MAORI AND GENETIC ENGINEERING

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The University of Auckland

RESEARCH REPORT EXECUTIVE SUMMARY

MAY 2000
Acknowledgements

This research was made possible by the goodwill of the Maori participants who shared their knowledge and experiences with the research team. We thank you and we hope that this report honours the trust that you placed in us. Kia ora koutou.

E nga mihi nui ki nga kairangahau. Many thanks also to those who helped with the interviewing: Cherryl Smith, Tania Mataki, Shirley Tukaki and Hine Forsyth.

Disclaimer

It is important to note that the research contracted is fundamentally of a reformist nature. Our participation in this research should in no way be viewed as a validation of the existing system.

Quotes

The stakeholder quotes included in this report are as close to verbatim as our data will allow. Our apologies for any misquotations.

Research Team

The principle researcher for this contract was Dr Fiona Cram (Ngati Kahungunu). The research team consisted of four researchers: Dr Fiona Cram, Leonie Pihama (Te Atiawa, Ngati Mahanga) and Glenis Philip-Barbara (Ngati Porou). The research team brought together a range of iwi affiliations, disciplinary and matauranga Maori backgrounds which further supported the overall research process. The research was conducted under the auspices of the International Research Institute for Maori and Indigenous Education and contracted through UniServices.

Advisory Committee

An advisory committee was established by the researchers. Members of this team were:
Ms Donna Gardiner, Te Wananga o Awanuiarangi, Manukau Campus
Mr Shane Heremia, Law Faculty, University of Auckland
Ms Georgina Roberts, Te Puni Kokiri

International Research Institute for Maori and Indigenous Education (IRI)

The International Research Institute for Maori and Indigenous Education (IRI) was established in 1997 and is situated in the Faculty of Education of the University of Auckland. The Institute consists of a multi-disciplinary group of mainly Maori academics with a proven record in research. The kaupapa of IRI is to conduct and disseminate research, scholarship and debate which make a positive difference to the lives of Maori and other indigenous peoples, by drawing together a group of highly skilled and respected scholars who are dedicated to quality outcomes in Maori and indigenous education.

UniServices

Auckland UniServices Ltd (UniServices) is an independent limited liability company wholly owned by the University of Auckland. It provides consulting services in New Zealand and internationally. It is also a research and technology transfer company. UniServices was the contracting agency for the present project.
1 EXECUTIVE SUMMARY

1.1 INTRODUCTION

This purpose of the present research was to examine with Maori the issue genetic engineering across three broad and inter-related areas:

- Food, including food production and the issue of labelling of food.
- Human health, including genetic testing and genetic solutions to health issues.
- Biological diversity, including issues related to indigenous flora and fauna.

It was anticipated that many of the concerns of Maori about genetic engineering would be similar to the concerns of people generally. However concerns have been voiced by Maori about intellectual property and the protection of not only indigenous flora and fauna but also of Maori genetic material.

In addition at least three key Maori concepts have been identified as relevant to the discussion of genetic engineering:

- All elements of the natural and divine worlds, including humans and genetic material, are related and are linked by the possession of mauri – the life force;
- It is the responsibility of the present generation, as kaitiaki, to protect the mauri of genetic material from defilement or abuse;
- Genetic manipulation may be seen to interfere with the integrity of species and, therefore, may interfere with the mauri of the affected species.

Maori have views on genetic engineering and these views have been expressed in a number of forum. These views are not new in the sense that we have always known of the importance of whakapapa and mauri. What is relatively new is the notion of genetic engineering and, in particular, transgenics. There are key people who have been speaking to these issues, and the issues of cultural and intellectual property, for the past decade. The present research is about exploring these views within a research context as well as talking to ‘ordinary’ people about their thoughts and concerns. A qualitative method was employed whereby key informants and focus group interviews were conducted with Maori throughout the country.

1.2 METHODOLOGY

1.2.1 Kaupapa Maori Research

Kaupapa Maori is ‘a theory and an analysis of the context of research which involves Maori and of the approaches to research with, by and/or for Maori’ A Kaupapa Maori approach does not exclude the use of a wide range of methods but rather signals the interrogation of methods in relation to cultural sensitivity, cross-cultural reliability, useful outcomes for Maori, and other such measures.

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1.2.2 Key Informants

In the first part of this research key informant interviews were held with 24 Maori who are knowledgeable about aspects of tikanga Maori and/or the issue of genetically modified food, intellectual property, Maori health, biological science, etc. These informants were identified by the researchers in consultation with our advisory group. During the interview the key informants were asked to comment on the nature of Maori concerns about genetic engineering. This was an open-ended discussion in which key informants were able to talk about how they have been thinking through these issues. Each interview lasted between 30 and 60 minutes and was audio-taped.

1.2.3 Focus Groups

The second stage of the research involved focus group interviews with Maori in metropolitan, provincial and rural locations. Our aim was to interview a minimum of 15 men and 15 women across a wide age range in each location. Participants were identified through personal networks, iwi organisations and through snowball techniques. Nineteen focus groups were conducted with between two and five participants; involving a total of 94 people. The interview schedule was semi-structured. In addition, a one page questionnaire was given out to participants to gauge their level of knowledge about genetic engineering as well as gather demographic information. Interviews were audio-taped as well as notes taken. The focus group interviews lasted between 1-2 hours.

