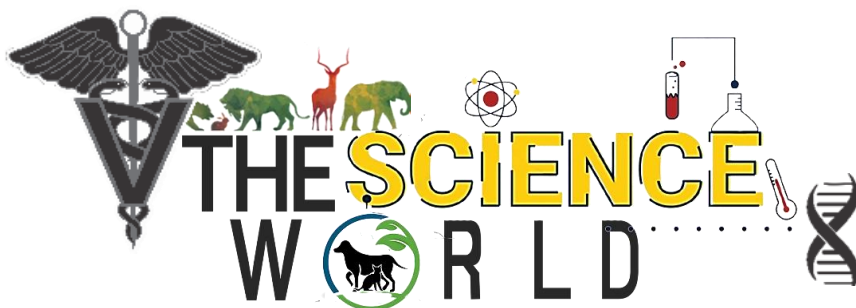




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Leptospirosis in Livestock: A Silent Cause of Reproductive Loss and a Neglected Public Health Risk

Boddupalli Ayesha¹ and Badugu Abhay Kumar²

¹Department of Veterinary Anatomy, Institute of Veterinary Science, Siksha O Anusandhan deemed to be university, Bhubaneshwar.

²Department of Veterinary Gynaecology and Obstetrics, College of Veterinary Science, Sri Venkateswara Veterinary University, Tirupati, Andhra Pradesh

Corresponding author: Boddupalli Ayesha,
boddupalliayasha777@gmail.com
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Abstract

Leptospirosis is a bacterial zoonosis of considerable economic importance that remains largely unrecognised on Indian livestock farms. The causative organism, a spirochaete of the genus *Leptospira*, survives for weeks in stagnant water, wet soil and muddy ground, and India's prolonged monsoon, frequent flooding, shared water sources and uncontrolled rodent populations together provide near ideal conditions for its persistence. The principal difficulty in control is that infected animals usually appear healthy. Once established in the renal tubules, the organism is shed in urine continuously or intermittently for months, so a single carrier can maintain infection within a herd indefinitely. Clinical expression is predominantly reproductive: abortion in the later months of gestation, repeat breeding, retained placenta, stillbirth and the birth of weak young. Dairy cattle may show an abrupt fall in yield with thick, discoloured milk from all four quarters and a soft, painless udder, a presentation frequently misdiagnosed as mastitis. Pigs and rodents act as long term reservoirs, while dogs may develop fatal renal and hepatic failure. Human infection occurs occupationally through contact with urine, contaminated water and wet soil, and presents as fever with severe calf muscle pain that is readily confused with dengue or malaria during the monsoon. This article outlines the epidemiology, species-wise clinical picture, economic consequences and practical control of leptospirosis, with emphasis on drainage, rodent control, quarantine, vaccination and personal protection at farm level.

Keywords: Leptospirosis, Zoonosis, Abortion, Livestock reproduction, One Health, Rodent control.



Introduction

Farmers readily recognise diseases that make an animal visibly ill. Leptospirosis is not one of them. The cow that eats well, milks reasonably and yet aborts in her seventh month for the second consecutive year, or the buffalo that will not hold to service cycle after cycle, is far more typical. Losses of this kind are usually attributed to mineral deficiency or poor semen quality, and the underlying infection is never investigated.

The Organism and Why India Is Vulnerable

Leptospira is a thin spiral bacterium that survives well outside the host provided conditions remain warm and moist, but is killed quickly by drying and direct sunlight. This single fact underpins most of what follows in control. Stagnant water, wet soil and the perpetually muddy ground near water troughs allow survival for several weeks. A long monsoon, flooding in deltaic districts, buffaloes that wallow for much of the day, mixed species sharing a common pond, and unchecked rodent populations make conditions in much of India close to optimal. After heavy rain the situation worsens, since floodwater carries contaminated urine well beyond the boundary of the affected holding.

Silent Carriers and Routes of Spread

After infection the organism localises in the renal tubules and is shed in urine, often for months, in animals that appear entirely normal. Rats are the classic reservoir and contaminate stored feed and bedding freely, but cattle, buffaloes, pigs, small ruminants and farm dogs also become long term carriers, after which the infection sustains itself without any outside source. Entry occurs through cuts and abrasions, through the mucous membranes of the eye, nose and mouth, through contaminated feed and water, and transplacentally to the foetus.

Species-wise Clinical Picture

In dairy cattle the damage is chiefly reproductive, comprising late abortion, repeat breeding and weak calves. Some cows show a sudden collapse in yield with thick, yellowish or blood tinged milk from all four quarters, the udder remaining soft and painless. Recognising this milk drop syndrome matters, since it is otherwise treated as mastitis. Acute cases run fever with jaundice, anaemia and haemoglobinuria. Buffaloes show even less, and a herd may remain infected for years with poor conception as the only complaint. In sheep and goats the disease surfaces only when kidding percentages fall. Pigs shed



heavily and for prolonged periods, with irregular cycles, abortion and mummified foetuses. Horses develop recurrent uveitis leading to blindness, and dogs acute renal and hepatic failure requiring immediate veterinary attention.

Economic and Public Health Consequences

Treatment cost is the smallest component of the loss. The real expenditure lies in calves not born, extended calving intervals, milk never produced and replacement animals purchased ahead of schedule. Human infection adds a further dimension. Farmers, milkers, veterinarians and abattoir workers are occupationally exposed, and illness begins as fever with severe calf muscle pain and conjunctival suffusion, easily mistaken for dengue or viral fever during the monsoon. Severe cases progress to jaundice, renal failure and pulmonary haemorrhage. Any fever following work in floodwater or handling of an aborted foetus should be reported to a physician with that history.

Prevention and Control

Because survival of the organism depends on moisture, drainage is the most effective single intervention available. Ground around sheds should be levelled, depressions filled and the area around troughs kept dry, with piped or tubewell water supplied in place of pond water wherever possible. Rodent control must be continuous rather than occasional, and feed stored off the floor in closed containers. Newly purchased animals should be quarantined for one month. Vaccination is available and is worth considering for organised dairy and piggery units and for farm dogs, bearing in mind that protection is restricted to the serovars included. Gloves and gumboots should be worn when handling abortions, retained placentae or sick animals, and repeated reproductive failure in a herd should prompt serological testing rather than empirical mineral supplementation.

Conclusion

Leptospirosis produces no dramatic outbreak, is therefore rarely tested for, and consequently continues to appear uncommon. Breaking this cycle requires farmers who suspect the disease when breeding records deteriorate and veterinarians who submit samples for confirmation. The infection is silent, but the losses recorded against repeat breeders and abortions in every farm register are not.



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