Consumer perceptions of precision breeding Appendices: deliberative workshop materials

3.1 Workshop 1: Discussion guide

FSA Precision breeding: Workshop 1 Discussion Guide

Objective:

Capture initial views and awareness of precision breeding, introduce participants to the basic concepts of precision breeding, explore perceived benefits and risks, capture participants' attitudes to inform workshop 2 mini-group allocation.

Dates/times: D2

- England group: Tues 11th Oct, 6pm-9pm
- Wales group: Weds 12th Oct, 6pm-9pm
- Northern Ireland group: Thu 13th Oct, 6pm-9pm

Discussion guide:

5:30pm to 6pm Arrival

Participants enter the 'zoom room' and any that have not already done so are asked to change their screen name to first name and initial of their surname.

6pm to 6:30pm Plenary 1: Introduction

Introduction to workshop and research (5 mins)

- **Chair to talk through slides:**
- Why are we here? The FSA wants to better understand public views on precision bred food
- The workshop process, what to expect
- Housekeeping, ground rules
- **POLL: What is precision breeding?**
- Have you heard of 'precision breeding' before?
- What do you think 'precision breeding' means? (please post replies in chat)
- Overall, how positive or negative do you feel about precision breeding?

Introduction to precision breeding: (25 mins)

- I am going to introduce the basics of precisions breeding now – please write down questions you have or post them in the chat – we will aim to answer them later in the workshop – or in the next one.
- Plays FSA precision breeding video (slide 6 - should be downloaded to desktop in advance.)
- Chair talks through slides 7-11
- Plays CRISPR video (slide 12 - should be downloaded to desktop in advance.)

- Chair talks through slides 13-15

We will now go to our breakout rooms to discuss what we have heard – please wait to be moved automatically.

6:30pm to 6:55pm Breakout 1

Introductions (5 mins)

Welcome to your breakout room – this is the smaller group we will stay in for most of the session and where we will have our conversations. Therefore, it would be good to quickly introduce ourselves.

Moderator shows slide 16 and goes first:

- What is your name?
- Roughly where do you live?
- Do you see much farmland where you live?

Initial reactions (20 mins)

Now that we've heard a bit about precision breeding, I want to get your initial thoughts.

How much of that information felt familiar to you?

- What had you heard about before?
- Where had you heard about that? (School, news, friends, reading?)
- Was there anything that particularly surprised anyone?
- How about other traditional breeding methods – were you surprised about selective breeding, induced mutation?
- Why was that surprising?

What was the most interesting thing that you heard?

- Why was that interesting to you?
- What else do you want to know about that?

Who was confused by any of that information?

- What is confusing?
- Is anybody else confused by this, or does anybody feel they can clarify?

If you wanted to know more about precision breeding, what sources would you trust to give you accurate information?

- News (what type?), friends, specific internet sources, government?

6:55pm to 7:10pm Break

Stay within breakout rooms, show break slide displaying time to return.

7:10pm to 7:25pm Breakout

Perceived risks and benefits (15 mins)

Now that we have spoken a bit more about what precision breeding is, we will talk about some possible benefits and risks. Before I show some on screen, I want to see which you think there are:

Show slide 18 and type on screen as they make suggestions.

What benefits do you think there may be for precision breeding?

- Who would benefit from this?
- How important/significant is that benefit?
- How likely do you think that benefit is?
- What risks do you think there are?
- Who would be impacted by this risk?
- How significant do you think that impact would be?
- How likely is that risk?

We are going to go back to the main room now, and hear about potential benefits and risks, as well as some example uses of precision breeding.

7:25pm to 7:45pm Plenary 2 (20 minutes)

Example use cases (10 mins)

Now I'm going to show you some specific examples of ways in which precision breeding is being used for food production. They are currently in development stages, and not yet available to buy.

Chair present slides 19 to 22.

Benefits and risks (10 mins)

As precision breeding is an emerging technology in food production, there has been a lot of discussion amongst scientists, policymakers, and campaigners, about what benefits and risks there are.
In your groups you have already discussed some of these, but now I'm going to share some of the key ones that are commonly argued.

Chair show slides 23 to 24

Benefits:

- Changes achieved using precision breeding could help to make crops more resilient to climate change impacts, such as drought
- Changes achieved using precision breeding could also reduce crop disease
- Some crops could be edited with precision breeding to make them healthier. For example, more nutrients, safer for those with food allergies or Coeliac disease
- Who may benefit?
- Farmers could be protected from loss of crops
- People living in areas vulnerable to food scarcity could have more consistent food supplies/crops
- Farmers and food producers may have lower costs to grow or process crops
- Consumers could see cheaper food products
- Consumers could see products that are better for their health

Risks:

- Transparency and choice: because precision bred crops can't always be identified by testing, some consumers worry that they wouldn't know if they are eating precision bred foods
- Some also worry that precision bred crops may spread and mix with other crops. This could mean the precision bred crops are untraceable or could replace other crops if they are more resilient.

