THE UNIVERSITY of EDINBURGH
Global Academy of Agriculture and Food Systems

DDI Data-Driven Innovation
Part of the Edinburgh & South East Scotland City Region Deal

Livestock evidence synthesis and AI

Dr Louise Donnison

EDINBURGH
Extraordinary futures await

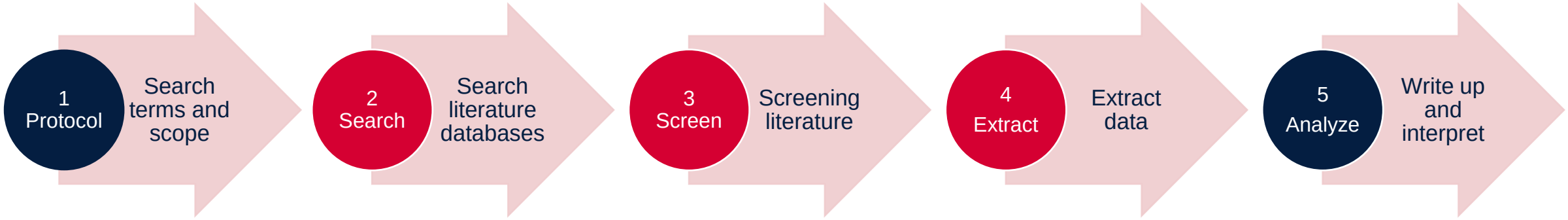
“Decision-making and public debate are best served if policymakers have access to the best current evidence on an issue”

The Royal Society 2018

Evidence Synthesis

Evidence synthesis is the process of combing information from multiple studies investigating the same thing to provide a comprehensive view of all the evidence and not just a sample of studies.

A good review meets the needs of decision makers, is current and timely, readily and widely available.



Documenting each step ensures that the process can be **replicated** and **verified**, reducing **bias** and **subjectivity**.

Systematic map of research evidence: livestock disease frequency in Ethiopia

Photo: Zerihun Sewunet (ILRI) (source)

Food security and animal health

Ethiopia's livestock sector supports the livelihoods of millions of smallholder farmers.

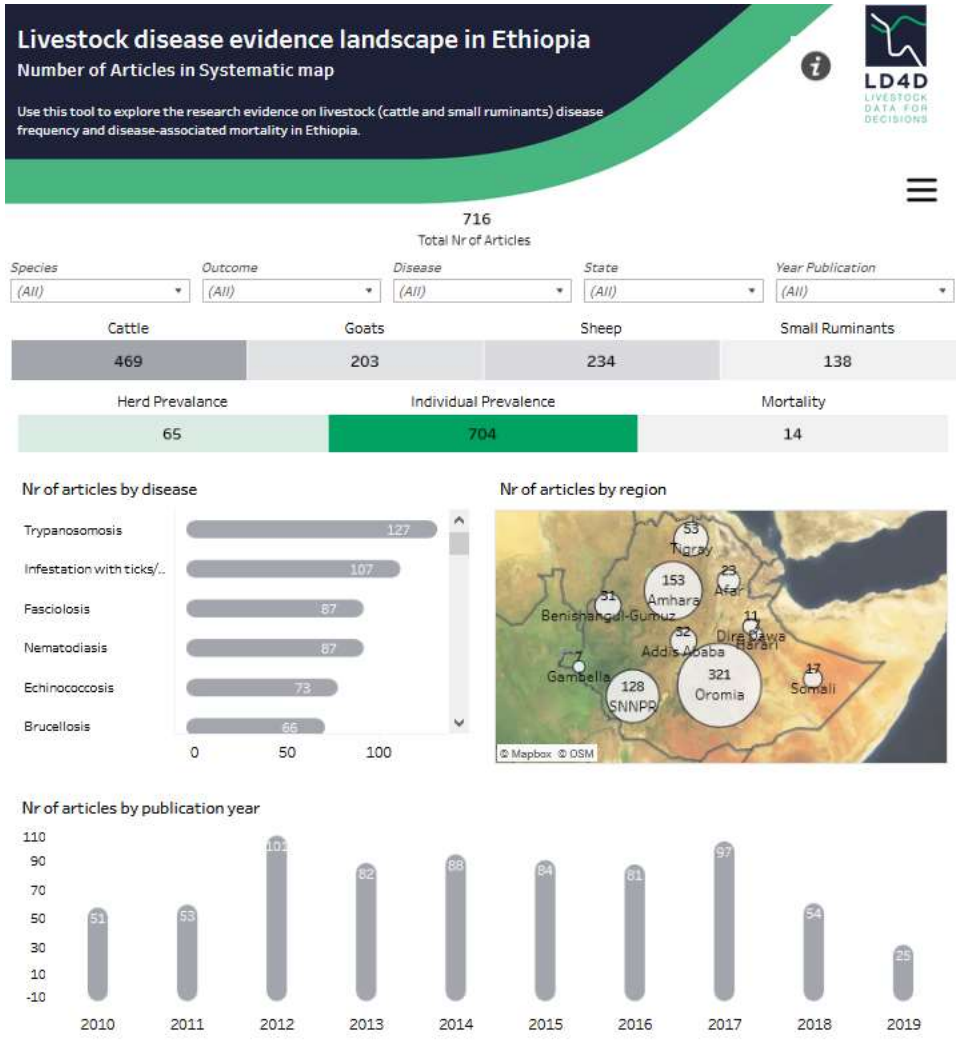
Despite improvements in recent years, livestock productivity (milk and meat production) remains low due to critical constraints, including infectious diseases

