

Letter to the Editor
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CRSPR 'gene scissor' technology has been touted as better than the other genetic engineering options that NZ has so far rejected for our agriculture. Should we embrace patented genetic manipulation in our cropping and livestock on the promise of better yields OR should we heed the signals from our international markets?

Either way, this is a 'follow the money' situation. Who pays for and benefits from the gene editing research vs who is stepping up to pay us more for providing genetically modified crops?

Are we getting unbiased information on GE traits and their stability? Or are we naively relying on geneticists hoping to secure patent royalties and paid by biotech investors? Biotech investment burn up and turn-over is a business in of itself, always dangling the next lucrative break-through before investors willing to lose all for an illusory 'big win' next time, while researchers crank out papers and questionable possibilities always scrambling to secure the next biotech grant. How does this help NZ farmers to profitably produce the world's best food while healing human health and the environment?

Which of our high end markets is stepping up to pay us more for genetically modified food? Chinese consumers have increasingly focused on safe, quality foods and the Chinese government just announced a major shift toward a circular green economy. Unlikely they'll be interested.

We may think we're seen as the best, but recent Kantor research for MBE demonstrates that we're consistently behind Australia, Japan, Italy and France in consumer perception of our food taste, quality, and trust worthiness. Shockingly, we're seen as last when it comes to producing world leading quality worth paying a premium for. Will opting into genetic engineering improve our image and premium when high end consumers are showing a preference and paying a premium for organic food? Unlikely.

A May 24 article in Nature Genetics has cast a shadow on CRSPR promoters' claims that it is more accurate and stable than earlier gene modification techniques.** Although jaw droppingly complex, the gist of this research is that extensive, AI based sampling of CRSPR modifications to date shows a statistically highly significant occurrence of unintended genetic changes: loss of large DNA segments, inappropriate gene insertions and gene reversions that adversely affect organism function. The authors are clear that these unwanted changes can in no way be compared to random mutations. They are a direct result of CRSPR manipulations.

It appears that these sorts of alterations in human genes are associated with risk of cancer. In plants these genetic changes are associated with negative environmental effects and changes in food composition, along with impairing genetic stability and plant suitability for agriculture. Are these risks worth it? How many other times have we been sold a bill of goods on the latest ag innovation that was a fizzer or actually became a serious and costly problem?

If we allow genetic modification, do we put at risk our environment and our reputation for no benefit? Do our markets actually want it? Does it actually help us grow premium nutrient-dense food that restores soil, human health and farm profit? Let's look before we leap.

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** <https://www.nature.com/articles/s41588-024-01758-y>