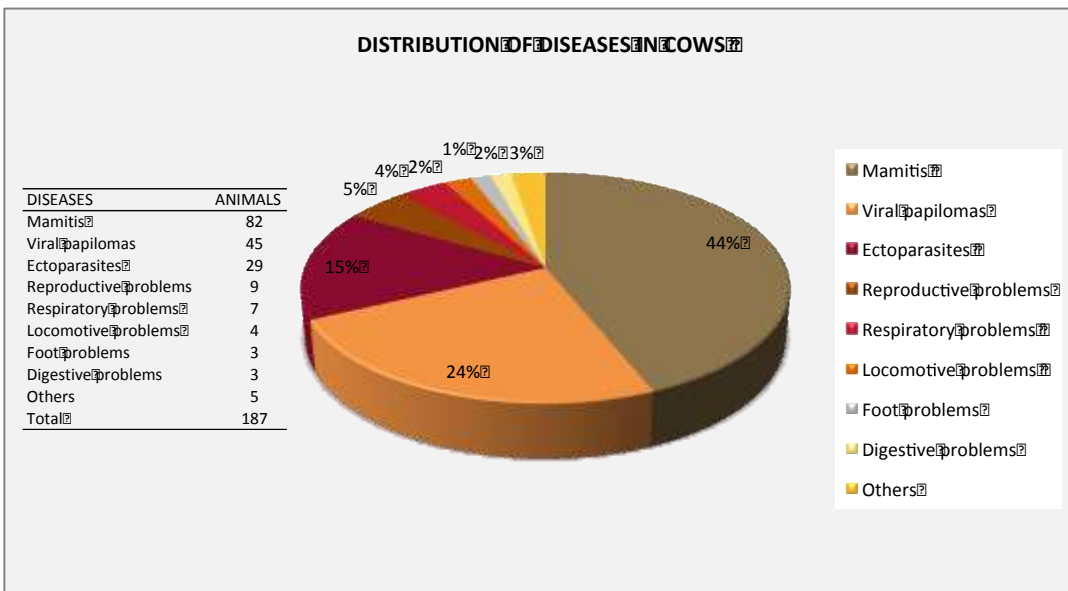
Alterations diagnosed in the animals (%)



