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Public Attitudes towards Genetic Modification

A Scoping Review

Executive Summary

1. Research aims and methodology

- 1.1 The main aim of this literature review was to undertake a review of evidence on the public's knowledge of, familiarity with and their attitudes towards genetic modification (GM) and genetically modified organisms (GMOs).
- 1.2 The current Welsh Government policy position on GM maintains a precautionary and restrictive approach to the deliberate release of GMOs within the parameters of European Union and UK Government legislation. GM food is not currently widely available in the UK, but recent years have seen renewed policy interest in the issue of GM technology and a corresponding research agenda aimed at better understanding public opinion on the subject. The findings from this review will contribute to the evidence base, which in turn will inform the Welsh Government's policy position on GM issues.
- 1.3 The Welsh Government holds competencies specifically around GM technology and deliberate release, food and feed, placing on the market and transboundary movements. Welsh Government officials are consulted on all matters related to the contained use of GMOs in Wales, but the Health and Safety Executive (HSE) are the UK competent authority for contained use. Reflecting the Welsh Government's responsibilities, the review focused on public attitudes towards specific aspects of GM and GMOs, namely: GM crops, contained use, food and feed, and GM research and trials.

- 1.4 This report is based on a scoping review of published research drawn from academic literature, government documents, independent reports and publicly available datasets. In a scoping review, the same general principles of a systematic review are employed, but in a lighter-touch manner appropriate to the research scope. As such, this review is exploratory in nature, and its conclusions may be subject to revision if a more systematic and comprehensive review of the evidence is undertaken.

2. Key findings

The nature of the evidence base

- 2.1 There is a complex social research agenda building-up around people's knowledge of, familiarity with and attitudes towards GM. Although there is a large body of evidence available on GM foods, evidence on the other aspects of interest is a lot more limited. In particular, there is insufficient evidence on public attitudes towards contained use and deliberate release.
- 2.2 Overall, there is a lack of large, UK-wide representative studies, of cross-national research, of longitudinal data and of high-quality qualitative data. The review found little evidence of Wales-specific data.

Findings on what shapes public attitudes towards GM and GMOs

- 2.3 The most influential factor that helps to shape attitudes towards GM technology is a personal judgement of perceived risks and benefits. Although most people can be categorised as moderately risk tolerant, a strong theme from the literature is that for the majority, the perceived risks of GM technology outweigh the benefits. Perceptions of risk tended to focus around uncertainty, health concerns and environmental risks.
- 2.4 There is mixed evidence about the effects of knowledge and information on attitudes to GM technology. The relationship between knowledge, new information and attitudes is complicated and mediated by prior knowledge, values and associations. Research suggests that for most people, limited knowledge and reliance on pre-existing values combine to cause an affective or emotional response.
- 2.5 Many people feel uninformed about GM technology. Those who have an undecided view about GM technology tend to be the most interested in learning more. There is evidence to suggest attitudes, which are not strongly related to values, are the most open to change.

- 2.6 The impact of increased information depends on the level of social trust a person has, as well as the person's trust in the source of information. Higher levels of social trust are generally associated with a more positive attitude towards GM technology. Studies suggest that because knowledge of GM technology is often limited, people tend to depend on the views of those they consider trustworthy experts to make informed decisions, and are more likely to trust an information source with a similar outlook to their own. Government and industry are the least trusted sources of information whereas people are more likely to trust the views of family and friends. However, people consider 'experts' (such as scientists and regulators) the most appropriate group for making decisions around GM technology.
- 2.7 The relationship between socio-demographic factors and attitudes towards GM technology is complicated. The evidence suggests values, general attitudes, belief and experience are better predictors of attitudes than socio-demographics. A consistent finding is women are less positive and perceive more risks to GM technology than are men. However, the association between gender difference and benefit perception is insignificant among respondents with strong pro-environmental attitudes. The evidence on the effects of other socio-demographic factors is mixed.

Public attitudes and the key areas of interest

- 2.8 The review did not uncover any studies assessing public attitudes towards contained use.
- 2.9 GM food is the area with the widest evidence base. Studies suggest for those who have a firm opinion on GM food attitudes tend to be negative. However, cross-sectional analysis suggested a change in public attitudes towards GM food in the UK over time, with an increase in the proportion of people not holding a definite view and a slight increase in public support for GM foods. Other studies have concluded many individuals hold essentially ambivalent views about GM. Drawing from the wider international evidence base, studies suggest where GM food is widely available attitudes are generally more favourable.
- 2.10 Evidence on the labelling of GM products is more limited, however labelling is viewed as an important way to build public trust by increasing feelings of control and choice. Awareness of current GM labelling requirements is low and UK studies suggest consumers do not identify information on GM technology as a strong need without prompting. Some studies suggest people would choose GM food provided there is a price advantage coupled with clearly stated consumer benefits.

- 2.11 Evidence on the public's familiarity and attitudes towards the deliberate release of GMOs is limited. However, the wider evidence base suggests public opinion is highly dependent on context and the technology under consideration. Public opinion has been found to be more favourable towards GMOs in contained use for the medical and biotechnologies industries when compared with deliberate release.
- 2.12 Evidence suggests people are more accepting of GM crops than GM foods. Overall, studies suggest plant-related applications of GM technology are more acceptable to the public than animal-related applications, and pharmaceutical production is more acceptable than food applications.

3. Conclusions

- 3.1 The implications of GM technology are wide-ranging and often difficult to establish. Consistent with the complexity of the GM technologies under discussion, a multi-faceted social research agenda around people's knowledge of, familiarity with and attitudes towards GM has developed. However, read as a whole, the evidence base on public attitudes is inconsistent, despite the robustness of individual studies.
- 3.2 The contested nature of GM technology places additional pressures on the research process of establishing what the views are.
- 3.3 Although there is a large body of evidence available on GM foods, evidence on the other aspects of interest is a lot more limited. In particular, the review found insufficient evidence on public attitudes towards contained use and deliberate release.
- 3.4 Overall, there is a lack of large, UK-wide representative studies, of cross-national research, of longitudinal data and of high-quality qualitative data.
- 3.5 The review found little evidence of robust Wales-specific data, but did find research of direct relevancy for Wales. Where considered relevant to Wales, this review drew from the wider evidence-base to draw out the implications inferred within research emanating from the EU and broader international context.
- 3.6 It is not just the methodological limitations responsible for the inconsistencies across the evidence base, read as a whole; the evidence base suggests the public's views are ambivalent and complex.

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Available at: <http://gov.wales/statistics-and-research/public-attitudes-towards-genetic-modification/?lang=en>

Views expressed in this report are those of the researchers and not necessarily those of the Welsh Government

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