1.2.4 Analysis

The analysis was done using the database of discussion notes and audio-tapes to draw out common themes. This was done through reading and re-reading the database, listening to the audiotapes, and discussions among the researchers. Separate analyses were conducted for the key informants and for the focus groups. We looked for points of disagreement, as well as points of agreement, between participants. These themes were then described and illustrative examples of korero were inserted as appropriate.

1.3 Key Informant Korero

1.3.1 Introduction

Twenty-four key informants were interviewed for this research. It was essential for us to ensure the korero of a diverse range of Maori people was included in the report. In selecting key informants we sought to include people who could comment on specific elements of the research and which operated across the areas defined by Te Puni Kokiri, those being: flora and fauna, human health and food. Each of these areas were canvassed with the key informants, however it is noted that it was inevitable that those interviewed would focus more specifically on the area within which they considered themselves to have expertise. This summary includes key points that were raised by informants (rather than common points).
Although this research is essentially qualitative we have provided a numerical summary of the topics that the key informants spoke about (Tables 1 and 2). All Key Informants saw genetic engineering as relevant to Maori. Twenty-one key informants stated that the Tiriti o Waitangi was relevant to the area of genetic engineering.

Table 1. Topics Addressed by Key Informants

<table>
<thead>
<tr>
<th>Topic</th>
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<tbody>
<tr>
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<td>Cultural and Intellectual property</td>
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<td>Links with other Indigenous Peoples</td>
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</tr>
<tr>
<td>Whakapapa</td>
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<tr>
<td>Maori require more information</td>
<td>19</td>
</tr>
<tr>
<td>Genetic engineering as Market driven</td>
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<tr>
<td>Concerns for whenua</td>
<td>17</td>
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<tr>
<td>The role of globalisation</td>
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</tr>
<tr>
<td>Wairua</td>
<td>13</td>
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<tr>
<td>Potential of food monopoly</td>
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</tr>
<tr>
<td>Need for some collective decision-making</td>
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</tr>
<tr>
<td>Mauri</td>
<td>11</td>
</tr>
<tr>
<td>Tapu</td>
<td>8</td>
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<tr>
<td>Te Puni Kokiri role in knowledge dissemination</td>
<td>7</td>
</tr>
<tr>
<td>Need for national body or Maori monitoring group</td>
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<td>Mana</td>
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</tr>
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<td>Noa</td>
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Table 2. Key Informants Views on the Necessity of Genetic Engineering

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<td>0</td>
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1.3.2 Definitions

In the key informant discussions the term genetic engineering was particularly problematic.

For the majority of Maori crossbreeding within a species is not only acceptable but has been practised by our people for many generations. If this practice is not clearly distinguished from other practices of altering genetic structures or transgenic experimentation we could easily misinterpret Maori views on the general area of genetic engineering.

There has been Maori involvement as ‘subjects’, researchers and critics of genetic engineering developments for at least the past 16 years.

Defining science

The definition of what constitutes science and whose science is affirmed or validated is important to the debate surrounding genetic engineering for Maori.

Kaupapa Maori world views state that matauranga Maori is both valid and legitimate and must be affirmed within the wider institutions of this country.

For many key informants the idea of manipulating or engineering the fundamental essences of people, plants or animals was not acceptable because of the cultural, spiritual and physical implications.

For some key informants an additional element was the ‘risk’ factor and whether the genetics is considered to be of high or low risk.

There is clear korero within matauranga Maori that can guide us in our deliberations about genetic engineering.

Defining selective breeding within species

It is clear that breeding ‘like with like’ is an accepted practice for Maori and that practice was refined to ensure ongoing sources of crops.

Genetic engineering and Maori

The answer was a unanimous ‘yes’, that as Maori genetic engineering is of major relevance to us and that we must of necessity be actively involved in all areas of discussion.

The specific reasons for why we should be involved included discussion related to the Treaty of Waitangi, cultural expectations, obligations to future generations, the need to ensure Maori control over our own destinies.

The relevance of genetic engineering is not only for the current generations but also for future generations.

Genetic engineering is another one of those issues that has been effectively ‘dumped’ on Maori, with very little time to think through and debate the issue. This has major implications in terms of access to knowledge and information.
1.3.3 Tikanga Maori and Te Tiriti o Waitangi

Tikanga
Many aspects of tikanga Maori were raised throughout the interviews. There are clear indicators available to Maori within tikanga that may support decision making processes and which also provide guidelines for ethical frameworks for research generally and for genetic engineering research in particular.

All key informants referred to at least one area of tikanga in their interviews. What varied was the degree to which key informants believed that tikanga Maori should or could inform how Maori approached genetic engineering.

There are critical questions in relation to such statements that need to be asked, that is (i) are our people aware of the meanings of genetic engineering and how that relates to purakau or pakiwaitara as referred to above, and (ii) is genetic engineering being conceptualised in ways that are appropriate to what is actually happening in the medical and science domains today.

Wairua
Wairua is seen as a key element in the genetic engineering debate for Maori.

Key informants who talked about Wairua did so in relation to elements such as mauri, whakapapa, karakia and whanaungatanga.

Whakapapa
Whakapapa was raised consistently throughout the key informant interviews.

The mixing of whakapapa through transgenic processes was viewed by many key informants as unacceptable practice.

The mixing of genetic material raised concerns in spiritual, cultural and physical terms.

Mauri
As with whakapapa, mauri was identified consistently in key informants interviews.