Collate and synthesize the published evidence on ruminant disease frequency in Ethiopia

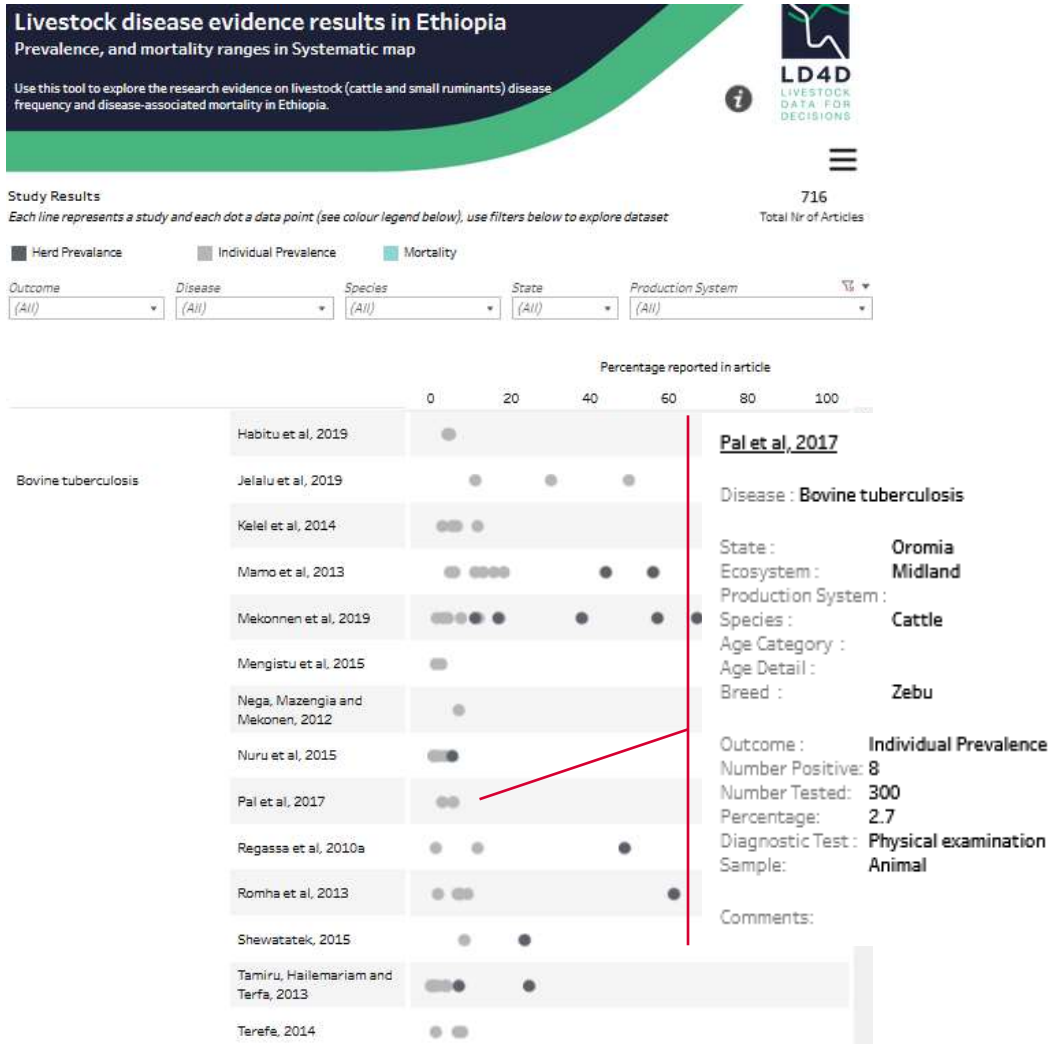
- Searched multiple databases
- Screened over 60,000 articles
- Extracted data from 716 articles

