

# Evidence

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## Rapid Assessment Methodology for assessing the hazards from landspreading waste

Project summary 150512

Recovery of waste materials to agriculture is an important source of nutrients and soil improvers, reducing costs to industry and farmers while improving resource efficiency. While there are benefits, there are also risks that need to be assessed and managed. Regulators and operators must consider the types of waste that are appropriate to be recovered, the agricultural and horticultural benefits, and the site-specific risks associated with individual applications. To do this, they must have a good understanding of the physical, biological and chemical hazards presented by waste materials and an objective and open method to assess the potential risks to soils, crops and livestock, the wider environment and human health via the food chain.

There is a growing interest in the use of more systematic approaches to assessing evidence. However, this presents a series of challenges that includes identifying information sources, collating and combining the data, and analysing and reporting it in a clear and unbiased way. Evidence reviews in their various forms represent ways of searching for, reviewing and summarising evidence to help policymakers and practitioners answer specific questions. They range in cost, time and complexity from a literature review to the formal Systematic Review that has been used extensively in medical science.

Despite being the most comprehensive, the time and cost of a formal Systematic Review is often a major drawback. The alternative is to undertake a more rapid and less costly assessment of evidence to answer a specific primary question. A Rapid Evidence Assessment (REA) provides an overview of the volume and types of evidence and knowledge available to address the primary question or topic. An REA sets out a comprehensive search, which aims to be thorough and transparent under identified constraints. This is accompanied by a critical evaluation of evidence, using a formal weighting system.

The aim of this project was to develop an REA method to identify the hazards from landspreading of specific waste streams and to demonstrate its applicability through the use of examples. It addresses the main or primary question: *What key hazards are associated with [insert waste description] which could present a risk to critical receptors during or after landspreading on agricultural land?* It is supported by a framework of more detailed or secondary questions that provide structure to the evidence review and build-up the information that surrounds the main question. The report describes how to develop a search strategy to identify relevant evidence sources for waste streams and hazards; extract and evaluate evidence; and report the findings.

The outcome is a summary of the available evidence including the published scientific and grey literature, and unpublished data available from operators and waste producers. An initial master list of all possible hazards is produced, which is subsequently critically reviewed and refined. The shorter list of principal hazards are defined as being likely to be present and whose presence may be significant in terms of potential impacts on human health and the environment from applying the waste to land.

In addition to the main report, three worked examples have been produced that illustrate the variability in data sources, quality and quantity, and the value of working closely with waste producers to understand materials and processes. The examples are paper sludge ash, sludges from effluent treatment in the soft drinks industry, and cement kiln and by-pass dusts. The methodology report is accompanied by a Microsoft® Excel spreadsheet, which provides a template for evidence synthesis and extraction.

The first two worked example reports have been published by the Environment Agency, while the third and final report has been published by Defra.

This summary relates to information from project 150512, reported in detail in the following output(s):

**Report:** 150512

**Title:** Hazards from landspreading wastes: Rapid Evidence Assessment methodology

**Report:** 150512

**Title:** Rapid Evidence Assessment: paper sludge ash

**Report:** 150512

**Title:** Rapid Evidence Assessment: effluent treatment sludge from the soft drinks industry

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