

# INFORMATION SHEET

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## Hybrids and the HSNO Act

### Introduction

The Hazardous Substances and New Organisms Act 1996 (HSNO Act) controls the importation and development of new organisms. "New organisms" are defined in the Act, and in regulations under the Act. (See ERMA New Zealand Information Sheet *New Organisms Under the HSNO Act*.) In practice, there can be some confusion in interpreting the definition of hybrid organisms. This Information Sheet has been prepared to clarify ERMA New Zealand's policy.

### What is a hybrid?

A hybrid is an organism resulting from a cross between genetically different parents. Hybrids can arise from crosses between closely related species (interspecific hybrids) or by crosses between different types (subspecies, varieties, cultivars) within a species (intraspecific hybrids).

Hybridisation occurs naturally, but it is also widely used in selective breeding programmes for both plants and animals. The mule is an interspecific hybrid between the horse and the donkey, bred to combine some of the favourable characteristics of each parent. Intraspecific hybrids often show "hybrid vigour" (heterosis), growing more vigorously and yielding more than in-bred lines. Most commercial maize crops are hybrids, produced by crossing two in-bred lines. This effect is also exploited in breeding livestock.

Many interspecific hybrids such as the mule cannot produce offspring. Intraspecific hybrids are usually fertile, but will not “breed true”. Their offspring will be highly variable, some resembling one parent, some the other, and others showing a whole range of characteristics and combinations between the two. It is possible, however, to multiply some plant hybrids vegetatively – by bulbs, corms or tubers, or by taking cuttings, budding, grafting or tissue culture. In these cases the new plants produced are clones of the original hybrid, genetically identical to it and to each other.

## Hybrids as New Organisms

ERMA New Zealand has based its policy on the ability to predict the behaviour of hybrids and their possible offspring after introduction or release.

- **Intraspecific hybrids** will not be classified as new organisms provided that the species was present in New Zealand before 29 July 1998, unless they are defined as risk species. This recognises that the characteristics of the hybrid and any offspring are likely to be intermediate between the two parents, apart from increased hybrid vigour in the first generation.
- **Interspecific hybrids** will be classified as new organisms. The hybrid cannot be included in either of the parent species, and therefore must be a new organism. It is also more difficult to predict whether the hybrid will be able to reproduce sexually, what the offspring will be like, and whether (if it is a plant) it will have the ability to reproduce and spread vegetatively.

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