



New Breeding
Techniques (NBTs)
Consumer Research

Appendices –
Supporting Materials
June 2023

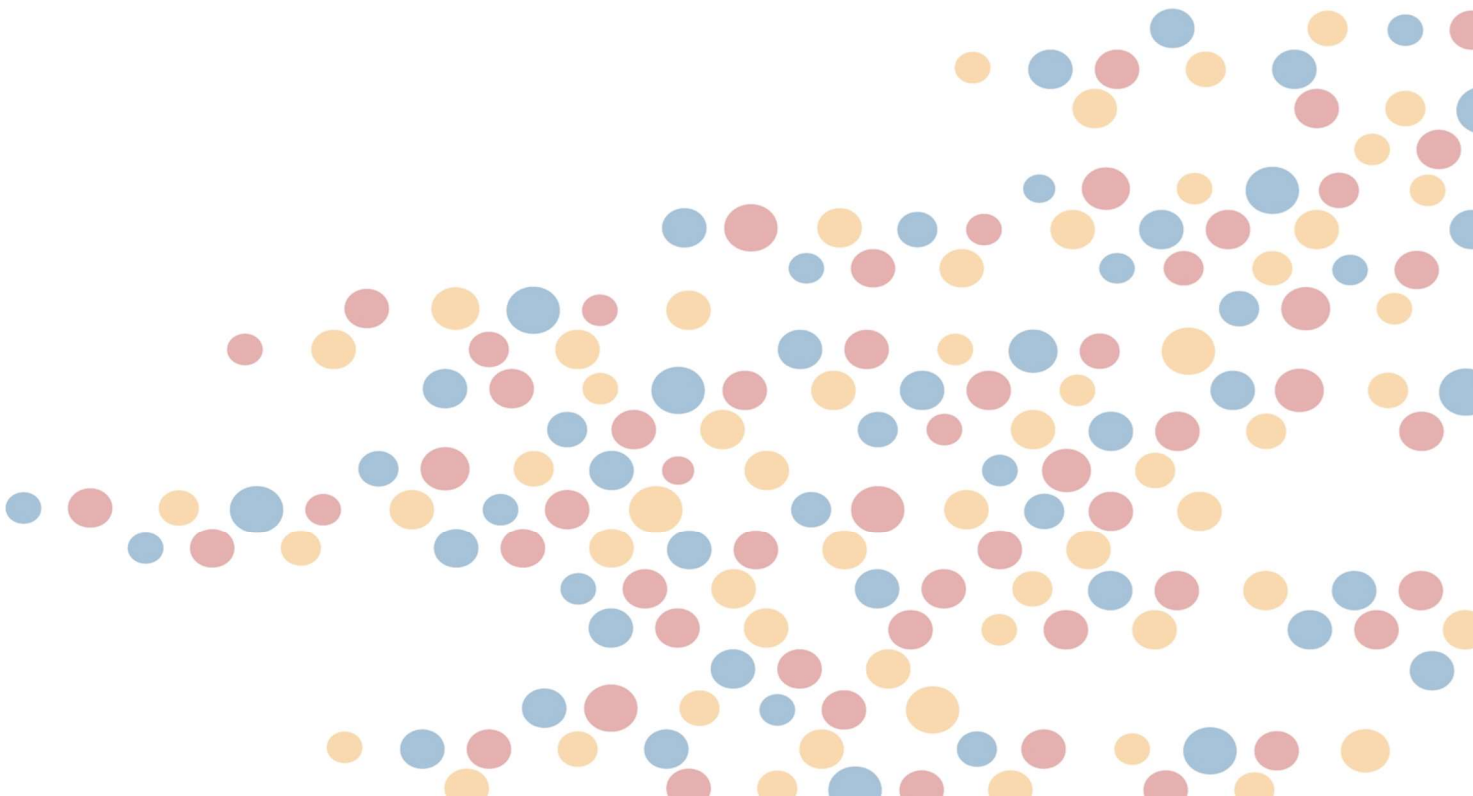


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APPENDIX A: Topic guide

Food Standards Scotland

New Breeding Technologies - Consumer Research

TOPIC GUIDE FINAL

8TH Feb 2023

ALL FACILITATORS MUST THOROUGHLY FAMILIARISE THEMSELVES IN ADVANCE WITH THE VIDEO AND PRESENTATION MATERIAL THAT WILL BE USED IN THE SESSION.

2nd FACILITATOR IS RESPONSIBLE FOR COMPLETING DATA TEMPLATE.

IN ADDITION TO WHAT IS ENTERED IN THE TEMPLATE, ALSO CAPTURE A GOOD SPREAD OF VERBATIMS.

18.30

Introduction and set up (10mins)

By moderator- name, JRS, independent researcher

Welcome and introduction to the subject and format of the session. A max of 3hrs – with a break – using a mix of presentations and open discussion based around a loose list of questions. For example, we have one video, and two recorded presentations with slides to work with.

We are carrying out this work for our client Food Standards Scotland (FSS) which has a responsibility for ensuring that the food we eat is safe and to give us the information we need about food and food safety.

Topic – we are hoping to get your views on 4 things:

1. new science and technologies that are involved in developing our food – i.e., your initial thoughts and feelings following a short introductory video.
2. how these developments are described – i.e., what language and terminology works best for you
3. any benefits and risks you feel that may be associated with new approaches and techniques.
4. what you feel government should do by way of control and regulation to ensure that the food we eat is safe.

These 4 areas provide the main structure for tonight's session.

PLEASE NOTE - We'll be talking largely about plant-based food. The term 'New Breeding Techniques' is one that this is being used, but there are others. Please do not worry if you don't feel that you fully understand everything that is being presented.... parts of it are quite complex.... what is important for us to hear is your impressions, your thoughts, any concerns, and worries.... really anything that comes to mind.

PLEASE NOTE – as facilitators, we are not experts in tonight’s topic. It’s possible that you may have questions that we are unable to answer. If this is the case, we will do our best to find an answer and get back to you later.

Homework task – after this session, you will be invited to complete a short homework task. This will give you the chance to offer some further thoughts on what we have covered.

Reassurance over **confidentiality**, GDPR and MRS Code of Conduct

- We will not disclose any of your details.
- We will anonymise all our reports- quotations may be used but will be tagged with a general description of your role.
- We will only use the information you provide for the purpose of this research.

Individual introductions - First name, what you do, where you live, your household situation.

18.40

Awareness and knowledge of the topic area (10mins)

Just to get us started, is anyone aware of any new developments or technologies in terms of how plants are bred, the science involved in breeding plants, and so on? GIVE TIME FOR SPONTANEOUS RESPONSES

IF ANYTHING COMES OUT....

PROBE: How do people feel about this?

PROBE: Do you feel ‘in the dark’? That you need more information? It’s for government and the scientists to sort out? A bit concerned, or not bothered? Any initial thoughts at all?

SHOW SHOWCARD 1 – SOME TERMS

Showcard 1

- Precision breeding
- New plant breeding methods
- Genetic modification / GMOs
- New breeding techniques
- Targeted breeding

Here are a few terms...READ OUT.... have you heard of any of them?

IF YES, PROMPT: **What do you know about them?**

Do any of these spark off some further thoughts? GIVE TIME FOR RESPONSES

Can I just take a quick straw poll on how knowledgeable you feel about this area. On a scale of 1-10, with 10 being high and one being low, where would each of you score yourself? MODERATOR NOTES EACH PARTICIPANT’S SCORE ON DATA TEMPLATE

18.50**Video, participant response, discussion (35mins)**

REMINDE PARTICIPANTS THAT A LOT OF SCIENCE WILL BE COVERED IN THIS SHORT VIDEO (IT LASTS 13 MINS), AND JUST TO FOLLOW IT AS BEST THEY CAN. THEY WILL NOT BE EXAMINED ON EVERYTHING THEY HEAR!
PLAY THE VIDEO ON NBTs

OK, what did you make of that? What's your first thoughts on what you have just listened to? GIVE PLENTY OF TIME FOR EVERYONE TO MAKE A CONTRIBUTION

PROBE: What were the one or two big 'take outs' for each of you – e.g., if you were to describe in your own words what the presenter managed to get over to you, what would it be?

NB - FACILITATORS CAPTURE VERBATIMS FROM ACROSS THE GROUP DURING EARLY DISCUSSION – ADD TO DATA TEMPLATE

Can I just check how many of you can recall that there are 3 broad methods in which new plant varieties are bred?

FACILITATOR RECAPS – THE THREE WAYS THAT NEW PLANT VARIETIES HAVE BEEN BRED ARE:

1. UP TO 40 YEARS AGO, WE HAD TO RELY ON TRADITIONAL PLANT BREEDING METHODS, WAIT FOR RANDOM CHANGES TO HAPPEN, OR WE INTRODUCED CHANGES WITH CHEMICALS OR RADIATION
2. IN THE LATE 1980s – THERE WAS THE DEVELOPMENT OF GENETICALLY MODIFIED (GM) ORGANISMS...WORKING IN A LAB AND USING GENES FROM ANOTHER SPECIES
3. AND MORE RECENTLY – NEW BREEDING TECHNIQUES HAVE BECOME AVAILABLE WHICH ALLOW TARGETED AND PRECISE GENE EDITING TO BE DONE (WITHOUT TAKING STUFF FROM ANOTHER SPECIES)

INFO FOR FACILITATOR – THE FIRST OF THE ABOVE METHODS IS STILL THE MOST WIDELY USED WAY OF PRODUCING NEW VARIETIES - CROSS BREEDING PLANTS WITH CHARACTERISTICS WE WANT. GM ISN'T WIDELY USED IN THE UK. AND NEW BREEDING TECHNIQUES ARE SO NEW THEY AREN'T IN REGULAR USE YET.

