The Risks of GMO Deregulation to NZ Farmers
Farmers Weekly Dr David Williams Nov 24

Recent progress in methods for gene manipulations suggests exciting new possibilities in medicine and agriculture, but significant risks remain and a lot could go wrong. So, to get the best from them and to look after our health, the environment, and premium markets, they need to be well regulated.

I am aware of this as a scientist working on gene therapy techniques to treat inherited human diseases, at the University of California Los Angeles.

So why is a scientist based in the US interested in how New Zealand handles GMOs?

I grew up on a sheep and beef farm on Banks Peninsula that my brother's family now runs. I am currently back in NZ, staying on the the family farm where we have had discussions about proposed changes to regulating GMOs - especially the effects these changes could have on NZ farmers. I am also on the board of the Sustainability Council, founded by Sir Peter Elworthy.

Here are some observations from my perspective about current gene technologies to produce GMOs, how Government is proposing to handle them, and what that might mean for farming. Unlike scientists working in NZ, I receive no research funding from NZ and have no financial conflict of interest with respect to this country's GMO regulations.

Fundamentally, current gene editing approaches involve many of those used in generating earlier GMOs. They have been around for over 50 years. More recently these approaches have become easier (and faster) to use, especially in making small changes in DNA to make a GMO. However, current methods haven't reduced the risks. They still carry the risk of unintended changes; e.g. making alterations to other genes in addition to the gene being targeted. And small changes in genes can be just as devastating as large changes. They are just harder to detect. Hence, current GMO methods also allow for the creation of harm easier (and faster), making regulation of GMOs even more essential.

Yet the government is proposing to allow gene editing techniques and GMO testing to be unregulated. That means no specific safety tests, no ability to set up methods for segregating gene edited crops within supply chains (and so preserving non-GMO production), and no legal liability if there is cross-contamination that results in rejection in an export market. This concerns me as a scientist using these techniques because they are highly experimental, especially from a safety perspective. We continue to be presented with frequent surprises – the kind of surprises that should only happen in the confines of the lab – not in our fields or in foods.

A major reason the government has stated for weakening the rules around GMOs is to make it easier to develop new medical therapies. However, this simply doesn't make sense. Medical research occurs in laboratories that are regulated by laboratory biosafety regulations (as they are in other countries), and therefore it would be essentially unaffected by the proposed law changes.

What has hindered medical and a lot of other scientific research in New Zealand is the limited amount of research funding available for the basic research, which gives rise to innovative approaches (and intellectual property).

We all want to solve problems like exotic pests and greenhouse gas emissions, as well as improve farm production. Yet there is no sound evidence that GMOs have delivered any sustainable net benefit to farmers, or will do so through easing GMO regulations. Historically, GM crops have not been a success. Over the past 30 years, three GM crops (corn, soy and cotton) have accounted for nearly all GMO production. The GM corn and soy are resistant to roundup and other herbicides. The extensive use of roundup with these crops has led to widespread weed resistance to this herbicide, as well as cancer in farm workers.

More attention needs to be paid to the potential risks of easing these regulations. As methods develop, it will become even easier to generate GMOs; but, again, this will not correlate with increased safety. Without sound regulations, who is going to regulate the ability of your neighbor to experiment with GMOs in his or her back paddock? Making a GMO is one thing, avoiding unintended consequences is much harder, and containment would be next to impossible.

In support of deregulation, the government has emphasized “pie in the sky” roles for GMOs. An immediate effect is that this bias diverts attention from more pragmatic non-GMO approaches for addressing our environmental problems and advancing NZ farming.

Another effect is that it may make it harder for NZ farmers to access premium overseas markets.

As a consumer in the US, I have noticed that a product’s GMO-free status has value. Verification by the Non-GMO Project, which is North America’s most-trusted third-party certifier, is a fast growing area in supermarkets in the US. Interestingly, organic food producers are seeking GMO-free verification in addition to the USDA Organic label. This often results in food with both labels, even though to obtain USDA Organic verification the item cannot contain anything from a GMO. In other words, GMO-free verification has a marketing value that is worth paying for, even though it is actually redundant.

NZ farmers should understand the safety and market risks from GMOs and not let enthusiasm for remote possibilities extinguish the present premium standing in the marketplace.