The consequences of desecration are well known to Maori, as is evidenced in our use of processes such as rahui and in the terms tapu and noa.

Te Tiriti o Waitangi
Te Tiriti o Waitangi was viewed by a number of key informants as the foundation for all processes regarding genetic engineering developments in Aotearoa.

There was discussion of the need for Maori to assert our tino rangatiratanga and take control of those things that we ourselves are able to determine.

1.3.4 Flora and Fauna, Food and Human Health

Flora and Fauna
Many key informants viewed each species as having its own inherent whakapapa and therefore a right to the maintenance of the separate integrity of species.
Fears of these crops impacting on other species was expressed. This it was noted could have potentially disastrous impact on rongoa Maori and infect the flora and fauna that we have.

The issue of containment as a critical one that needs to be engaged and question the notion that large numbers of transgenic sheep can be considered contained.

There has been genetic experimentation done for some time with little requirement placed on scientists.

The issue of unproductive land was raised and the possibility of genetic engineering enhancing the ability to grow crops on such land.

The idea that genetic engineering could enhance properties in native plants used for rongoa was not readily accepted by those interviewed who are involved in mirimiri and rongoa developments.

If in a position where there was the possible extinction of a particular plant genetic engineering could perhaps be a means of keeping it in existence.

If a native species is threatened then we as people need to look closely at what is happening in the environment around the species.

Food

Most key informants focused on the issues of transgenic developments within food.

There are many aspects regarding the genetic engineering of food including the impact on Maori heath of genetic engineered foods, the potential for multi-nationals to take control of the food supply through controlling seed stocks, and the inaccessibility of organic foods for Maori because of the expense.

Informants expressed concerns about the risks of eating genetically engineered food and the potential consequences for future generations.

There are also potential risks for the biodiversity within a rohe.

In terms of risks it was noted that containment is an issue.

The mixing of whakapapa from other species to place into food is unacceptable.

The profit motive of the genetic engineering of food is a concern.

The potential pollution of organic crops was raised.

Transgenic developments as unacceptable both physically and spiritually.

Access to choice in this society is linked directly to socio-economic status and in this country the groups with the least choice are primarily Maori and Pacific Peoples.

Maori make up a significant number of people in the low income and unemployed sectors of society and are therefore a more like to have to buy genetic engineering products if they are less expensive than other brands.

There already exists more than enough food to feed all people.
The monopolisation of food sources is created through power and control, and that this includes multi-nationals and other organisations such as the World Trade Organisation (WTO) and the International Monetary Fund (IMF).

Maori need to be able to engage genetic engineering as a part of a bigger picture, in particular as a part of a further wave of colonisation.

The development of genetic engineering is a process that further alienates Maori women from the land and environment.

Organic farming was perceived by many key informants as a valid direction for Maori and the country as a whole.

Growing organic food also reconnected Maori with the whenua and our place in relationship to the environment.

Biodiversity is a critical part of the environment and needs to be maintained not reduced.

Human Health

In the area of Human Health there were key informants who remained firm in their beliefs that genetic engineering should not proceed, others were hesitant in regard to committing to saying ‘no’ in cases where some human life may be saved.

All key informants believed that it is critical for open and urgent discussion must take place.

Many informants noted the need to weigh personal beliefs up with collective well being.

Informants expressed concern at decision making that is driven by a colonised mindset and the dangers of that for Maori.

Survival was a key point raised. When people are making decisions about survival, that is between life and death, there is possibility of accepting things that may not have been accepted previously.

Cloning is an area that most key informants did not believe should be developed in this country.

Control over processes and ethics

Many issues were raised in regard to who controls the processes and the need for clear ethics and protocols that are determined by Maori.

Having whanau in a position of needing to make decisions amidst crisis or within highly emotional times requires discussion.

Maori need to be a part of developing protocols and regulations in regard to the collection and storage of genetic materials.

The implementation of the Mataatua Declaration was a part of a strategy to stress to people that they can have control over these areas, and that Maori ultimately have a right to say ‘no’.

Frameworks need to be developed by Maori that will accommodate the differing interests.
1.3.5 Genetic Engineering and Issues of Decision-Making

Decision making is a key area that the data shows must be addressed. For some key informants this was directly related to the development of Treaty based processes that recognised and legitimated Maori as Tangata Whenua.

For others the issue of decision making was tied to information and knowledge available to whanau and Maori more generally.

It was on the whole considered that Maori do not have sufficient information to be making informed decisions about involvement in genetic engineering and biodiversity more broadly.

Decision making

The level at which decision making takes place was approached from a range of positions.

There were key informants who believed that individuals and their whanau did have right to make their own decisions and that could be viewed in relation to their own rangatiratanga.

This was however tempered by the belief that such decisions must also be made in the context of wider implications for Maori and that if there were wider potential implications for Maori outside of that particular whanau then debate needed to occur.

What was clear was the need for debate and discussion and informed decision making processes.

A number of key informants believed that in the process of deciding to be a part of genetic engineering developments individuals, whanau, hapu and iwi need to consider the wider implications for all Maori.

Informed consent was viewed as an outcome of informed decision making processes. For Maori to make informed decisions and therefore give informed consent they must be aware of the implications of what that are involved in and also the factors that remain unknown.

The local and national consent issue is one that needs to be clearly explained.

Some type of Maori monitoring organisation would be useful as a means of ensuring Maori have information about the issues.