Does that sound about right?

How comfortable are people with the fact that we have reached a point in time where we have 'new breeding techniques' available?

Any further thoughts or questions in light of that short recap?

Do any of the specific things covered in the video feel familiar to you?

IF YES:

- **What things?**
- **What have you heard before?**

- **Where did you hear it? (e.g., on the news, from friends, reading?)**

Was there anything in the video that particularly surprised you?

IF YES, why was that surprising?

Was there anything that particularly interested you?

IF YES, What? Why was that interesting?

Was there anything mentioned that you want to know more about?

IF YES, What? Why do you want to know more about that?

Was there anything that you found particularly confusing, or worrying?

IF YES, What? What was the reason you were confused or/and worried?

If you wanted to know more about the new techniques and methods mentioned, what sources would you trust to give you accurate information?

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

19.25

Terminology and language used for new breeding techniques (30mins)

OK, we have been using quite few scientific and technical terms that may be very new to people. The next short presentation will focus on 3 specific outcomes – 3 different ways – that can be used to achieve change in how plants are bred.

Again, please just listen to the presentation.

Then we will then have a chat about what you make of it – e.g., how you might usefully group the changes you've just heard about, and the kind language that you feel could be used to describe it all.

FACILITATOR RUNS VIDEO ON TERMINOLOGY (4MINS)

OK, what was that about, what did you take out of that presentation? ALLOW TIME FOR ALL PARTICIPANTS TO COMMENT.

LISTEN OUT FOR PEOPLE MAKING A DISTINCTION BETWEEN:

- CHANGES THAT ARE A RESULT OF NATURAL PROCESSES -V- CHANGES THAT CAN NOT OCCUR NATURALLY
- CHANGES THAT ARE A RESULT OF CLASSICAL/TRADITIONAL BREEDING PRACTICE -V- CHANGES THAT REQUIRE MODERN SCIENTIFIC GENE EDITING TECHNIQUES
- CHANGES THAT COME FROM EDITING THE EXISTING DNA -V- CHANGES THAT INVOLVE ADDING DNA FROM OTHER SPECIES

REMEMBER THESE ARE OUTCOMES (TYPES OF CHANGES) RATHER THAN METHODS FOR CHANGE

Groups and differentiating changes

How should these changes be treated? How important is it to group them or make distinctions between them? GIVE TIME.

SHOW SHOWCARD 2a – POTENTIAL GROUPINGS / DISTINCTIONS

Change:

- That can occur naturally -v- Does not occur naturally.
- Classical / traditional breeding practices -v- New modern scientific gene editing techniques
- Editing the existing DNA -v- Adding other DNA (from another or the same species)

PROBE:

Do you feel it matters – do you feel that a distinction needs to be made – between change that can occur naturally -v- change that does not occur naturally?

IF YES, why do you say that?

IF NO, why do you say that?

Do you feel it matters – do you feel that a distinction needs to be made – between change made by classical or traditional breeding practice -v- change that uses new, modern scientific gene editing techniques?

IF YES, why do you say that?

IF NO, why do you say that?

Do you feel it matters – do you feel that a distinction needs to be made – between change that comes as a result of editing the existing DNA -v- change that involves adding other DNA, e.g., from another species or the same species?

IF YES, why do you say that?

IF NO, why do you say that?

PROBE: Does it make a difference if the DNA added is from another species vs from the same species?

Is there any other way that you feel that these different methods and techniques can be usefully grouped or distinguished from one another?

PROBE: Again, do you think they need to be grouped and distinguished from one another? GIVE TIME FOR PEOPLE TO SAY AS MUCH AS THEY CAN

Language and terminology to describe changes and groupings

Let's turn now to consider the kind of language or terminology that might work for you – language that can be used to talk to the public about these different techniques....

Are there any labels or names that come to mind that could be used to describe it – that describe it all, or that describe bits of it? GIVE TIME FOR PARTICIPANTS TO REFLECT AND RESPOND

PROMPT: Let's say you meet up with a friend tomorrow, and they ask you what you talked about in last night's research group.... what words would you use to describe the changes that we have just been discussing? GIVE TIME FOR PARTICIPANTS TO REFLECT AND RESPOND

OK, I'm now going to offer you a few broad options for the kind of terminology that might be used to describe the techniques that we have been talking about.....

SHOW SHOWCARD 2b – TERMINOLOGY TO DESCRIBE NEW TECHNIQUES

SHOWCARD 2b

- An **umbrella** term (e.g., New Breeding Techniques or Precision Breeding) – easy to say/remember but might not fully describe the science involved.
- A **technical** term that gives a very accurate, correct description of the science involved, that is not possible with an umbrella term (e.g., targeted mutagenesis, cisgenesis, transgenesis)
- A **descriptive** term that makes it very clear what a technique is doing (e.g., Genome Editing or Gene Editing)

READ OUT CONTENT ON THE SHOWCARD

What do you think of these? GIVE TIME FOR PARTICIPANTS TO OPEN UP AND GIVE THEIR VIEWS

Let's now take each in turn. Can you indicate which one you prefer, and the reason/s why?

TAKE EACH OPTION ON SHOWCARD 2 IN TURN. ASK IF ANY PARTICIPANTS PREFER THIS OPTION AND THEIR REASON/S. RECORD ON DATA TEMPLATE

Apart from the three options we have just discussed, are there any other approaches to naming or describing the techniques that come to mind? RECORD ANY NEW OPTIONS THAT ARE OFFERED. THEN ASK THE GROUP TO GO THROUGH THE SAME PROCESS AS ABOVE. ADD TO THE DATA TEMPLATE

.....

19.55 APPROX - TAKE A 10 MIN COMFORT BREAK

.....

20.05

Perceived benefits and risks of the new technologies and methods (30mins)

In a few minutes I'll share a couple of slides that summarises what are seen to be some of the main benefits and risks associated with the new breeding techniques. But first, I'd like to hear your thoughts...

Benefits (unprompted)

What **benefits** do you feel might be associated with these new breeding techniques...how might they benefit you as a consumer or society as a whole...what comes to mind? GIVE TIME FOR PEOPLE TO FULLY REFLECT AND COMMENT – ENCOURAGE CROSS DISCUSSION – LIST AND ADD TO DATA TEMPLATE

And out of those **benefits** that you have just mentioned, which ones are the **most important to you?** 'STAR' MOST IMPORTANT ON DATA TEMPLATE

Risks (unprompted)

Let's now think about any **risks** that come to mind...what (if anything) gives you cause for concern? GIVE TIME FOR PEOPLE TO FULLY REFLECT AND COMMENT – ENCOURAGE CROSS DISCUSSION - LIST AND ADD TO DATA TEMPLATE

And out of the **risks** that you have just mentioned, which ones are the **most concerning to you?** 'STAR' MOST CONCERNING ON DATA TEMPLATE

Benefits (prompted)

SHOW SHOWCARD 3 – POTENTIAL BENEFITS

(NB - FACILITATOR SHOULD BE FAMILIAR WITH THE SCRIPT THAT FSS HAS BEEN PREPARED)

Here are some of the possible benefits that have been identified that could be associated with New Breeding Techniques:

SHOWCARD 3

- Speeding up the breeding process – e.g., genome editing is cheap and easy for breeders to use
- Speed and ease of use means breeders can focus on crops and traits that would not be economically viable to produce with conventional or GM methods.
For example:
 - Crops being more resilient to climate change and extreme weather.
 - Crops being more resistant to pests and diseases.
 - Crops having higher levels of nutrients.
 - Crops which are safe for those with allergies
 - Potential animal welfare applications – e.g., gene editing in cattle resulting in cattle being born without horns and not having to potentially painful de-horning.
- Could make food easier and cheaper to grow – by reducing costs for farmers and breeders.

Has it made you think of any benefits that you were not aware of?
IF YES, **What benefits? And how important are they to you?**

Out of all the possible benefits we have touched on, what is the one most important to you? Why is that important to you? GO ROUND THE PARTICIPANTS AND ASK EACH TO STATE THE MOST IMPORTANT BENEFIT FOR THEM. RECORD ON DATA TEMPLATE.

