

## Owner Behaviours toward the Livestock between Required and Available: a Scientific Review

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**Abstract:** Livestock farming plays a vital role in food production and rural livelihoods; however, owner practices significantly impact herd health and productivity. This study identifies gaps in livestock management by evaluating owner behaviors toward preventive healthcare, nutrition, and disease management based on previous field studies in Iraq. Findings indicate that while some owners follow parasite control measures, many neglect vaccination programs, veterinary consultations, and proper feeding practices, leading to high disease prevalence and economic losses. The results highlight the need for enhanced education and support systems to improve herd health management. Implementing structured training and government-backed agricultural extension programs can significantly improve livestock productivity and sustainability.

**Keywords:** Livestock management, herd health, veterinary care, vaccination, owner practices, rural farming, animal welfare.

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## Introduction

Animal products provide rich elements of nutrients such as proteins, minerals, carbohydrates and vitamins, found in eggs, milk, meat and honey. These products help to diversify the diet of consumers and increase the income of owners. Livestock wealth can also be a source of leather, fur and fibers such as wool, mohair and cashmere; even dung has been used as fertilizer for agricultural lands of crops or as fuel for cooking (1). For growing livestock and maintaining the ecological balance, it is necessary to develop animal health care. Unsuitable herd management causes real losses of production. Many studies have been conducted on combating diseases that destroy herds and cause great financial losses, which are reflected in the country's economy (2). The owner on the farm must be constantly educated on how to maintain and develop his herd and adhere to an annual preventive program that ensures the elimination of endemic or epidemic diseases. For example, vaccinating the herd against *Clostridium spp.* two months old and older) twice a year with a booster dose after 30 days is produce healthy and disease-free animals from blackleg caused by *C. chauvie*, malignant edema caused by *C. septicum*, bacillary hemoglobinuria caused by *C. haemolyticum*, black disease caused by *C. novii*, gas gangrene caused by *C. sordellii*, and enterotoxemia caused by *C. perfringens* types B, C, and D (3). Periodic preventive programs such as doses against internal parasites (gastrointestinal, lung and liver helminthes) or injections against blood parasites, or dipping and spraying against external parasites, all produce a healthy herd with abundant production of meat, lambs, and milk. Cattle are generally less susceptible to diseases if they are provided with the necessary care and attention throughout the year. However, the problem is that the breeder resorts to vaccination or treatment when diseases actually appear in the herds, when the response of the animals reduces to treatment and leads to death (4).

The review aimed to evaluate and compare the positive and negative behavior of livestock owners toward their animals (cattle, sheep, goats and buffalo) based on previous field studies about the health problem in Iraqi livestock.

## Important results

### Owner demographic data

In Reviewing the previous studies, it appeared that most owners who are interested in their flocks and visit private and veterinary health centers are men in middle-aged in their forties and fifties; the majority of them have not completed their school education. Rarely find an owner who has completed his school or academic education. As for the financial situation, the studies have shown the owner is rarely in a low standard of living, but most of them have a good or moderate standard of living. Most of the breeders' sons evade enrolling in schools and graze in the nearby grasslands as an open method of breeding and rarely find a closed method. Most of the farms were characterized by cultivating some crops that could be used as animal feed, such as hay, clover and corn (5,6).

### Herd data

Most of the animals that are owned are females, and this is due to the owner's desire to increase the number of the herd. It is a requirement for proper breeding, as for every 4 females, there is 1 male in the field of sheep. Livestock herds in Iraq are mostly sheep, followed by cattle, then goats, and the least are buffaloes. In Baghdad governorate, generally, the sheep herds in Baghdad and the southern governorates are much less than the numbers in the northern governorates or the western side of the country. This is due to their rains being permanent in these areas, and there is an abundance of agriculture, natural flora, as well as providing wide pasture (7).

