



**Scientific opinion on porcine
brucellosis (*Brucella suis*)
(Question No EFSA-Q-2008-665)**

EFSA scientific opinion on:

- The risks of ***Brucella suis*** being introduced into **domestic pig herds** as a result of the new **epidemiological situation** (ToR 1&2),
- The **suitability** of current and new tests for porcine brucellosis (ToR 4) and
- Existing **strategies to control or eradicate** this disease (ToR 3).

Mandate

- Issued 4 August 2008
- accepted 17 November 2008

EFSA AHAW working group

- 10 external experts and AHAW Panel members (int. coverage: DE, ES, FR, IT, PL, PT, RO, USA)

Scientific report

- Adopted by EFSA AHAW Panel (5 June 2009)
- The EFSA Journal (2009) 1144, 1-112

<http://www.efsa.europa.eu/en/scdocs/scdoc/1144.htm>

Conclusions

- EU epidemiological **situation is unclear** (lack of data from most MS, potential of under-reporting)
- *B. suis* **biovar 2** in wild boar and hare: recognised hazard in some affected EU MS
- **Wild boar**: identified as source of infection for outdoor, backyard and extensively reared pigs

Recommendations

- **Isolation and typing** of strains isolated from *B.suis* outbreaks should be attempted
- **Role of wildlife** should be investigated
- See also Recommendations on Risk factors

Table 2. Point estimates and lower limit (LL) and upper limit (UL) of 95% credible interval for sensitivity of diagnostic tests for *B.suis* based on meta-analysis (MA) of primary studies.

Test	MA Estimate	LL	UL	Number of primary estimates
BPAT	0.741	0.658	0.813	5
cELISA	1.000	0.988	1.000	2
CFT	0.533	0.464	0.602	8
iELISA	1.000	0.998	1.000	7
IFN	0.999	0.000	1.000	2
LFA	0.800	0.444	0.975	1
RBT	0.870	0.802	0.922	5
Rivanol	0.581	0.421	0.730	1
SAT	0.642	0.552	0.724	5
Skin	0.999	0.000	1.000	2

Note: If only one primary estimate is available, LL and UL refer to the lower and upper limit of the exact binomial 95% confidence interval, respectively.

Table 3. Point estimates and lower (LL) and upper limit (UL) of 95% credible interval for specificity of diagnostic tests for *B.suis* based on meta-analysis (MA) of primary studies.

Test	MA Estimate	LL	UL	Number of primary estimates
BPAT	0.908	0.861	0.943	5
cELISA	0.979	0.976	0.982	6
CFT	0.996	0.996	0.997	8
FPA	0.952	0.945	0.958	1
iELISA	0.999	0.999	1.000	24
IFN	0.999	0.000	1.000	2
LFA	1.000	0.949	1.000	2
RBT	0.998	0.997	0.998	8
Rivanol	0.949	0.905	0.976	1
SAT	0.986	0.983	0.988	3
Skin	1.000	0.863	1.000	1

Note: If only one primary estimate is available, LL and UL refer to the lower and upper limit of the exact binomial 95% confidence interval, respectively.

Conclusions (I)

- **Uncertainty** about diagnostic performance but currently available tests (i.e. RBT, CFT, ELISAs and FPA) appear sensitive enough to detect suspect herds (result of meta-analysis)
- **Lack of specificity** (false-positive reactions) is an issue
- **Herd testing** in the context of operation of semen collection centres (SSC) is the most reliable option of application of tests

Conclusions (II)

- **iELISA** and **cELISA** appear suitable candidate tests for admission of boars to SCC and compulsory routine testing
- However, the tests are **not fully standardised** and evaluated for use in pigs

Recommendations (I)

- When standardised and re-evaluated, the **iELISA and cELISA may be considered** for the purpose of testing boars for admission to SCC and for compulsory routine testing during the stay or on exit from SCC
- **Specificity** of current diagnostic tests should be improved

Recommendations (II)

- Development of **Brucellin-based tests**
- **Formal procedures** for test accreditation (e.g. as implemented by OIE) and harmonisation of tests should be considered
- **Epidemiological factors** should be considered when interpreting test results
- Further studies of tests for **semen**

Conclusions (I)

- Most important risk factor: exposure of **outdoor pigs** to **infected boars** (and hares)
- Risk of further dissemination: may be due to **failure to recognise** and report B.suis in outdoor, backyard and extensively reared pigs
- Hypothetical risk factor: Spread via **intra-Community** trade of breeding pigs and semen (currently no evidence for increased potential of spread to non-affected areas)

Conclusions (II)

- No safe and effective vaccines have been developed for *B. suis* (status June 2008)
- Operations of **semen collection centres (SCC)** seem to be well-controlled (Council Directive 90/429/EEC); transmission through this route is an important hypothetical pathway
- Considerable **probability of introduction** if a single boar is sourced from an infected holding and BPAT, SAT testing (simulation study using results of MA)

Recommendations (I)

- Currently available **vaccines are not recommended** for the control of porcine brucellosis caused by *B.suis* biovar 2 in Europe
- More complete and reliable data on the infection **prevalence in wild boars**, collected using standardised serological tests, bacteriological culture and typing of isolates
- Output-oriented *B.suis* surveillance in wild boar

Recommendations (II)

- Raise **awareness of risk factors** (e.g. feeding of swill or offals from hunted infected wild boars)
- Where wildlife is not free of B.suis, outdoor farming could be considered under **improved biosecurity** conditions

Thank you for your attention!