- As precision breeding is relatively new, there may be low trust in the safety of these foods
- Some are also concerned about the potential risk for "off-site mutation" - that parts of a plant or animal might be changed in ways other than those intended by the producer.
- Cost saving benefits may not be shared equally; larger producers may have better access to the technology than smaller ones, or saving may not be passed to consumers
- Who may be impacted?
- Consumers who don't want to eat precision bred foods may find it hard to avoid if it is not traceable
- Biodiversity could be reduced if precision bred crops replace other crops or don't perform the same role in ecosystems as their conventionally bred counterparts
- Consumers may not have trust in the safety of precision bred foods
- Smaller farmers/producers may be priced out by larger food producers if they cannot access precision breeding technology equally

Poll (5 mins)

You've heard a lot and spoken a lot about precision breeding so far, and we want to see how you are feeling about it as a group – so we have two quick poll questions:

- Q1: Overall, how positive or negative do you feel about precision breeding?
- Very positive, fairly positive, neither positive or negative, fairly negative, very negative
- Q2: How likely would you be to choose to eat a food made with precision bred crops?
- Very likely, fairly likely, neither likely or unlikely, fairly unlikely, very unlikely

We are going to go back to breakout rooms now – please wait to be automatically moved.

7:45pm to 8:10pm Breakout 2

Revisit benefits/risks (25 mins)

What did you think about each of the examples?

- Probe:
- What benefits stood out to you from the examples?
- How important are these benefits?
- Emphasise – each PB product is likely to focus to one change to begin with, rather than lots of different changes at once.

Now that we've heard more, what do you think of the benefits/risks?

- Which stand out the most to you and why?
- Any new one's spring to mind?

Thinking about both the benefits and risks we have spoken about – how do you feel about precision breeding for food overall?

- Do the benefits outweigh the risks, or the other way around?
- Would you be happy to eat precision bred food?

8:10pm to 8:25pm Break

During break, moderator to copy the additional risks raised by participants to slide 28 for final exercise.

8:25pm to 8:50pm Breakout room

Trust in our food (25 mins)

Now, thinking just of the risks we have discussed, let's think about what you would like to see in place to have trust in precision bred food.

Show risks on screen (slide 28) and ask about each risk in turn.

What would you need to see in place to have trust that this risk is being managed effectively? Allow spontaneous answers then probe: Testing, rules for producers, rules for shops/restaurants, information for the public?

- Why would this be reassuring?
- If applicable: Do you think this is already in place in the UK food system?
- How much do you trust or distrust that the FSA is able to make sure that food is safe and what it says it is?
- What makes you say that?
- How confident are you that the FSA is able to regulate precision bred foods appropriately?
- What makes you say that?

8:45pm to 9pm Plenary, wrap up

Precision Breeding Bill and national context (5 mins)

Welcome back everyone!

Before we finish, here is some quick context about precision breeding which we will discuss further in the next workshop.

- In England Group present slide 29 only
- In Wales/NI Groups: present slide 29 and slide 30/31 as applicable.

Thanks and close (5 mins)

Thank you for all of your hard work today! We've heard really interesting conversations.

Next steps:

Remind of next workshop date:

- England group: Tues 25th Oct, 6pm to 9pm
- Wales group: Weds 26th Oct, 6pm to 9pm
- Northern Ireland group: Thu 27th Oct, 6pm to 9pm

A small task before then – please speak to family/friends/colleagues about what you have discussed today, and see what other views you hear!

9pm to 9:15pm Very short debrief

Once all participants have left, 5-15 mins to discuss:

- How it went
- Any key observations from moderators and FSA.
- Anything to adapt for following workshops?

3.2 Workshop 1: Slide deck

1. Precision Breeding: Public Engagement workshops (title slide)
2. The Food Standards Agency (FSA) wants to better understand public views on precision bred food. We are interested in your thoughts, views, concerns and questions! You, Ipsos,

FSA (the client) and note takers.

