Accepting the scientific consensus: GMOs in the EU

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On 13 September, the ECJ ruled that Italy had been wrong to ban the cultivation of an EU-approved genetically modified maize. This was a big victory for the plaintiff, an Italian farmer who was denied the right to grow the MON 810 maize.

The ECJ decision has affirmed the necessity for a more scientific debate over genetically modified organisms (GMOs). Due to inconsistent legislation, the EU allows farmers to import millions of tonnes of biotech crops to feed their livestock, but it restricts their ability to grow GMOs in their fields.

Over the years, EU legislation on GMOs has become ever more complex. However, these rules, which are based on questionable precautionary grounds, undermine agricultural innovation; harm consumers and growers alike; and continue to deter farmers in poor countries.

The ECJ ruling has now presented a great opportunity to start recovering an EU-wide rational, science-based approach to the subject. With a strong research community, the EU has the chance to guide the world into a new agricultural era.

Introduction

On 13 September 2017, the European Court of Justice (ECJ) ruled that Italy had been wrong to ban the cultivation of an EU-approved genetically modified maize, as it had failed to show there was a serious risk to public health, animal health or the environment. According to Advocate General Michal Bobek, Italy's 2013 appeal was not supported by any new science-based evidence to call for the introduction of emergency measures and to prohibit the cultivation of maize MON 810. Most importantly, the ECJ emphasised that the precautionary principle, which presupposes scientific uncertainty as regards the existence of a particular risk, is not sufficient for the adoption of such measures (European Court of Justice, 2017).

This ruling is a stepping stone for the future of the EU Common Agricultural Policy (CAP). The ECJ has affirmed the necessity for a more science-based approach to genetically modified organisms (GMOs). Until now, the EU approach on this subject has been based more on prejudice rather than rational political debates. Unfounded public fears have often overshadowed scientific analyses, evaluations and tests.

Because of current regulations, the Union produces only 1.4 million tonnes of soybean annually (which is de facto non-GM, as no GM soya is authorised for cultivation in the EU). In 2013, the Union imported 18.5 million tonnes of soymeal and 13.5 million tonnes of soybean, representing more than 60% of the Union's plant protein needs (European Commission, 2017b).

The GMO paradox

Since the adoption of the 1990 Directive 90/220/EEC the EU has de facto imposed a moratorium on cultivating GM crops (European Commission, 2017a). As of 2017, whilst not entirely prohibited and banned, the cultivation of GMOs within the Union is extremely limited and, as the latest ECJ ruling reminds us, only one product (maize MON 810) has been authorised for commercial cultivation.

According to Rickard (2016), in order to deal with ever stronger pressures from non-farming interest groups within the Member States, EU legislation on the subject has become ever more complex. In the wake of the latest 2015/412 Directive, EU Member States are today able to restrict or fully prohibit the cultivation of GMOs in their own territory based on non-scientific grounds (e.g., "environmental or agricultural policy objectives or other compelling grounds, such as town and country planning, land use, socioeconomic impacts, coexistence and public policy"). Obviously, the behaviour of the EU towards GM crops undermines agricultural innovation. Created for the first time in 1974, GMOs are now old alternative technologies. However, the Union's pervasive regulation, which is based on a doubtful precautionary approach, risk having adverse effects for longer term technological advance and farm level operational efficiencies.

If on the one hand, the EU has probably the most restrictive rules in the world in terms of recombinant DNA (rDNA) plant cultivation; on the other hand, it has continued to allow the importation of millions of tonnes (e.g. 36 million tonnes of equivalent soybean) of recombinant DNA seeds because it needs them to feed its livestock. This paradox can be compared to the banning of carbon-intensive forms of production and the importing of the latter from developing countries (Hausfather, 2017). By backing Mr. Fidenato's appeal against Italy, the court has exposed the inconsistency of EU policy on this issue. In fact, the question we should ask ourselves is the following: why does EU law allow a farmer to buy biotech crops to feed his pigs and cows, but restricts his ability to grow them in his own fields?

GM crops bring economic benefits and can help poor countries

As of 2017, only 26 countries in the world grew biotech/GM crops. The commercialisation of GM crops has occurred at rapid rate since the mid-1990s. GM crops have increased 110-fold from 1996, from 1.7 million hectares in 1996 to 185.1 million hectares in 2016. However, in the EU only 4 countries, Spain, Portugal, Slovakia and the Czech Republic have decided to commercialise GM maize MON 810. These four Member States grew more than 136,000 hectares of biotech maize last year, an increase of 17% from 2015, reflecting the Union's need for insect resistant maize (ISAAA, 2017).