Risks (prompted)

SHOW SHOWCARD 4 – POTENTIAL RISKS

Here are some of the possible risks that have been identified that could be associated with New Breeding Techniques:

SHOWCARD 4

- **Technical challenges-** e.g., disruption of existing genes or off-target mutations that change the DNA in ways other than those intended by the breeder.
- **Consumer choice-** testing cannot differentiate edited food from conventionally bred food for many uses of new breeding techniques. This may make labelling difficult.
- **Unequal sharing of cost saving benefits-** if larger producers have better access to the technology, or if savings are not passed to the consumer.
- **Intellectual property-** a) there may be intellectual property costs associated with tools like CRISPR so the lab breeder may have to pay to use the tool and/or b) breeders/farmers may have to pay a premium to use the seeds.
- **Consumer acceptance-** as these techniques are relatively new and not well understood by the public there may be low trust in the safety of these foods.

Has that made you think of any risks that you were not aware of? IF YES, What risks? And how concerning are they to you?

Out of all the possible risks we have touched on, what is the one that most concerns you? Why is that concerning for you? GO ROUND THE PARTICIPANTS AND ASK EACH TO STATE THE MOST IMPORTANT RISK FOR THEM. RECORD ON DATA TEMPLATE

Overall balance (benefits and risks)

Overall, thinking about both the benefits and risks, do the benefits of New Breeding technologies outweigh the risks, or is it the other way around?

Can I take a quick straw poll, who would you be happy to have food bred in this way? TAKE STRAW POLL AND ADD TO DATA TEMPLATE

.....

20.35 TAKE A 10 MIN COMFORT BREAK

.....

20.45

What needs to be done to make you feel that these food products are safe – options for regulation (45mins)

PLAY FSS PRESENTATION ON REGULATORY OPTIONS (14MINS)

(NB – FACILITATOR MAY WANT TO PAUSE THE PRESENTATION AT KEY POINTS – E.G. REFLECTION THE SUB-HEADS BELOW - AND ASK THE RELEVANT QUESTIONS).

Any initial observations or comments on what you have just heard? ALLOW TIME FOR RESPONSES

Regulation....

Do you think foods using NBTs should be treated exactly the same as GMO products, or should they be treated differently?

PROBE: Why?

Do you think foods using NBTs should be treated the same as other food products, or should they be treated differently?

PROBE: Why?

Do you think NBTs used in plants and animals should be treated the same or differently?

PROBE: Why? How?

Tiered System...

SHOW SHOWCARD 5 – TIERED SYSTEM

In the presentation, you heard about the idea of a Tiered System to regulate different NBTs. What your thoughts on that? Is it a good idea or not?

SHOWCARD 5

Tier 1 (Small Changes) - Applications for new products screened for similarity to traditionally bred varieties – the risk is understood.

Tier 2 (Larger Changes) - Applications for new products have been screened at Tier 1 and the risk is less well understood. Additional risk assessment for find level of risk for consumers.

Do you think we need both Tiers?

IF YES, why do you say that?

IF NO, why do you say that?

Expert Committee...

What about an Expert Committee within (say) Food Standards Scotland that would provide oversight of everything containing an NBT? What your thoughts on that? Is it a good idea or not? Is that really needed?

Labelling of foods ...

Would you want foods that use NBTs labelled to be labelled as such?

IF YES: Why?

IF NO: Why not?

If you saw an item labelled as containing an NBT, would that change your decision making when choosing food?

Is this something you would look for on a food label?

What if foods from NBTs could not be labelled as such – would that worry you?

NOTE TO FACILITATOR - WE CAN TEST FOR 'GENETIC MODIFICATION' BECAUSE IT CONTAINS DISTINCTIVE MATERIAL FROM ANOTHER ORGANISM. BUT NBTs ARE DIFFERENT AS A LOT OF THE CHANGES NBTs COULD MAKE ARE IDENTICAL AT A DNA LEVEL TO CLASSICAL BREEDING.

It is difficult to test if a food has ingredients using NBTs, because it appears exactly the same as if it had been conventionally bred or grown. How does that make you feel?

Notices...

If there was to be no labelling on food, then another alternative is to have notices displayed in-store at point of sale - for instance, a notice on the wall near the product may say that it contains ingredients using NBTs. How do you feel about that?

FACILITATOR CAN MENTION THE EXAMPLE OF SUPERMARKETS LIKE TESCO, MORRISONS AND WAITROSE USING NOTICES TO ANNOUNCE LIMITING THE PURCHASE OF SUNFLOWER OIL TO TWO A PERSON BECAUSE OF SCARCITY CREATED BY THE WAR IN UKRAINE

PROBE: Would you like to see notices? Why? Would you be likely to notice Notices? What difference would Notices make to you as a consumer?

Online register...

What about an online register of authorised NBT foods, with food producers being required to register foods using NBTs there. How do you feel about that?

PROBE: If there was neither labelling, notices nor traceability through record keeping, would you like to see an online register of authorised foods using NBTs? Why? What difference would this make to you as a consumer?

Summing up

OK, bearing in mind what you heard tonight, and all that we have been chatting about... how confident are you - going forward – that the food produced by NBTs will be safe to eat? And what is the reason that you say that? ASK EACH PARTICIPANT IN TURN AND CAPTURE VERBATIMS.

What's the one main thing each of you would like to see happen going forward to ensure the safety of food? LIST ON DATA TEMPLATE

Thinking about everything we've discussed tonight, what are the most important points to tell the public in Scotland about NBTs?

FACILITATOR ROUNDS OFF THE SESSION WITH INFO ON HOMEWORK TASK: We will be contacting you again soon asking you to do a very short homework task. We will be developing that in light of what comes out of these

discussions. It will involve a short questionnaire that you will be able to complete online.

21.30

THANK AND CLOSE

APPENDIX B: Data capture template for facilitators

DATA TEMPLATE – COMPLETED BY 2ND FACILITATOR DURING SESSION

NB – add demographic tags to all verbatims (m/f, age group, SEG)

Focus group number:

Straw poll scores (1-10) on ‘how knowledgeable’ people feel they are about the area (e.g.:4, 5, 2 etc):

Participant 1	<input style="width: 80px; height: 25px;" type="text"/>
Participant 2	<input style="width: 80px; height: 25px;" type="text"/>
Participant 3	<input style="width: 80px; height: 25px;" type="text"/>
Participant 4	<input style="width: 80px; height: 25px;" type="text"/>
Participant 5	<input style="width: 80px; height: 25px;" type="text"/>
Participant 6	<input style="width: 80px; height: 25px;" type="text"/>

List selected verbatims following viewing of the video (add demo tags):

Tick each individuals’ preference and their main reasons (Include verbatims):

Participant 1	<input type="checkbox"/> Umbrella term	<input type="checkbox"/> Technical term	<input type="checkbox"/> Descriptive term
Reasons			
Participant 2	<input type="checkbox"/> Umbrella term	<input type="checkbox"/> Technical term	<input type="checkbox"/> Descriptive term
Reasons			
Participant 3	<input type="checkbox"/> Umbrella term	<input type="checkbox"/> Technical term	<input type="checkbox"/> Descriptive term
Reasons			
Participant 4	<input type="checkbox"/> Umbrella term	<input type="checkbox"/> Technical term	<input type="checkbox"/> Descriptive term
Reasons			
Participant 5	<input type="checkbox"/> Umbrella term	<input type="checkbox"/> Technical term	<input type="checkbox"/> Descriptive term

Reasons	
Participant 6	<input type="checkbox"/> Umbrella term <input type="checkbox"/> Technical term <input type="checkbox"/> Descriptive term
Reasons	

List of other names suggested:

a	
b	
c	
d	
e	

List perceived benefits (mentioned unprompted) of NBTs and ‘star’ the most important ones:

a	
b	
c	
d	
e	

List perceived risks (mentioned unprompted) of NBTs and ‘star’ the most concerning ones:

a	
b	
c	
d	
e	

Of all the possible benefits mentioned (after prompting), list the most important ones identified:

1	
2	
3	
4	
5	
6	

Of all the possible risks mentioned (after prompting), list the most important ones identified:

1	
2	
3	
4	
5	
6	

Straw poll – are people happy to have food bred in this way? (Add number):

Yes	
No	
Unsure	

Tick (for each participant) how confident they are that the food produced by NBTs will be safe to eat + the reason they say that? **CAPTURE VERBATIMS.**

Participant 1	<input type="checkbox"/> Not confident	<input type="checkbox"/> Somewhat confident	<input type="checkbox"/> Very confident
Reasons			
Participant 2	<input type="checkbox"/> Not confident	<input type="checkbox"/> Somewhat confident	<input type="checkbox"/> Very confident
Reasons			
Participant 3	<input type="checkbox"/> Not confident	<input type="checkbox"/> Somewhat confident	<input type="checkbox"/> Very confident
Reasons			
Participant 4	<input type="checkbox"/> Not confident	<input type="checkbox"/> Somewhat confident	<input type="checkbox"/> Very confident
Reasons			
Participant 5	<input type="checkbox"/> Not confident	<input type="checkbox"/> Somewhat confident	<input type="checkbox"/> Very confident
Reasons			
Participant 6	<input type="checkbox"/> Not confident	<input type="checkbox"/> Somewhat confident	<input type="checkbox"/> Very confident
Reasons			

List main things needed to ensure future food safety:

APPENDIX C: Risks and benefits supporting content for facilitators

Risks and benefits

NB – this is a supporting script for facilitators. The script has been written by FSS. Do read it over before delivering this part of the session and draw on it as you see fit).