The previous Iraqi studies have shown that the most endemic health problems are external parasites (ticks, mange, and lice) and internal parasites) helminths and Protozoa). In addition to

pathogenic infection and metabolic diseases such as diarrhea, mastitis, bloat and acidosis, or skin diseases such as smallpox, bacterial abscesses and warts, which are almost on the skin of young calves. The studies also noted that there were cases of lameness due to foot rot and others in eye diseases such as white eye in sheep and goats or eyelid tumors in cows, in addition to malnutrition and emaciation (8, 9, 10).

### **Positive practices of owners**

The positive practices of owners towards their animals may be their knowledge consistent in following a program of anthelmintic treatment against the infestation with internal parasites and they used pesticides periodically to combat external parasites. Internal or external parasites can cause weakness, emaciation and susceptible the animals to infectious diseases despite the quality of the food provided. (11). In addition, these parasites can be intermediate hosts for many viral, bacterial, and protozoan diseases that can be dangerous for both animals and humans. Such as *Hyalomma* spp. ticks that transmit Babesiosis and theileriosis in cattle, as well as Congo hemorrhagic fever in humans. The presence of feeders is not always regular, but they serve the purpose. Also, many owners put small animals (sheep and goats) and large animals (cows and buffaloes) in separate pens. Likewise more of them provide concentrated feed to their animals along with green feed (6,5,12).

Most of owners enjoyed satisfactory financial returns, and financing livestock can improve the individual's living reality, which is consistent with many studies that indicate that raising productive animals can support the individual's economic situation and achieve self-sufficiency, but in general, the financial return can be increased if the person's skills are developed through education. It is worth noting, however, that many breeders have only primary education, where parents employ their family members to work in livestock herding and traditional agriculture; this may limit their skills. (11,13).

Completing the course of treatment can control the animal disease and prevent antibiotic resistance in future. Daily exposing the animal to sunlight and housing it in a clean, dry barn free of waste and spoiled food all these are a hygienic practice for reducing pathogens like bacteria, viruses, fungi and mycoplasma that cause foot rot, diarrhoea, mastitis, respiratory diseases etc.. Ensure good hoof hygiene by trimming cattle hooves as needed (13, 14).

### **Negative practices of owners**

Some negative practices by owners have led to lower returns and reduced seasonal productivity, for example: some farmers put animals with special conditions, such as females at postpartum or sick animals, with other animals, or feed animals of different types and ages in one feeder. These practices lead to malnutrition problems, which is the main gateway for most diseases. If goats and sheep are kept together, the sheep will be more susceptible to internal parasites. This is because sheep tend to eat close to the ground, making them more susceptible to severe worm infestation. On the other hand, goats roam freely without showing any signs. Each sheep or goat has specific behaviours and nutritional needs that may create a gap in providing requirements when placed in one herd. Concentrated feed should be provided with green fodder. Providing concentrated feeds including corn, oats, soybeans and bran is often deprived because its cost, so the owner is reluctant to provide this type of feed compared to green feed provided free by pastures, concentrated feed is one of the necessary foods because it contains important nutrients such as carbohydrates, vitamins, minerals and salts, thus maintaining the health and production of the animal (2,6,15). Many owners provide green feed or straw directly on the ground to the animals, where they eat part of the feed and the rest is destroyed because of, being trampled by animals or exposed to animal waste such as urine and dung. This method leads to increased waste and loss of feed, in addition to being a contributing factor in the transmission of infectious diseases and parasites between animals. It is necessary to give feed in a thoughtful manner and to store the surplus to help the herd stay healthy and productive during the dry season (9,16).

