

## Technical guidance for GM animal assessments

*NB: This guidance reproduces the information available in the various “hover-over” information buttons on the on-line assessment template.*

### Assessment of risks to the environment

**Survive, establish and disseminate** – Consider:

- If the animal escaped and could not be retrieved, whether it could survive outside of laboratory conditions. This may only be in the short term but could be longer.
- Conditions in the receiving environment such as temperature, availability of food and whether the modification itself would increase the ability of the animal to survive eg it is more tolerant of colder temperatures.
- How easy it would be to retrieve escapees.
- Whether the animal could outcompete, displace or prey on native populations of animals.
- If the animal could adversely affect native fauna by overgrazing.
- The stability of the modification, especially if this is used as a means of control eg if the animal has been rendered infertile by the modification. Remember that organisms with a restricted capacity to survive will be under a selective pressure to revert.

**Transfer of genetic material** - Consider whether there are sexually compatible species in the receiving environment and the sex and fertility of the animals used eg using female animals means that the chance of gene transfer in the event of escape is reduced, assuming they can be recovered before they reproduce.

**Insert:** Consider whether the:

- insert codes for any biologically active substances
- animal could act as a novel disease reservoir eg if the animal was modified to express a receptor for a virus, could it then act as a reservoir for that agent?

### Determining the risk (to the environment or human health):

**Likelihood** – the most significant factor here is the means of containment of the animals, and so the limit on their access to the environment, but you will need to make a judgement about ease of escape and how easy it is to retrieve escapees. If an animal does escape, it will be the characteristics of the environment and the ability of the animal to survive etc that will influence the likelihood of harm being realised.

**Consequence** – this depends very much on the receiving environment eg for the insert to be transmitted, sexually compatible species/relatives must be present in the environment. Although the chance of escape may be unlikely, the assessment of the consequence of escape should be made independently and on the basis that harm will occur.

### Containment measures to control the risks to the environment/human health

Containment and control measures for work with GM animals need to follow certain basic principles, and be appropriate to the size or species of animal used animals should be housed in appropriate pens, cages or enclosures. Appropriate physical barriers should be in place to prevent escape in addition to procedural and management controls.