As new breeding techniques are emerging technologies in food production, there has been a lot of discussion amongst scientists, policy makers and campaigners about potential risks and benefits of these technologies.

You have already had the opportunity to discuss some of the risks and benefits that you could foresee, now we'll share some of the key ones that are often raised.

SHOWCARD 3 – POTENTIAL BENEFITS

New breeding techniques can speed up the breeding process. CRISPR genome editing, which was described earlier in the session, is particularly cheap and easy for breeders to use.

All breeders need to have an incentive to produce improved crop varieties. Plant breeding is a business, and a company needs to know that they can sell enough seed of a new variety to make back the money it cost to produce it.

This speed and ease of use of new breeding techniques means breeders can focus on crops and characteristics that would not be economically viable to produce with conventional or GM methods.

Some examples of these characteristics that breeders are working on with new breeding techniques are:

- Crops which are more resilient to climate change. For example, researchers are working to understand and develop drought tolerance in crops such as corn, rice, and tomato.
- Crops which are resistant to pests and diseases meaning less chemical pesticides need to be applied. For example, the fungus-like organism that caused the Irish potato famine can still destroy potato crops, and farmers often have to spray crops multiple times a season. Researchers are working on a cisgenic potato that uses gene from wild potatoes to introduce resistance and means the crop would not have to be sprayed with chemicals.
- Crops which have higher levels of nutrients. For example, a billion people world-wide have a vitamin D insufficiency. Researchers have used genome editing to develop tomatoes which have higher levels of vitamin D, potentially helping to address deficiencies of this nutrient.

- Crops which are safe for those with allergies. For example, scientists found that Coeliac disease is caused by a specific part of gluten and, used CRISPR to develop wheat which is safe for those with Coeliac disease.

Although we have primarily dealt with these techniques in relation to crops as these applications are closer to market, there is also some work using these techniques in animals. One example is a single DNA letter change which can make cattle hornless. Most of the cattle breeds farmed in the UK are born with horns which have to be removed for the safety of the farmer and other animals in the herd. This gene edit would mean cattle could be born without horns avoiding the potentially painful de-horning procedure.

The other potential benefit which is often raised is the cost to farmers and consumers. Although some crops produced with new breeding techniques may be marketed as premium products, these technologies are likely to be used to bring down the cost of food for example by making crops easier to grow and require less costly inputs such as pesticides or complex processing.

SHOWCARD 4

This slide presents some potential risks of the use of new breeding techniques. Potential controls for some these risks will be discussed later in the session when we look at regulatory options.

- There are still technical challenges to using these technologies such as the insertion of the gene somewhere that stops another gene from working, or off-target effects where the molecular scissors of the genome editing tool cut in the wrong place. These might change the DNA in ways other than those intended by the breeder.
- As many applications of new breeding techniques cannot be identified by testing (because their DNA is identical to a conventionally bred plant or animal), some people may worry that they wouldn't know if they are eating food produced by these new breeding techniques.
- Some people worry that the benefits of using new breeding techniques may not be equitably shared if certain countries, or larger producers have better access to the technology. They may also be concerned that costs savings are not passed onto the individual farmer or consumer.
- Although the scientists who developed CRISPR tools have indicated that they are willing to allow use of their tool to produce new varieties for the market, this is still to be fully resolved. Additionally, it is unclear if breeders will wish to apply intellectual property- patenting the seeds and restricting access to varieties produced with new breeding techniques- beyond plant breeders rights which apply to all conventional plant varieties.
- As these techniques are relatively new and not well understood by the public there may be low trust in the safety of these foods.

APPENDIX D: Showcards

SHOWCARD 1 – SOME TERMS

- Precision breeding
- New plant breeding methods
- Genetic modification / GMOs
- New breeding techniques
- Targeted breeding

SHOWCARD 2a – POTENTIAL GROUPINGS / DISTINCTIONS

Change:

- That can occur naturally -v- does not occur naturally
- Classical / traditional breeding practices -v- New modern scientific gene editing techniques
- Editing the existing DNA -v- Adding other DNA (from another or the same species)

SHOWCARD 2b - TERMINOLOGY TO DESCRIBE NEW TECHNIQUES

- An **umbrella** term (e.g., New Breeding Techniques or Precision Breeding) – easy to say/remember, but might not fully describe the science involved
- A **technical** term that gives a very accurate, correct description of the science involved, that is not possible with an umbrella term (e.g. targeted mutagenesis, cisgenesis, transgenesis)
- A **descriptive** term that makes it very clear what a technique is doing (e.g., Genome Editing or Gene Editing)

Showcard 2c - Tools are available to breeders to achieve one of 3 outcomes

Targeted mutagenesis

A **specific change(s)** to DNA letter(s) in target locations of the genome.

No DNA is inserted.

These changes **could occur by classical plant breeding.**

Cisgenesis

A **gene from the same species** is introduced as an exact copy.

No transgenes are inserted.

In many cases these changes **could occur by classical plant breeding.**

Transgenesis

A gene from **another species** is inserted.

Techniques of transgenesis are often referred to as **genetic modification** (GM).

These changes could NOT be achieved by classical breeding.

SHOWCARD 3 – POTENTIAL BENEFITS

- Speeding up the breeding process – e.g., genome editing is cheap and easy for breeders to use
- Speed and ease of use means breeders can focus on crops and traits that would not be economically viable to produce with conventional or GM methods. For example:
 - Crops being more resilient to climate change and extreme weather
 - Crops being more resistant to pests and diseases
 - Crops having higher levels of nutrients
 - Crops which are safe for those with allergies
 - Potential animal welfare applications – e.g., gene editing in cattle resulting in cattle being born without horns and not having to potentially painful de-horning
- Could make food easier and cheaper to grow – by reducing costs for farmers and breeders

SHOWCARD 4 – POTENTIAL RISKS

Technical challenges- e.g. disruption of existing genes or off-target mutations that change the DNA in ways other than those intended by the breeder.

Consumer choice- testing cannot differentiate edited food from conventionally bred food for many uses of new breeding techniques. This may make labelling difficult.

Unequal sharing of cost saving benefits- if larger producers have better access to the technology, or if savings are not passed to the consumer.

Intellectual property- a) there may be intellectual property costs associated with tools like CRISPR so the lab breeder may have to pay to use the tool and/or b) breeders/farmers may have to pay a premium to use the seeds.

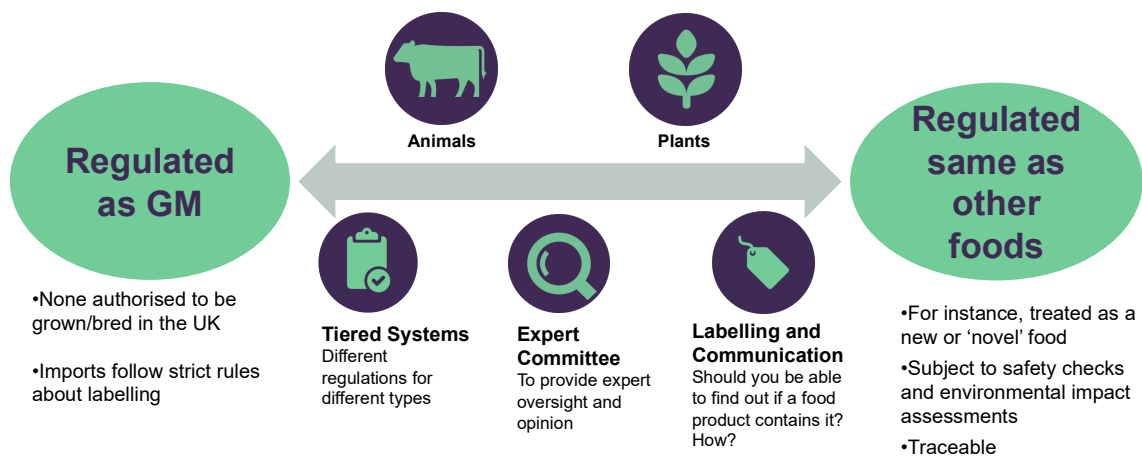
Consumer acceptance- as these techniques are relatively new and not well understood by the public there may be low trust in the safety of these foods.

SHOWCARD 5 – TIERED SYSTEM

- **Tier 1 (Small Changes)** - Applications for new products screened for similarity to traditionally bred varieties – the risk is understood
- **Tier 2 (Larger Changes)** - Applications for new products have been screened at Tier 1 and the risk is less well understood. Additional risk assessment for finding level of risk for consumers



How foods using New Breeding Techniques (NBTs) are regulated around the worlds



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APPENDIX E: Overview of presentations

Presentation on NBTs

Huw D Jones, Professor of Translational Genomics for Plant Breeding, Institute of Biological, Environmental and Rural Sciences (IBERS), Aberystwyth University, provided a 12-minute presentation explaining how new plant varieties are developed for sale to farmers, and three fundamentally different types of plant breeding that can be used to produce those varieties.