This could be a body that would not only engage Maori decision-making but would also monitor the Crown in its accountability to Maori in its decision-making.

Knowledge dissemination

There is a dire need to get information to Maori that is clear and articulates the multiple ways in which biodiversity issues may impact on their lives and the lives of future generations.

Key informants note that information needs to be understandable for the person who is not involved in the area of biodiversity and needs to be made accessible.

Possible ways in which information could be disseminated and information needed were identified as follows;

- Hui - both local and national level
• A National Roadshow
• Workshops
• Broadcasting – Radio and Television
• Newspapers
• Through Te Kohanga Reo, Kura Kaupapa Maori and other Maori organisations
• Internet
• Petitions
• That material be Bilingual
• Information on writing submissions
• Mobilising around events
• Education campaigns
• Internet

The dissemination of knowledge as an obligation on the part of those who have access to the information.

There is a need for language to be accessible and to look at how language is used in the discussions.

1.3.6 Government Processes

ERMA

Outside of Nga Kaihautu, the involvement of Maori in the ERMA process appears to currently be resting on the shoulders of a small number of committed people.

There is also the more philosophical issues related to whether Maori voices and approaches are deemed important in the ERMA process.

The ERMA process is based within concepts of time that work against Maori. The complexities of these issues need time and can not be continually constrained by imposed timeframes.

ERMA must consider Maori in all cases, not just in the areas that they consider to be relevant to Maori.

Globalisation and Genetic Engineering in Aotearoa

Over the past sixteen years Aotearoa has been immersed in a globalisation agenda that has been driven by notions of market liberalisation and free market ideologies. The impact of this has been an increasing number of multi-national companies making investment here.

The role of multi-nationals

The role of globalisation and multi-national companies was raised by many key informants.

Informants identified a need for Maori to protect ourselves from being deceived by companies and researchers.

A further concern in relation to globalisation was the increased push to be involved in biotechnology research.
Cultural and Intellectual Property

Cultural and Intellectual Property rights is a critical area that must be addressed.

Key informants noted the Wai 262 claim is a major claim for Maori to the Waitangi Tribunal and many argued that a moratorium on genetic engineering should be enforced until such time as the Tribunal finds on the Wai 262 claim.

The signing of global contracts such as APEC is seen by some key informants as a denial of fundamental rights of Maori.

Commodification

Issues of commodification of taonga Maori in all forms is regarded as of utmost importance to key informants.

The construction of Maori taonga, including all human and natural resources as commodities available for sale is a growing phenomena. It is considered by some key informants that much of this is occurring with little or no consultation with Maori and is often undertaken in ways that benefit non-Maori and where control is taken from Maori hands.

Iwi Development and genetic engineering

The idea of Iwi development in the area of genetic engineering is one that a number of key informants saw as inappropriate.

Iwi investment in genetic engineering as serving the interests of individuals and not the people.

The individualisation of decision making is being problematic when that decision is to have an impact on the collective wellbeing of Maori.

The Human Genome Diversity Project

Knowledge of the Human Genome Diversity Project (HGDP) varied amongst key informants.

Some clear concerns about the underlying reasons for the collection of Indigenous genetic materials were expressed.

The majority of key informants interviewed were disturbed by the idea that Indigenous peoples DNA was being stored and controlled by non-Indigenous peoples and that this could have major implications for the future.

Some key informants explored the possible consequences for the wellbeing of Indigenous peoples globally, they noted that there is significant power for those who control the institutions within which these samples are held.

Many key informants comments on the Human Genome Diversity Project revealed a fundamental distrust with the notion that people would be collecting and storing genetic materials.

As is noted in the Human Health section the need to develop protocol and ethics is essential.

The need for Maori to have an awareness of what is happening in the collection of blood samples is also critical.
Maori relationships with the wider Indigenous community in regard to biodiversity

There is clearly a need expressed that as Maori we must link with Indigenous Peoples across the world.

It is noted that we have much in common in regard to land issues, language and cultural survival and revival, experiences of colonisation and colonial oppression, and that in terms of biodiversity we need to speak to each other and establish relationships that will support us in determining how to approach the many issues that are a part of this area.

The size of the Indigenous community globally is seen as an important factor in gaining knowledge and information about genetic engineering.

These numbers are also viewed as significant in terms of voicing opposition to acts that maintain oppression of Indigenous Peoples.

1.3.7 General Summary

This research does not seek to provide ‘the’ Maori perspective. This statement is even more necessary given Moana Jackson’s concerns about the ways in which the term ‘perspective’ is utilised within research pertaining to Maori. The insights shared with us by the key informants can however be seen as covering a diverse range of thoughts and views. The interviews indicate a number of things which can be summarised here, what is perhaps more important however is that we as Maori have undertake research that has encouraged discussion.

If there was a key finding it would be that we must urgently put in place processes for information dissemination and sharing of knowledge about genetic engineering to enable Maori people to make informed decisions. The relevance of genetic engineering to Maori is without doubt and the need for active Maori involvement in all aspects is also clearly expressed. That involvement must be one that recognises our Treaty relationship with the Crown. As such the involvement needs to be located at the level of decision making and not solely as advisory bodies or in the mode of being consulted. It is noted that those key informants who have knowledge of the current governmental process with ERMA find it highly inappropriate for Maori and this must change.

