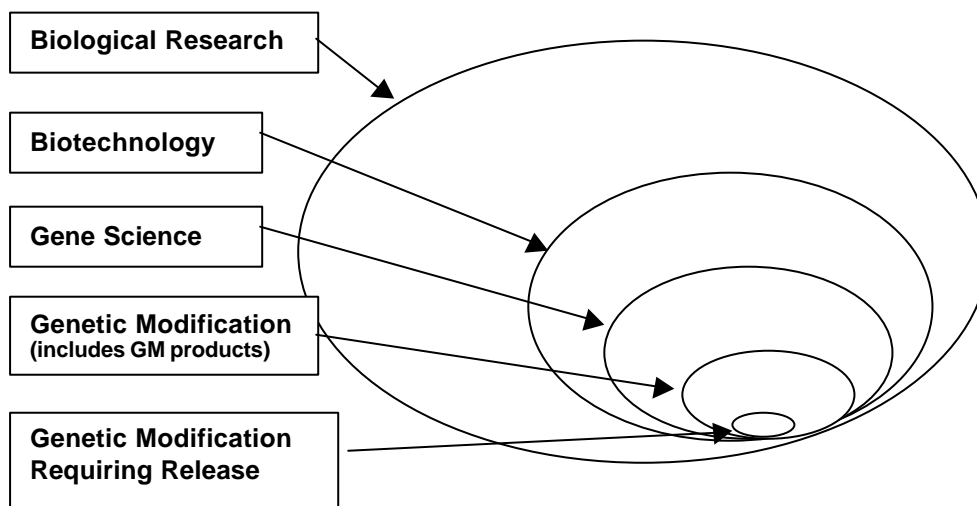




1. GM in Context: Its Small Share of Biological Research

- **Biological research** involves everything from asthma research, describing a new species of weta, and conventional plant breeding, through to molecular cloning.
- **Biotechnology** includes any technological application that uses biological systems from bio-screens in sewage plants, brewing of beer and cheese making through to genetic finger printing.¹
- Research that involves **genes** (gene research) is only a part of biotech.
- Research that involves **modifying genes** (genetic modification) is a smaller part again.
- Research that involves **modifying genes and releasing new organisms** is a smaller part still.



2. The Government is gene science and GM in New Zealand

Gene science and GMO release work is dependent for its existence on Government funding. This is the conclusion of the 2001 Industry New Zealand report on the biotechnology industry. Government is effectively driving the biotechnology sector to the extent that most R+D activity in the field would cease without Government funding². “Without this funding, there would be no industry”³, the report concludes.

¹ “**Biotechnology means any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use.**” *Convention on Biological Diversity*, 5 June 1992, Article 3, p4. New Zealand is a signatory to this convention and the Cartagena Biosafety Protocol to the convention.

² **Industry New Zealand: An Initial Survey of the Biotechnology Industry in New Zealand.** Discussion Document. June 2001, p. ix. See also p. viii and p.33. Also see the “Strategy Report of the Foundation for Research, Science and Technology 2000/01”, pp. 25-26. 65% of funding for the “Research for Industry” class, where most GM related projects classified, is allocated to CRIs.

³ *Ibid*, p. 58.

3. Government Biological Research Funding

- **Total Science Funding:** The Government's science funding body, the Foundation for Research, Science and Technology (FRST) committed \$383 million across all its research programmes for the 2000/2001 financial year.⁴
- **Biological Research:** Of this, \$214 million (or 56% of all science FRST funding) was invested in projects under its "biological research" programme.⁵ (This allocation and the sub-allocations are almost identical for the 2001/2002 year.)⁶
- **May Involve Gene Science:** The total funding of projects involving gene research (including some GM research) is \$170 million (or 79% of biological research funding).
- **GM Research Involving Release⁷:** Of this:
 - \$6.4 million (3% of the \$214 million biological research funding) was allocated to research to produce a GM related product or solution⁸
 - \$27 million (12.5% of biological research funding) was allocated to preliminary research which "may or may not" lead to GM products or solutions⁹. FRST explains that:
"The primary aim of this research is to extend scientific understanding of biological systems using GM. At this stage, the research is not clearly targeted at the production of GM-derived products or solutions. In the future, this research may or may not lead to these types of products."

