

Livestock Production in Southern Lebanon

Robert R. Rouda

Prior to the outbreak of civil war in 1975, Lebanon was considered by many as the "Switzerland of the Middle East" (Figure 1). Although relatively small in size (1,040,000 ha.), Lebanon contains three basic climatic zones, each characterized by mild winters and dry summers. Annual precipitation along the coastline, in the mountain regions and in the Bekaa Valley are 900, 1,000 and 400 mm., respectively (Andreou et al. 1979). Almost

polled using questionnaires during 1984 to identify major problems restricting livestock production. Questions relating to livestock population statistics, nutrition, health, production and marketing were asked. Also the producers' eagerness to participate in agricultural cooperatives were surveyed. A total of 39 villages within the Bint Jbeil and Marjeyoun districts of South Lebanon were visited. Five hundred and ninety questionnaires were completed. Eligibility to be polled was limited to those village residents owning a minimum of two cows and/or 5 sheep and/or 5 goats. In some villages not all eligible owners attended the questionnaire-filling sessions, but the views of those that did are assumed to be representative of their village, in general.

Livestock Populations

The total number of cattle in those villages surveyed was recorded as 2,296 head. These animals were mainly of the local or Baladi breed. They were tri-purpose, providing their owners with milk, meat and draft power. In addition to the Baladi, some Holstein $\times$ Baladi hybrids were also reported. These animals were the offspring of a number of certified Holstein sires introduced into the region by an international development agency (Menonite Central Committee) as part of their Bull Placement Program in the late 1970's. Only 11% of the cattle population were pure Holstein cows. Sheep in the areas surveyed totalled 6,391. They were exclusively of the fat-tail Awassi breed. Goats were found to be the most numerous species of livestock in the areas (11,079), and were mainly of the Baladi breed (Figure 2). Sheep were tri-purpose (milk, meat and wool) while goats were basically dual purpose (milk and meat). These population statistics are in accordance with those figures presented by FAO 1980a where total populations of cattle, sheep and goats in all of Lebanon were estimated as 4,000, 130,000 and 340,000 head, respectively.

Animal Nutrition

Cattle were almost exclusively trough fed. Sheep and goats were usually entrusted by their owners to a village shepherd who allowed animals to graze, as one herd, private and public lands surrounding the village. Animals were often allowed to graze leased crop residue plots when available (Figure 3). In addition to grazed forage, sheep and goats were reportedly provided with a daily cereal based supplement to compensate for low forage quality and/or availability. As in most livestock operations, feed costs were reportedly the highest investment owners had to suffer. However the steepness of this cost may reflect not readily obvious factors. The need for daily

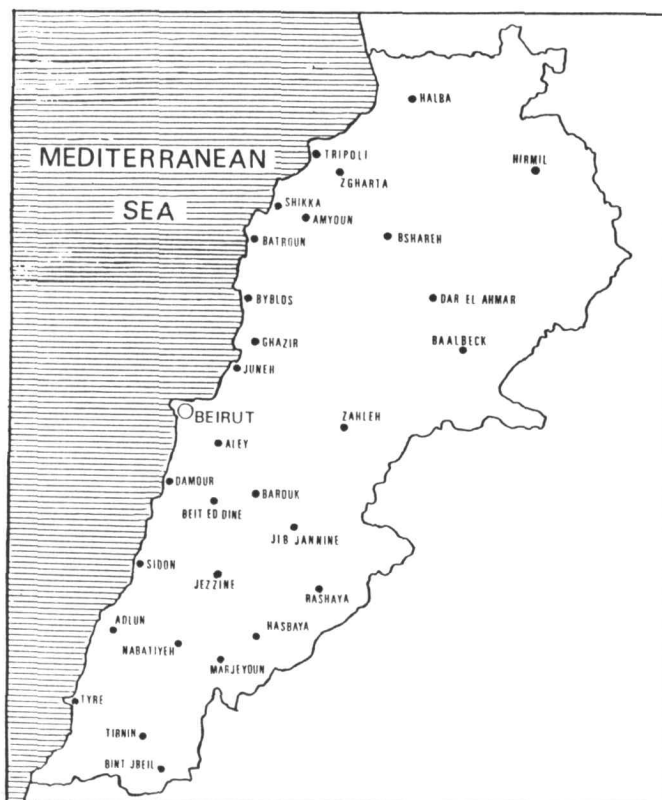


Fig. 1. Geographical map of the Republic of Lebanon.

one third of the country's area is arable or under cultivation. Approximately 25% is irrigated production. Despite the malignant war that has virtually blanketed the once booming banking and tourism industries, Lebanon continues to have a substantial livestock population. Red meat and dairy products are important ingredients in Lebanese cuisine. The bulk of these products have to be imported since demand exceeds local production. In an attempt to document limitations to livestock production in war-torn southern Lebanon, producers in the area were

Author is assistant professor, Faculty of Agriculture and Food Sciences, American University of Beirut, Lebanon.

