

TESTING FOR JD IN BEEF HERDS

A variety of tests are available for JD in cattle, including tests on blood, faeces and tissues. Most of these tests have very poor sensitivity (ability to correctly identify infected animals) in young animals or early in the onset of the disease.

False positive results can also occur in the blood test and are more common in northern Australia due to cross-reactions with other bacteria which the cattle may have picked up from their environment.

Because of this, tests are often used in combination, for example with initial screening by a blood test, followed by faecal culture, PCR or post mortem tissue test on reactor animals. The sensitivity of these tests increases as the disease progresses, even before signs of disease are noticeable.

Faecal culture – tests for presence of bacteria in the faeces

USE	ADVANTAGES	DISADVANTAGES
To confirm infection in suspect* animals or as a screening test of the adult herd.	<ul style="list-style-type: none"> Highly specific. Better sensitivity than blood test. Can be used as a pooled test, with up to five animals per test to reduce cost and increase throughput. 	<ul style="list-style-type: none"> Takes three months to get a result. Relatively expensive compared to ELISA

Faecal PCR – tests for DNA of the bacteria in the faeces

USE	ADVANTAGES	DISADVANTAGES
For screening animals over two years of age.	<ul style="list-style-type: none"> Highly specific. Better sensitivity than blood test. Rapid result (under one week). Can be used as a pooled test, with up to five animals per test to reduce cost and increase throughput. 	<ul style="list-style-type: none"> Expensive compared to ELISA (similar to faecal culture). Requires follow-up with other tests to confirm infection in herds not previously confirmed or suspect.

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Histology (microscopic examination of tissue samples from the gut of suspect animals)

USE	ADVANTAGES	DISADVANTAGES
Used for confirmation of infection in suspect animals	<ul style="list-style-type: none"> High specificity and moderate sensitivity. 	<ul style="list-style-type: none"> Requires slaughter of the animal and immediate collection of samples either in abattoir or on farm.

Tissue culture (culture of tissue samples from the gut of suspect animals)

USE	ADVANTAGES	DISADVANTAGES
Used for confirmation of infection in suspect animals	<ul style="list-style-type: none"> High specificity and sensitivity. 	<ul style="list-style-type: none"> Requires slaughter of the animal and immediate collection of samples either in abattoir or on farm.

Blood test (ELISA) – tests for disease antibodies

USE	ADVANTAGES	DISADVANTAGES
<p>Some export protocols require ELISA testing.</p> <p>For screening animals over two years of age</p>	<ul style="list-style-type: none"> Rapid result, relatively cheap. <p>A herd test, but not reliable as an individual animal test.</p>	<ul style="list-style-type: none"> Low sensitivity* for individual animals. The ELISA can fail to detect infection when it is present. Using ELISA testing of a herd offers moderate sensitivity. Imperfect specificity* results in false positive reactors, requiring further investigation. This is especially common in northern Australia. FOR THIS REASON IT IS NOT RECOMMENDED IN J-BAS.

* Sensitivity is the ability to give a positive result in an infected animal.

* Specificity is the ability to give a negative result in an animal that is not infected.

* Suspect animals are those with clinical signs of JD which haven't been investigated, reacted to a screening test but has not been subject to a follow-up definitive test.

