Abu Dhabi Food Control Authority
Development Sector
Research & Development Division

Technical Report تقرير فني

Title العنوان	**Studies on Clinical Mastitis in Najdi Sheep in Abu Dhabi**
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Duration فترة المشروع	**From:** September 2009 **To:** September 2012

Background خلفية عن الموضوع

Mastitis causes substantial economic losses in terms of reduced milk production, alteration of qualitative characteristics of the milk, (which may influence quantity and quality of the milk products obtained), low weight gain of the lambs and additional cost in the care and treatment of mastitic animals (Ramanoon 1997). Besides, the disease renders the animals unproductive and uneconomical to keep (Tormod et al. 2007). Apart from its economic importance, the disease is also of significance from public health point of view (Vasavda 1988). The most prevalent sheep breeds reared in the Abu Dhabi are Native, Merino, Somali, Najdi, Awassi, and Jazeeri breeds. Among them, Najdi are characterized by highly adapted to life in desert conditions, high milk, wool, and meat and twin production. Although, generally Najdi sheep breed are exposed to many infectious/contagious diseases such as pox, brucellosis, enterotoxemia and contagious ecthyma etc., mastitis is also considered to be an important problem encountered by the sheep's owner at the present time.

Problems التحديات

- Increased prevalence of mastitis in Najdi sheep.
- Low response to treatment other than surgical removal of udder.

Objectives الأهداف

- To investigate prevalence of different types of clinical mastitis in Najdi sheep breed in Abu Dhabi.
- To determine factors influencing the incidence of mastitis and
- To identify the causative microorganisms.

Methods طريقة العمل

A total of 25,509 sheep were selected randomly from 213 herds in Abu Dhabi Emirate. The Sheep were examined clinically for the occurrence of mastitis. Milk samples (1199) were collected individually from infected quarters. Milk samples were collected separately in sterilized test tubes under aseptic precautions and subjected to cultural isolation using standard microbiological techniques (culture on general, selective and special indicators media and identification using commercially available sets of biochemical and enzymatic testing for the identification of the isolates API 20 A, NE, E and API 20 Coryn and rapid microbial detection systems like Vitek 2).

Results النتائج

Prevalence Rate:

A total of 23509 sheep examined, 1037 sheep found infected. The prevalence of clinical mastitis on animal basis was 4.41%, while on quarter basis 2.58% (Table 1). A higher prevalence of sheep clinical mastitis was chronic (5.66% and 3.41% on animal and quarter basis, respectively) (Table 2). The relativly high prevalence of chronic sheep mastitis in this study may be due to a delay in the detection and treatment of the cases leading to abscess formation within the mammary gland.

Table. 1: Total prevalence of clinical mastitis in Najdi sheep

	Total No. of Ewes Examined	No. of Quarters Examined	No. of Ewes found Infected		Prevalence Rate (%)	
			Animal	Quarter	On Animal Base	On Quarter Base
Total NO.	23509	46387	1037	1199	4.41	2.58

Table 2: Prevalence of various severity of infection of clinical mastitis in Najdi sheep

Severity of Infection	Number of sheep examined	Number of quarters examined	NO. of sheep Showing Mastitis		Prevalence rate (%)	
			Animals	Quarters	On animal basis	On quarter basis
Sub acute	5904	11320	289	301	4.89	2.66
Acute	5115	10115	275	331	5.38	3.27
Chronic	5689	11350	322	388	5.66	3.41
Gangrenous	6801	13602	151	179	2.22	1.31
Total	23509	46387	1037	1199	4.41	2.58

Causative Agents:

On cultural examination of 1199 milk samples collected from clinically affected sheep, recovery rate was 96.41% (*n*=1199) (Figure 1). *Staphylococcus* was the most common micro-organism involved in the causation of various forms of clinical mastitis in sheep (48.27%). *Streptococci* came next in importance (26.47%), followed by *C. pyogenes* (13.49%), while the incidence of other organisms was low.