3. The process: You will attend two workshops (including this one). Each one will be from 6pm to 9pm. You will spend quite a bit of time in smaller breakout rooms with around five other participants, where your moderator will guide you through discussions. Housekeeping: Keep distractions to a minimum (for example, mobile phones), take a break if you need to (for example, use the bathroom or attend to anything urgent and we will have two official breaks for 15 minutes.
4. Ground rules: listen respectfully without interrupting, listen actively and with an ear to understanding others' views. (Don't just think about what you are going to say while someone else is talking), any question is a good question, criticise ideas not individuals, commit to learning, not debating. Comment in order to share information, not to persuade, stay on topic and try to be concise, avoid blame, speculation and inflammatory language, allow everyone the chance to speak, avoid assumptions about any member of the group or generalisations about social groups. Do not ask individuals to speak for their (perceived) social group, be patient with other participants and the team, we have a lot of information to get through, feel free to share your thoughts about this event with friends and family, if posting about this event on social media please do not share any detail of the discussions.
5. What is precision breeding? Before we jump in, we want to know Have you heard of precision breeding before? (let us know in the zoom poll which will show on your screen.) What do you think precision breeding means? (let us know by typing in the chat - can you let us know if it's just a guess). Overall, how positive or negative do you feel about precision breeding? (let us know in the zoom poll which will show on your screen).
6. Precision breeding: FSA Explains video
7. Precision breeding is a term used to describe a range of modern scientific methods for editing an organism's DNA. Precision Breeding makes changes to a plant or animal that could have happened naturally through traditional breeding methods but can now be made to happen more quickly and more predictably. This might be done to make things more resistant to disease, need less water to grow, or to increase the nutritional content. So that we can discuss precision breeding, we will need to do a very brief walk through about DNA, and how this process works...
8. What is DNA and what are genes? You find DNA inside an organism's cells. All living things are made up of cells. DNA contains instructions for an organism's growth coded with four bases known as A, T, C and G. Genome means the complete set of the DNA code or the full set of instructions. Genes refer only to specific sections of this code.
9. Humans have been changing genes of crops and livestock for food production for thousands of years. Artificial selection: selecting and breeding two closely related animals or plants to try to achieve a desired trait. The first evidence we have of this being done is 7800BC. Induced mutation: exposing plants to X-rays and chemicals to bring useful mutations. This is commonly used to change genes to make them more useful. Example: Plant breeders developed seedless grapes by treating seeds with radiation and chemical agents to encourage mutations and then selecting seed with desirable traits.
10. Humans have been changing genes of crops and livestock for food production for thousands of years. Precision breeding: genome changed with genes from sexually compatible species or by making changes to the genes directly and which could be achieved naturally or by traditional breeding methods. Example: Around 20% of potato crops are lost due to a disease called potato blight each year. Scientists bred a blight resistant potato by adding two resistance genes from a South American wild potato to a domesticated potato variety. Genetic modification: genome changes with genes from a sexually incompatible organism by making changes to the genes directly and which could not be achieved naturally or by traditional breeding methods. Example: Researchers copied the gene that makes many purple foods produce a beneficial antioxidant into the DNA of tomatoes. This meant the tomatoes also produce this healthy antioxidant.
11. One technique used in precision breeding is called CRISPR video.

12. Can you tell if a food has been precision bred? There are currently challenges to testing whether an organism is precision bred or not..., Full genome sequencing can reveal changes that have been made to an organism's DNA..., BUT because these could also have been achieved through traditional breeding, it is difficult to say for sure whether the changes are due to precision breeding. Let's look at an example...
13. Can you tell if a food has been precision bred? Earlier we talking about how DNA is made up of four bases known as A, T, C and G. In precision breeding you might make a one letter change to a plant's DNA in order to get a particular outcome (for example, a bigger fruit). These sorts of change happen all the time naturally. In a field of apple trees, each tree will be a little different to an other. If you were to pick an apple at random you couldn't say for certain which was created by precision breeding and which was created by chance.
14. When and where does precision breeding take place? Precision breeding would be conducted on crop seeds within research and development facilities, for example, a laboratory. They would then test the resulting seeds in controlled crop trials. Trials may first be grown and monitored in greenhouses, before final varieties are trialled in fields. By using precision breeding rather than conventional methods, genetic selection can be made in a more targeted way with less trial and error.
15. Breakout rooms: Please wait to be moved automatically into your breakout room.
16. Introductions: what is your name? Roughly where do you live? Do you see much farmland where you live?
17. Comfort break: please be back by 7:10pm.
18. Benefits: Who would benefit from this?, How important/significant is that benefit, How likely do you think that benefit is? Risks: Who would be impacted by this risk?, How significant do you think that impact would be?, How likely is that risk?
19. Example A Disease and climate change resistant chocolate: Cocoa plants are sensitive to drought and crop disease. The plant may be extinct by 2080 because climate change is increasing these threats. Cocoa is one of the important sources of income in Ghana, so the country's GDP and the livelihoods of thousands of small-scale farmers could soon be badly damaged. Many other globally popular foods face this threat, including coffee and bananas. Cocoa pods grow on trees, which are very slow to breed. Therefore selective breeding will be too slow to achieve changes in time to beat these climate change effects. Researchers removed a specific gene that suppresses the plant's disease response. In the testing stage, the new plants are showing strong disease resistance and grow fast. The researchers hope to have the resilient crop available for farmers in West Africa in 5 to 10 years.
20. Example B Removing a potentially harmful compound from wheat: When certain food products such as potatoes, cereals and coffee are heated to a high temperature potentially cancer causing compound called acrylamide is formed. This happens when foods that naturally contain the amino acid asparagine and certain sugars are heated to 120 degrees and can be found in fried, baked and roasted products. A researched in Hertfordshire is testing a crop of wheat that has been precision bred to have lower levels of the amino acid asparagine. They think that this will reduce the health risk in products which use this wheat (like bread) when they are heated (for example, toasted, baked into bread). This has the long-term potential to benefit public health.
21. Example C Tomatoes precision bred to contain Vitamin D: 50% of Europeans and one billion people worldwide have vitamin D insufficiency. Vitamin D is essential for maintenance of healthy muscles and bones. It can be found in oily fish, foods that have fortified with vitamin D (for example orange juice where vitamin D has been added as an ingredient) and in food supplements (for example, vitamin pills). It is also produced by the skin when we are exposed to the sun. Researchers are testing a new type of tomato which has been precision bred to have more vitamin D in both the fruit (the tomato) and the leaves. This could help millions of people globally by increasing the amount of vitamin D in their diets. They could also be a source of vitamin D for people following plant-based diet or who have allergies to vitamin D rich foods (for example, fish). These leaves could also be used to produce supplements (for example, vitamin pills) which may help reduce food

waste globally.