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Fig. 2. A local or Baladi goat browsing a berry tree.

supplementation may be indicative of depleted rangelands caused by improper use. Also, continuous civil disturbances dramatically affected the availability and consequent price of concentrate feeds. Prices often skyrocketed overnight due to the sudden closure of roads linking villages and towns.

The most common grains fed to livestock in those villages surveyed included barley, yellow corn and wheat, which were fed either whole or cracked. Chaff and bran constituted the animals' main source of roughage. Some cattle owners reportedly fed their cows cotton seed meal pellets (15% crude protein) during early lactation. Prior to weaning, young animals were permitted to suckle freely. During post weaning they were sometimes finished on grains depending on economic feasibility. In 80% of the villages surveyed, owners stated that they had to purchase tankerloads of water during the dry months (May through September) in order to satisfy their domestic and livestock needs. Water was purchased from nearby owners who had access to water on their property (river, spring or well), at prices well above the cost of water from public resources. The implementation of public water development projects ceased when war broke out in 1975. The implementation of these projects should resume once security conditions permits.

Animal Health

Although many animal health problems go undiagnosed, some owners described a number of diseases as troublesome (Table 1). All those interviewed declared that veterinary treatment was restricted to cattle since treatment of sheep and goats often cost more than the market value of the animal. In 87% of the villages, owners vaccinated their animals against locally enzootic dis-



Fig. 3. A herd of sheep and goats being led by their shepherd towards a plot of wheat residue.

eases. Diseases against which vaccination was reportedly performed included Foot and Mouth disease, Foot Rot, Rinderpest and Sheep Pox. Some owners claimed they had vaccinated against Babasia blood parasite. This was considered peculiar since no commercial vaccine against Babasia had been produced in 1984 (A. El Zein¹, personal communication). In the absence of any kind of receipt furnished by the vaccinator, it was speculated that this information was inaccurate. Only a few owners in 13 of the 39 villages admitted they did not know what they had vaccinated their animals against. Local vaccinators performed the vaccinations at prices ranging between \$0–5 per shot. Vaccines were provided at no charge by the Lebanese central government through its animal protection section within the Ministry of Agriculture. Owners costs covered solely the expenses of the vaccinator. Owners that did not vaccinate their animals complained they they could not afford the vaccinators fee.

When asked about the source of the vaccine their animals were getting, only 5% knew that the source was the Ministry of Agriculture. In one village, owners reported obtaining vaccines from Israel. No knowledge as to the source or terms of distribution of vaccines was almost absolute in 74% of the villages surveyed. All of those owners interviewed claimed that they would be willing to vaccinate their animals if the service was provided at a reasonable price. Also, most owners readily agreed to have their animals screened for infectious diseases should

tude may be greatly a consequence of the high degree of illiteracy (67%) observed in those interviewed. General appearance and verbal assurance about milk production and offspring weaning weights were reportedly the only criteria available for selection of breeding stock.

The breeding season of sheep and goats was reported to begin in early May and extend through October. FAO 1980a reported that the breeding season of sheep and goats in Lebanon began in August and extended into November. This discrepancy may be an expression of adaptation in ewes to location. Owners reported that rams were allowed to run with the herd throughout the year. Lambs were usually weaned at 3 months of age, at which time they averaged between 20 and 30 kg. They were marketed at 6 months of age (average weight 25–35 kg). Kids were weaned at 3 to 5 months of age (average weight 10–15 kg) and marketed at 6–8 months, at which time they averaged between 15 and 25 kg. Calves were reportedly weaned between 5–8 months of age (average weight 60–80 kg) and marketed at 12 months (120–150 kg). Weaning weights and weaning and marketing ages reported in this study are comparable with earlier works; however market weights were somewhat lighter. FAO 1980a reported market weights of 45–60 kg, 30–45 kg and 400–500 kg, respectively, for lambs, kids and calves at ages similar to those reported in this study. This may be indicative of poor post-weaning nutrition and/or improper finishing management. It is worth mentioning that actual weighing at weaning and marketing was seldom undertaken in all of the villages surveyed. All weights presented here were ocular estimates. Owners reportedly sold their animals to local butchers, based exclusively on the appearance of the animal and their particular financial state, at prices ranging between \$25–30 per lamb, \$10–15 per kid and \$120–150 per calf.