What is also evident is that Maori need to have information accessible. Accessible refers to both the processes of information dissemination and the content of how that knowledge is presented. A critical element is the need for clear definitions of genetic engineering. This includes discerning between what many view as traditional practices of cross breeding within species and the current construction of genetic engineering and biotechnology more generally. It is clear that Maori people can not afford to be uninformed as our genetic materials have been central to a number of key genetic experiments. Furthermore, the kaitiaki role of Maori as tangata whenua places us in a position where we must have access to the information to make informed decisions about our whenua, ngahere, moana, and the impact of genetic engineering on papatuanuku. This also requires the affirmation of matauranga Maori. Some key informants shared their concerns that matauranga Maori is too easily denied and marginalised in scientific processes. For genetic engineering to be fully discussed by Maori there is a need to have access to matauranga Maori as a means of locating genetic engineering in relation to fundamental Maori values. Specific examples of tikanga Maori were shared by
key informants as were views in regard to relationships between people and the wider environment.

It would be correct to state that where there are divergent views in some areas of the discussion, the majority of key informants find the process of genetic engineering as culturally abhorrent. This is most clearly highlighted in the areas of food, flora and fauna and cloning. The area that is most diverse in the responses is that of human health. This is to be expected given the importance placed on human life and ensuring people have access to whatever is required for them to survive. The human health area is one that raises key issues for Maori. As some key informants have noted in their discussions this is not new. The current state of Maori health has meant we have to face some difficult decisions. The practice of organ transfers is noted as an area that Maori have had to struggle with for some time. Genetic engineering in the area of human health urgently requires discussion and debate by Maori.

One area of human health that was rejected by the majority of key informants was that of cloning. Transgenic human to animal or human to plant was viewed with distain by many and for others needed further exploration in terms of research and debate. What was pointed out is that Maori are having to make decisions without being fully informed. This is particularly noted by those key informants who have experiences with terminally ill people in their own whanau. This can lead to Maori whanau ending up in positions where they are disempowered and have little real control over what is happening in the medical process.

Ethics and protocol developments are viewed as critical. The current situation where samples can be taken with little if any protection is seen as potentially dangerous for Maori. The Human Genome Diversity Project and its focus on Indigenous Peoples was seen in this light by many of the key informants. It is maintained that Maori people need to develop forms of protection from the taking of genetic material and also from the commodification of our entire being. The impact of globalisation and the control of multi-nationals over genetic engineering research and developments is viewed with much suspicion. Globalisation can be located as an extension of colonisation. Multi-national involvement is linked to government agreements such as GATT, NAFTA and APEC, which some key informants view as being driven entirely by notions of economic gain. There are real concerns that Maori dna will be taken, and become owned by multi-nationals through processes such as patenting. This also extends to flora and fauna, and food sources where Maori have noted native rongoa being sought after by multi-national companies. The monopoly control of food sources and the idea the genetic engineering is a means of ‘feeding the world’ are on the whole rejected by key informants, who locate such discourses as part of economic interest.

Key informants also discussed possible ways for Maori to take control through processes of sustainable development. Organic food and returning to growing our own food is noted as necessary for Maori communities. The potential for genetically engineered foods to be ‘dumped’ on Maori communities is considered high and therefore other options need to be explored. Genetically engineered food is not only considered unnecessary by many Key Informants it is also viewed by some as perpetuating class and gender oppressions through (i) providing cheaper crops, which may have longer term health issues for Maori and (ii) the denial of women to roles that they have traditionally undertaken in the agricultural sector. Access to food and control over food sources were also viewed as important issues.

Information and knowledge are a key to making informed decisions. All Key Informants saw information as critical. Maori involvement is essential and that the crown has an obligation to
support that involvement in meaningful ways. Many outlined ways in which information could be disseminated. On the whole it was noted that for Maori to be involved in the debate surrounding genetic engineering then appropriate and relevant information must be made available; that hui and workshops needed to be held across the nation; and that all forms of media needed to be utilised as vehicles for knowledge sharing. It was also evident that many of those involved in the research are more than willing to support an information dissemination process as for them the future of our people, of our tamariki and mokopuna depended on being able to make informed decisions.

1.4 FOCUS GROUP KORERO

1.4.1 Introduction

The use of focus groups in this project allowed the researchers to access our people within their diverse realities in order to ascertain their views, thoughts and ideas about genetic engineering. Participants were identified through personal networks, iwi organisations and were located in metropolitan, provincial and rural areas.

Focus group participants needed no prior knowledge in this area and interviews were semi-structured around the three themes identified by Te Puni Kokiri; kai, human health and genetic engineering. Participants were given the opportunity to explore the fullest scope of this issue for Maori with the provision of more general discussion questions that focused on the experiences of themselves and their whanau.

1.5 KNOWLEDGE AND ACCEPTABILITY

During the interviews with 39 participants (27 females and 12 males) responded to a short questionnaire that asked about their knowledge about and attitudes towards the acceptability of genetic engineering. Demographic information was also sought. Our aim was to provide a small insight into participants’ understanding rather than to scope all areas of genetic engineering.

1.5.1 Demographics

A number of the participants were from Ngati Porou and participants lived throughout the country. The average age of the respondents was 47.6 years (s.d. = 20.1 years). Over half the respondents (N=24) were employed; with 19 in full-time employment.