22. Benefits: changes achieved using precision breeding could help to make crops more resilient to climate change impacts, such as drought, and reduce the need for chemical fertilisers and pesticide helping support biodiversity. Changes achieved using precision breeding could also reduce crop disease. Some crops could be edited with precision breeding to make them healthier. For example; more nutrients, safer for those with food allergies or Coeliac disease. These changes can also be made faster and more reliably. Who may benefit? Farmers could be protected from loss of crops, people living in areas vulnerable to food scarcity could have more consistent food supplies/crops, farmers and food producers may have lower costs to grow or process crops and may benefit from increased sales, consumers could see cheaper food products and consumers could see products that are better for their health.
23. Risks: Transparency and choice

3.3 Workshop 2: Discussion guide

FSA Precision breeding: Workshop 2 Discussion Guide

Objective:

Explore expectations of regulation of precision breeding, reactions to any proposed regulatory approach, what participants felt the public should be informed about, and how information should be communicated to members of the public.

Dates/times:

- England group: Tues 25th Oct, 6pm-9pm
- Wales group: Weds 26th Oct, 6pm-9pm
- Northern Ireland group: Thu 27th Oct, 6pm-9pm

Discussion guide:

5:30pm to 6pm Arrival: Participants enter the ‘zoom room’ and any that have not already done so are asked to change their screen name to first name and initial of their surname.

6 to 6:25pm Plenary 1: Introduction (20 minutes)

Introduction to workshop and research (5 mins)

Chair to talk through slides:

- why are we here? The FSA wants to better understand public views on precision bred food
- the workshop process, what to expect
- housekeeping, ground rules

Workshop 1 rec-cap (10 mins)

- recap of what precision breeding is
- recap of the context: new bill in England
- Wales/Northern Ireland: England only bill but we want to hear what you think in case precision bred foods are one day available in Wales/Northern Ireland.
- chair shows some of the key themes and concerns raised by participants in Workshop 1
- questions from workshop 1 – FSA answers presented

What does food regulation look like? (10 mins)

- who are the Food Standards Agency?
- how does the FSA work with other parts of government?
- what is the Food Standards Agency's mission?
- how does the FSA deliver its mission and meet its responsibilities?
- introducing new types of food to the market

Now we will go to breakout rooms.

6:25pm to 6:50pm Breakout (25 minutes)

Introduction (5 minutes)

- name
- where you live
- what's your favourite thing to have for dinner in the winter?

Feedback on views/discussions since Workshop 1 (10 minutes)

- how did you feel about what you learned/discussed in Workshop 1?
- did you discuss precision breeding with any friends or family?
- what did they say? Did you agree?

Initial reactions to food regulations (10 minutes)

Show UK Food Regulation side(s)

What did you think about what we just heard about how food is regulated in the UK?

- Moderator can show plenary slides as/if needed.
- did anything sound familiar? Where had you heard about this before?
- Was there anything that you weren't familiar with? Were you aware of what the FSA do 'behind the scenes' to make sure that food is safe and what it says it is?
- what do you think about the level of regulation?
- now that you know what is going on behind the scenes, how do you feel about the process overall?
- how confident do you feel that the food you can buy in the UK is safe to eat?
- do you trust that the FSA is achieving its mission?

We are going to have a quick break now - as usual you can just turn your camera microphone off, but please don't leave the meeting.

6:50pm to 7pm - Break (10 minutes)

Stay within breakout rooms, show break slide displaying time to return.

7 to 7:15pm - Breakout (15 minutes)

Expected approach to regulating precision bred food (15 minutes)

In workshop 1, we ended the session discussing 'what you would like to see in place to have trust in precision bred food'. Now that you have heard a bit more about how new foods are regulated, let's revisit that.

Moderator can show plenary slides as/if needed.

What do you think the FSA should be doing behind the scenes in relation to precision bred foods?

Allow for spontaneous responses, then probe:

How can the FSA continue to deliver its mission in terms of precision bred foods?
Show slide 8 if helpful:

What should the FSA take into account that may help you to trust precision bred foods are safe?
What should the FSA take into account that may help you to feel that precision bred foods are not misleading?
What should the FSA take into account that may help you to trust that precision bred foods are healthy and sustainable?

What else would you expect to be in place for precision bred foods?