The average length of lactation in Baladi, hybrid and Holstein cows in the villages surveyed was 3, 6 and 8 months, respectively. The average volume of milk produced per lactation by these three respective groups was 300, 900 and 4,000 liters. These figures are well below national averages reported by FAO 1980a for Baladi, hybrid and Holstein cows (3,500 liters over a period of 7 months, 4,500 liters over a period of 8 months and 6,000 liters over a period of 9 months, respectively). Inadequate supply of water for both drinking and sanitation (disease prevention) coupled with poor nutrition may be responsible for the poor performance of cattle in the villages surveyed. Estimates of milk production given by owners regarding sheep and goats were vague and inconsistent. However other workers have reported that Awassi ewes in Lebanon produced an average of 90 liters of milk over a lactation period of 160 days, and Baladi goats produced an average of 140 liters over a period of 270 days (FAO 1980a). Raw milk in excess of domestic consumption was marketed locally at prices ranging from \$0.15 to 0.25 per liter. All owners interviewed expressed eagerness to join

Table 1. Diseases reported having a presence in South Lebanon.

Name of Disease	Percent occurrence over all villages surveyed
Anthrax	3
Babasia Blood Parasite	49
Enterotoxemia	33
Foot and Mouth Disease	59
Foot Rot	64
Mastitis	13
Rinderpest	46
Sheep Pox	15

this service be provided free. This was contrary to the information provided by an official within the Ministry who stated that because of superstitious fears, most livestock owners were reluctant to have technicians perform these services.

Animal Performance

Individual animal identification was restricted to the owners' recognition of their animals since most herd sizes were small. The average number of cows, sheep and goats owned by one person were 4, 4 and 11, respectively. None of the owners or their shepherds had ever recorded production parameters because they did not understand how this information could be used to improve the genetic makeup of their herds (inline selection). This atti-

¹The late A. El Zein Ph.D. D.V.M. was professor and chairman, Department of Animal Sciences, American University of Beirut in 1984.

cooperatives if such institutions were established in their areas.

Conclusions and Recommendations

This survey revealed that there exists great potential for improvement of animal production in the villages polled. Under the present modes of production, owners maintained their cows mainly as work animals and for domestic milk consumption. Sheep and goats provided their owners with a slow income (in terms of meat and milk sales) fast capital option. Earlier studies that described animal production in various areas of Lebanon have indicated that providing ruminants with a yearlong supply of quality nutrients was a major project limiting animal production (Andreou et al. 1979; FAO 1980a). The implementation of proper range management has the potential of doubling animal production (FAO 1980b). Regulation of use of private and public ranges by small ruminants should be introduced. The concept of grazing rights to plots of agronomic stubbles should be expanded to include the use of marginal lands. Various grazing and reclamation strategies have been put forward and need to be tested (FAO 1980a; Thomson and Thomson 1988). Livestock owners polled in this study expressed their willingness to participate in cooperative ventures. Livestock owners could be encouraged by local and regional developmental agencies to form local feedstuff cooperatives aimed at providing producers with greater buying power and storage facilities in their initial stages. Long-term plans should be centered around establishing cooperative-run feed mills capable of processing locally produced and imported raw materials.

This survey revealed that the Ministry of Agriculture's attempt to provide owners with vaccines against locally enzootic diseases, free of charge, may be enhanced if vaccinators were required to provide owners with official

receipts clearly indicating what was vaccinated against, date and name of vaccinator. As most vaccinators are government technicians, any monetary exchanges should be recorded. Also, fears that owners would reject having their animals screened for infective diseases was not detected in this study, and such projects should be undertaken once financial support has been granted.

The establishment of a National Herd Registry would provide an essential tool that could be used to monitor improvements in animal production management. Owners should be encouraged to adopt individual animal identification and begin recording standardized production statistics (birth, weaning and lactation particulars). Producers need to be educated as to the heritability of certain production traits and incentives developed to encourage owners to use these statistics as indices for selection of superior animals to improve their breeding herds. Improvements in production over current levels may bring with them advances in the marketing of slaughter animals. It was reassuring to find that despite the massive amount of destruction in the areas visited from the war, livestock continued to survive and the observed potential for improved production was refreshing.

Literature Cited

- Andreou, P., N.J. Dagher, N.S. Kwar, M.N. Nimah, and A.R. Sighir.** 1979. Agricultural development in Lebanon. American Univ. of Beirut. Publ. No. 62.
- FAO. 1980a.** Study of reconstruction and development of agriculture in Lebanon: Current status and potential for development of livestock industry. Tech. Annex 12. UN-FAO, Beirut.
- FAO. 1980b.** Study of reconstruction and development of agriculture in Lebanon: Development of pastures. Tech. Annex 8. UN-FAO, Beirut.
- Thomson, E.F., and F.S. Thomson.** 1988. Increasing Small Ruminant Productivity in Semi-arid Areas. Kluwer Academic Publ. The Netherlands.