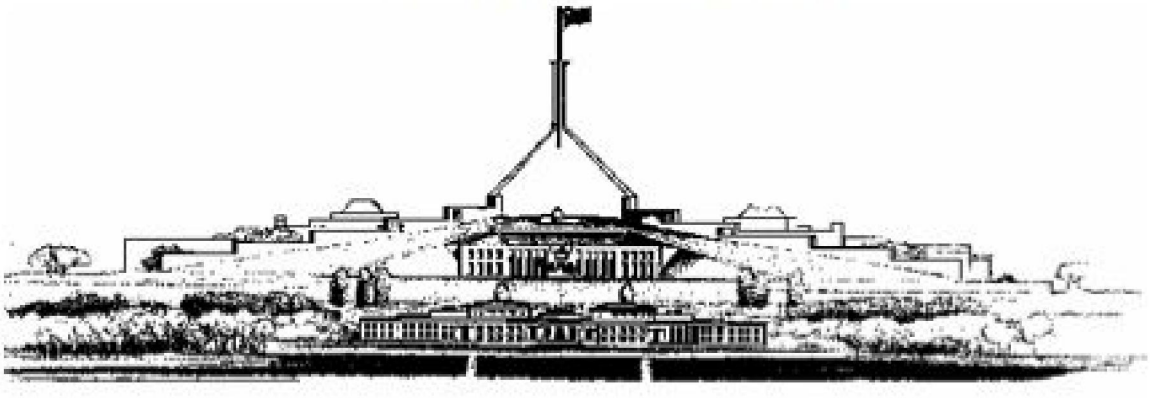
COMMONWEALTH OF AUSTRALIA

PARLIAMENTARY DEBATES



THE SENATE

PROOF

QUESTIONS ON NOTICE

Genetic Manipulation: Small Scale Contained Research

QUESTION

2558

Thursday, 9 November 2000

BY AUTHORITY OF THE SENATE

QUESTION

Date	Thursday, 9 November 2000	**Source**	Senate
Page	19650	**Proof**	Yes
Questioner	Brown, Sen Bob	**Responder**	Herron, Sen John
Speaker		**Question No.**	2558

Genetic Manipulation: Small Scale Contained Research

Senator Brown (Tasmania) asked the Minister representing the Minister for Health and Aged Care, upon notice, on 13 July 2000:

What species of eucalypt, acacia and pine are subject to `small scale contained research' and for each species: (a) who is doing the research and where; (b) why and using what genetic components; (c) what attributes are being sought or modified; and (d) when and where are field trials contemplated.

Senator Herron (Queensland—Minister for Aboriginal and Torres Strait Islander Affairs)—The Minister for Health and Aged Care has provided the following answer to the honourable senator's question:

From a search of Genetic Manipulation Advisory Committee's (GMAC's) records using the keywords `eucalyptus', `pinus' and `acacia', there are currently four small scale proposals involving genetic modification of eucalypt species and no current proposals involving modification of acacia and pine. Eucalypt species including *Eucalyptus grandis*, *E. dunnii*, *E. nitens*, *E. globulus*, and *E. camaldulensis* are currently subject to small scale contained research.

(a) Monash University in Clayton, Victoria;

University of Tasmania in Ridgley, Tasmania;

CSIRO Plant Industry in Canberra, ACT.

(b) Monash University is conducting a project to improve the rooting capacity of eucalypt trees (*E. grandis*, *E. dunnii*, *E. nitens*) after micropropagation *in vitro* using genes from a bacterium (*Agrobacterium rhizogenes*).

The University of Tasmania is looking at facilitating root induction and regeneration of genetically transformed eucalypts (*E. nitens*, *E. globulus*) in the laboratory using genes from *Agrobacterium rhizogenes* (*rol* genes) and *Agrobacterium tumefaciens* (auxin biosynthesis genes). A marker gene (kanamycin resistance) and reporter gene (-glucuronidase) from *Escherichia coli* have also been transferred to the plants. In another project, the University of Tasmania is looking at rooting ability in eucalypts (*E. nitens*, *E. globulus*) by transferring genes from *A. rhizogenes*.

The CSIRO Plant Industry has a small scale project which aims to: develop ways of ensuring sterility of transgenic trees by disrupting key genes in the flowering pathway; improve rooting ability of eucalypt cuttings; and improve the tolerance of eucalypt trees to insects and biodegradable herbicides. Various species of *Eucalyptus* comprising *E. camaldulensis*, *E.globulus*, *E. nitens* and *E. grandis* and various hybrids of these have been transformed with: insecticidal genes from the bacterium *Bacillus thuringiensis* (CryIA(c) and CryIIIA); herbicide (Basta) tolerance genes from the bacterium *Streptomyces hygroscopicus*; herbicide (glyphosate) tolerance genes from the bacterium *Agrobacterium tumefaciens*; antibiotic (hygromycin, kanamycin) resistance marker genes from the bacterium *Escherichia coli*; -glucuronidase reporter gene from *E. coli*, green fluorescent protein reporter gene from jellyfish; sense and antisense versions of eucalyptus flower regulatory genes or their *Arabidopsis* (a plant) equivalents; and genes involved in root development from *Arabidopsis* or their *Eucalyptus* equivalents.

(c) Refer answer to part (b).

(d) GMAC's records contain no information on if, when and where field trials are contemplated for these small scale contained projects.