

KALGOORLIE HEALTH CAMPUS — MAGNETIC RESONANCE IMAGING MACHINE*Petition*

HON ROBIN SCOTT (Mining and Pastoral) [1.11 pm]: I present a petition containing 1 688 signatures couched in the following terms —

To the Honourable the President and Members of the Legislative Council of the Parliament of Western Australia in Parliament assembled.

We the undersigned residents of Western Australia respectfully ask Honourable Members to do everything in their power to achieve the urgent installation of a magnetic resonance imaging (MRI) machine in Kalgoorlie Hospital.

And your petitioners as in duty bound, shall ever pray.

[See paper 1339.]

QFLY — QUARANTINE AREAS*Statement by Minister for Agriculture and Food*

HON ALANNAH MacTIERNAN (North Metropolitan — Minister for Agriculture and Food) [1.12 pm]: Today I want to talk about the latest pest to hit Western Australia: Qfly. Recent pest incursions into Western Australia have brought into focus the need for all Western Australians to be part of the state's biosecurity efforts. Our isolation as an island nation has in the past protected us from most invasive species. The Nullarbor Plain and other deserts have provided a natural barrier from the eastern states. Although global markets have brought enormous benefits to our agricultural industries, interstate and international trade and travel have brought a whole host of biosecurity risks.

This week, the state government declared a quarantine area over parts of Como, Karawara, South Perth and Kensington after detection of a number of male Queensland fruit flies in traps in those areas. This comes after a Qfly detection in Fremantle earlier this year—which was, thankfully, eradicated—and the detection of the brown marmorated stink bug in Jandakot in March, for which surveillance is still ongoing. These highly destructive pests could have a major impact on our horticultural and agricultural sectors if they are not contained and eradicated. We saw a fantastic response from the Fremantle community to its Qfly outbreak earlier this year and we are calling on the community of Como and surrounding suburbs to join the fight. This means not moving any home-grown fruit or vegetables out of the quarantine zone unless it has been cooked or preserved, removing ripening fruit from trees, picking up fallen fruit and not putting untreated fruit into compost. Department of Primary Industries and Regional Development staff will be visiting properties close to where the flies have been trapped to carry out inspections, and additional fruit fly traps have been set in the area.

Beyond the Como Qfly incursion, we need all Western Australians to play their part in the defence of our agricultural industries. That means following quarantine protocols at airports and border crossings, and reporting any unusual creatures spotted in gardens. We never know what the next pest might be, but with support from the community I am confident that we can continue to contain these risks and protect our growers.

PAPERS TABLED

Papers were tabled and ordered to lie upon the table of the house.

NON-GOVERNMENT BUSINESS SCHEDULE — ADOPTION*Motion*

On motion without notice by **Hon Stephen Dawson (Minister for Environment)**, resolved —

That pursuant to standing order 111(4), the revised schedule for non-government business tabled today by the President, which takes into account the budget estimates hearing week, be adopted.

GENETICALLY MODIFIED CROPS FREE AREAS ACT — REINSTATEMENT*Motion*

Resumed from 11 April on the following motion moved by Hon Diane Evers —

That given the government spoke so vigorously against the Genetically Modified Crops Free Areas Repeal Bill 2015 when in opposition, that the government now reinstate the Genetically Modified Crops Free Areas Act 2003.

HON DIANE EVERS (South West) [1.16 pm]: The Genetically Modified Crops Free Areas Act 2003 allowed Western Australia the right to determine which federally approved GM crops could be grown in the state and where they could be grown; that is, after the federal Office of the Gene Technology Regulator approved their introduction into the country, Western Australians could decide whether it could be introduced to WA. According to the regulator's website, there are only two crops with current approvals for commercial release—cotton and canola. In addition, there

are current trials in WA of GM wheat and there is ongoing monitoring at previous trial sites of cotton, barley, safflower and wheat. In other states, there are currently trials of sugarcane, sorghum, cotton and banana, and in addition there is ongoing monitoring at previous trial sites of wheat, cotton, sugarcane, safflower, canola, barley, banana and Indian mustard. That is it—for now. Any one of these could be approved by the Office of the Gene Technology Regulator and, as the law stands, they could be introduced into Western Australia without the consent of the state government and without input from Western Australians. There is an application before the regulator for a limited and controlled release of bread wheat and durum wheat genetically modified for enhanced rust disease resistance. If this application is given a licence by the regulator, GM wheat and the risks it brings to our substantial wheat export industry could be catastrophic, but the regulator does not assess for market impacts. Once again, the regulator does not assess for market impacts.

When we are struggling to maintain the quality differential of our wheat over the wheat from Russia and the Ukraine, why would we accept this introduction knowing that, like the price differential for GM canola, we would have a similar situation with wheat? It is even more likely that this would occur because when we eat wheat, unlike canola, we actually consume the DNA of the grain. For wheat, the introduced genes in the grain have not yet been tested for human consumption and, unlike canola, which I noted previously, the genetically modified DNA is not contained in the pressed oil; therefore we are not eating it. This means that people will be even more likely to want to avoid GM wheat in their food. Even in the United States, capital of all things GM, they have not yet commercially released GM wheat, so the genie is not out of the bottle, the cat is not out of the bag and the horse has not bolted. We still have time to consider whether GM wheat would have some impact on our markets.