Vaccinations can protect livestock from many deadly bacterial and viral diseases such as Smallpox, *Clostridium spp.* and *Brucellosis*, FMD and more others. The vaccination program should be started 2-3 months after birth because the newborn animal takes antibodies with colostrum and milk before this age. Despite the availability of vaccines, it was noted that the interest of the breeder about vaccination programs most of the time was weak, because of the fee. They ignore the importance of vaccination, and this behaviour costs them a lot of financial losses. One of the most important endemic diseases recorded in livestock in Iraq is *Brucellosis*, which spreads among ruminants and causes huge financial losses annually in herds. Females may abort in the third trimester of pregnancy due to *Brucella* infection. Vaccinating animals against *Brucella* a month before birth prevents abortion and protects newborns. Sheep Pox also causes abortion in females, and the Smallpox vaccine provides immunity against both smallpox in small ruminants and lumpy skin disease in local cows. These diseases lead to devastating economic losses in the last period. Combating insects, external and internal parasites, and maintaining the cleanliness of the barn leads to raising the animal's immunity and thus gives extra benefit from the vaccines provided. It has been observed that there is a tendency among the owners to prefer antibiotics more than vaccines; vaccinations provide immunity against diseases, and antibiotics negatively affect immunization. It is necessary to reduce antibiotics or sulfa compounds, as noticed that sulfa compounds given orally can affect the digestion process that occurs in the rumen and kill beneficial bacteria, so it is preferable to give antibiotics in so necessary by injection. (17).

Another negative practice recorded in previous studies is throwing dead animal, aborted fetuses or placentas randomly on the roads, which leads to pollution and the growth of many organisms such as *Salmonella*, *Campylobacter*, *Clostridium*, and insects such as flies and mosquitoes that can cause many epidemics and diseases. Therefore, the safe handling is by burning or burying. Field surveys have shown that the breeder visits veterinary institutions often in critical cases when animals suffer from diarrhea, dystocia, or retained placenta or recumbent. The breeder's communication with veterinary institutions is essential to obtain advice, maintain the health of the herd, and solve health problems as soon as possible (18,2).

### Full spectrum animal health

Achieving integrated animal health and maintaining and developing the herd requires the availability of four steps: (prediction, prevention, diagnosis and treatment)... Table 1. Therefore, it is necessary for the owner to pay attention to all these steps, each according to their importance, because there is a close connection between them. The more aware and vigilant the owner is, the more he can anticipate the problem and prepare to solve it and incur at least losses. Prevention, such as vaccination of the animals, can avoid diseases and dispense with treatment. Early detection and correct diagnosis can limit losses. Finally, treatment must be resorted to often, so the owner must pay attention to these four steps to be a successful breeder. (19,20)

#### The 4 steps to full spectrum animal health

Animal Health	
Prediction	Health problems can be predicted according to some factors such as climate changes that may predisposing for the occurrence of respiratory diseases, or during the harvest season, unvaccinated animals are exposed to enterotoxaemia, or cows are infected with milk fever (hypocalcaemia) as a result of producing large quantities of milk without paying attention to the nutritional program...etc.
Prevention	Prevention is always the best. Vaccines, good nutrition and regular veterinary check-ups are key to avoiding diseases. For example, clostridial diseases, Dosing against helminths and dipping against external parasites such as ticks, scabies and lice...etc.
Diagnosis	Regular surveillance and blood screening can help diagnose and catch diseases early such as mastitis, detection of internal parasites or abortion by brucellosis ...etc.
Treatment	Not all diseases can be avoided. Antibiotics are currently the only way to treat deadly

	bacterial infections, which is why it is essential to use them responsibly. It is also essential to use palliative care such as analgesics, sedatives, hormones, etc., each according to its need.
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Animal diseases can be transmitted to humans or other animals through contact with infected animals or through contaminated milk, meat, air, or feed, but these facts are unknown to most livestock breeders. Researchers have also reported similar findings, and one of them concluded that 87% of owners had a low level of knowledge regarding the health and nutritional status of their herd. This low level of awareness may be due to shortcomings in both government programs and the owner's awareness in the rural community (21,22).

### Recommendations

Encouraging young owners to develop their skills by supporting them financially, improving government programs such as forming courses and workshops to develop the skills in livestock breeding, adhering to treatment and preventive programs such as giving antihelminthic or combating external parasites, special care for females and births, paying attention to the cleanliness of the pens and providing them with straw, monitoring the herd daily and discovering any problem to solve it, not taking livestock out to graze in rainy or cold weather or bad conditions.

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