Response ID ANON-HBYG-Q1J9-F

Submitted to **The regulation of genetic technologies**
Submitted on **2021-03-12 12:17:40**

Introduction

1 Please provide your consent to participate in this consultation.

I consent to participate.

2 Would you like your response to remain confidential?

No

If you answered yes to this question, please give your reason.:

3 What is your name?

Full Name :
Angelina Souren

4 What is your email address?

Email:
Angelinasouren@gmail.com

5 Please tell us who you are responding as?

An individual - You are responding with your personal views, rather than as an official representative of a business/ business association / other organisation.

About You

6 Where do you live?

England

Please state:

Part 1: The regulation of GMOs which could have been developed using traditional breeding methods

10 Currently, organisms developed using genetic technologies such as GE are regulated as genetically modified organisms (GMOs) even if their genetic change(s) could have been produced through traditional breeding.Do you agree with this?

Yes – they should continue to be regulated as a GMO

Please explain your answer, providing specific evidence where appropriate. This may include suggestions for an alternative regulatory approach.:

I agree that organisms developed using genetic technologies such as GE should continue to be regulated as genetically modified organisms (GMOs) even if their genetic change(s) could have been produced through traditional breeding.

1. Genetic technologies can have side effects that are not necessarily instantly clear. (An example could be that the changes that Dr He introduced in a pair of human twins in China to make them immune to HIV could also have resulted in “off-target” changes and scientists are largely still in the dark about this.)

2. The application of genetic technologies may also impact animal welfare differently than natural breeding would.

3. Dropping the phrase "even if their genetic change(s) could have been produced through traditional breeding" could make the regulations much harder to apply and lead to lengthy discussions and costly lawsuits. (I'll come back to that later.)

11 Do organisms produced by GE or other genetic technologies pose a similar, lesser or greater risk of harm to human health or the environment compared with their traditionally bred counterparts as a result of how they were produced?

Similar

Please provide evidence to support your response including details of the genetic technology, the specific risks and why they do or do not differ. Please also state which applications/areas your answer relates to (for example: does it apply to the cultivation of crop plants, breeding of farmed animals, human food, animal feed, human and veterinary medicines, other applications/ areas). :

The options (similar, lesser, greater) that you provide are too limited.

The answer that I would have liked to select would be something along the lines of "it depends".

This is also because you seem to be talking about possible future technologies or technologies that are not currently deployed yet, such as https://www.nature.com/articles/d41586-019-02087-5
"Self-destructing mosquitoes and sterilized rodents: the promise of gene drives
Altering the genomes of entire animal populations could help to defeat disease and control pests, but researchers worry about the consequences of unleashing this new technology."
In your consultation document, you state ""Our position follows the science, which says that the safety of an organism is dependent on its characteristics and use rather than on how it was produced." Which science is that, exactly?

The problem is that we cannot predict what we don't know yet and that we even often overlook what we should be able to foresee. We all have blind spots, even those of us who are convinced that we don't.

You begin your consultation document with the following paragraph:
"Building back greener is integral to creating a healthier, more resilient world for future generations and the Prime Minister has highlighted the need to take a more scientifically credible approach to regulation to help us meet some of the biggest challenges we face."
That same Prime Minister openly RIDICULED THE SCIENCE and RIDICULED STEPS THAT OTHER COUNTRIES were taking at the start of the pandemic. (Do you want the link to the speech he gave at the time?) He had to get seriously ill first before he realised that there might be a problem after all. Do we really want to follow this Prime Minister's way of approaching important matters?

But even scientists can get it wrong and some decide to overlook hard data in favour of big profits. If you look back into history, you can see that in the past, we've often hailed as great progress what we later ended up banning. Money played a role in some of those cases.

We gave a Nobel Prize in medicine for the development of DDT. It almost eradicated the American bald eagle and that is only one aspect of its many side effects. DDT causes nerve damage and affects the hormone-producing systems of many animals, among other things lowering their fertility. In the United States, it was the environmentalist and marine biologist Rachel Carson's work that eventually led to a ban on DDT and other pesticides.

