

**ADVISORY COMMITTEE ON RELEASES TO THE ENVIRONMENT (ACRE)
CONSULTATION ON GUIDANCE ON SOIL ECOLOGY**

EVIDENCE SUBMITTED BY THE SOCIETY FOR GENERAL MICROBIOLOGY (SGM)

Introduction

The Society for General Microbiology, founded in 1945, is an independent professional scientific body dedicated to promoting the 'art and science' of microbiology. It has now established itself as one of the two major societies in the world in its field, with some 5,500 members in the UK and abroad.

General Comments

The guidance notes on the whole certainly provide sound advice for the assessment of the environmental impact of genetically modified organisms in the environment. In their current form the guidance notes should be taken as an outline of the kind of parameters that groups intending to release a GM organism should aim to investigate in order to assess its impact in soil. The guidance notes are correct to point out that it is impossible to be prescriptive as soil is such a varied and heterogeneous substrate and therefore each release must be assessed on a case-by-case basis.

However the guidance is far from inclusive and a number of key points need to be clarified or reinforced for the guidance notes to be robust enough for their purpose (see Specific Comments). Despite the following criticisms the document is certainly a useful starting point and will be a helpful provision for parties seeking permission to release GMO's into the environment.

Specific Comments

1. It is understood that the guidance notes relate to the release of all genetically modified organisms and their potential impact upon soil. However this is not clear in the guidance notes. The wording of several sections suggests that the guidance is for use only with genetically modified crops. It is only in the last section of the report (Section 4.4) that any other organisms, in this case GM micro-organisms, are referred to.

Indeed, the whole of Section 1 seems to be ambiguous in this respect despite readers being referred to the Environmental Protection Act 1990 for a definition of a GMO. The last sentence of Section 1:

"the guidance avoids being prescriptive because each risk assessment will be case specific, depending on the characteristics of the GM crop variety itself, its management and use."

This reinforces the feeling that the guidance notes are aimed at GM crop use only. GM micro-organisms are still an important area of research not only for crop protection, but also in emerging areas such as biosensor technology, so it needs to be made clear from the beginning of the document whether they are within its scope.

Therefore a clear statement of the definition of the term GMO for this document, its objectives and the scope of the guidance is required at the beginning of this document to make this transparent.

2. Although it is again recognised that we cannot be prescriptive, a stronger description of potentially relevant tools that can be used to measure the impact on soil, soil biodiversity and processes is needed rather than unsatisfactory comments in relation to methodology. These methods could be categorised into groups, for example, key groups of micro-organisms, key processes, key bioassays, etc.
3. Some parameters are suggested for monitoring purposes, including specific key groups of micro-organisms involved in key processes in soil. This is certainly an important area for investigation. However, the document also refers to redundancy in function in soil (i.e. more than one organism or group of organisms perform a process). Even with the powerful array of modern molecular tools available there is no substitute for traditional methods for the monitoring of actual soil processes (for example, nutrient cycling). Therefore, this needs to be emphasised as a key area for monitoring. Even the most relevant molecular tools are only an indicator of potential, not actual, activity.
4. One of the potentially greatest impacts of a 'risk to the environment', is its cumulative effect after repeated use and the legacy of its use. These are mentioned almost in passing near the end of the document (Section 4.3). Surely when assessing risk, this kind of effect needs to be given due attention and the guidance notes need to reflect this.

Sources

This evidence has been prepared on behalf of SGM by Dr David Naseby, University of Hertfordshire.

About the SGM

Society membership is largely from universities, research institutions, health and veterinary services, government bodies and industry. The Society has a strong international following, with 25% of membership coming from outside the UK from some 60 countries.

The Society is a 'broad church'; its members are active in a wide range of aspects of microbiology, including medical and veterinary fields, environmental, agricultural and plant microbiology, food, water and industrial microbiology. Many members have specialized expertise in fields allied to microbiology, including biochemistry, molecular biology and genetics. The Society's membership includes distinguished, internationally-recognised experts in almost all fields of microbiology.

Among its activities the Society publishes four high quality, widely-read research journals (*Microbiology*, *Journal of Medical Microbiology*, *Journal of General Virology* and *International Journal of Systematic and Evolutionary Microbiology*). It also publishes a highly respected quarterly magazine, *Microbiology Today*, of considerable general educational value. Each year the Society holds two major scientific meetings attended by up to 1500 microbiologists and covering a wide range of aspects of microbiology and virology research.

The governing Council of the SGM has a strong commitment to improving awareness of the critically important role of microbiology in many aspects of human health, wealth and welfare. It has in this connection recently initiated a 'Microbiology Awareness Campaign' aimed at providing information to the government, decision makers, education authorities, media and the public of the major contribution of microbiology to society.

An issue of major concern to the Society is the national shortage of experienced microbiologists, particularly in the field of clinical microbiology and in industry. To attempt to improve this situation long-term, the Society runs an active educational programme focused on encouraging the teaching of microbiology in university and college courses and in the school curriculum, including primary schools. Some 400 schools are corporate members of SGM.

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