Allow for spontaneous responses, then probe:

- control over who can use the technology?
- transparency – about what?
- information for consumers – what information?

7:15pm to 7:30pm Plenary (15 minutes)

The proposed precision breeding bill (15 minutes)

Welcome back everyone!

We a have mentioned already that there is a new Precision Breeding Bill being proposed. I'm now going to outline what that means, who is involved, and how this relates to the FSA's role.

Chair presents 'The proposed precision breeding bill, and the FSA's role': Slides 15-21
Refer to slide notes when presenting.

Wales: Show slide 22

If this bill does indeed become law in England, then the FSA will need to be ready with a set of regulations to manage precision bred foods.
Slides 23-24

- how will PB be classified: Having its own regulatory framework, separate from genetically modified crops and also different from traditionally bred crops?
- reasoning for not being classed as Genetically Modified: Changes from precision breeding could have happened through traditional methods, unlike genetic modification
- reasoning for not being classed as traditional bred crops: Precision bred crops could be developed faster, and new precision breeding technologies are being developed so a separate category allows more scrutiny than traditional crops
- two-tiered approach: separating smaller changes from more significant ones, so they can have suitable levels of risk assessment and scrutiny. This aims to give flexibility and be 'future proof', so that the Tiers still work in the future when precision breeding technology has advanced.

Going back to breakout rooms now to discuss!

7:30pm to 7:50pm Breakouts (20 minutes)

Reactions to bill / FSA regulatory framework (20 minutes)

Moderator can show plenary slides as/if needed:

- did you have any questions about the bill, and what that means for the FSA?
- is the FSA's role clear?
- what do you think about a new category being created for precision bred foods (slide 19)?

If negative:
o Why is that?
o Do you feel it should be in one of the existing categories instead (Which? GMO or traditional)?
o Why is that: probe on the reasoning clarifications below.

If positive:
o Why is a new category good?
o Is this reassuring?
o Why?

Clarifications if needed:

How will PB be classified: Having its own regulatory framework, separate from genetically modified crops and also different from traditional crops.
Reasoning for not being classed as Genetically Modified: Changes from precision breeding could have happened through traditional methods, unlike genetic modification.
Reasoning for not being classed as traditional bred crops: Precision bred crops could be developed faster, and the technology is still developing so a separate category allows more scrutiny than traditional crops.
What do you think of the two-tier system (slide 23)?
Moderator recap on previous discussion if needed:

- how well do you think this will 'future proof' the framework?
- thinking about the variation of types of PB products that may be developed, do you think the two-tier system is flexible enough, too restrictive, too flexible?
- how important is it to communicate the way that precision bred products will be regulated (Tier 1 and 2) to consumers?
- why is that?
- where is the balance between too much and too little information?
- what do the consumers need to know?
- is this different to traditionally bred foods?
- what don't they need to know?
- would you also want to know this about traditionally-bred foods with exactly the same properties?'

If the two-tier system was in place, to what extent would you feel you could trust precision bred foods for sale in the UK?

- what is reassuring/concerning to you?

Probe on FSA missing (show slide 8 if helpful)

- trust it is safe?
- trust it is what it says it is?
- trust it is healthy or sustainable?
- what do you feel needs more attention in the FSA's approach?
- what do you think is important information for consumers to know?

Thinking back to your concerns from Workshop 1, how well do you feel this process could address these concerns?
Show slide 24:

To what extent does the process address the concerns/risks they raised in workshop 1: for example, allergens, risks affecting specific consumer groups (for example, too much vit D), environmental impact, poorer taste,/flavours, etc... What questions do you have about the FSA approach?

7:50pm to 8pm - Break (10 minutes)

8pm to 8:55pm - Breakout rooms (55 minutes)

Informing consumers – introduction (5 minutes)

Now that we have spoken about the bill and rules for PB foods, we want to speak about information for consumers.
If Precision Bred foods were to become available on shelves next week, what information do you think you want to know about these foods?

- why would you want to know this?
- would you also want to know this about non-PB foods with exactly the same properties (nutrition, allergens etc)?'
- how important would it be to you to have this information?
- how would you want this information made available to you?
- who would you like to receive the information from? (for example, the FSA, food related magazines/ websites, news releases?

Labelling (20 minutes)

The topic of labelling has already come up in this workshop.

A lot of the information that food businesses provide to you is mandatory – businesses are required by law.

Some examples are ingredients lists, allergen labelling, and information on how much of each ingredient is in a product. Some common labelling is voluntary, such as nutritional information (for example, the amount of protein, carbohydrates fat etc. in a product)

The FSA can't guarantee that the precision bred food product would be labelled as precision bred.

If asked why this may not be possible, moderator to say: The FSA is not the sole decision maker on labelling. Their role is to provide independent advice to government, which will include consumer views on this matter.