These three different types of plant breeding are:

1. Classical or traditional plant breeding methods that have been used for many hundreds, or thousands, of years initially where crops were domesticated from wild plants, and later work on cross breeding to select crops with desired traits.
2. Genetic modification
 - Where plants lack certain desired characteristics, the technique of mutation breeding was developed in the 1940s or 1950s to increase the genetic variability in crops. This has been used to create around 3000 new varieties using chemicals or x-rays, which are available worldwide. He gave an example of how mutation breeding has been used to produce seedless oranges.
 - Making a genetically modified organism (GMO). Developed in the late 1980s and early 1990s, this involves inserting DNA from another species randomly into the genome of the target plant to generate the trait of interest. There is only one GMO variety for food that has been authorised for cultivation in the EU, but many different kinds are imported into the UK and EU. Most current GMOs have genes that make the plant defend itself against pests and diseases or to help the farmers control weeds.
3. New plant breeding techniques (NBT) which have been developed in the last ten years or so and can be distinguished from previous two types of breeding. An example is gene editing, and the main tool for this is CRISPR, which works to make highly targeted changes to the host plant DNA.

Professor Jones finished his presentation by summarising the information he had covered on the three types of plant breeding that had been explored in his presentation - traditional plant breeding, genetic modification, and new breeding techniques.

For classical plant breeding methods, he summarised that:

- this involves processes in the laboratory or glasshouse to select random changes which are either found naturally or induced using chemicals or x-rays.
- these changes occur naturally in all organisms (plants, animals, and humans), but that mutation breeding can increase the rate of changes.

- all plants bred in this way must be sexually compatible and that no genes from other plants or animals are introduced.


For genetic modification, he summarised that:

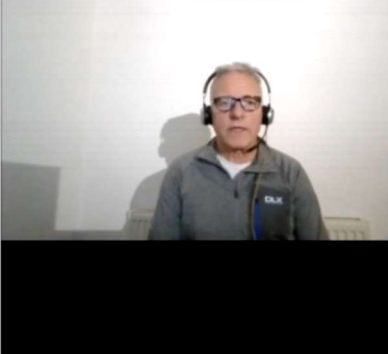
- this involves a laboratory process where DNA from another organism is transferred into the host plant.
- the inserted DNA comes from an organism that could not cross breed with the host naturally and is inserted randomly into the host genome.
- these changes could not be achieved by classical breeding.

For new breeding techniques, such as gene editing, he summarised that:

- this also involves a laboratory process but makes targeted changes to the host genome.
- no genes are inserted from another organism that could not cross breed with the host naturally
- these changes could be found naturally or produced using classical breeding methods.

Huw D Jones
Professor of Translational Genomics for Plant Breeding,
IBERS, Aberystwyth University. UK





Plant breeding is fundamental to our food supply

			
watermelon	watermelon	corn	corn
			
banana	banana	aubergine / eggplant	aubergine / eggplant
			
carrot	carrot	cabbage, kale, broccoli, etc.	broccoli

Action Nutrition | Food
The successful commercialisation of UK broccolien: a case study



The journey from wild broccoli variety to supermarket product that takes decades and is not just about science

Beneforté broccoli is two to three times higher in a compound called glucoraphanin from which sulforaphane is derived upon ingestion. Studies in animal model systems have shown that sulforaphane can lead to lower rates of heart disease, act against some forms of cancer and boost the body's levels of antioxidant enzymes, which can protect DNA from damage and is thought to be a useful component of healthy ageing.



Sharing a healthy future

RIJKZWAAN

Vegetable seeds
Solutions
Blog



ToBRFV resistant varieties

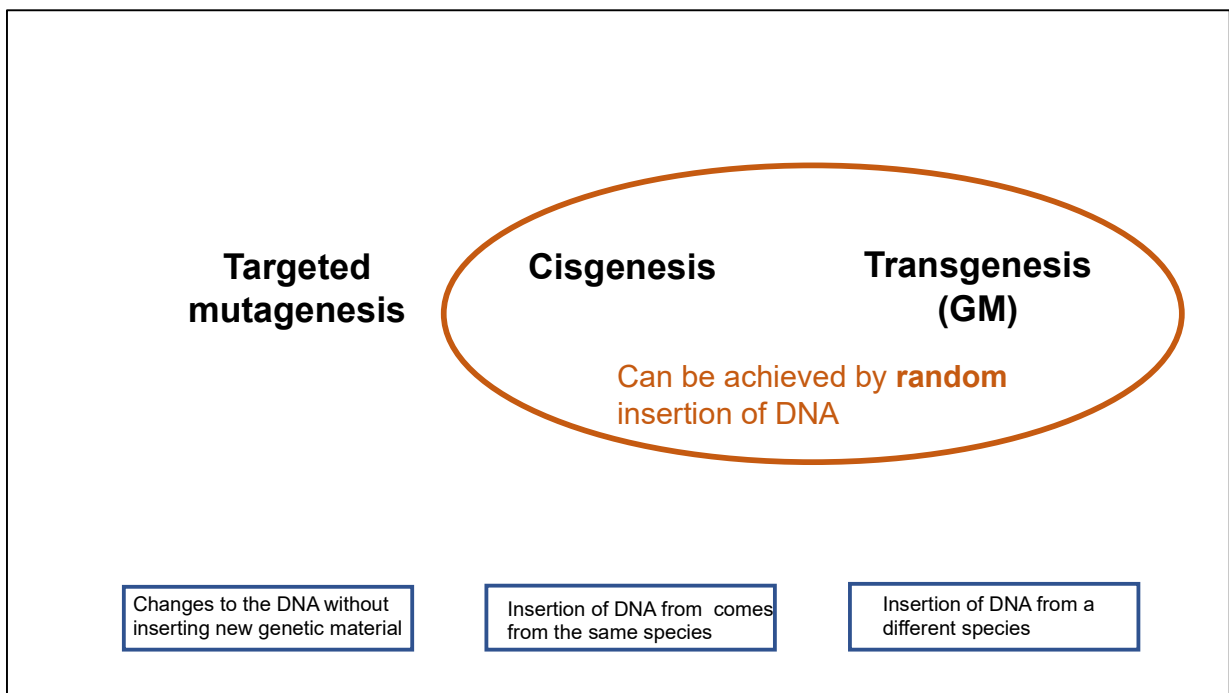
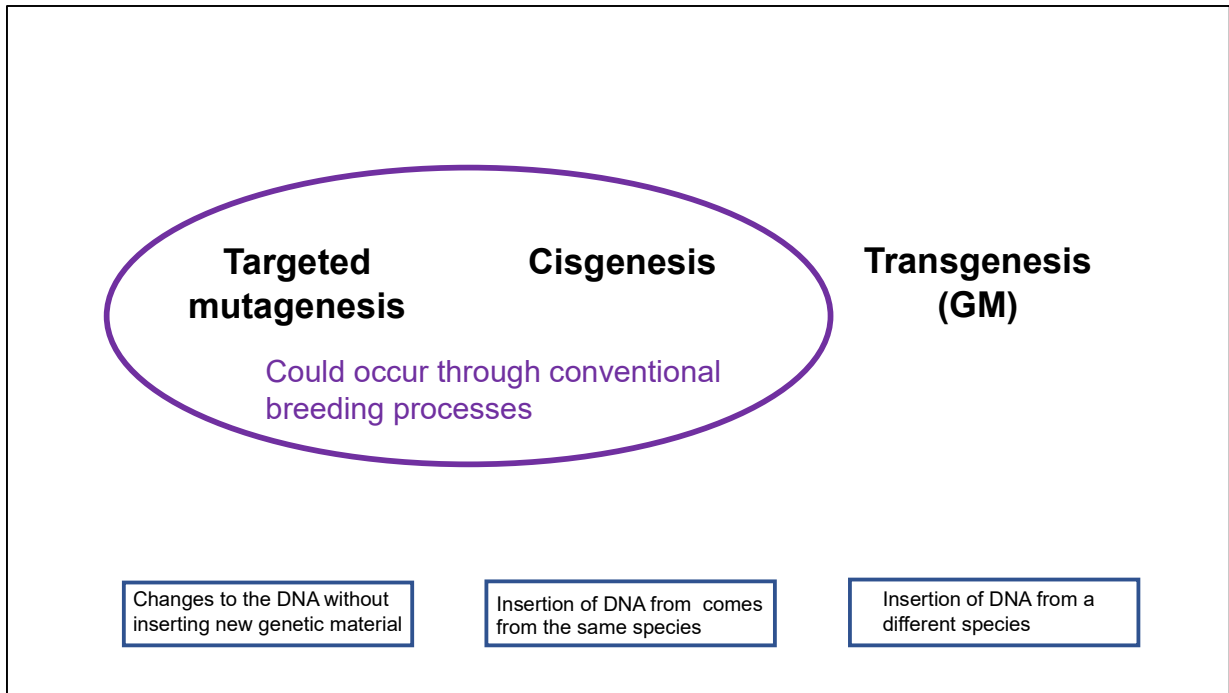
Rijk Zwaan has found new genetics with high resistance (HR) to the Tomato brown rugose fruit virus (ToBRFV).

