Social perspectives on gene editing in Australia

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Attitudes to GM foods

Lockie & Pietsch 2012 ANU Poll on Food Security

Lamberts 2017 ABAS Survey (DIIS)
Can’t we just ‘educate’ people?

• Inconsistent results from studies examining education, “knowledge” and information provision

• Scientists from different fields show different levels of support

• More “knowledge” can lead to reduced support
The “deficit model” – kill it with fire!

ONE DOES NOT SIMPLY

PROVIDE INFORMATION AND ASSUME THAT
PUBLIC OPINION AND BEHAVIOUR WILL CHANGE
Research in the Food Values Research Group

Understanding how attitudes to food production are socially constructed

- Women’s attitudes to GM foods
- Attitudes to GM in wine
- Food Ethics
- History of GM in Australia
- GM moratorium in SA media
- Gene editing in the media
Qualitative research approaches

66% of people we surveyed liked the colour red.

“I like the colour red because ... one day ... “
Food choices are complex

• Ethical claims are linked to quality and a way to reduce ‘risk’

• Perceptions don’t appear to be related to knowledge of current Australian agricultural practices or regulations

• Consumer behaviour alone does not explain community sentiment about issues in agriculture
Women’s attitudes to GM foods

“I’m sick of being treated like a dumb Mum who doesn’t understand the science”

Bray and Ankeny 2017, New Genetics and Society
Ankeny and Bray 2016, IJFAB

A mum takes action against GM wheat

Greenpeace activists, including one mother who wants to protect her family, have stopped a GM wheat experiment outside Canberra this morning.

Two women used whipper snippers to remove a controversial genetically modified (GM) wheat crop before day break.

The activists constructed a decontamination area to safely dispose of the untested and potentially unstable GM organisms.

Safety in question

The activity follows the revelation that Australia’s peak scientific body, CSIRO, is conducting the world’s first human feeding trials of GM wheat, without adequate safety testing.

“This GM wheat should never have left the lab,” said activist and mother, Heather McCabe. “I’m sick of being treated like a dumb Mum who doesn’t understand the science. As far as I’m concerned, my family’s health is just too important. GM wheat is not safe, and if the government can’t protect the safety of my family, then I will.”
Freshness, health, local etc are important

“... I grow most of my own vegetables and I grow my own meat. ... I know what’s on those vegetables ... every vegetable ... in the fruit and veggie shop has been sprayed with one chemical or another or harvested too soon and then kept in this suspended state for months. To me ... the nutritional value is more what I’m interested in” (G1 F1, unconcerned)

“It’s kind of a perception that you ... get food from the lab or food from the garden and genetically modified to me is kind of food from the lab whereas food from the garden is the fresh, natural kind of stuff” (G3F3, avoider)
Different understandings of evidence/safety

“... there’s so many other things like you know synthesised drugs that never existed before and things like that that we’re happy to put into our body. I don’t see how it’s different to what’s being done with genetically modified food” (G1F5, unconcerned)

“Foods have a fairly lax regulation...they don’t have to show any experiments in humans or even in animals to show that the food is okay” (G2F2, avoider)

“... they don’t really have to test these crops, like, they grow them in a few fields but I’m not sure how much testing there is between that and it becoming a food” (G3F4)
Uncertainty, strong negative associations

“It [GM] has such connotations with it—you have the whole “Franken foods” and stuff like that...it’s not like [that] at all” (G1F4, unconcerned)

“I think it’s more the media hype that’s gone along with that which has made it (genetic modification) a naughty word” (G1F5, unconcerned)

“I wouldn’t [buy GM foods] but it’s because I don’t know enough about it at the moment and it’s scary” (G3 F1, avoider)

“I associate GM as being not as good for me and I don’t know why, I just, that’s just how it is” (G2 F5, avoider)
Media framing of science issues is important

Gene editing could bring an end to all inherited disease and cancer, expert says

‘I think we will see it being used to cure all inherited diseases, to cure cancers, to restore sight to people by transplanting genes,’ Edze Westra says

Not just what to think, but also how to think about issues
Gene editing in Australian media

Number of gene editing articles published in Australian media to 31/12/16
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Gene editing summit

Liang et al 2015
Gene editing is ...

breakthrough    revolutionary    game changer
ground breaking    disruptive
powerful    exciting
“Gene editing is the transformative technology of our generation: by altering the building blocks of life, we can start to address large-scale problems like hunger, climate change and even human longevity.” (Three-way IVF allowed to correct genetic defects. Madhumita Murgia, 31 October 2015, Canberra Times)

“The new technology is a game-changer – but it’s not a runaway phenomenon, like releasing cane toads, blackberries or rabbits into Australia.” (Why we can trust scientists with the power of gene-editing technology. Merlin Crossley, 2015, The Conversation)
Gene editing is ...

precise targeted accurate cheaper easier efficient faster cut and paste molecular scissors design
“It [CRISPR-Cas9] is relatively simple, inexpensive and accurate, and it’s already being used in laboratories around the world to make cells and breed laboratory animals with modified DNA for the study of diseases.” *(Forget about designer babies – gene editing won't work on complex traits like intelligence. A Cecile JW Janssens, 3 December 2015, The Conversation.)*

“It's not so easy that you can just blunder along I guess following a recipe book, you have to know what you're doing ... if you were completely off the street with a do-it-yourself book it might be tricky.” Peter Waterhouse, quoted in *CRISPR – Part Two*, produced for Future Tense by William Isdale, 18 July 2016, ABC Transcripts.
But ...

ethics/ethical issues
designer babies    eugenics
off-target effects
cautions
regulation
unknowns
need for debate and discussion
Key findings from media analysis

- Media fairly limited to ‘science curious’ audience
- “Science moving faster than the public”
- No proactive community engagement described within the corpus
- Is the ‘social licence to operate’ in this domain at risk?
GM opposition is not just about “the science”

- At least – not the science involved in the process of creating a GMO
- More associated with “Big Ag” and “Big Food”
Do scientists have (or need) a “social licence”? 

“Co-constructing a licence suggests a reciprocal relationship between the social and the scientific with obligations for public and private institutions that shape and are shaped by science, rather than just science alone” Raman and Mohr 2014

• Shared values between science and the community is important for trust, and trust is more important than the ‘facts’
• Finding ways of promoting better alignment between “science’s” and “society’s” values are needed
• Needs scientists and HASS researchers working together throughout the research process (and especially at the start)
Moving from ‘deficit’ to dialogue

- It’s not a matter of *education* - there will always be a ‘knowledge’ gap
- People need tools to evaluate credentials and claims – transparency is key
- Encourage people to understand the ‘trade-offs’, and who bears the risk and who gets the benefit
- Need for ‘high level’ engagement on new advances eg epigenetics and gene editing
- Establishing shared values between modern agriculture and current community values
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Who published, who authored?

Source type
- Major
- ABC
- Regional
- The Conversation
- Ag press
- Other

Author type
- Specialist journalist
- Unknown journalist
- International academic
- Australian academic
- Named journalist

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