We didn't even foresee the obvious consequences of insecticides, namely that this would affect pollination as well as bird populations.

Should I mention thalidomide? DES? Or that ibuprofen may affect male fertility?

Around the globe, many people are pushing to have other harmful pesticides banned, such as glyphosate and chlorpyrifos. That isn't because these people are afraid of progress or are ill-informed. It's because these substances are not as harmless as we initially thought.

I am a former board member of the Environmental Chemistry (and Toxicology) Section of the Royal Netherlands Chemical Society. When I was still based in the Netherlands, we held a symposium on brominated flame retardants. Even back then, they were already found in tissues of animals in the Arctic. Did we see any of that coming? So, there was a push to phase them out in favour of others that turned out to have similar problems.

Did we expect to do damage to the ozone layer when we introduced CFCs?

Should I mention PFAS? You may want to look into the situation in the Netherlands, where PFAS caused major upheaval when the norms for soil were adapted and as most of the country's soils were above the new limit, construction ground to a halt.

We thought that non-stick coatings were the greatest thing since sliced bread. People with pet birds may have been the first who started noticing disastrous effects associated with these coatings (as overheating them, rapidly causes pet birds to fall severely ill after which most die too soon to be able to make it to a vet. Perfluorooctanoic acid (PFAO, one of the PFAS), also known as C8, dissolves well in water and does not degrade. It is now globally present in the air and in seawater. In the Netherlands, discharges by the Chemours plant in Dordrecht led to increased PFOA concentrations in the Merwede river and in the groundwater along its banks. In the U.S., a former DuPont plant in West Virginia released more than 1.7 million pounds of C8 into the region's water, soil and air between 1951 and 2003.

C8 was phased out after a class-action lawsuit that alleged that it causes cancer. Chemours now makes a new compound called GenX instead, for which safety thresholds have yet to be established. Regular water treatment methods don't remove it from drinking water. GenX may be safer than C8, but it is also alleged to have caused tumours and reproductive problems in lab animals. In some locations, GenX has already freely been released into the environment for decades as a result of a flaw in legislation.

I am well aware that chemicals are not the same as genetic technologies. The point that I am making is that we never know with 100% certainty - and with foresight - that all forms of progress are safe. History has taught us that it is better to err on the side of caution. This is not at all a "science versus nature" debate - even though it is often (falsely) presented that way - or a battle between "the uneducated and uninformed versus those who know better as they have access to the science".

You may want to read professor Cecile Janssen's article in The Conversation:
https://theconversation.com/those-designer-babies-everyone-is-freaking-out-about-its-not-likely-to-happen-103079

Easily accessible? Yes. But I should not have to point you to the scientific literature.

12 Are there any non-safety issues to consider (e.g. impacts on trade, consumer choice, intellectual property, regulatory, animal welfare or others), if organisms produced by GE or other genetic technologies, which could have been produced naturally or through traditional

breeding methods, were not regulated as GMOs?

Yes

Please provide evidence to support your response and expand on what these non-safety issues are.:

1. As I mentioned before, I think that it would make the regulations harder to apply and it would lead to companies trying to take all sorts of shortcuts, trying to "prove" that the effect of the technology they used could also have been produced through natural breeding. It could cause gridlocks. It could force us to have lengthy discussions and wait for the outcome of costly legal proceedings. It might also lead to more campaigning, protests etc. and even vandalism.

You state that the EU's position "is not consistent with the position taken by most countries who have reviewed their respective regulations like Argentina, Australia, Brazil and Japan, which have concluded that certain GEOs should not be regulated as GMOs". You could just as easily have phrased this neutrally or as the opposite. This is a scientific but a political debate, isn't it?

2. There might well be an effect on trade as well. German consumers for example traditionally have put great emphasis on ensuring that their food is as "clean" as possible.

