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Supporting document 2

Safety Assessment: plain English summary

P1055 – Definitions for gene technology and new breeding techniques

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Why are we doing this work?

Methods for genetic modification are developing quickly. Many new methods have emerged in recent years, and more are expected in the future. The new methods are called new breeding techniques, or NBTs.

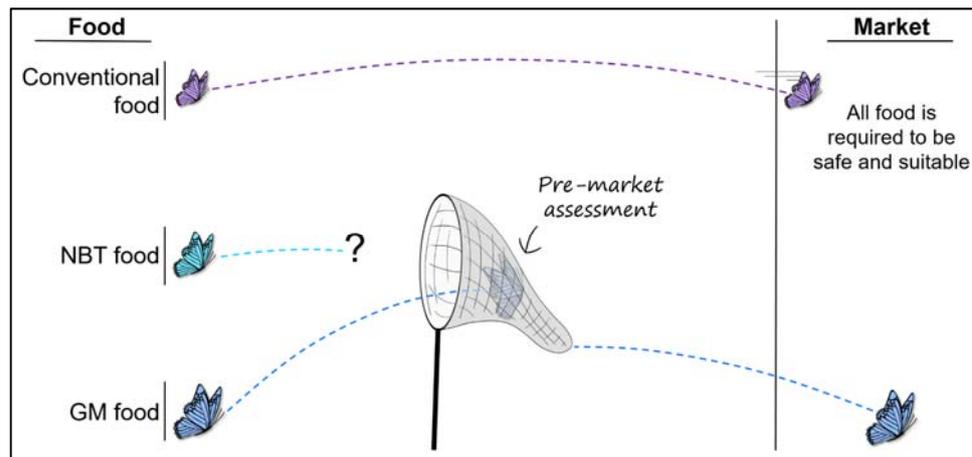
NBTs are different to old methods for making genetically modified (GM) food. Unlike the old methods, some NBTs do not transfer foreign DNA. Instead, these NBTs make genetic changes that look like those from conventional breeding.

Nearly all the food in our food supply comes from organisms developed through breeding. Food from these organisms is called conventional food.

Under our food law, conventional food does not need to be assessed as safe by FSANZ because it has been part of our food supply and safely consumed for many years. Each new GM food however must be assessed as safe by FSANZ before it can be sold.

The legal definition for GM food is based on old methods for making GM food. Because NBTs do not usually transfer foreign DNA, it is not clear if NBT food is captured by the GM food definition (see Figure 1).

Figure 1
The GM food definitions create uncertainty for NBT food



What are we doing?

FSANZ is working to update the GM food definitions so it is clear what foods have to be assessed for safety before being sold. To do this, we need to decide whether NBT food should be regulated like GM food, or treated like conventional food.

To help us decide, we have been assessing how similar NBT food is to conventional food, and whether similarity means NBT food is as safe as conventional food.

How did we do the assessment?

In our assessment, we first examined the organisms that produce conventional food. We looked at how much and in what way their genetic make-up has changed since humans first started farming, including the changes introduced through breeding. We also examined how breeding practices, in combination with our food law, support the production of safe food.

Next, we considered the approach we use to assess the safety of GM food. This approach compares GM food to conventional food. We compare to conventional food because we know that food is safe. This comparison tells us whether a GM food is similar or different to a conventional food.

If there are differences, we check these to see if they affect the safety of the GM food. We have never found a difference with a GM food that makes it less safe than conventional food. If a GM food is similar to a conventional food, we can say that GM food is as safe as conventional food.

We used the same approach to see how similar or different NBT food is to conventional food. We looked at the types of genetic changes introduced using NBTs compared to conventional breeding. Also, because NBTs are new methods, we looked to see if they could have unintended consequences for the safety of the food.

What did we find?

- A vast number of substantial genetic changes have occurred to food organisms since humans have been producing food. Some of these changes happen naturally, while others are from breeding. Breeders rely on the variation caused by these changes to select for improved food organisms.
- Despite the substantial changes to food organisms, conventional food has a long history of safe use. There are two reasons for this. First, changes that affect the safety of food are rare. Breeders are very good at identifying these changes early in the breeding process so those organisms are not used for food. Second, our food laws are very effective at preventing unsafe food from entering the food supply.
- NBTs can be used to introduce a range of genetic changes to food organisms. The vast majority of these changes are the same as those that happen naturally or from breeding. This means we can predict what types of NBT food can be produced based on our extensive knowledge of conventional food. It also means it is valid to compare NBT food to conventional food.
- Because many changes introduced using NBTs will be similar to changes from breeding, some NBT food will be similar or even identical in product characteristics to conventional food. It is also possible that some NBT food will have new or altered characteristics compared to conventional food.

What does this tell us?

If an NBT food is similar or identical in product characteristics to a conventional food, and that conventional food has a history of safe use, then we can conclude that NBT food is as safe as conventional food. Like conventional food, these NBT foods would not need a safety assessment by FSANZ before being sold.

If an NBT food has new or altered characteristics compared to conventional food that does not mean the food is less safe. However, a safety assessment by FSANZ would be necessary to confirm this before it can be sold.

What's next?

We are using the results of this assessment to decide how we should update the GM food definitions and regulate NBT food.

We have released a report that proposes how the definitions should be updated and what NBT foods should be assessed as safe before they may be sold. This is the first of two reports which will ask for feedback on our work. We will consider this feedback before making a final decision about how definitions should be updated.