

Accordingly, the US Department of Agriculture has ruled in several cases that the products do not have to be regulated as GM organisms.

The European Commission is yet to send the same signal. In fact, it could decide that such products are governed by the existing cumbersome rules — its 2001 directive on the deliberate release of GM organisms into the environment. That would be a disaster for research.

The commission represents the interests of 28 member states, which are deeply divided on issues of genetic modification. But it needs to make clear — soon and with no room for misinterpretation — that work with these new techniques is important and does not necessarily need to be regulated in the same way as the previous generation of GM crops.

The precise and efficient gene-editing tools insert a gene that can create tiny, targeted mutations in an organism's own genome. These mutations can permanently change the function of a host gene, change its sensitivity to environmental cues or switch it off entirely; the foreign gene can then be bred out.

The core legal issue is whether the 2001 directive applies to all products of genetic engineering, or only to organisms that have been altered in a way that could not occur naturally. Clauses in the directive mention both.

Non-governmental organizations that are hostile to genetic engineering say that the directive is about the process by which products are created. But legal analyses conducted in the past year by several member states — including Germany, which has been opposed to conventional GM crops — concluded that it is fundamentally about the products themselves.

The commission's own legal analysis, being handled behind firmly closed doors, is the one that will count. But the result has been repeatedly delayed, spreading immense uncertainty in the scientific community.

It is now promised before the end of March. Why is it taking so long?

The commission has strongly hinted that the matter will ultimately be settled in court. Its decision, when it comes, is bound to annoy parties on one side, which may then sue. The possibility that a decision that releases many gene-edited products from GM regulation could be overturned by a court will add to the community's uncertainty.

There is some history here, and it should not be repeated. The commission tried, and failed, to resolve the lengthy disagreement over conventional GM crops by getting the European

Court of Justice to rule on whether member states should be required to allow cultivation of such crops deemed safe by EU regulatory authorities. The court ruled that they should, but some countries banned it anyway. In a messy compromise, the EU now allows individual states to opt out.

The commission may be calculating that the reaction to a court ruling could be different this time, as a result of member states signalling their willingness to consider gene-edited products to be non-GM.

But letting a court decide a political issue is a poor option. It could take years. Even a positive verdict could rebound by reinforcing the narrative in some countries that the technology is being forced upon them. And it does not convey a positive message about legislation, which is supposed to reflect the will of the people.

The commission should indicate that the spirit of the 2001 directive does not cover the impact of the new gene-editing tools, and should give them an appropriate green light — with encouraging enthusiasm. If the exact wording of the 2001 directive gives room for doubt, then it should be updated to reflect a world in which new science has long overtaken the old.

Whatever the decision, the uncertainty must be lifted to allow research to proceed, and quickly. ■

Science for peace

The German research community can benefit from the influx of migrants.

This year's refugee crisis — a result of the civil war in Syria and enduring instability in the Middle East and Africa — has become an acid test for the European Union.

Although some countries would rather pull up the drawbridge where refugees are concerned, Germany has generously welcomed nearly one million migrants this year, without regard for the costs or logistical burden involved. "We can do it!" Chancellor Angela Merkel never failed to remind German citizens.

However, as police, immigration authorities, communities and volunteers creak under the strain, Merkel's optimism is increasingly being denounced in some quarters. To integrate hundreds of thousands of traumatized, mostly Muslim, war refugees into Western society is a massive social challenge. But, contrary to what some critics seem to assume, early signs show that the young refugees — and under-25s make up around half of the influx — will not be inclined to accept social welfare and sit back idly for long. Robbed of their hopes and dreams at home, many will grasp the opportunities offered.

And many will be eager to learn. If admitted into Germany's well-oiled education and science system (and into its booming labour market at large), they can be a boon rather than a burden to the country's knowledge-based economy.

German universities and science organizations are aware of the responsibility to these displaced people and the opportunity they represent. The messages they send in favour of openness and pluralism — defining features of any honest science — are laudable at a time

when xenophobia is on the rise elsewhere.

Thanks to several programmes and initiatives launched by the German science community in recent months, refugee students can access university education and doctoral-research opportunities, and qualified refugee scientists and scholars can participate in advanced science at research institutes across Germany (see page 320). These initiatives are much-needed and deserve every respect.

Refugees are expected to continue to arrive in Europe in large numbers, often lacking documentation of their professional or academic qualifications. Opportunities must continue to be available to them, and more must be helped to connect with potential employers, in and outside of academia.

Online tools such as the European Commission's Science4Refugees portal, on which employers can post job opportunities and refugees seeking science jobs can put their CVs, are well meant but not (yet) frequently used. Learned academies, universities and science organizations throughout Europe should more clearly and proactively promote the message that students, scholars and scientists who have been forced to flee their home can rebuild their careers as well as their lives.

Social researchers who study education, mobility and integration — for whom the current wave of migration is a research opportunity — must strive to empirically challenge presumptions about refugees' allegedly low level of qualification and susceptibility to political or religious extremism. To be sure, these things need to be — and will be — thoroughly investigated. But the idea touted by some that Muslim values are a fundamental obstacle to successful integration into a modern secular society is wrong and hopelessly short-sighted.

Whatever critics might say, Germany's rebirth as a haven for the persecuted is a powerful gesture of peace. Embracing refugees, while assuring anxious citizens that openness need not threaten their own quality of life, is perhaps the most pressing social challenge faced by science in these times. ■

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