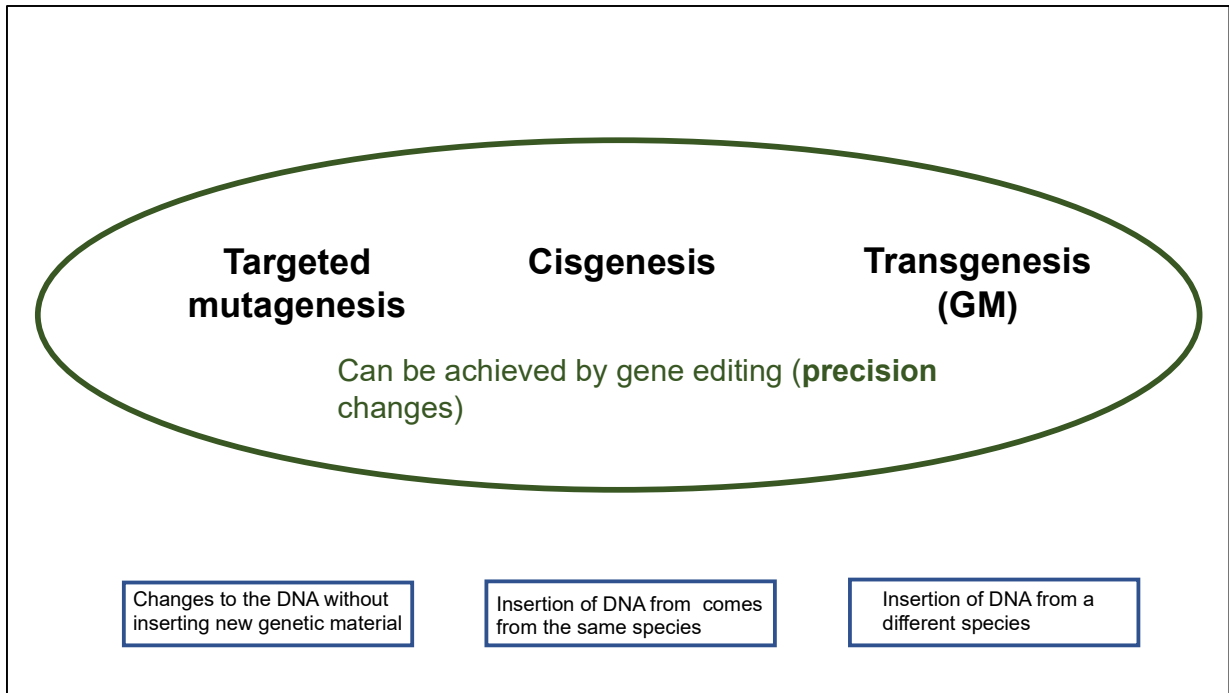
Presentation on terminology

A number of tools are available to breeders to achieve one of the 3 following outcomes:

Targeted mutagenesis	Cisgenesis	Transgenesis
<p>A specific change(s) to DNA letter(s) in target locations of the genome.</p> <p>No DNA is inserted.</p> <p>These changes could occur by classical plant breeding.</p>	<p>A gene from the same species or a sexually compatible one is introduced as an exact copy.</p> <p>No transgenes are inserted.</p> <p>In many cases these changes could occur by classical plant breeding.</p>	<p>A gene from another species is inserted.</p> <p>Techniques of transgenesis are often referred to as genetic modification (GM).</p> <p>These changes could not be achieved by classical breeding.</p>

Targeted mutagenesis	Cisgenesis	Transgenesis (GM)
Changes to the DNA without inserting new genetic material	Insertion of DNA from comes from the same species	Insertion of DNA from a different species






Presentation on regulatory options

Food Standards Scotland
For safe food and healthy eating

New Breeding Techniques in Foods
Regulatory Options




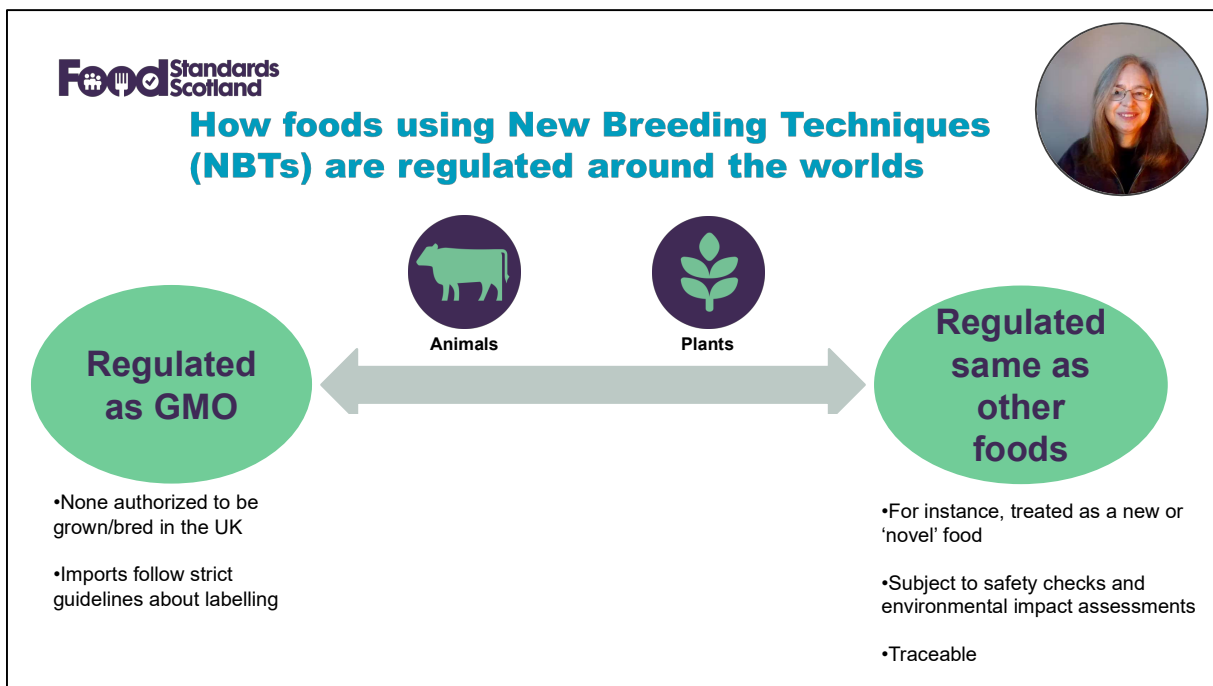
What needs to be done to make you feel that these food products are safe?

Options for regulation

How NBTs in food are regulated around the world

2







Introduction new and 'novel' foods to market

- Undergo risk analysis for safety
- FSS ensures high standards
- Foods that have **not been consumed by people within the UK or EU** must be risk assessed before being authorised.
- Process of risk assessment can take **from 4 months to 2 years**

6



Introduction new and 'novel' foods to market



FSS 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.



7

Introducing new foods to the market

Examples of foods that have been risk 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 spreads:

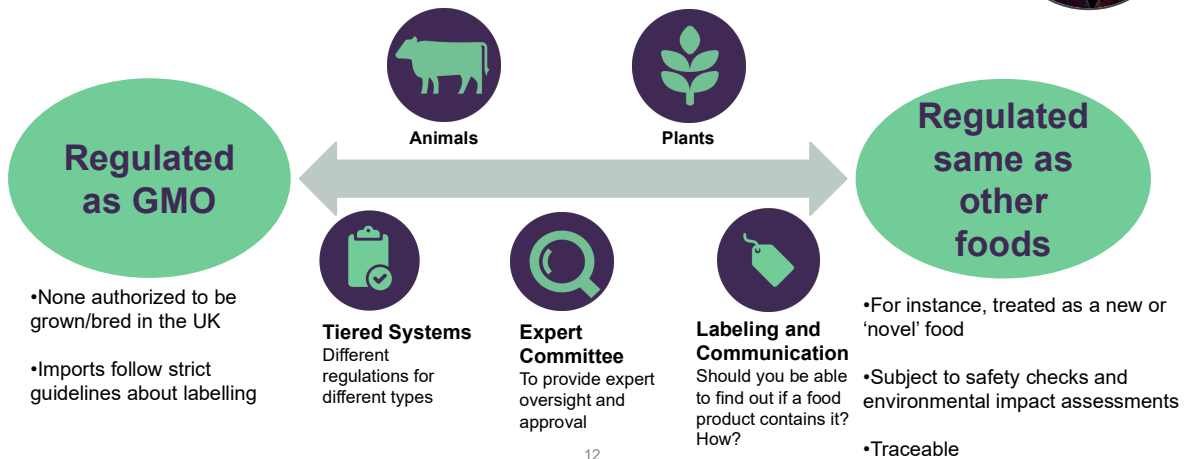
- These were both new products with little or no consumer consumption in other countries to assess risk by.
- They therefore had a **longer risk assessment**. FSS may ask for additional scientific data and evidence as part of a more extensive risk assessment.