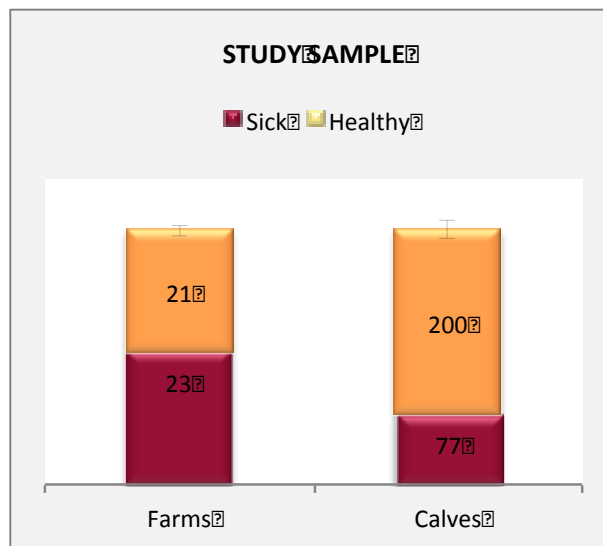
Composition of cows sample

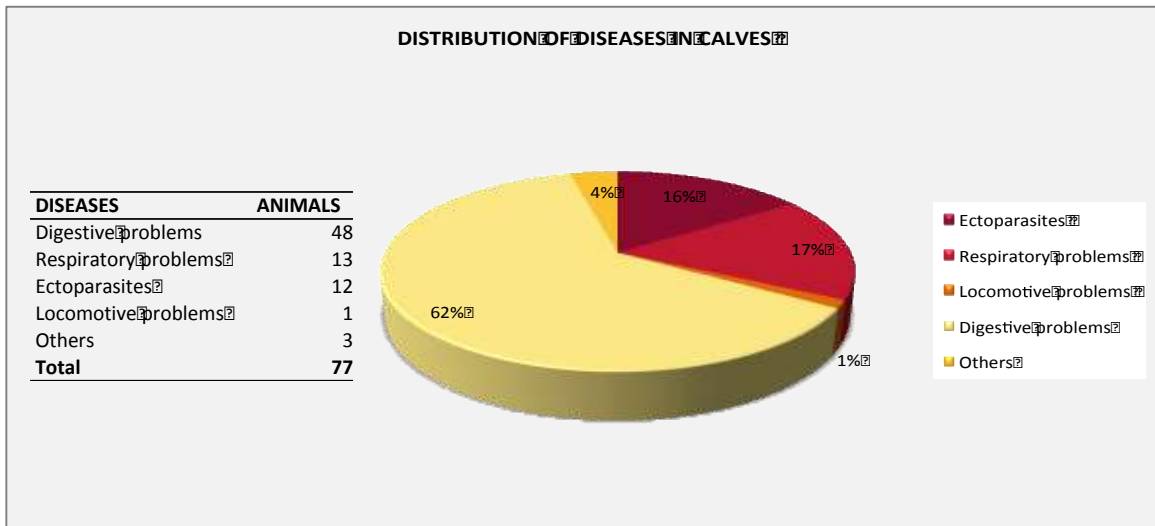


DISTRIBUTION OF DISEASES IN COWS

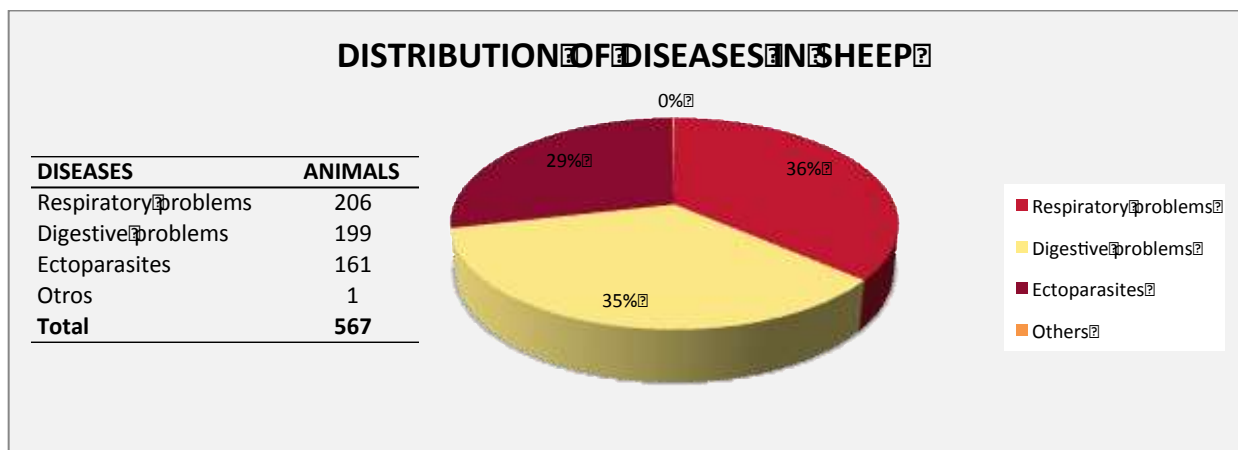
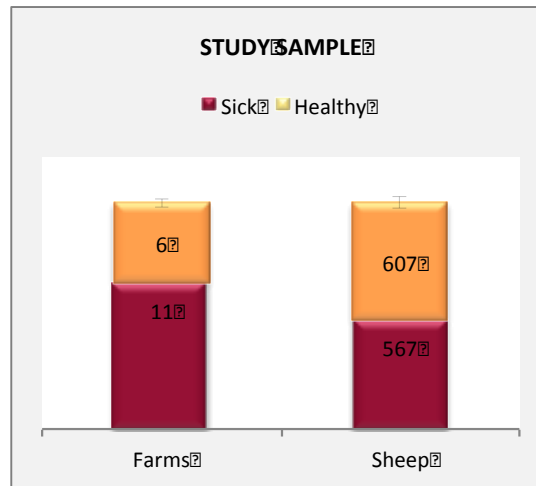