1.6 KNOWLEDGE AND ACCEPTABILITY OF GENETIC ENGINEERING

Most respondents rated their knowledge of topics related to genetic engineering as either ‘I know nothing’ (mainly for the Human Genome Project and Transgenics) or ‘I know something’ (mainly for DNA, Genetic Engineering, Genetically Modified Food) (see Table 5).
Table 5. Respondents’ Knowledge of Genetic Engineering

<table>
<thead>
<tr>
<th>Rate your knowledge of the following topics:</th>
<th>I know nothing</th>
<th>I know something</th>
<th>I know a lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 DNA</td>
<td>9</td>
<td>28</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>23.1%</td>
<td>71.8%</td>
<td>5.1%</td>
</tr>
<tr>
<td>2 Genetic Engineering</td>
<td>10</td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>25.6%</td>
<td>66.7%</td>
<td>7.7%</td>
</tr>
<tr>
<td>3 Biodiversity</td>
<td>15</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>38.5%</td>
<td>53.9%</td>
<td>7.6%</td>
</tr>
<tr>
<td>4 Human Genome Project</td>
<td>28</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>71.8%</td>
<td>25.6%</td>
<td>2.6%</td>
</tr>
<tr>
<td>5 Transgenics</td>
<td>18</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>46.2%</td>
<td>53.8%</td>
<td>0%</td>
</tr>
<tr>
<td>6 Genetically modified food</td>
<td>8</td>
<td>28</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>20.5%</td>
<td>71.8%</td>
<td>7.7%</td>
</tr>
</tbody>
</table>

The majority of respondents answered ‘no’ when asked if they found a range of genetic engineering practices acceptable (see Table 6).

Table 6. Acceptability of Practices

<table>
<thead>
<tr>
<th>Are the following practices acceptable?</th>
<th>Yes</th>
<th>Don't know</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Cloning animals</td>
<td>4</td>
<td>4</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>10.3%</td>
<td>10.3%</td>
<td>79.4%</td>
</tr>
<tr>
<td>8 Genetically modifying animals</td>
<td>4</td>
<td>3</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>10.3%</td>
<td>7.7%</td>
<td>82.0%</td>
</tr>
<tr>
<td>9 Patenting native plants</td>
<td>4</td>
<td>3</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>10.3%</td>
<td>7.6%</td>
<td>82.1%</td>
</tr>
<tr>
<td>10 Cloning human beings</td>
<td>0</td>
<td>3</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>0%</td>
<td>7.7%</td>
<td>92.3%</td>
</tr>
<tr>
<td>11 Genetically modifying embryos</td>
<td>0</td>
<td>2</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>0%</td>
<td>5.1%</td>
<td>94.9%</td>
</tr>
</tbody>
</table>

1.6.1 Searching for Definitions

For many of the focus groups the definition of genetic engineering was unclear.

Some groups surmised that genetic engineering was an extension of what nature was doing anyway and identified clearly and succinctly possible risks.

While others were unsure of what genetic engineering is and stated this plainly. They then went on to give a good definitions based on their current knowledge.
1.6.2 Tikanga Maori

All of the focus groups touched upon or referred to tikanga Maori in their consideration of the issues around genetic engineering. Discussion varied from deep considerations for our relationships with Ranginui and Papatuanuku and our status as kaitiaki and teina, to other considerations of the affects of manipulating DNA on those teachings that we continue to carry.

Whakapapa

As groups began to think through possible scenarios there was concern raised regarding the shape of our whakapapa in the future. People were worried particularly about the appearance of animals and plants in their whakapapa lines.

Tino Rangatiratanga

The call for Maori to take control of this particular challenge was heard loudly and clearly. This included ideas about self sufficiency among whanau, hapu and iwi and also the desire to engage in research. Whatever the initiative is to be the people interviewed magnanimously agreed that it must be Maori-controlled.

1.6.3 Flora and Fauna

The korero around flora and fauna was vast and covered areas such as cropping and farming, the growing of kai, organic kai as an alternative and environmental inter-relationships.

Crops and Growing

When discussing crops and growing there was some concern regarding the terminator gene utilised by large companies to control their seed stock as well as some discussion about the increased incidence and appearance of genetically modified crops.

There was some concern expressed regarding the inability of people to control the natural processes of evolution once it had been tampered with.

Groups discussed extensively the possible flow effects into the environment at length citing varying possibilities for harm.

Fauna

When considering the possible advantages of genetic engineering participants mused the return of the Huia and other species that have become extinct or endangered, but quickly realised the wider implications of their return.

There was also some discussion regarding the manipulation of animal genes as unpalatable.

Transgenics

The idea of mixing this with that was not acceptable to most groups interviewed. Most could not see any good rationale while others insisted that in the natural order of things we have pre-existing relationships with each other via whakapapa.

Some of the advantages of transgenics were also explored.
Kai
Arguments for the growing of genetically modified kai for the purposes of feeding the world were strongly resisted by most people interviewed.

Our people were very clear about what they considered to be the motivation for the production of fast growing kai, and these motivations had very little to do with feeding people.

Organic Kai as an alternative
Organic kai was identified as having integrity from the time of germination to the growth of the kai.

Several groups explored organic kai as an alternative and weighed up the issues surrounding the accessibility of seed stock and the kai itself, the cost and the appearance of organic vegetables.

The movement toward organic kai was strongly linked to calls for self sufficiency and tino rangatiratanga.

What was stressed by many was that organic growing practices were not new to Maori.

