

ADVISORY COMMITTEE ON THE MICROBIOLOGICAL SAFETY OF FOOD**DISCUSSION PAPER****FOOD SAFETY RISK OF RECYCLED MANURE SOLIDS USED AS BEDDING
FOR DAIRY CATTLE****Issue**

A reduced availability and increasing cost of more traditional bedding materials, has over a period of time led to the use of Recycled Manure Solids (RMS) as bedding for dairy cattle on a limited number of farms across the UK. There are significant uncertainties with respect to the associated risks to animal and human health from using RMS bedding and as a result different positions have been adopted by devolved Governments within the UK. There is a need to consider the potential microbiological food safety risks associated with this practice alongside the animal health risks and the environmental and economic costs and benefits. The uncertainty in the evidence has made it difficult to establish whether the material can meet the requirements for safe use. A paper is therefore presented to facilitate discussion on the potential microbiological food safety risks associated with the use of RMS and the research that may be required to allow those risks to be further assessed.

Members are asked:

- i. Whether they agree with the assessment that the main microbiological food safety risk is raw drinking milk produced by dairy cattle reared on systems using RMS bedding.**
- ii. To identify any additional data and research requirements that would allow microbiological food safety risks to be more fully quantified, in addition to those highlighted in the Gap Analysis outlined in the scoping study (Annex 1) taking account of the further research proposal (Annex 3).**

Background

1. Dairy farmers in the UK are increasingly interested in using suitable recycled waste materials, such as RMS, recycled wood shavings or paper sludge ash as animal bedding due to the high cost of virgin bedding, pressure to recycle waste materials and reported animal health and welfare benefits for some recycled bedding materials. However, some recycled bedding materials can contain relatively high concentrations of various contaminants, some of which are animal

and/or zoonotic pathogens which could be transferred to animals and subsequently meat and milk due to any incidental ingestion of the bedding.

2. Use of RMS (commonly known as 'Green Bedding) within the UK is currently limited. Our best estimate is that between 70-80 farms in GB and a further 5-10 in Northern Ireland currently use RMS bedding. It is not clear whether this will increase pending the outcome of further research into its safety.
3. RMS is produced by squeezing water out of the manure by a variety of press mechanisms to produce a material with around 35% dry matter content. The resulting RMS must then be used quickly and should only be used as bedding under well ventilated conditions to allow further drying of RMS. It is believed use is widespread throughout the EU and we know that currently 800 Dutch dairy farmers (4-5% of all dairy farmers in the Netherlands) are using RMS as bedding. Dutch research experience suggested that bedding management was more important than bedding type or initial bacterial load¹.
4. The Animal By-products (ABP) regulation EU 1069/2009 does not directly permit use of manure for animal bedding without further consideration of whether such uses may pose a risk to public or animal health. The regulation does however have provisions which permit animal by-products which are safely sourced and treated to be used for technical purposes which could potentially be applied in the case of manure/slurry that is treated for use for animal bedding. This provision would seem to allow the use of RMS for animal bedding as long as there is evidence to suggest it can be used safely.
5. Evidence on the use of RMS is limited. The available information has been collated in an initial scoping study (Annex 1), on the potential microbiological risks to animal and human health and benefits of using RMS as bedding for dairy cattle, carried out on behalf of DairyCo². The aim of the Scoping Study was to review the current knowledge with respect to the use of RMS as bedding for dairy cattle and thereby increase the understanding of its use in UK conditions.

Risk Assessment / Risk Management

6. The study concluded there was insufficient evidence available to assess whether the use of RMS poses a risk to public or animal health. It identified a number of potential risks, uncertainties and gaps in evidence about whether RMS could be considered safe for use as bedding for dairy cows. Uncertainties surrounding the use of RMS bedding include how the microbiological populations including, for example, *Mycobacterium bovis* or *Mycobacterium avium paratuberculosis*, might

¹ Unpublished work by researchers from Valacon Dairy and NIZO Food Research, Netherlands

² DairyCo is an organisation working on behalf of Britain's dairy farmers. Their remit is to tackle issues not currently being dealt with sufficiently to meet the needs of the industry. They also, provide products and services to improve the sustainability of British dairy farming.

behave in the substrate and whether there are implications for antimicrobial resistance and food safety. The report recommended that further research be carried out and offered some risk mitigation measures which could be applied in the meantime.