8




How foods using New Breeding Techniques (NBTs) are regulated around the worlds



12



Tiered Systems




Tiered Systems
Different regulations for different types

Tier 1 (Small Changes)


Applications for new products screened for similarity to traditionally bred varieties – the risk is understood

Tier 2 (Larger Changes)


Applications for new products have been screened at Tier 1 and the risk is less well understood. Additional risk assessment for find level of risk for consumers



14



Expert Committee




Expert Committee
To provide expert oversight and approval

Expert Committee

Within food regulator providing oversight of food and feed products containing NBTs

NBT Technologies Body

Separate public body or committee overseeing all NBTs technologies – in food and medicine.



16



Labelling and Communication



Labelling and Communication

Should you be able to find out if a food product contains it? How?

Labelling

Products that include ingredients from NBTs must say so on the product food label

Notices

Notices are displayed somewhere in store saying if a particular product contains ingredients from NBTs

Online Register

Producers are required to register foods using NBTs and there is an online register of authorised NBT foods



APPENDIX F: Follow-up questionnaire

Final content for Homework exercise

Thank you for participating in the recent focus group on New Breeding Techniques. In this homework task, there are a few questions for you to consider. You will be asked to briefly reflect on what we discussed in the focus group, and for your views on a list of terms that might be used to describe the new techniques. You will also be asked about your thoughts on options for regulation.

Just as a brief reminder, recently new scientific techniques have been developed for breeding plants. These techniques can involve making very targeted changes to the DNA of a plant, without introducing DNA from another species.

This is what we have called 'New Breeding Techniques', although there may be other terms to describe the developments that you feel are more appropriate.

Please try and answer each of the following questions. Use your own words and say what you really feel.

Reflecting on what we covered in the focus group session, what are the main thoughts that come to mind now? What are the main 'take outs' for you?

On balance, now that you have had a few days to think about what you heard, how positive or negative would you say you are about these new techniques being used within Scotland?

- **Very negative/ Quite negative/ Neither negative nor positive/ Quite positive/ Very positive**
 - **Not sure**

What would you say are the main positives (if any) that are associated with these new scientific techniques?.... these could be things you see as important benefits. (List up to 3)

What would you say are the main negatives (if any) that are associated with these new techniques?.... these could be things that you are very concerned about, or feel are unacceptable. (List up to 3)

Here is a list of possible terms that could potentially be used to describe the new scientific techniques. FOR EACH ASK:

- **How suitable do you feel this term is for use in communicating with the general public?** DEFINITELY NOT SUITABLE/ NOT SUITABLE / NOT SURE OF SUITABILITY / SUITABLE / VERY SUITABLE (Tick one box only)
- **Do you feel there are any specific positives associated with the term (Option for up to 3)**
- **Do you feel there are any specific negatives associated with the term (Option for up to 3)**
 - **New breeding techniques**
 - **New plant breeding techniques**
 - **New genomic techniques**
 - **Precision breeding**
 - **Precision plant breeding**
 - **New growing techniques**
 - **Genome editing**
 - **Gene editing**
 - **New plant propagation techniques**
 - **New propagation techniques**
 - **New plant cultivation techniques**
 - **New cultivation techniques**

You may recall that in the focus group, we discussed a range of options for regulating new breeding techniques. Can we go over them again, and for each, indicate whether or not you agree?

DISAGREE STRONGLY / DISAGREE SLIGHTLY / NEITHER DISAGREE NOR AGREE / AGREE SLIGHTLY / AGREE STRONGLY

- **Foods containing new breeding techniques should be treated the same as genetically modified (GM) food products which must follow strict rules and regulations, e.g., none are currently authorised to be grown in Scotland and imports follow strict rules about labelling.**
- **Foods containing new breeding techniques should be regulated the same as other 'new' or 'novel' foods which are subject to safety checks and assessments, but which are not as strictly regulated as GM.**
- **New breeding techniques in animals and plants should be treated the same.**
- **New breeding techniques in animals and plants should be treated the differently.**

- **A tiered system should be introduced for different types of new breeding techniques, with more scrutiny where the risk is less well known.**
- **Expert committees or bodies to provide oversight of products containing new breeding techniques should be utilised.**
- **There should be labelling on all products produced using new breeding techniques.**
- **Notices in store should be used to tell consumers about what foods were produced using new breeding techniques.**
- **An online register should be set up with information on authorised foods produced using new breeding techniques.**

If you have any further comments you would like to make about how you think new breeding techniques in foods should be regulated, please give them below. [Optional].

If you have any further comments (not covered already) that you would like to make about new breeding techniques in food, please add them here. [Optional]

Finally, do any big questions come to mind about new breeding techniques that you feel it is important to get answered? If so, please add them here. (Option for up to 3)

APPENDIX G: Screener



Market Research - SG145 Screener

Introduction: Good morning/afternoon/evening I am..... from Jump Research, an independent market research agency, who are conducting a project on behalf of Food Standards Scotland. We have been asked to speak to people around Scotland about New Breeding Techniques (NBTs) in food. NBTs can cover plants and animals – but mostly we will be discussing examples of NBTs in plants and crops. I know that this may be not something you have heard of, or know about. But that is part of research. I was wondering if you would like to take part. It would take the form of a 3 hour online group discussion (with breaks) on DATE @ TIME. As a thank you for your time you would receive £70. There is also a follow-up short homework exercise (online questionnaire), that we would ask you to complete after the group discussion. You would receive a further £20 for it's completion.

To make sure you are eligible to take part, I need to ask you a few questions and take your contact details. The information you provide will be kept securely and are confidential. They will not be used for any other purpose than this research, and only be seen by the research team. All details collected are deleted at the end of the project.

By providing the answers and details you are opting-in to the research. You can opt-out at any time by contacting me. You will receive an email confirming your opt-in and providing full details of the project if you are eligible to take part. This will come from Jump Research. Please respond to this email to confirm you are happy to participate in the research.

A1 **Respondent name:**

A2 **Email address:**

A3 **Phone number:**

A4 **Recruiter name:**

A5 **Group number:**

- | | |
|-------------------------|-------------------------|
| <input type="radio"/> 1 | <input type="radio"/> 5 |
| <input type="radio"/> 2 | <input type="radio"/> 6 |
| <input type="radio"/> 3 | <input type="radio"/> 7 |
| <input type="radio"/> 4 | <input type="radio"/> 8 |

Q1 Do you have access to a computer / laptop with a webcam or tablet with audio/video? (i.e. can you take part in zoom meetings).NOTE: not smart phone as we respondents to have a bigger screen size to view videos/inormation as part of the discussion.

- Yes Continue
- No Thank and close

Q2 Do you or does any of your close family work in any of the following industries?

- Advertising CLOSE
- Marketing CLOSE
- Public Relations CLOSE
- Market Research CLOSE
- Food Standards Scotland CLOSE
- Nutrition CLOSE
- None of the above GO TO Q3

Q3 Gender:

- Male Check quotas
- Female Check quotas

Q4 Age:

- | | |
|--|--|
| <input type="radio"/> 16 – 24 Check quotas | <input type="radio"/> 51 - 54 Check quotas |
| <input type="radio"/> 25 – 34 Check quotas | <input type="radio"/> 55 - 60 Check quotas |
| <input type="radio"/> 35 – 44 Check quotas | <input type="radio"/> 61 - 64 Check quotas |
| <input type="radio"/> 45 – 50 Check quotas | <input type="radio"/> 65 + Check quotas |

Q5 **Which of the following groups does the chief income earner in the household belong to?**

· If retired and have an occupational pension, please select according to the previous occupation.

- Semi or unskilled manual worker (D)** Check quotas
- Skilled manual worker (C2)** Check quotas
- Supervisory or clerical / Junior managerial / Professional / administrator (C1)** Check quotas
- Intermediate managerial / Professional / Administrative (B)** Check quotas
- Higher managerial/ Professional/Administrative (A)** Check quotas
- Student (C1)** Check quotas
- Retired and living on state pension only (E)** Check quotas
- Unemployed (for over 6 months) or not working due to long term sickness (E)** Check quotas
- Unemployed (less than 6 months) (E)** Check quotas
- Homemaker (E)** Check quotas
- Other** Check quotas

Q6 **Do you have kids at home and if so what age(es)?**

- | | | | |
|--------------------------------------|-----------|--|-----------|
| <input type="checkbox"/> 0-5 years | Go to Q9a | <input type="checkbox"/> 16 - 18 years | Go to Q10 |
| <input type="checkbox"/> 6-11 years | Go to Q9a | <input type="checkbox"/> Older | Go to Q10 |
| <input type="checkbox"/> 12-15 years | Go to Q10 | <input type="checkbox"/> No kids at home | Go to Q10 |

Q7 **Which, if any, of the following applies to you? Please select all that apply.**

- | | | |
|--------------------------|---|----------|
| <input type="checkbox"/> | Completely vegetarian | Group 8 |
| <input type="checkbox"/> | Pescetarian (eat a vegetarian diet which also includes fish but no meat) | Group 8 |
| <input type="checkbox"/> | Flexitarian (actively reducing the amount of meat and dairy in my diet) | Group 8 |
| <input type="checkbox"/> | Vegan | Group 8 |
| <input type="checkbox"/> | Allergic to certain foods or ingredients | Group 7 |
| <input type="checkbox"/> | Avoid certain food for religious or cultural reasons | Group 8 |
| <input type="checkbox"/> | Avoid certain food for medical reasons other than a food allergy e.g. diabetes | Group 8 |
| <input type="checkbox"/> | Avoid certain foods for other reasons (e.g. foods that don't seem to agree with me) | Go to Q8 |
| <input type="checkbox"/> | None of the above | Go to Q8 |