Some groups asserted that organic kai had become something of an elitist way to eat and that the cost of purchasing organic kai made it difficult to access by Maori.

For some Maori the sight of organic kai grown without the assistance of sprays and other things was perturbing. Organic fruit and vegetables appears smaller and often with imperfections.

There was some discussion around our expectations of supermarkets and how we just expect that every thing we desire in kai will be made available without thinking about the seasonal cycles of kai and crops.

Rongoa
Rongoa remains an important part of our ability as Maori to take responsibility for our own well-being.

Many groups talked about their frustration at the ‘discovery’ by health companies of the properties of varying rongoa. Important parallels can be drawn between their experience and likely scenarios for the future with regard to genetic engineering.

1.6.4 Human Health
On the issue of human health the full spectrum of our imaginary views spectrum was covered.

For those groups whose whanau had been affected by diseases such as cancer and others the prospect of a cure represents a hope for the future that they desired greatly.

For others the idea that we should not interfere in the natural schema of things prevailed whilst others questioned the origins of the illnesses Maori suffer from today.
Most groups interviewed were sceptical about pharmaceutical companies and corporations. They were clear about the potential to be ripped off and there were clear historical precedents for their assertions.

**Human Genome**

There were varying responses to this project, some of the people interviewed had never heard of it while others we quite well informed with a clear position on the inappropriateness of such a project.

**Eating GE Kai**

There was a suspicion among some of the groups that Maori were being set up as guinea pigs for genetically modified food.

The reality of economic hardship for our people sometimes means that the ideal of having a choice is invalid when the GE free is more expensive than the modified kai.

1.6.5 Making decisions about GE

**Intellectual property**

Alongside the concerns expressed thus far many of the groups explored the issue of intellectual and cultural property rights with regard to Maori flora and fauna.

**Individual or collective rights**

A scenario was presented to groups for discussion whereby their hapu is identified as possessing a particular gene that has the potential to cure disease. They are asked to consider who should make decisions on behalf of the hapu, individuals or the collective.

There was no easy answer as groups struggled with their own internal (hapu) politics and their ideas about who owns what when a trait is found amongst the collective group but can be (legally) obtained from an individual.

**Labelling**

Forsome the effectiveness of labelling was only going to be as good as the ability of major food and seed corporations to tell the truth about the origins of their kai.

Some of our people were sceptical about that whilst others acknowledged that to trace each food product back to its beginnings via the global web of inter-relationships may prove to be a tall order.

**Informed consent**

The ability to make an informed choice at the time of purchasing kai was important to most groups.

Groups were also clear that at the moment no real choice exists.
1.6.6 Getting the Korero Out There

Interestingly nearly every group interviewed commenced the korero by stating in some way that they considered themselves to be poorly informed regarding these issues, moving on to provide often ninety minutes of discussion.

Focus groups provided an opportunity for participants to explore issues and scenarios based upon their understanding of a Maori perspective.

What’s happening right now

Some people took the time to reflect on the way in which Maori knowledge is sought with regard to all manner of things, including genetic engineering, without Maori being given an opportunity to develop a full understanding of the context within which the information is sought.

While others mused the distinct lack of a Maori voice in the debate around genetic engineering and genetically modified food.

The way in which information has been presented and distributed to date was problematic for some.

While others had some ideas for work that ERMA could be doing.

Education required

Every one agreed that a massive education campaign needed to be launched immediately to kick start the korero that has to happen among Maori.

By Maori for Maori

The call for research and education programmes driven by tikanga Maori and Maori people was clearly heard across the motu.

Past experiences of being ‘consulted’ remained a the forefront of the minds of some, while others were unequivocal about the capabilities and interests of non-Maori researchers and educators.

Strategies for getting the people informed

There were many strategies suggested to ensure that genetic engineering became a hot topic for discussion among Maori.

Most clearly stated was the desire for ‘kanohi ki te kanohi’ feedback from this report and any further dissemination of the information.

Iwi radio stations, Maori television, Kohanga Reo, Kura Kaupapa Maori and other known Maori networks were suggested as good places to begin hui.

Interests in common with other indigenous peoples

Most groups saw that collective approach moving out to encompass other indigenous peoples as well as most recognised that we share issues in common with them.
1.6.7 Summary

The participants talked about a number of themes with the most frequently mentioned themes being whakapapa and what’s happening right now (Table 7).