Composition of calves sample

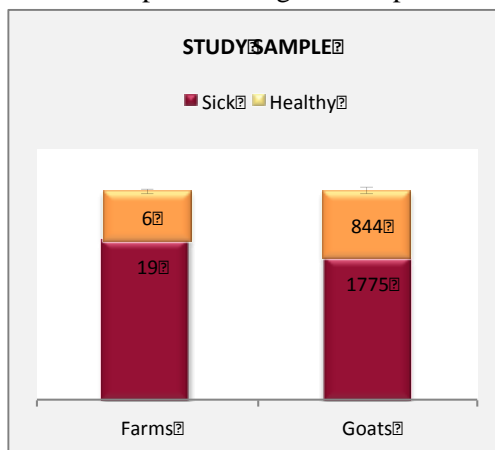




Composition of sheep sample

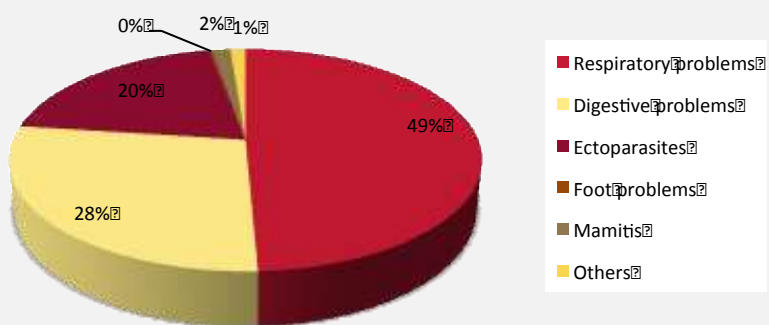


Composition of goats sample

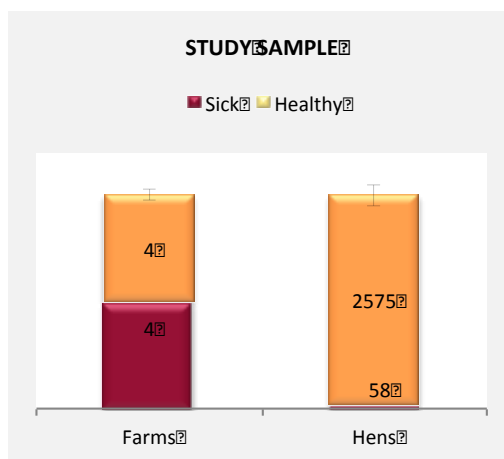


DISTRIBUTION OF DISEASES IN GOATS

DISEASES	ANIMALS
Respiratory problems	875
Digestive problems	493
Ectoparasites	354
Foot problems	5
Mamitis	26
Others	22
Total	1775

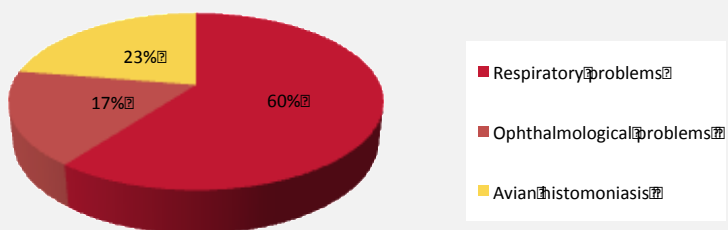


Composition of hens sample



DISTRIBUTION OF DISEASES IN HENS

DISEASES	ANIMALS
Respiratory problems	35
Ophthalmological problems	10
Avian histomoniasis	13
Total	58



In the study, in addition, the 23 dogs have ectoparasites, all of them arthropod parasites, and in relation to equines, most of them have lameness and only in one case a corneal ulcer is diagnosed.

The high frequency of diseases found on farms is due to distrust of farmers in veterinary drugs, as well as the high costs of veterinary services and vaccines that make most farmers have no access to it.

In addition, these problems are compounded by the lack of general cleanliness in the stables and enclosures where the animals are found, the lack of ventilation and sunlight, the lack of umbilical disinfection in newborns and poor nutrition.

Conclusions

The animal health system is weakened by the lack of permanent animal health programs, which enhances the appearance of pathologies among animals. The main diseases are mastitis in cows, digestive problems in calves, respiratory problems in small ruminants and hens, ectoparasites in dogs and locomotor problems in horses. Most of the problems identified are associated with poor management and inadequate conception of the facilities, which triggers a stress situation that affects the welfare of the animals. In relation to the contamination of animal products destined for human consumption, the biggest problems are animal diseases, treatments where the waiting time is not respected and environmental sources during production and storage of the food. The low level of training of farmers weighs on the management of the farm, the health status of animals and the quality and safety of animal products, especially the milk. It would be interesting to carry out an annual training action for farmers in the field, either through projects, such as the one developed by the Catholic University of Valencia, or by the Lebanese veterinarians. We are aware of the difficulty that this entails, but it would be the only way to gradually improve the viability of livestock in the most disadvantaged areas of southern Lebanon.

References

- Asmar RF. Country Pasture/Forage Resource Profiles. Roma, FAO. 2011:5-24.
- Food and Agriculture Organization of the United Nations. National report on the situation of animal genetic resources in Lebanon. Líbano, FAO. 2012:1-3.
- Ministry of Agriculture. Ministry of Agriculture Strategy 2015-2019. MOA. 2014:11-24.
- Arcos GP, Cherri Z, Castro DR. The Lebanes-Syrian crisis: impact of influx of Syrian refugees to an already weak state. Risk Management and Healthcare Policy. 2016;9:165-72.
- Haddad E, Chamoun N. Developing the typical dairy products of the Bekaa and Baalbeck-Hermel: diagnosis and local strategy. CIHEAM. 2014:1-47.
- Ministry of Agriculture. The National Report on the Status of the Animal Genetic Resources In Lebanon. Beirut, MOA. 2004:2-31.
- Food and Agriculture Organization of the United Nations. Addressing in the Impact of the Syria Crisis & Food Security Response and Stabilization of Rural Livelihoods. FAO. 2014:1-42.
- Rouda RR. Livestock Production in Southern Lebanon. Rangelands. 1992;14(2):115-18.

Hamadeh S, Bistanji G, Darwish M, Abi Said M, Abi Ghanem D. Economic sustainability of small ruminants production in semi-arid areas of Lebanon. *Small Ruminant Research*. 2001;40:41-9.

Srour G, Marie M, Abi Saab S. Performances productives des élevages caprins et ovins au Liban. *CIHEAM*. 2006;70:193-201.

Srour G, Marie M, Abi Saab S. Agro-environmental sustainability of small ruminant production in Lebanon. *Animal Science*. 2004;1:1-5.

Horsi C, Nehme M. Small ruminant production systems in north Lebanon: technical and economic analysis. *CIHEAM*. 2006;70:11-116.

Riwa D, Marwan M. Poultry Industry in Lebanon-Facing Foreign Competition. *Blominvest bank*. 2016:1-3.