- would you want precision bred foods to be labelled as Precision Bred?
- why is that?
- what would you expect the label to look like/say?
- how likely would you be to notice a PB label on a product?
- please explore underlying drivers for this – esp. how this links with issues around health/safety concerns, ethics

Talk through slide 29 (has animations to click through arrows if too cluttered)
What do you think about the amount of information you already have available to you?
How often do you make food decisions based on information on the label
Probe:

Mandatory: allergens, ingredients
Other labels: nutrition, organic, free-range, eco-friendly

If PB foods were not labelled as PB, would the existing mandatory labelling tell you what you need to know? (e.g. nutrition, allergens, ingredients)
Probe on: Ingredients, Allergen labelling, nutritional info (all on Slide 29)

- why/why not?
- what is missing?
- **probe** on key safety mandatory labelling where there is an overlap.
- if applicable: Would you expect that for traditionally bred foods too?
- **probe**: What if the PB change doesn't change nutrition, allergen etc (e.g., just changed to produce more fruit)
- Knowing that this mandatory information will still be required for precision bred foods, how necessary do you feel it is to label foods as precision bred?
- why?
- would you also recommend having all foods including PB foods labelled with information on how it was produced (for example, conventionally bred)?
- what other information would you want and why?
- is labelling the right place for this? Why/Why not?
- what other options may be suitable?

Register (15 minutes)

Show slide 30

One way that the FSA may communicate with consumers is through a precision bred foods register. This would be an online site where all precision bred organisms that have been approved for sale in England are listed.
It Is possible that this register will list PB ingredients, but not further consumer products produced using that ingredient (for example, PB wheat may be listed, but bread made with this wheat may not be).
Moderator show examples on screen: click through to a specific food/business
What do you think about an online precision bred food register?
How helpful would that be?
What information do you think should be on the register?
Spontaneous responses first, then probe:

- for all suggestion ask: Why is that information important/helpful?
- where else it is sold (for example, what other countries in the world sell/eat this product)
- who sells it – businesses
- who was involved in the research?
- what the benefits are / reason for the PB
- how useful I the register if it includes PB ingredients, but not other products made with that ingredient?

Would you use the register?

- when? What would prompt you to use it?
- what information would you be looking for? Why?
- would you base any decisions of off the information on the register?
- how would you access it? Phone in shop? At home?
- how regularly might you use it? Frequently when shopping, once? Never?
- would a QR code on a PB product, linking to the register be helpful?
- probe if not mentioned: accessibility of QR codes.

What types of consumers might use the register most?

- spontaneous responses first, then probe: businesses, researchers, everyday consumers?
- why may they use it? When?

Do you think there are any drawbacks or limitations to the register approach to sharing PB information?

- what are they? Who would be affected?
- how important is this?

Level of public education needed (10 minutes)
Now that we've spoken about how people can find out about individual PB products, we are going to talk about how the general public should be informed about precision breeding overall.

How important or unimportant is it that the public are informed about precision bred foods?

- why is/isn't it important?
- who may need to be informed about PB?
- how helpful will an understanding of PB be to consumers?

What information do you think the public should understand?

- why would this information be important?
- are there limits on how much information is helpful?
- probe on level of scientific detail needed.

How would you explain precision breeding to other consumers?

- what is the helpful information you have heard when learning about it?
- what information is key to share when educating consumers?
- what terminology and wording is helpful?
- what wording has been confusing?

How do you think this information could be shared?

- what channels would be suitable? Why?
- are there any audiences in particular that need to understand PB? How might they best be reached?

8:55pm to 9pm - Plenary

Final poll (5 minutes)

Q1 - Overall how positive or negative do you feel about precision breeding? Very positive, fairly positive, neither positive or negative, fairly negative, very negative.

Q2 - How likely would you be to choose to eat a food made with precision bred crops? Very likely, fairly likely, neither likely or unlikely, fairly unlikely, very unlikely.

Wrap up and thank you.

9pm to 9:15pm - Very short debrief

Once all participants have left, 5 to 15 minutes to discuss. How it went, any key observations from moderations and FSA. Anything to adapt for following workshops?

3.4 Workshop 2: Slide deck

1. Precision Breeding: Public Engagement workshops

2. The Food Standards Agency (FSA) wants to better understand public views on precision bred food. We are interested in your thoughts, views, concerns and questions! You, Ipsos, FSA (the client) and note takers.

3. Welcome back! This is your final workshop. As before, you will spend quite a bit of time in smaller breakout rooms with around five other participants, where your moderator will guide you through discussions. This workshop will focus more on the new bill, the FSA's role and how precision bred foods should be regulated. Housekeeping: Keep distractions to a minimum (for example, mobile phones), take a break if you need to (for example, use the bathroom or attend to anything urgent and we will have two official breaks for 15 minutes.

4. Ground rules: listen respectfully without interrupting, listen actively and with an ear to understanding others' views. (Don't just think about what you are going to say while someone else is talking), any question is a good question, criticise ideas not individuals, commit to learning, not debating. Comment in order to share information, not to persuade, stay on topic and try to be concise, avoid blame, speculation and inflammatory language, allow everyone the chance to speak, avoid assumptions about any member of the group or generalisations about social groups. Do not ask individuals to speak for their (perceived) social group, be patient with other participants and the team, we have a lot of information to get through, feel free to share your thoughts about this event with friends and family, if posting about this event on social media please do not share any detail of the discussions.

