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Submission by Alliance for Natural Health International to the Science and Technology Committee's inquiry on GM foods and application of the precautionary principle in Europe.

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Please find below our response to the questions posed by the committee.

1. **Are current EU and UK regulations intended to assess the safety of genetically modified (GM) foods fit for purpose? If not, why not?**

   No. EC Regulation 1829/2003 does not provide sufficient basis for demonstrating safety to human health or the environment, given the current state of knowledge of epigenetics, gene expression and safety of expressed, 'intractable' proteins (e.g. Bushey DF et al. Characteristics and safety assessment of intractable proteins in genetically modified crops. *Regul Toxicol Pharmacol.* 2014 Mar 22;69(2):154-170. doi: 10.1016/j.yrtph.2014.03.003.). Article 5.3(e) does not stipulate criteria necessary for establishing safety to humans or the environment, while Article 5.3(f) does not stipulate what criteria are required to establish bioequivalence, or otherwise. Accordingly, producers of GM foods, including associations to which they belong, have reached agreement over what types and levels of data are necessary to meet the legally uncertain conditions of these and other Articles. These industry-agreed, regulator-approved approaches are based less on objective scientific criteria than they are on a protectionist agenda (Davison J. GM plants: Science, politics and EC regulations (Review). *Plant Science*, 2010; 178 (2): 94–98). The scientific uncertainty arising from interpretation of the requirements of EU/UK regulations is apparent given the diversity of views among EU Member States on the safety of some authorised GM crops, such as MON810.

2. **How have EU and UK regulations on GM foods affected the UK's international competitiveness?**

   The regulatory requirements for authorisation of GM foods in the UK and EU is undoubtedly greater than those in the USA, Canada, Australia, Argentina, Brazil and other major GM crop producing nations. This imbalance in regulatory requirements clearly has the potential to hinder the expansion of GM crop cultivation in the UK. But the fact that the EU and UK regulatory requirements are more stringent than elsewhere does not mean they are capable of establishing the safety of such foods to humans and the environment (see above). A far greater factor in the UK's international competitiveness in relation to GM foods is public perception of GM foods and the widespread, justified distrust of the technology.

3. **Does the current EU and UK regulatory framework allow for GM foods to effectively contribute to the delivery of the UK Agricultural Technologies Strategy? If not, why not?**

   It is a mistake to consider GM foods as a necessary component of agri-tech development. As the UK's Agricultural Technologies Strategy makes clear, there are numerous, proven or highly promising scientific and technological developments that can assist the UK's growth in this sector that do not involve genetic modification based on the introduction of genes from unrelated species. This is well demonstrated by the analysis contained in Gordon Conway's 2012 book, *One Billion Hungry: Can We Feed the World?* (Ithaca and London: Cornell University Press, Comstock Publishing Associates). Apart from technologies intended to increase yield and food production, food security requires at least as important a focus on approaches to the reduction of food waste, especially in industrialised countries, such as the UK.

4. **What are the particular barriers to the conduct of research on GM foods in the UK?**

   Insufficient funds to universities and research institutes from government and independent donors; insufficient laboratory, cellular, molecular and animal studies; prejudice against research that aims to evaluate GM crops, as exemplified by industry, media and government responses to research by Dr Arpad Pusztai and Prof Professor Gilles-Eric Séralini.

5. **Is the EU's application of the precautionary principle in relation to GM foods appropriate? Does the EU recognise and handle properly the concepts of hazard and risk?**

   It could be said that all laws that aim to ensure the safety of food rely, to a lesser or greater extent, on the precautionary principle (PP). The PP is also accepted, albeit as a non-binding provision, in Principle 15 of the Rio Declaration on Environment and Development signed by the UK in 1992. More recently, the PP was included in EU General Food Law (Regulation 178/2002). However, more important than the PP itself, interpretation of which may be highly variable, is what criteria and thresholds

of safety and risk/hazard assessment are considered adequate for validating safety of a given food, and what types of data, or lack thereof, may be sufficient to trigger the PP. Regarding the EU concepts of hazard and risk in assessments, the principles are based on internationally agreed standards (e.g. Codex, FAO/WHO). Yet the interpretation of risk and hazard assessment in relation to GM foods fail to take into account 'total risk' of the given technology, and even more, 'total hazard', which would account for including the health and environmental impacts of related factors such as increased herbicide usage on glyphosate-resistant crops, impacts on non lepidopterous pests on Bt crops, the costs of contamination of non-GM/organic food supply lines, etc.

6. **Are there other examples of EU regulation in which the precautionary principle has not been applied appropriately?**

   Given that the PP is implicit on all EU food regulation, it applies also to food supplements. In order to ensure consumer safety, Directive 2002/46/EC requires use only of chemical forms of vitamins and minerals for which safety has been evaluated. These are included in Annex II of the base directive, and have been amended by Regulations 1170/2009 and 1161/2011. This 'positive list' of permitted vitamins and minerals includes some substances that would not normally be regarded as minerals suitable for food supplements, nor would they be viewed as safe at higher levels of inclusion. Examples of such minerals include: sodium fluoride, potassium fluoride and sodium monofluorophosphate. While the Directive aims to limit maximum levels for inclusion (Article 5), methodologies have yet to be agreed at an EU level.