Consumer perceptions of precision breeding: Conclusions

Research question 1: What do consumers currently understand about the term ‘precision breeding’?

Workshop participants and survey respondents both showed very little awareness of the term ‘precision breeding’. Most had never heard of the term before, and even fewer knew what it refers to.

As well as low awareness, there was a mix in spontaneous expectations of what the term ‘precision breeding’ may refer to during the qualitative research. Workshop participants sometimes associated the term with genetic modification, with selective breeding, or with animal breeding rather than plant breeding.

The word ‘breeding’ itself was very closely linked to livestock rather than crops. This association was off-putting to some participants when it came to considering precision breeding overall, because using these techniques in animals was often seen as less acceptable. Participants suggested that ‘grown’ or ‘cultivated’ or even ‘engineered’ are words that are more closely associated with plants.

Research question 2: What are their attitudes to precision breeding, what concerns do they have and why?

Overall attitudes towards precision breeding varied and were sometimes mixed even for individual participants. Many felt strongly in favour of certain potential benefits of precision bred crops but were also very concerned about potential unknown risks.

Attitudes about the ‘naturalness’ of precisions breeding varied, with some participants viewing the technique as an extension of selective breeding, and a logical, natural progression in farming technology. However, others saw precision breeding as inherently unnatural, and something that interfered with nature, making it morally questionable.

Research question 3: What do they perceive to be the risks and/or potential benefits?

Benefits that were most important to participants were:

- More affordable food for consumers if cost savings from higher yields are passed on by producers.
- Health benefits for consumers: allergen or coeliac safe foods, or increased vitamins and nutrition, such as Vitamin D.
- More variety available to UK consumers, based on more foods being grown in the UK climate, or grown all year round, with less dependence on seasonality.

- If more food able to be grown locally, there may be a reduction in carbon emissions caused by transporting food globally.
- Better yields and profits for farmers, due to resilient crops, in turn creating more food security for the UK, and less reliance on imports.
- Combatting the impacts of climate change by creating resilient crops, seen as particularly beneficial for countries already vulnerable to food scarcity due to drought and flooding.

The risks that were most concerning were:

- Unpredictable health impacts for consumers, particularly long-term impacts that may not be detected by initial testing or risk assessments.
- Unpredictable environmental impacts, including that disease resistant crops may eventually lead to disease mutation. There were also concerns about conventional crop varieties being overtaken due to cross-contamination.
- Increased food costs for consumers if research and development costs are passed on by producers, but cost savings are not.
- Large companies monopolising precision bred crops, meaning that small companies are priced out, and profits not shared with consumers or farmers.
- Increased global inequity if precision breeding is not accessible to countries who could most benefit from it, particularly climate change affected countries. There were also concerns about the UK reducing imports from countries reliant on exports, affecting farmers and the economy in that country.
- Precision breeding may not be moral or ethical, with some participants describing modifying the DNA of another organism as ‘playing god’ or ‘messing with nature’.
- A lack of transparency about financial or political interests among politicians and business. Discussion of transparency often amplified other concerns, with a lack of transparency seen to undermine trust that other risks would be adequately considered and mitigated. Ultimately, participants were worried that profit would be prioritised over public benefit for decisions around precision breeding.

Research question 4: What are the factors that influence the different attitudes towards the acceptability of precision bred organisms entering the food and feed market?

There were several key factors that influenced workshop participants views on the acceptability of precision bred organisms entering the food and feed market:

- **Transparency of the organisations and money involved:** Participants were concerned that large food producers and biotech companies may unduly influence decision making in their favour if there is not transparency about the funding and potential profit involved in developing precision bred foods.
- **Thorough risk assessments:** Participants wanted there to be thorough risk assessments on all new precision bred food products, with ongoing monitoring for any long-term health impacts to consumers.
- **Consumer choice through education and labelling:** For there to be an acceptable level of consumer choice, participants felt there must be some level of public education about what precision breeding is, and what the potential benefits and risks are. They also felt strongly that precision bred products should be labelled, at least initially, so that consumers could choose whether to consume or avoid them. They suggested that lack of consumer choice or labelling may cause significant backlash, especially if long term health impacts are discovered later.
- **Precision breeding to be used for crops only, not animals:** Participants did not consider precision breeding as acceptable in animals as it is for crops. They often felt that if precision bred animal products were to enter the food system, this must be after separate

legislation and public consultation, and with a separate risk assessment process to plants. Some also felt that by separating the two, precision bred crops will be able to progress without being held back by public controversy about precision breeding in animals.

Research question 5: What are consumer views on the FSA's proposed regulatory framework for precision bred organisms, and how if at all does it impact on consumer confidence?

Workshop participants largely supported the concept of a two-tier risk assessment framework, although this was not unanimous and some voiced strong concerns.

Those who supported the approach said that the two-tier framework was logical, prioritising FSA resources to focus on thorough assessments for products that were more likely to have risks. They thought this would allow safe products to enter the market more easily so that benefits can be realised sooner.

Those who did not support the two-tier system said that as precision breeding itself is new, all products must be assessed equally until more is known about long term risks to consumers. They felt that the existence of a Tier 1 assessment route would allow some products to enter the market without adequate assessment, risking consumer harm.

Some participants had confidence in the two-tier system for precision bred crops, but not for livestock. They suggested that any precision bred animal products allowed onto the market must have a separate process, as this was perceived to be more potentially harmful to consumers and animals.

Research question 6: What information do consumers need to come to an informed position on precision breeding?

Participants felt that there should be at least a basic level of public education to address public concern about precision breeding, protect against misinformation, and allow informed choice. They suggested this should cover:

- What precision breeding is, and how it differs from genetic modification and conventional breeding methods. In particular, the public should know that precision breeding only achieved outcomes that could happen naturally or through conventional methods, as this information was key to participants own understanding of the technique.
- Why precision breeding is helpful or necessary, due to limitations of conventional methods. In particular, it may be helpful for the public to know how precision bred foods may help address national and global climate change challenges and food security, as well as consumer benefits such as nutrition improvements.
- How precision breeding is regulated and tested to be safe, and that it is regulated by the FSA, who are independent and non-political. This is key to consumers feeling confident that precision bred foods are safe, and that regulation is not undermined by political or commercial influences.

Aside from public education, workshop participants and survey respondents both felt strongly that precision bred products should be labelled as precision bred. Workshop participants explained that without this labelling there is no genuine consumer choice, as there is no opportunity to avoid precision bred foods if they want to.

Labelling was also seen as key to establishing trust with the public. Participants thought that without transparent labelling the public could become more worried about the food available to them, and more vulnerable to misinformation.

Research question 7: How can the FSA best communicate with consumers about precision breeding?

Workshop participants thought that communications about precision breeding should be carefully balanced at the right level of detail. They also wanted information to be actively disseminated to ensure transparency and protect against misinformation.

They generally felt that some sort of campaign should be conducted, including TV adverts and posters in supermarkets informing consumers of the upcoming change. To avoid overwhelming consumers with too much confusing detail, participants felt this campaign should cover the basics, directing audiences to sources for more information if they wish to seek it out.

The idea of an informative unbiased documentary was also suggested by some participants, who thought this could feature scientists and possibly a trusted celebrity.

The proposed register of authorised precision bred organisms was seen as a potentially helpful communication tool to build transparency and trust with the public, even if it is not widely used by consumers. However, participants were clear that the usefulness of the register would be severely limited if it was not accompanied by compulsory labelling of precision bred foods. They felt consumers would not know when to consult the register if they did not know which foods were precision bred.