Table 7. Overview of the Themes Discussed within Focus Groups

<table>
<thead>
<tr>
<th>Themes</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whakapapa</td>
<td>19</td>
</tr>
<tr>
<td>What’s happening right now</td>
<td>19</td>
</tr>
<tr>
<td>Tapu/Thi/Wehi</td>
<td>14</td>
</tr>
<tr>
<td>Tino Rangatiratanga</td>
<td>13</td>
</tr>
<tr>
<td>By Maori for Maori</td>
<td>13</td>
</tr>
<tr>
<td>Kai</td>
<td>12</td>
</tr>
<tr>
<td>Tikanga</td>
<td>11</td>
</tr>
<tr>
<td>Te Tiriti o Waitangi</td>
<td>9</td>
</tr>
<tr>
<td>Illness &amp; disease</td>
<td>9</td>
</tr>
<tr>
<td>Searching for a cure</td>
<td>9</td>
</tr>
<tr>
<td>Pharmaceutical Companies</td>
<td>9</td>
</tr>
<tr>
<td>Interests with other indigenous peoples</td>
<td>9</td>
</tr>
<tr>
<td>Crops &amp; Growing</td>
<td>8</td>
</tr>
<tr>
<td>Transgenics</td>
<td>8</td>
</tr>
<tr>
<td>Individual or collective rights</td>
<td>8</td>
</tr>
<tr>
<td>Labelling</td>
<td>8</td>
</tr>
<tr>
<td>Education required</td>
<td>8</td>
</tr>
<tr>
<td>Research required</td>
<td>8</td>
</tr>
<tr>
<td>Fauna</td>
<td>7</td>
</tr>
<tr>
<td>Rongoa</td>
<td>7</td>
</tr>
<tr>
<td>Organic Kai as alternative</td>
<td>6</td>
</tr>
<tr>
<td>Human Genome</td>
<td>6</td>
</tr>
<tr>
<td>Strategies for getting people informed</td>
<td>6</td>
</tr>
<tr>
<td>Getting the koreo out there</td>
<td>6</td>
</tr>
<tr>
<td>Eating GE Kai</td>
<td>5</td>
</tr>
<tr>
<td>Intellectual Property</td>
<td>5</td>
</tr>
<tr>
<td>Informed consent</td>
<td>5</td>
</tr>
</tbody>
</table>

Whilst nearly every interview began with participants spending some time describing their lack of information and expertise in this area this research belies their professed position. Each group was able to engage with these issues from at least one domain from within their personal experiences of living as Maori in Aotearoa nei.

With regard to tikanga groups were articulate in their analysis and theorising around the inter-relationships of us as human beings with our primeval parents and siblings. Also many recalled the teachings of their old people and their knowledge of whakapapa to work through
the formulation of Maori perspectives on genetic engineering. Although many talked about the treaty and our rights as Maori secured within it, others talked about our responsibility as kaitiaki as pre-dating the treaty. The call for tino rangatiratanga and for our people to take responsibility for self sustaining life styles.

Where animals and plants are concerned the level of knowledge among groups interviewed regarding varying experimentation that is being carried out was good. Where people were relatively unaware these of scenarios assisted them to engage in discussion that explores possible advantages and/or disadvantages. Whilst some could see the logic in same species mixing, bought about largely due to their knowledge of cloning and hybridity, transgenics was unpalatable. Most groups were clear that money as a motivational force for transgenics was not sufficient to win their support.

Most groups also were clear that the argument for GE food that promises to feed the world was a thin disguise for a profit motive on the part of corporations. It was plainly stated that current world hunger is sustained by a greedy few and was largely an issue of distribution rather than a lack of available food. Organic kai as an alternative for Maori was thoroughly explored in terms of its accessibility and viability.

Where human health was concerned the positions adopted in relation to kai and genetic engineering were less clear for some. With many of the people interviewed associated with a sick whanau member who could benefit from a cure for cancer they were frank about their desires to support their whanau through genetic experimentation that could result in a cure. There were succinct analyses though of the origins of many diseases affecting Maori, where many subscribed to the view that a return to more traditional living would result in health gains for Maori.

Making decisions about GE was posited as both a collective and individual responsibility. Scenarios were used to illustrate the complexities of the issues concerned while groups were able to recall many incidences of shonky dealings with researchers, the medical fraternity and other health professionals. The ideal of informed consent was explored while conclusions were reached regarding the current situation in New Zealand. It became clear to people that there was a real potential to be eating GE kai right now.

Every group interviewed asked about more information and for further education and research in this area. By Maori for Maori was the common position in terms of the provision of education to our people around the motu and for the conducting of any further research. Most groups also had ideas about getting the korero out there to our people on the ground.

In finishing we leave the last words to these quotable quotes to follow, here some of our people predict what a GE past, present and future for Maori might look like in Aotearoa.

Scenarios for the future

The survival of any population is also based on those abnorms and their diversity within them, within their gene pool, you take out all of those, like what they are doing in our vegetables and fruits now and our flowers, I mean heck flowers don’t have much of a smell anymore they look beautiful but, and you take out all that diversity and that, this is Charles Darwin stuff, you rip out all of that and then what happens is you only need one, one anomaly to wipe out the whole lot and I think we are actually heading that way. Palmerston North group
They had that French testing at Mururoa, they reckon won’t affect the fish, the environment and all the rest of it, and look what’s happening to those people. Reporua group

Going back to genetics, the reason why we’re here is because we’re descended from strong sailors from yester year that actually sailed here, think of it. They had to be very ruddy and strong willed to actually hop into their Waka and head south. Sure they had lots of information from their ancestors that told them where to go and how to and which month to and all the right things to take, but they were very strong people. So if you think about that as not just the mana of the ancestors there is also all their knowledge that they had before they actually set out, it’s all that, everything. Nga pakeke o Otautahi

The other thing is to is that even the experts wouldn’t know, they may know the short term advantages and disadvantages, but they certainly don’t know the long term ones, and who, if it goes wrong twenty years down the track, who is going to take the rap? Mount Maunganui group

Cause we don’t know what the future holds with regard to genetic engineering and genetic modification, we get worried about it. Mount Maunganui group.

If your research suggests strong opposition amongst Maori towards GE foods, I would suggest raising a petition amongst Maori calling for the withdrawal of all GE foods from the market until conclusive evidence can support that the health and whenua of our people won’t be impacted negatively. Hamilton group.