5. Recap of workshop 1: Precision breeding makes changes to a plant or animal that could have happened naturally through traditional breeding methods but can now be made to happen more quickly and more predictably. **Precision breeding:** changes to the genes which could be achieved naturally or by traditional breeding methods. **Genetic modification**: changes to the genes directly and which could not be achieved naturally or by traditional breeding methods. **Possible benefits are:** making crops more resistant to disease, need less water to grow or to increase the nutritional content. **Common concerns are:** transparency, traceability, public trust in safety, predictability.

6. **Key questions you asked in workshop 1: Content**: who is going to make final decisions about precision breeding? Who funds scientific trials? Who will benefit financially? What about precision breeding in other countries? Will we import precision bred foods? **Potential impact:** Will precision bred food be more expensive? How will this impact farmers? Could there be adverse health impacts for people or animals? Could this potentially create new allergies? What does this mean for organic produce?

7. **What is the Food Standards Agency?** The Food Standards Agency (FSA) is the independent government department working to protect public health and consumers' wider interests in relation to food in England, Wales and Northern Ireland. Although the FSA is part of the Civil Service, the FSA does not have a minister and is not political. The FSA is evidence led and gives independent advice to government departments about different parts of the food system. The FSA has their own scientists and experts and work with independent external experts to ensure they are acting on the latest science.

8. **What is the Food Standards Agency's mission?** 'Food you can trust...A food system where: Food is safe, food is what it says it is, food is healthier and more sustainable.'

9. **How does the FSA deliver its mission and meet its responsibilities?** Things you might already know: (pictures of) Food Hygiene rating sticker, Allergy alerts and Food allergy or

intolerance information. Things you might not be aware of: regulations, risk assessments, exercise our own regulatory powers to take action and provide advice to governments.

10. **Introducing new foods to the market:** Risk analysis is the process of assessing, managing and communicating food and animal feed safety risks. It's how the FSA ensures high standards, checking if the food is safe, how it impacts on health, nutritional value and the environment. Foods that have not been consumed by people within the UK or EU must be risk assessed before being authorised. Depending on the level of risk and available evidence the process of risk assessment can take from 4 months to 2 years (or in some cases longer). The FSA will only recommend authorisation of a new food if it is assessed as safe. This is part of its mission to ensure that food is safe.

11. **Introducing new foods to the market:** examples of foods that have been risks assessed and come to market are: Chia seeds: now widely used in the UK but were once new to our market. They had a shorter risk assessment process as they have been widely used in Europe for a long time and there was plenty of evidence that they were safe. Quorn (vegetarian 'meat' products) and cholesterol lowering spread: these were both new products with little or no consumer consumption in other countries to assess risk by. They therefore had a longer risk assessment. FSA may ask for additional scientific data and evidence as part of a more extensive risk assessment.

12. **Breakout rooms:** please wait to be moved automatically into your breakout rooms.

13. **Introductions**: What is your name? Roughly where do you live? What's your favourite thing to have for dinner in the winter?

14. **Comfort break:** please be back by 7pm.

15. How does the FSA work with other parts of government? The FSA is responsible for some important elements of the foods system, but not the whole food system. For example, sometimes laws about food are decided by the government or the Department for Environment, Food and Rural Affairs (Defra), rather than the FSA. Some of the government bodies the FSA provide independent advice to include: HM Government, Defra, Northern Ireland Executive, Department of Health and Social Care, Welsh Government.

16. The proposed Genetic Technology (Precision Breeding) Bill, and the FSA's role: Some decisions about precision bred foods are not made by the FSA; 1) the bill itself is agreed in Parliament 2) Defra sets initial laws to implement the Bill 3) the FSA then sets further laws to manage how individual precision bred food or feed products are regulated.

- **Members of Parliament** includes the House of Commons, House of Lords, Royal Assent
- **Defra**: Defra Secondary legislation
- **FSA**: FSA secondary legislation, FSA regulatory framework

17. The proposed Genetic Technology (Precision Breeding) Bill and the FSA's role:

Stage 1: Parliament will decide if the new Bill becomes law. This includes:

- allowing precision bred foods to be sold if they comply with regulations
- prohibiting sale of precision bred foods that are not authorised
- implementing traceability measures and an enforcement regime

Stage 2: Then Defra will set secondary laws about how and when a product is classed as precision bred

Stage 3: The FSA will be given specific tasks, and set out further secondary laws:

- it will create a framework for the authorisation process for new precision bred products
- it will communicate with consumers about precision bred foods

18. **Precision breeding:** changes to the genes which could be achieved naturally or by traditional breeding methods. **Genetic modification:** changes to the genes directly and which could not be achieved naturally or by traditional breeding methods.

