# Assessing the available evidence of biosecurity risks associated with slurry processing

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- **Pathogens considered**: Salmonella spp., Clostridium botulinum, Escherichia coli, Mycobacterium bovis, Mycobacterium avium subspecies paratuberculosis
- Processing methods considered: Thermophilic and

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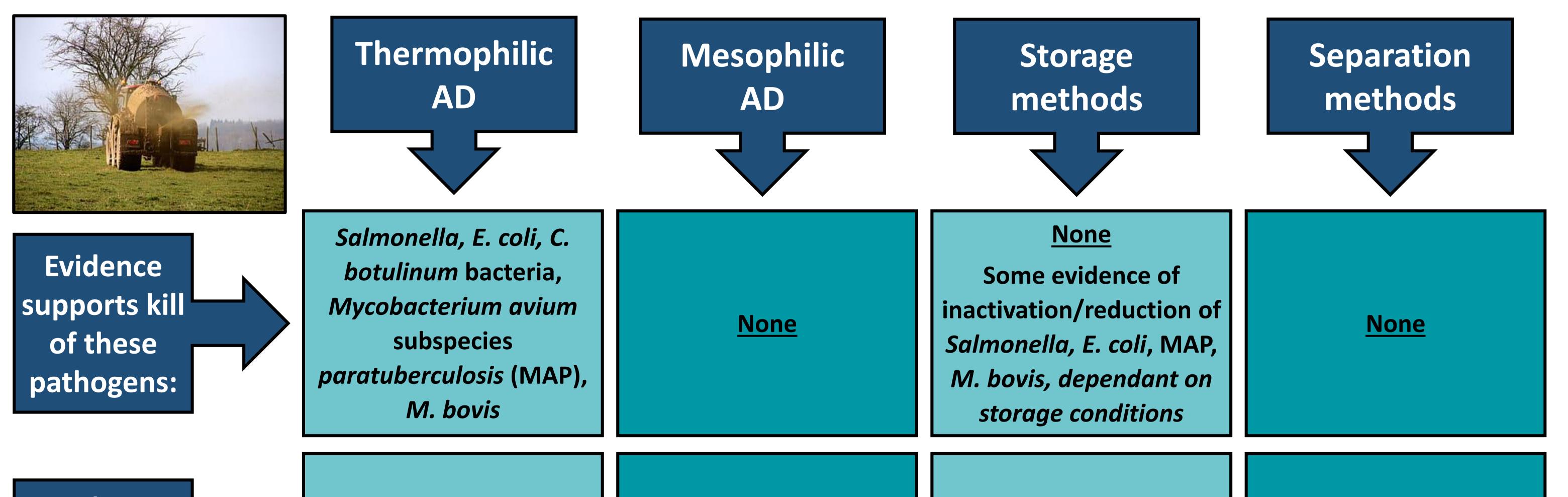


## **Project overview**

- Synthesise scientific literature detailing the fate of key pathogens through slurry processing methods
- Evidence gathered through systematic literature

review, augmented with additional microbiological information where appropriate

mesophilic anaerobic digestion (AD), slurry storage, slurry separation



р	Evidence suggests otential for urvival of:	C. botulinum spores	Salmonella, E. coli, MAP, C. botulinum bacteria, C. botulinum spores	C. botulinum spores	Salmonella, E. coli, C. botulinum spores
R	esidual risk	No available evidence for the response of <i>C</i> . <i>botulinum</i> toxins	No available evidence for the response of <i>C</i> . <i>botulinum toxins</i> , or <i>M</i> . <i>bovis</i>	No available evidence for the response of <i>C</i> . <i>botulinum</i> bacteria & toxins	No available evidence for the response of <i>C</i> . <i>botulinum</i> bacteria & toxins, MAP or <i>Mycobacterium bovis</i>
	Options for mitigation	Validation of processing parameters for pathogen inactivation	Heat treatment prior to digestion, or of the digestate following AD process	Monitoring of temperatures throughout the process to ensure they remain within	Heat, UV or ultrasonic treatment applied prior to separation. Liming of separated solids, but will increase ammonia

### critical parameters

@scporter\_

#### **Conclusions**

- There is a paucity of scientific literature on which to base our understanding of pathogen survival parameters
- It is therefore difficult to derive practical management advice regarding on-farm biosecurity
- Mitigation measures will involve further costs to producers

#### **Looking forward**

- There is a clear need for more empirical studies to redress knowledge gaps
- Additional disease surveillance in animals from which feedstocks are derived is recommended
- AFBI colleagues will be investigating survival of *M. bovis* in slurries

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