Policy makers have access to a comprehensive evidence base to inform decision making

Are there evidence gaps?



How **variable** is the evidence?



6 to 18 months on average to complete a systematic review

LitXpress an AI tool

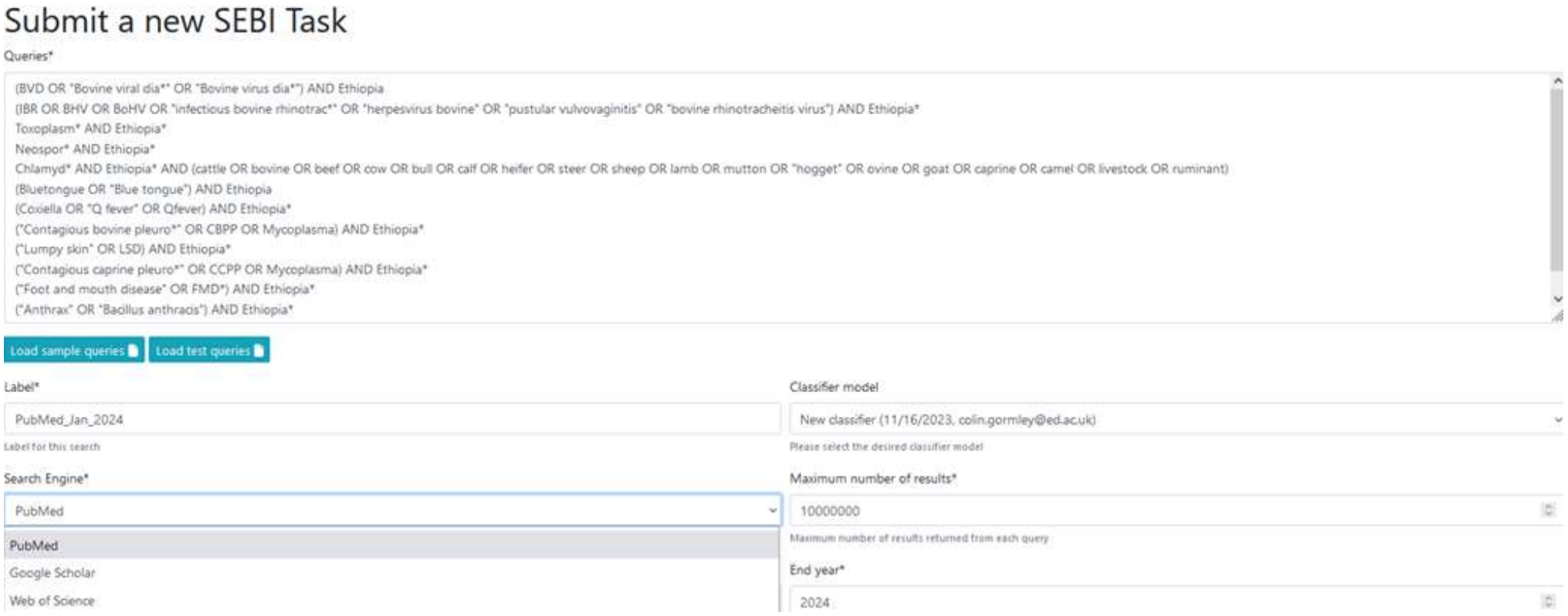
1 Protocol — Search terms and scope