19. **The proposed Genetic Technology (Precision Breeding) Bill, and the FSA's role:** What does the Bill intend to change? Currently Precision Bred food ad feed is regulated in the same way as Genetically Modified food and feed - they are both risk assessed under the same regulatory framework. If the Bill is passed, a separate category called 'Precision Bred food and feed' will be created. The FSA will then set up a new process to risk assess Precision Bred food and feed. This will be separate from the process to risk assess Genetically Modified food and feed, which will remain the same.

20. **Why do we need a separate regulatory framework for Precision Bred foods?** Precision Bred foods and Genetically Modified Foods are different from each other - the organisms grown using precision breeding techniques are more similar to those produced using conventional methods. While precision bred foods will be considered to be similar to traditionally bred foods they will need their own set of rules because:

- they can be developed faster than conventionally bred crops, and so a bespoke set of rules is needed to give confidence that new precision bred products have been adequately assessed
- the FSA wants the rules to be future proof - so that any new precision breeding technologies introduced in the future still have the appropriate level of scrutiny.

Precision breeding: changes to the genes which could be achieved naturally or by traditional breeding methods. **Genetic modification:** changes to the genes directly and which could not be achieved naturally or by traditional breeding methods.

21. **What would the journey of a Precision Bred food and feed product be?** (this is just part of the process, some products will be assessed by other organisation and regulators).

1. Lab based research and development takes place.
2. A new crop and seed is developed
3. The Department for the Environment, Food and Rural Affairs (Defra) looks at the seed/crop and how it has been produced and decides if it is a precision bred organism.
4. The FSA conducts a risk assessment for its safety and other important factors.
5. If the precision bred organism passes the risk assessment, the FSA provides advice to the relevant government minister to decide if it should go on sale.
6. If the minister decides that the product should go on sale, then the crop or seed is authorised and the FSA can out it on the register of precision bred foods.
7. Businesses can now use these seeds to grow precision bred crops or import the authorised precision bred crops from overseas. These can be sold direct to consumers, used to make other foods, or fed to animals as animal feed.

22. **What would all this mean for Wales?**

- the Genetic Technology (Precision Breeding) Bill is England only. That means that, if the Bill becomes law, products that go through the process we've just described would only be authorised in England.
- currently, no Precision Bred products are authorised in Wales (or the UK). If the Bill is passed and a precision bred food is authorised for sale in England, businesses could sell Precision Bred foods direct to consumers in England, Wales and Scotland under the market access principles of the UK Internal Market Act (2020)

- Precision Bred food and feed produced in Wales would still be treated as a Genetically Modified product, That would mean Precision Bred products produced in Wales would be subject to different regulations than they are in England.

23. **What are the FSA considering for their framework?** The FSA are exploring a two-tiered approach to authorising precision bred foods, which is proportionate, transparent and based rigorously on the science. This would distinguish between minor change that might typically result from the traditional breeding, and major changes that while theoretically possible to achieve through traditional breeding, may or may not significantly alter the safety of the consumed product. **Tier 1 (smaller changes):** all applications for new products are screened for similarity to traditionally bred varieties where the risk is understood and not of concern for consumers. **Tier 2 (larger changes):** Applications for new products where the Tier 1 screening does not allow the risk to be understood are subject to an additional step. These applications require a risk assessment to determine the level of risk for consumers. The FSA feels this would give flexibility across a broad range of products and future proof the process as technology develops. Scientists will use known evidence to decide how new products are classed as Tier 1 or Tier 2. This will be independent from the government or manufacturers.

24. **What are the FSA considering for their framework?** The criteria for Tier 1 and 2 are currently being developed by the FSAs independent scientific committees. **The criteria for whether a product is Tier 1 or 2 may consider:**

- any risk of scientific errors
- impacts on quality of food
- ethical questions about how far is 'too far', and what type of alterations are more significant
- uncertainty about long term health impacts and what risk management is needed
- **The FSA also conduct an an assessment of other legitimate factors (OLFs) which may inlcude:**
- impacts on environment, biodiversity, eco systems
- costs and food inequality impacts
- **There are some things that are already covered by existing rules and laws, such as:**
- potential changes to allergen information (all allergen information must always be declared on the label)
- safety to consumers: no new food will be permitted unless it is deemed as safe to consumers

25. Breakout rooms: Please wait to be moved automatically into your breakout room.

26. Comfort break: please be back by 8pm.

27. Food Businesses are required by law to provide certain types of information to consumers - this will stay the same for precision bred foods. Examples of mandatory labelling: a list of ingredients, allergen labelling, quantitative declaration of ingredients (where required), nutritional declaration.

28. **Informing consumers: a precision bred foods register.** The FSA will create an online register of authorised PBOs. Here are some examples of other registers: register of regulated products: products that are regulated and have undergone a risk assessment. Food hygiene ratings: information on the food hygiene ratings of businesses.

The FSA will need to decide: what is displayed in the register (what is helpful, what is feasible)

29. Your current views: poll. After today's discussions we want to capture how you currently feel about precision breeding: overall, how positive or negative do you feel about precision breeding? How likely would you be to eat a food made with precision bred crops?

30. Thank you.

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