The Law Library at the US Library of Congress contains the following document, titled "Restrictions on Genetically Modified Organisms: Germany"
https://www.loc.gov/law/help/restrictions-on-gmos/germany.php

It starts as follows "Germany discourages the cultivation of genetically modified (GM) crops to the extent possible within the already stringent European Union (EU) legislation on genetically modified organisms (GMOs). Germany imposes strict liability for accidental contamination with GMOs, and has tough and methodically enforced controls over the release of GMOs. In 2009 Germany banned MON810 maize from cultivation for agricultural purposes, even though the EU has approved it for release into the environment. The only other GM plant that the EU has approved for release, the Amphora potato, is currently not being grown as a crop in Germany. Since 2013 the experimental planting of GM plants has also been abandoned owing to persistent vandalism."

The following July 2018 study published in the European Review of Agricultural Economics 46(1) is also relevant.
https://www.researchgate.net/publication/326462738_Does_information_change_German_consumers'_attitudes_about_genetically_modified_food
From the abstract: "The consumers who are more accepting of genetic modifications are younger, less educated and less concerned about their nutrition. The average effect of our provided information is negligible. However, the initially less opposed become slightly more opposed. Our results thus do not support the view that a lack of information drives consumer attitudes. Instead, attitudes seem to mostly reflect fundamental preferences."

3. I find it hard to say much about animal welfare as the way we treat so many non-human animals as inanimate products is deplorable to begin with, also from a bioethics sensu lato standpoint. "" I concede, however, that not everyone sees these matters my way. That said, there is increasing scientific evidence that many and perhaps all non-human animals are sentient beings who have feelings, memories, knowledge, family and friends. They make decisions. Many are self-aware, use tools and have language.

13 What criteria should be used to determine whether an organism produced by gene editing or another genetic technology, could have been produced by traditional breeding or not?

Please provide evidence to support your response.:

You should not have to define whether an organism produced by gene editing or another genetic technology could have been produced by traditional breeding - or not. Problem solved. This is mere plain logic for which I should not need to provide "evidence".

Your question is biased. This suggests that you have already have made up your mind, do want to drop the phrase "even if their genetic change(s) could have been produced through traditional breeding" from the regulations.

Because if you leave that phrase in, you do not have to haggle over whether or not an organism could have been produced by traditional breeding.

Is this survey a mere formality, then?

Part 2: Questions on broad reform of legislation governing organisms produced using genetic technologies

14 There are a number of existing, non-GM regulations that control the use of organisms and/or products derived from them. The GMO legislation applies additional controls when the organism or product has been developed using particular technologies.Do you think existing, non-GM legislation is sufficient to deal with all organisms irrespective of the way that they were produced or is additional legislation needed? Please indicate in the table whether, yes, the existing non-GMO legislation is sufficient, or no, existing non-GMO legislation is insufficient and additional governance measures (regulatory or non-regulatory) are needed.Please answer Y/N for each of the following sectors/activities:

Gov_Sufficiency - Yes (sufficient governance):
Cultivation of crop plants

Gov_Sufficiency - No (insufficient governance):
Cultivation of crop plants, Breeding farmed animals, Human food, Animal feed, Human and veterinary medicines, Other sectors/activities

Please provide evidence to support your response.:

It seems to me that you are repeating Part 1 here and are merely trying to accomplish that as few people as possible complete this survey. I hope I am wrong. But I do refer you back to the responses I gave in Part 1.

There is NO information given throughout the consultation other than a 2-page document that tells the public what to think. The only "reference" given is the mention of Rothamsted Research, "one of the oldest agricultural research institutions in the world, having been founded in 1843" (according to Wikipedia), in that document. Is this intended to impress the public? Eugenics was also a British invention, an idea introduced by Charles Darwin's cousin Francis Galton. The fact that something is British and old does not constitute validation.

You are asking everyone who completes this survey to provide evidence. Where is yours? Why are there no literature references and links in the explainer and the consultation document?

15 Where you have answered no (existing, non-GMO legislation is insufficient to deal with organisms produced by genetic technologies), please describe what additional regulatory or non-regulatory measures you think are required to address this insufficiency, including any changes you think need to be made to existing non-GMO legislation. Please explain how any additional measures you identify should be triggered (for example: novelty, risk, other factors).

Please provide evidence to support your response.:

I refer you back to what I provided in Part 1.