2 Search — **Automate** Search literature databases

3 Screen — **Accelerate** Screening literature

4 Extract — **Accelerate** Extract data

5 Analyze — Write up and interpret



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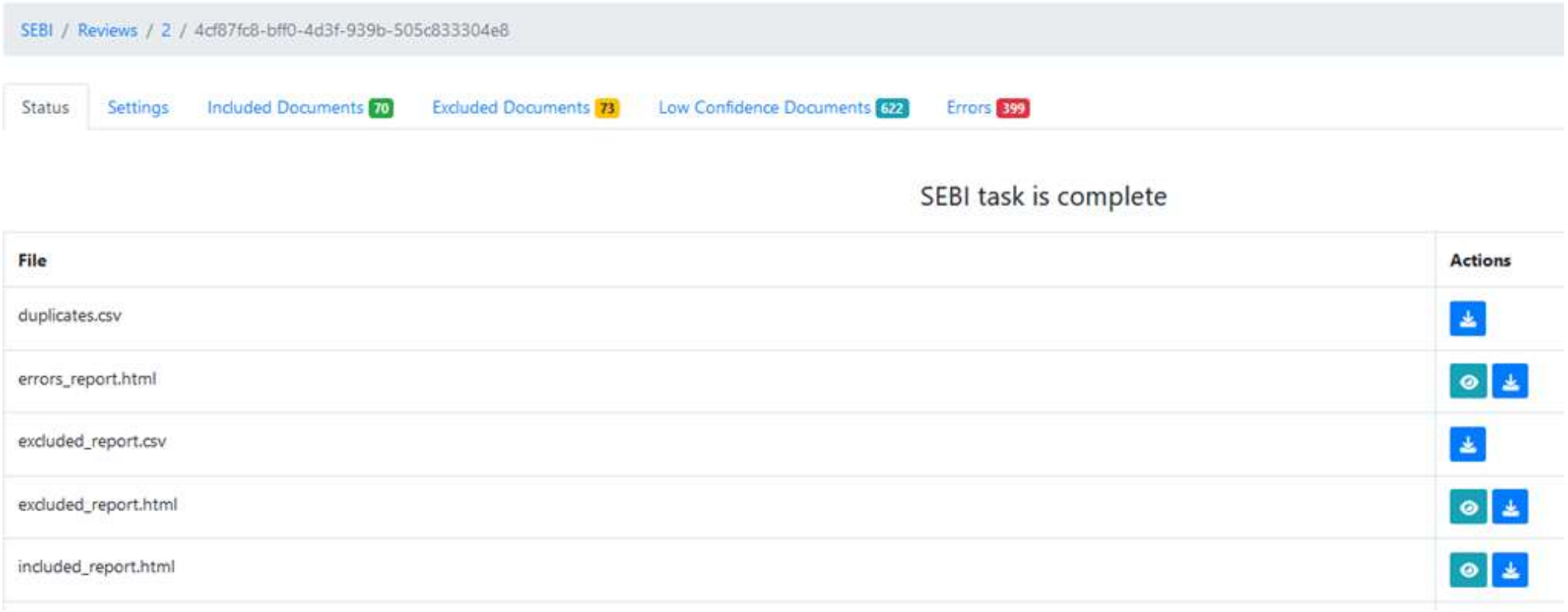