Q8 **Does anyone in your household, other than you, have a food allergy?**

- | | | |
|--------------------------|--------------------------------------|----------|
| <input type="checkbox"/> | Yes, an adult aged 18+ | Group 7 |
| <input type="checkbox"/> | Yes, a young person aged 12 -17years | Group 7 |
| <input type="checkbox"/> | Yes, a child aged 11 years or under | Group 7 |
| <input type="checkbox"/> | No | Go to Q9 |
| <input type="checkbox"/> | Don't know | Go to Q9 |

Q9 **Which of the following best describes your ethnicity?**

- | | | |
|-----------------------|---------------------------------------|--------------|
| <input type="radio"/> | White | Continue |
| <input type="radio"/> | Mixed/Multiple ethnic group | Check quotas |
| <input type="radio"/> | Asian/Asian British | Check quotas |
| <input type="radio"/> | Black/African/Caribbean/Black British | Check quotas |
| <input type="radio"/> | Other ethnic group | Check quotas |
| <input type="radio"/> | Prefer not to say | Continue |

Q10 **Which of the following best describes the area you live?**

- Urban (in city)
- Suburbs (just on outskirts of city)
- Semi-rural (in a village not attached to city)
- Rural (a small group of houses or house on own)

Thanks for completing - please press submit and enter next screener

APPENDIX H: Participant information sheet



Market Research Group Discussion Information

Thank you for agreeing to take part in our market research project.

You are invited to attend a focus group discussion on behalf of Food Standards Scotland (FSS) with regards to your views on New Breeding Techniques (NBTs) in food. NBTs can cover plants and animals – but mostly we will be discussing examples of NBTs in plants and crops because the technology is more advanced in this area.

Food Standards Scotland (FSS) was established in 2015 as the public sector food and animal feed body for Scotland. Its primary concern is consumer protection – making sure that food is safe to eat, ensuring consumers know what they are eating, and improving nutrition. FSS assesses and manages the risks of new and novel foods and animal feeds before they are allowed to be sold in Scotland. It is also responsible for regulation, which means looking at food products and authorising them before they are sold to consumers.

The purpose of the research is to help FSS better understand what you as consumers think about NBTs in foods – this will help FSS to decide how to regulate it. You do not need to do any work in advance in relation to understanding NBTs. Information will be shared with you by way of presentations during the group discussion.

Details:

The group discussion will take place online using zoom. A zoom link will be included in the email you received with this information sheet.

The discussion will last **3 hours**. This is longer than a normal group discussion and therefore we would be grateful if you can be aware of the following:

- Please join the zoom waiting room 5 minutes before the start time of the group. Anyone arriving late to the discussion (5 mins leeway) won't be allowed to join.
- Please use a laptop / PC / tablet (**no phones**). The videos and information being shown need a decent sized screen to be viewed correctly.
- Make sure that you have set-up zoom prior to the start time, and make sure that your video and audio are on.
- Make sure that your device is charged or plugged in (due to the longer discussion length).
- The session will include learning about a new topic (NBTs). You will be shown some videos and information during the session, and you must pay full attention to these so you can contribute to the discussion. Please try to take part in a room with as few distractions as possible.
- There will be a couple of breaks during the session.

You will receive **£70** as a thank you for your time. This will be paid within a couple of days after the group discussion.



Market Research Group Discussion Information

You have also agreed to do a follow-up "homework exercise". This will be sent to you after the discussion (within a week or so and take the form of an online questionnaire - it should take around 10 minutes to complete. You will receive a further **£20** for doing the homework exercise.

We would ask you to complete the homework within a couple of days of receiving the online questionnaire link.

Finally:

We hope that you will enjoy the discussion. There are no right or wrong answers, we just ask that you contribute and pay attention to the information shared with you.

The discussion may be recorded to allow the Moderator to listen back to what was said and allow them to report back correctly. The recordings will not be used for any other purpose and will not be passed onto anyone else. All recordings will be deleted once the project has been reported to the client.

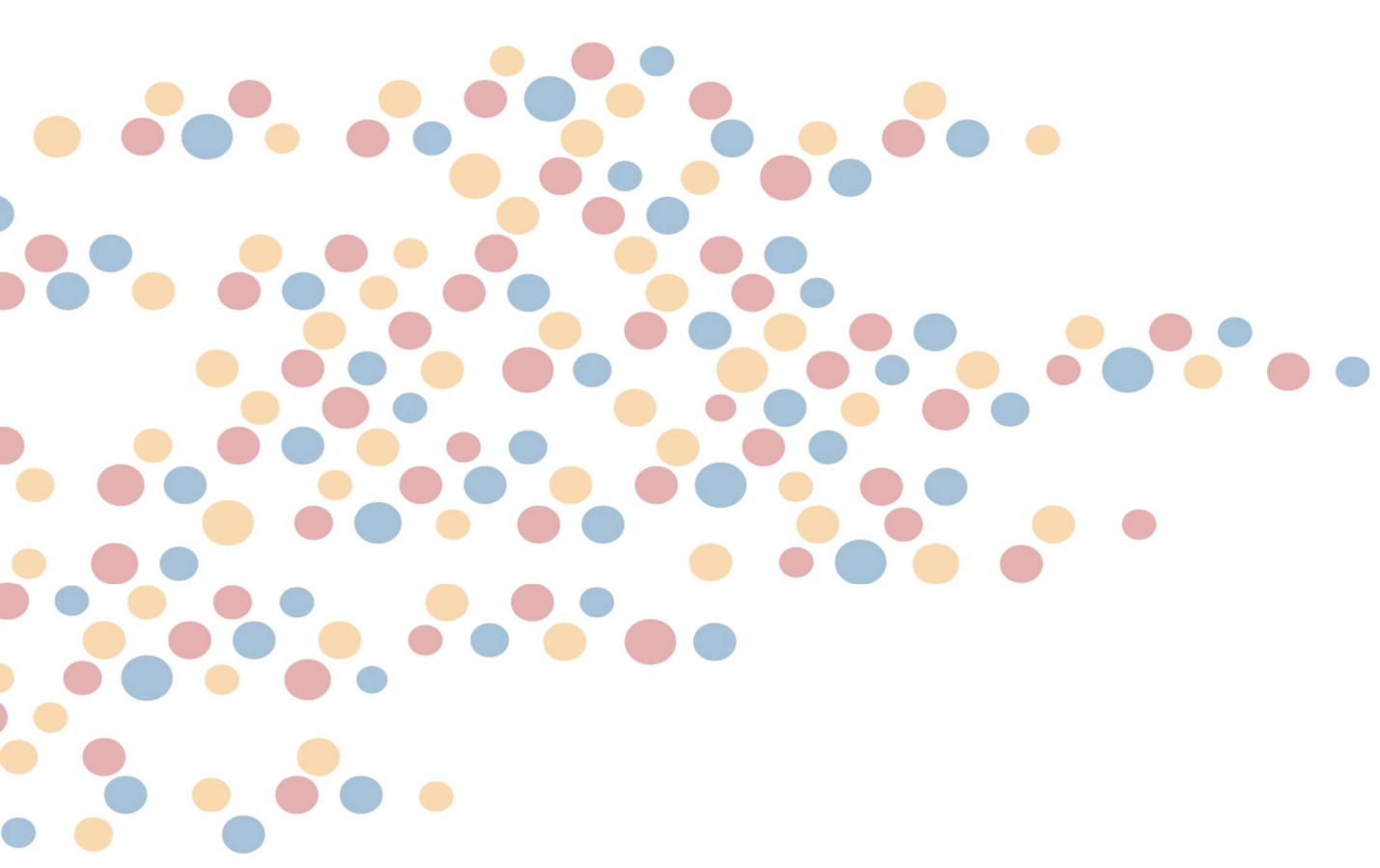
If you have any questions please contact Ruth Fleming from Jump Research: ruth@jumpresearch.co.uk

APPENDIX I: Sample Plan

Group 1 Gender mix 16-34yrs BC1	Group 2 Gender mix 35-54yrs (min 3 with kids at home) BC1
Group 3 Gender mix 55+yrs BC1	Group 4 Gender mix 16-34yrs C2DE
Group 5 Gender mix 35-54yrs (min 3 with kids at home) C2DE	Group 6 Gender mix 55+yrs C2DE
Group 7 People with food allergies or/and living with someone with a food allergy 35-60yrs Gender mix Mix of SEG	Group 8 People on specific diets (e.g., vegetarian, vegan, halal) and with a health condition (including pregnancy) that impacts food information needs 35-60yrs Gender mix Mix of SEG

Additional stipulations re sampling:

- Participants will be recruited from across Scotland.
- At least 8 minority ethnic participants will be recruited across the groups.



Contact details: Dr Andy McArthur

Email: andy@smgateway.co.uk

Tel: 07970512249