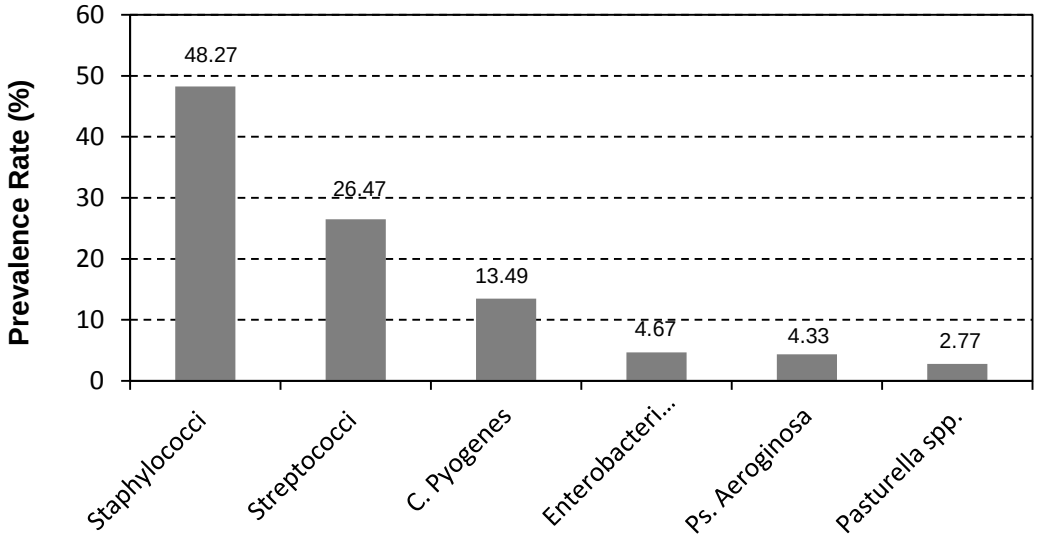

Figure 1: Relative frequency of different type of mastitis pathogens in clinical infections

Predisposing Factors of Mastitis:

The prevalence of clinical mastitis increased with the increase in age with highest number 39.54% in the age group 6-7 years (Figure 2). The prevalence of clinical mastitis also increased with the increase in the lactation number at least up to the fourth lactation 31.63% (Figure 3). The increase in the infection rate up to age 6-7 years and the fourth number of lactation could be due to lower resistance of animals to infection or decreasing efficiency of the teat sphincter with advancing age and lactation.In general, it may be said that the prevalence of mastitis in sheep in UAE tended to rise with the increasing in age and lactation number.

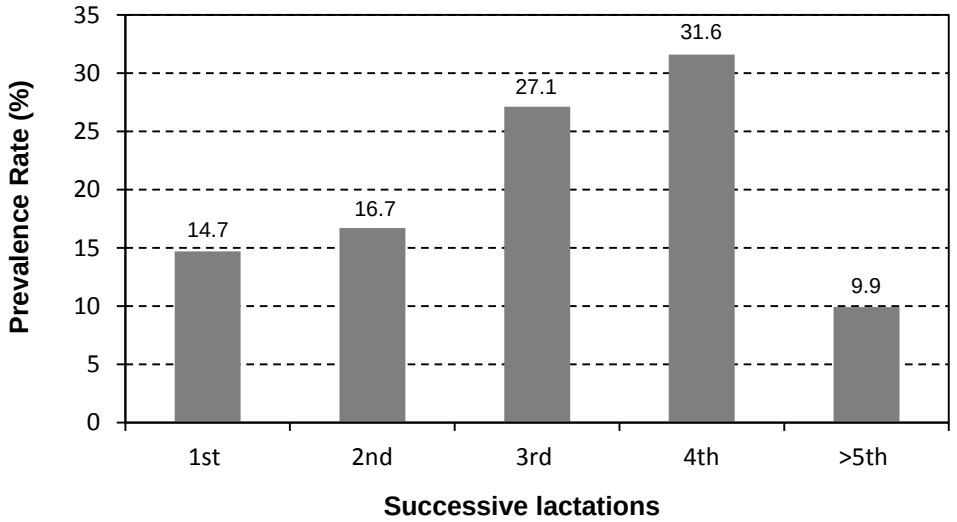

Figure 2: Prevalence of mastitis in relation to successive lactations in sheep

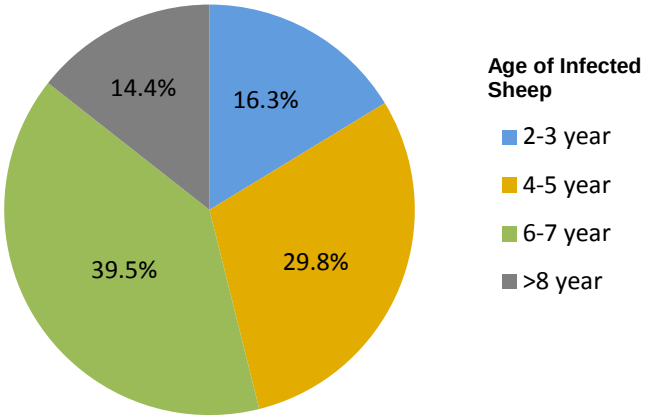

Figure 3: Prevalence of clinical mastitis in Najdi sheep in relation to various age groups

Recommendations التوصيات

- Cover the udder with a piece of cloth after birth, especially in animals with high milk production.
- Treatment should be depend on cultural examination and sensitivity test in order to select the effective antibiotic. If this impossible, broad spectrum antibiotic must be used.
- Immediate isolation of infected clinical animal from offspring and the rest of the flock and.
- Get rid of aged animals or isolate it from the rest of the herd.
- Daily and frequent milking of sheep will potentially reduce the occurrence of the disease.
- Treatment of high milk production animal during the dry period can reduce the prevalence of mastitis after delivary.
- Periodic examination for subclinical mastitis at least once every three months.
- Early diagnosis and treatment of infected animals are critical in preventing the disease.
- Follow sanitary conditions during the milking process and beyond.

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RD Director: ……..…….…….. **Date:** …Jan. 14, 2013..