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**Colonisation of the ovine respiratory tract by  
*Pasteurella (Mannheimia) haemolytica***

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## Abstract

*Pasteurella (Mannheimia) haemolytica* is a member of the normal bacterial flora of the nasopharyngeal, tonsillar and oral mucous membranes of sheep. The history, characteristics and pathogenicity of this organism are reviewed and the associated diseases of the ovine respiratory tract are discussed. In New Zealand, *P. haemolytica* is associated with two major disease entities; acute pneumonic pasteurellosis and chronic non-progressive pneumonia (CNP). Clinical or acute pneumonic pasteurellosis occurs as a sporadic disease with low prevalence on certain farms whereas CNP is very widespread and economically important as it causes poor growth rates and downgrading of carcasses during slaughter.

The epidemiological relationship between the nasal carriage of *P. haemolytica* in healthy ewes and their lambs was investigated and it was found that although lambs occasionally became infected from their dams they were more commonly infected from other sources. A very significant difference between the rate of nasal carriage on four farms in the Manawatu district was observed and a peak prevalence of *P. haemolytica* was seen in the February-March period. A close relationship between nasal carriage and pneumonia was found on one farm (Farm 4), which initially had a pure and vigorous growth of *P. haemolytica* from the nasal swabs obtained from young lambs. When 6 lambs were kept in close contact for a period on one farm, all developed a high rate of nasal carriage of *P. haemolytica* within 5 days.

DNA fingerprinting of the isolates from ewes and their offspring showed a variety of restriction endonuclease patterns using pulsed field gel electrophoresis (PFGE). The pulsed field profiles of isolates from the nasal cavity of ewes and their new-born lambs showed that lambs are more likely to obtain the first strain of *P. haemolytica* from in-contact ewes, lambs or the environment rather than from their mothers. The pattern of isolation of *P. haemolytica* in lambs on three farms without pneumonia showed that most strains of the organism were present on only one occasion and within two months the nasal cavity was occupied by other strains. On one farm (Farm 4), some strains of *P. haemolytica* were present throughout the whole life of the lambs and one these strains was later isolated from pneumonic lesions at slaughter.

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