Summary Table

Area of Research	\$ million
Biological	\$217
May involve gene science	\$170
Requires GM release	\$6.4

Source: FRST 2000/01

⁴ FRST Submission to the Royal Commission of Inquiry into Genetic Modification

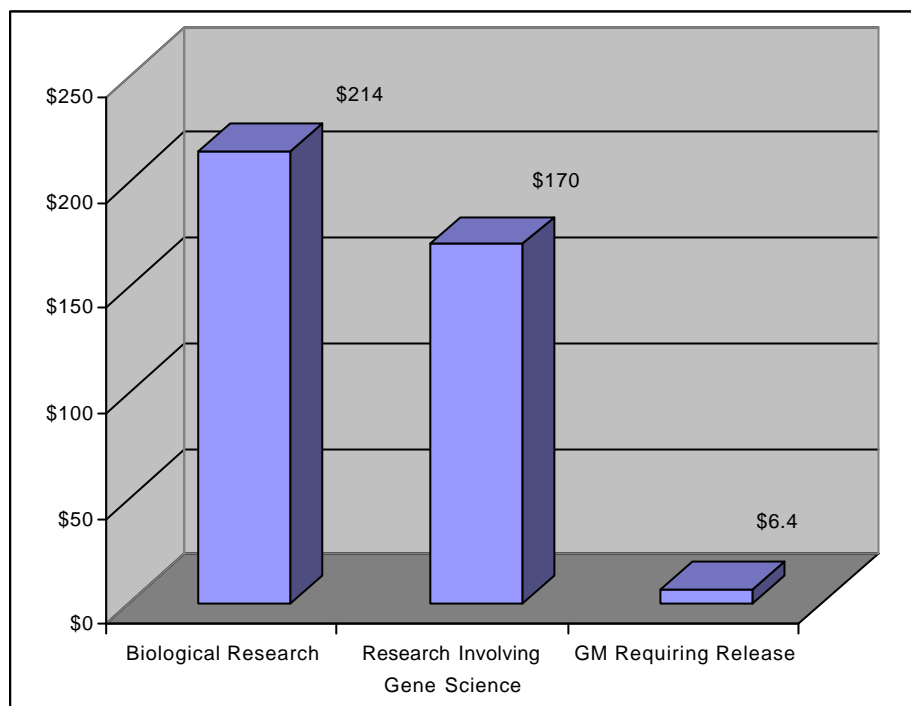
⁵ FRST website: <http://www.frst.govt.nz/research/ibe-bio.cfm>.

⁶ FRST, personal communication.

⁷ **Strategic Report of the Foundation for Research, Science and Technology 2000/01**, p. 25.

⁸ Industry New Zealand confirms the small share of GM activity in a report on the state of the industry from June 2001. It states that "recombinant DNA and genetic manipulation (GM) technology [...] is still only a small subset of biotechnology used in the broader context. Most biotechnology in New Zealand at the present time does not involve these genetic technologies". **An Initial Survey of the Biotechnology Industry in New Zealand**, June 2001. p. 1.

⁹ Royal Commission submission, October 2000.



4. Crown-Funded GM Projects Dominate Push for GMO Release

The bulk of Government science funding for biological research goes to Crown Research Institutes (CRIs)¹⁰.

By far the greatest source of applications for taking genetic material outside the laboratory come from Government entities. The Crown Research Institutes (CRIs) dominate the list of organisations making applications for GMO field trials, a trend that has increased since the establishment of ERMA and the voluntary moratorium.

- Over half (53%) of the field trials approved since 1995 have been conducted by CRIs (41% by Crop and Food alone)
- 87.5% (7 out of 8) of the field trials currently in operation (or approved and likely to proceed) are CRI projects

In comparison, private sector GMO field trials account for 41% of all field trials since 1995. This share has dropped dramatically. Since 1998, 4 out of 5 field trials approved by the Environmental Risk Management Authority (ERMA) have been abandoned. Currently, only one of 8 trials underway is a private sector project.

¹⁰ Ibid, p. 7.