7. The study has informed the development of risk management strategies to address the potential risks and develop a precautionary approach pending further research. While these are primarily focused on management of animal health and welfare risks, interventions to prevent transmission of animal disease will also prevent spread of foodborne pathogens.

Food Safety Risks

8. The main food safety risk would appear to be associated with use of RMS on holdings producing raw drinking milk. The agreed conditions of use include a specific requirement that milk from production holdings using RMS must be pasteurised. Pasteurisation would destroy bacterial pathogens that might be present so this intervention provides a key control for any increased microbiological risk associated with milk produced by dairy cattle reared on RMS bedding.
9. Defra and Scottish Government have agreed to allow use of RMS as bedding for dairy cattle in England and Scotland to allow data to be gathered, provided farmers comply with certain conditions and follow best practice management criteria. These conditions have been agreed by Defra/Scottish Government in consultation with industry stakeholders (DairyCo, NFU, NFUS, Red Tractor, British Cattle Veterinary Society, DairyUK) to mitigate any potential risks to public and animal health, provide guidance to farmers, and to protect the reputation of the industry³. This agreement also allows beef farmers to use RMS bedding if they can comply with the prescribed conditions however to date there are no beef farmers known to be using RMS. The use of RMS bedding is currently not allowed in Wales in view of the uncertainties around the evidence base, although the position remains under review, and the situation in Northern Ireland is yet to be decided.
10. Farmers that wish to use RMS bedding need to comply with 14 prescribed conditions (which are set out in full in Annex 2) and which include:
 - RMS can only be produced from fresh cattle manure, and not from composted or digested material.

³ Further information can be found here on the DairyCo website:
<http://www.dairyco.org.uk/technical-information/buildings/housing/recycled-manure-solids/>

- The bedding can be used only for the same epidemiological unit, i.e. herd, which produced it and were over six months old.
 - It can only be used in cubicles and not yards or calving barns.
 - Any manure from tuberculosis inconclusive or reactor cattle cannot be used.
 - Milk produced by cows on RMS bedding has to be pasteurised.
11. The expectation is that compliance with these conditions will be monitored through the Red Tractor Assurance Scheme and failure to follow the requirements will result in a non-conformance against Red Tractor standards and may also result in enforcement action being taken by regulatory authorities under the Animal by-products regulations. In addition to the mandatory conditions and best practice recommendations, members of the Red Tractor scheme also have to comply with several scheme requirements, including the completion of a self-assessment checklist and annual veterinary review.

Next Steps

12. The precautionary interim position, paves the way for a period of further research, data collection and analysis to better understand risks and benefits under GB conditions. DairyCo has commissioned a new study aiming to consider the risks, and benefits of RMS used as bedding for dairy cattle relative to existing bedding material as well as its optimal management (Annex 3). The main objective of the research is to provide greater technical understanding to help inform the legal position with regard to the safe use of RMS as bedding. In particular it will investigate management and husbandry options to safely mitigate any potential risks to animal or human health. Should new research identify further risks to public or animal health then additional risk mitigation strategies may need to be applied.
13. The FSA is working closely with Defra to identify whether there are any additional research requirements needed to help identify potential food safety risks associated with the use of RMS bedding. The outcome of ACMSF discussions will assist with this work.

Secretariat
January 2015

Annex 1

DairyCo Scoping study on the Potential Risks (and Benefits) of using Recycled Manure Solids as Bedding for Dairy Cattle – Quality Management Service Ltd, School of Veterinary Medicine and Science at University of Nottingham, the Dairy Group.

Annex 2

Recycled Manure Solids (RMS) as bedding in cubicles for dairy cattle – mandatory conditions and recommended best practice for compliance⁴.

Annex 3 – For Members' Use Only

Further Research Proposal - Risks, benefits and optimal management of recycled manure solids for use as bedding for dairy cattle.

⁴ Source DairyCo; further information is available at (http://www.dairyco.org.uk/media/1037862/q_a_rms_bedding.pdf)