Just ten countries account for 98% of the GM hectares around the world. The top three countries that cultivate GM crops – the US, Argentina and Brazil – account for over three quarters of global GM hectares. GM crops are grown on approximately 3.7% of the world's total agricultural land, by less than one percent of the world's farmers (CBAN, 2015).

According to Brookes and Barfoot (2017), the commercialisation of GMOs has brought very significant net economic benefits at the farm level, amounting to $15.4 billion in 2015 and $167.8 billion (in nominal terms) for the 20-year period 1996-2015. About 72% of the gains have derived from increased yield and production whilst the remaining 28% of the gains have come from cost savings. Most importantly, this alternative technology has made important contributions to increasing global production levels of the 4 main crops produced. With global population projected to reach 8.6 billion in 2030 and 9.8 billion in 2050 (UN, 2017), the production and cultivation of GM crops will soon become a necessity. As Virgin (2013) highlights, in the next three decades the world will need to produce almost twice as much food and feed in the same agricultural area as today.

Since the introduction of Directive 2001/18/EC, which replaced Directive 90/220/EEC, the EU has grown suspicious of biotech crops. Europe's anti-GM hysteria will continue to deter farmers in poor countries. The well-known story of the 2002 Zambian famine helps us understand why (Lewin, 2007). As several underdeveloped African countries have always relied on agricultural exports to the EU, they do care about what Europeans eat and the EU stance shapes their own policies. In fact, despite a dramatic drought, in 2002 the Zambian government rejected 35,000 tons of U.S food aid because of the possibility that it could be genetically modified (GM). During this time, roughly 3 million people in Zambia faced severe food shortages and extreme hunger.

The effect of alleviating malnutrition by using GM crops can be substantial. For example, the benefits from reduced malnourishment can be up to US$1.1 billion for matoke in Uganda; US$795 million for corn in Kenya; and US$475 million for cowpea in Nigeria (Wesseler et al., 2017).

Whilst Europe needs to import genetically modified crops to feed its livestock, the EU's stringent food labelling requirements oblige companies to indicate if the food or feed they produce contains GMOs. This labelling applies when GMOs account for at least 0.9 percent of the food or the feed (European Commission, 2017c). Thus, since Europeans have always avoided a scientific debate over biotech/GM crops, scary labelling could dampen European demand for African agricultural produce. As such, much of Africa has not only refused to grow GMOs, but also refused the large majority of U.S. food aid, until now. Moreover, delays in the introduction of alternative technologies such as GM crops have cost African countries economic growth and lives (Wesseler et al., 2017).

So, what next?

Given the introduction of Directive 2015/412, the alteration of regulation 1829/2003 would have harmonised the power of Member States to ban (or reduce) the importation, the use and the cultivation of GMOs feed and food. The changes would have effectively removed the paradox of current EU rules. However, in October 2015 a majority of MEPs opposed this modification, recognising that such a proposal could have negatively affected the EU agricultural sector, which is heavily dependent on protein supplies from imported GMOs. In the meantime, the European Commission has not come up with any "plan B" with regards to GMO legislation. In light of all this, the latest ECJ decision reinforces the view that if new GMOs are authorised for cultivation in future, neither the Commission nor the Member States will have the option of adopting emergency measures by simply referring to precautionary principle grounds. Thus, as Eriksson and Defez (2017) write, the ECJ ruling has now presented a great opportunity to start recovering an EU-wide rational, science-based approach to the subject. With a strong research community, the EU has the chance to guide the world into a new agricultural era. Biotech/GM crops are now relatively old but very safe alternative technologies. European policymakers should take note of this and should abandon unfounded preconceptions about GMOs.

Conclusion

The latest ECJ ruling is a victory for all those who believe in science-based facts rather than prejudice. European institutions will need to start re-thinking their legislative approach towards biotech/GM crops. In fact, GMOs can play an important role in meeting rising food demand and the challenge of climate change at relatively low cost. Sooner or later the European Commission and MEPs must realise that importing dozens of millions of tonnes of GM seeds, whilst banning their cultivation based primarily on questionable precautionary grounds, amounts to ineffective policy, harming not only consumers and farmers, but also future generations by discouraging innovation and the development of new alternative technologies.

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