



## Differential diagnoses for lumpy skin disease

NOTE: this list only includes differential diseases endemic to Australia.

Differential diagnosis	Description of lesions	Confirming diagnosis	Image
Bovine Herpes Virus 2 (Pseudo-Lumpy Skin Disease/Bovine Herpes Mammillitis)	<ul style="list-style-type: none"> <li>Firm, round, raised nodules with flat surface and depressed centre</li> <li>Lesions appear suddenly</li> <li>Lesions all over the body, but in Australia lesions are mostly found on teats</li> <li>Lesions slough after 1–2 weeks leaving 1–2cm circular alopecia patches resembling ringworm</li> <li>Lesions disappear in a few weeks</li> <li>By contrast, lumpy skin disease lesions are ulcerative, necrotic and usually cause permanent scarring</li> </ul>	<ul style="list-style-type: none"> <li>Virology and histology of skin biopsies</li> </ul>	 <p>Lesions on teat of a cow with Bovine Herpes Virus 2. (Source: David Beggs, University of Melbourne)</p>
Bovine Papillomavirus (Warts)	<ul style="list-style-type: none"> <li>Papillomas of varying form and size</li> <li>Located anywhere on the body</li> <li>Most frequently seen on head, neck, shoulder and brisket</li> <li>Typically affects young cattle &lt;2 years</li> </ul>	<ul style="list-style-type: none"> <li>Histology of skin biopsies</li> </ul>	 <p>An unusually severe case of papillomas. (Source: Jeremy Rogers, PIRSA)</p>  <p>Cow with papillomas. (Source: David Beggs, University of Melbourne)</p>
Bovine Papular Stomatitis (Parapoxvirus)	<ul style="list-style-type: none"> <li>Raised, red papules</li> <li>Erosions and ulcers</li> <li>Affects the muzzle, nose, oral mucosa, oesophagus, and rumen</li> <li>More common in animals &lt;2 years of age</li> </ul>	<ul style="list-style-type: none"> <li>Electron microscopy of secretions or tissue scrapings</li> <li>Immunofluorescence or neutralisation of tissue cultures</li> <li>Histopathology of tissue biopsies</li> <li>Agar-gel precipitation, immunofluorescence or ELISA to look for viral antibodies</li> </ul>	 <p>Cow with parapoxvirus. (Source: David Beggs, University of Melbourne)</p>
Dermatophilosis (Rain Scald)	<ul style="list-style-type: none"> <li>Scabs in matted hair</li> <li>Alopecia where scabs are pulled/rubbed off</li> <li>Affects areas of the body that are wet for prolonged periods</li> <li>“Strawberry” appearance when scabs peeled off</li> </ul>	<ul style="list-style-type: none"> <li>Microscopic identification of organism in scabs/scrapings/biopsy samples</li> </ul>	 <p>Cow with rain scald. (Source: Jeremy Rogers, Department of Primary Industries and Regions)</p>

Differential diagnosis	Description of lesions	Confirming diagnosis	Image
Ectoparasites (e.g. mites, ticks)	<ul style="list-style-type: none"> <li>Clinical signs will depend on which ectoparasite is affecting the animal</li> </ul>	<ul style="list-style-type: none"> <li>Will depend on which ectoparasite you are suspecting</li> <li>E.g. diagnosis of mites is generally by microscopic detection of mites in skin scrapings or in nodules excised from the skin</li> </ul>	 <p>Parasite hypersensitivity (Source: Constantin Constantinoiu, JCU &amp; QDAF)</p>
Onchocercosis	<ul style="list-style-type: none"> <li>Can vary depending on species of Onchocerca</li> <li>Nodules are located intradermally and are easy to locate by palpation of the skin</li> <li>Depending on the species of Onchocerca, nodules may be located on the brisket, udder or abdominal wall</li> <li>Most nodules are 2.5–3.5cm in diameter</li> <li>Usually &lt;4 nodules per brisket</li> </ul>	<ul style="list-style-type: none"> <li>Biopsy of lesions</li> <li>Microscopic demonstration of microfilaria</li> <li>Generally 1 female and 1+ male worms coiled together per nodule</li> </ul>	 <p>Nodules on abdominal wall of cow with onchocercosis. (Source: Alfons Renz, University of Tübingen)</p>
Photosensitisation	<ul style="list-style-type: none"> <li>Non-pigmented, sun-exposed skin most affected (e.g. face, ears, muzzle, udder and along back)</li> <li>Skin may be itchy, red, swollen and blistered</li> <li>Scabs may develop</li> </ul>	<ul style="list-style-type: none"> <li>Clinical signs and access to toxic plants</li> <li>Blood tests, liver function assessment and post mortem examination</li> </ul>	 <p>Cow with photosensitisation. (Source: David Beggs, University of Melbourne)</p>
Pseudocowpox	<ul style="list-style-type: none"> <li>Initially appears as small, red, raised sores on teats and udders</li> <li>Progresses to vesicles, scabs and nodules</li> <li>May form a 'ring' or 'horseshoe' of scabs, over the course of several weeks</li> </ul>	<ul style="list-style-type: none"> <li>PCR test on blood, swab of lesion, or scab</li> <li>Clinical signs</li> </ul>	 <p>Sores on teats of a cow with pseudocowpox. (Source: David Beggs, University of Melbourne)</p>
Dermatophytosis (ringworm)	<ul style="list-style-type: none"> <li>Circular hairless lesions, up to 3cm diameter, may coalesce to form larger patches</li> <li>Head and neck most affected</li> <li>Skin initially moist and red, progressing to dry, scaly and grey</li> </ul>	<ul style="list-style-type: none"> <li>Ringworm sits near the hair follicle so deep skin scrape or biopsy not needed. Rather a hair sample can be placed in a culture – there are even specific agars which will change colour if Ringworm (Dermatophytosis) is present</li> <li>Microscopic demonstration or isolation of the organism</li> </ul>	 <p>Circular hairless lesions on a cow with dermatophytosis. (Source: David Beggs, University of Melbourne)</p>
Skin allergies (e.g. urticaria)	<ul style="list-style-type: none"> <li>Acute-onset of haired, dome-shaped wheals that may crust</li> <li>Angioedema in severe cases</li> <li>Lesions can appear anywhere on the skin</li> </ul>	<ul style="list-style-type: none"> <li>History of acute onset of lesions</li> <li>Lesions subside after glucocorticoid is administered</li> </ul>	