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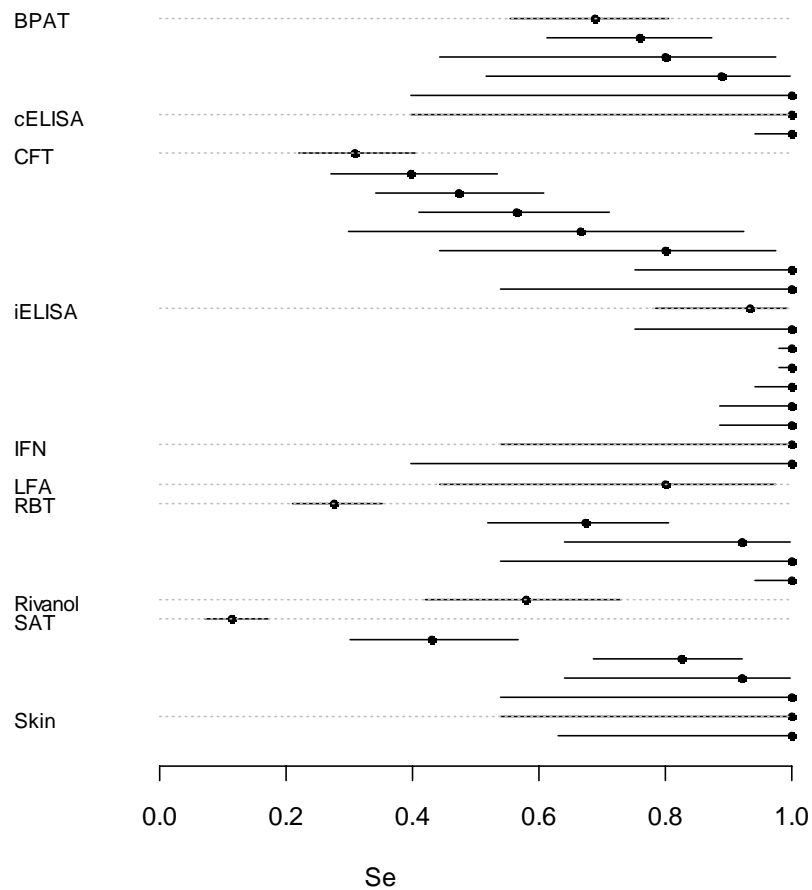


http://www.the7msnranch.com/2008_06_01_archive.html

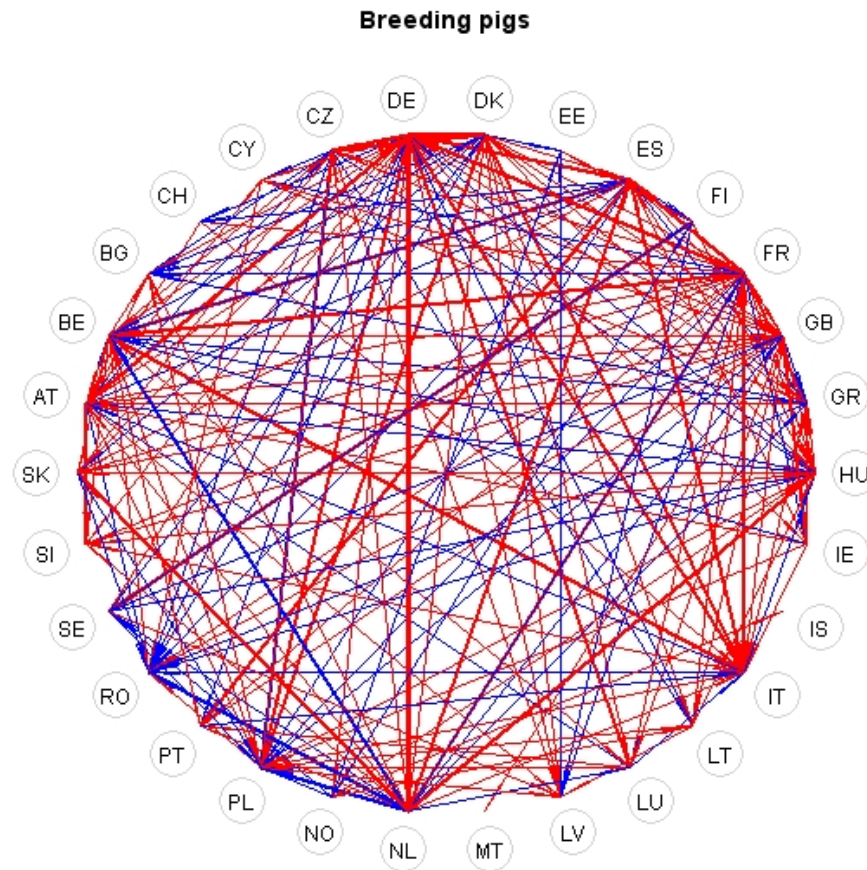
Acknowledgement

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The results of meta-analysis are uncertain due to heterogeneity among estimates



Intensive trade among MS is a potential risk factor if B.suis enters and remains undetected in trading pig farms



Risk factors were assessed based on expert opinion

Uncertainty and range of opinions among experts were considered