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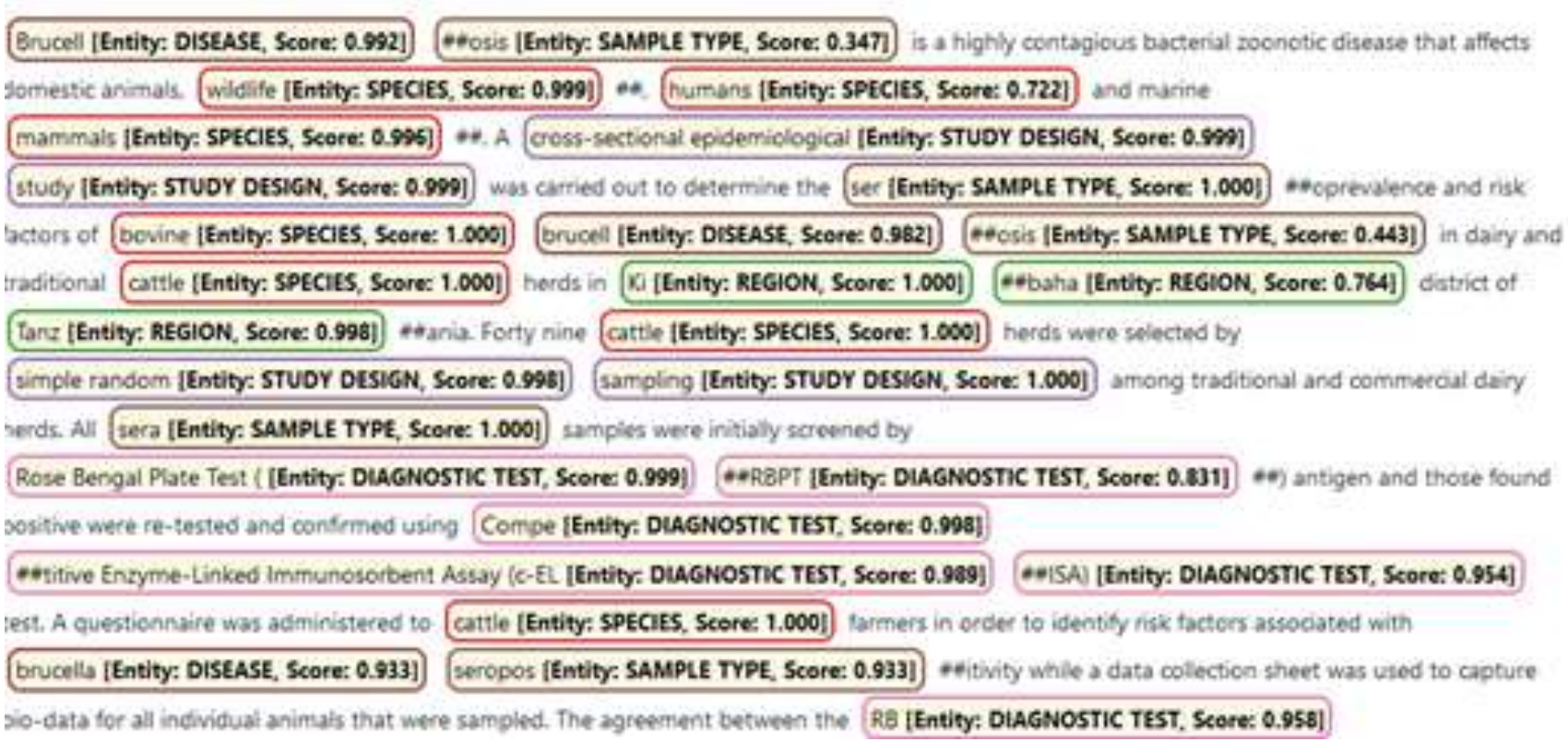

Conclusion and further information

- Evidence synthesis is a method to create unbiased evidence to inform decision making
- However, it is time consuming
- AI can speed up the process, but a human is needed to validate, review and interpret results.
- Links for more information to the right

- https://www.cochrane.org
- https://www.thecampbellinstitute.org/
- https://environmentalevidencejournal.biomedcentral.com/
- https://livestockdata.org/

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Thank you

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