Reinstating the GM Crops Free Areas Act 2003 does not reinstate a ban on all genetic modification. It allows the Western Australian government to address issues that are not considered by the regulator. This act allows us to determine if the introduction of another GM crop may be detrimental to our industry, markets and exports.

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Unlike canola, which can find a market for use as biofuel, wheat is consumed as food and people do not want it. If Western Australia introduces genetically modified wheat as a crop to be grown amongst our conventional wheat crops, there will not be a 100 per cent assurance that the GM wheat will not mix with the non-GM crop and we will lose our GM-free wheat markets. Who will pay the cost of that? It will be the GM-free wheat farmers.

Another area I would like to address is weeds. In Western Australia, canola farmers have not embraced GM technology; they use it sparingly to control weeds. In the 2017 growing year, less than 20 per cent of canola planted was genetically modified. It has been suggested to me that some people grow GM canola because they get a higher profit from it and there is more profitability from greater production, but when we compare a hybrid GM plant with a conventional open-pollinated plant there are more reasons than just the GM technology for why hybrid production is higher. That is what it is bred for. The profit is not necessarily in the GM technology, but in the hybrid. I am not trying to ban all genetic modifications. In fact, the Greens' policy acknowledges that there are some potential benefits from genetic modification, but that is no reason to jump in whole hog and accept whatever is given to us by the federal regulator. Around 98 per cent of commercialised GM crops are engineered to tolerate herbicides or to express the *Bacillus thuringiensis* toxin through insecticide in the plant. Attempts to use genetic engineering to introduce other traits have not been commercialised to any serious extent. At a time when research shows that common herbicides are showing up in our food, in our bodies and in the breastmilk we feed our babies, and when herbicides are being linked to the development of cancers, one would think that we have to question why we would want to introduce plants that are more likely to carry herbicide residues and that are leading to increased herbicide resistance. In Australia to date, we have 17 glyphosate-resistant weeds. The first was ryegrass in 1996, which was the first year that GM soy was planted in the United States. It coincided because we were using so much glyphosate in our farming practices. There are 17 glyphosate-resistant weeds in Australia and 38 glyphosate-resistant species globally. The odd thing is that farmers tell me that the main reason they grow GM crops is for weed control. They like having the option of GM as another tool in the shed for treating weeds. Unfortunately, this leads to GM resistance, which means they can no longer use just glyphosate on their plants but have to use other chemicals as well. I want to read "Overview of glyphosate-resistant weeds worldwide." published on the US National Library of Medicine National Institutes of Health website, which states —

Glyphosate is the most widely used and successful herbicide discovered to date, but its utility is now threatened by the occurrence of several glyphosate-resistant weed species. Glyphosate resistance first appeared in —

Ryegrass —

Lolium rigidum in an apple orchard in Australia in 1996, ironically the year that the first glyphosate-resistant crop (soybean) was introduced in the USA. Thirty-eight weed species have now evolved resistance to glyphosate, distributed across 37 countries and in 34 different crops and six non-crop situations. Although glyphosate-resistant weeds have been identified in orchards, vineyards, plantations, cereals, fallow and non-crop situations, it is the glyphosate-resistant weeds in glyphosate-resistant crop systems that dominate the area infested ...

There we have it, to a large extent our GM crops are adding to this problem. I am not a scientist, but I do understand that if we treat the same weed with the same chemical often enough, resistance can develop, and then what? Do we just use other stronger herbicides until further resistance develops to these, leading to greater chemical residues in our food stream and thus more cancers in our bodies?

Another area I would like to address is adventitious tolerance. Adventitious tolerance is the unavoidable introduction of GM content. Currently, we look at 0.9 per cent as an acceptable level. That is the introduction of GM content through machinery or transport or whatever; it is not on farm. Adventitious means that it could not be avoided, whereas on farm one should be able to avoid it. Unfortunately, we are now seeing the introduction of GM content at the initial stage of sowing, as purchased GM-free seed may have that 0.9 per cent adventitious tolerance. When a farmer chooses to grow non-GM canola, the seed that they buy may still have up to 0.9 per cent GM seed content, and they really cannot do much about that. Evidence suggested to me is that there have been cases of up to five per cent GM content in bags of GM-free seed for planting. In one case in South Australia, which is a GM-free state, a farmer sowed a conventional canola crop, but it had to be destroyed because it was found to have GM content. Again, we are not managing segregation because we accept adventitious tolerance and that flows through the system; it can build up and we can end up with more than that. Where will it end? We start with 0.9 per cent, we have further adventitious introduction at a later stage, the crop is then above the threshold, the farmers lose their right to sell GM-free canola and who pays? It is the GM-free farmer.

Even though I may be the only member speaking today to uphold the rights of farmers to maintain a GM-free industry, many previous members of this house also recognised the risks to our market. I am not simply referring to members of the Labor Party, such as Hon Darren West, who spoke for nearly eight hours on this issue only 18 months previously. If we go back to 2003, when the Australian Gene Technology Bill 2001 was referred to the Standing Committee on Environment and Public Affairs, we can see that there was bipartisan support for a mechanism to review the introduction of new genetically modified crops into WA with regard to the impact on markets. I would like to read the instruction from the house for that inquiry from 18 September 2002 on a motion without notice by Hon Kim Chance, who was the Leader of the House at that time. I would like to mention that our President, Hon Kate Doust, was also on the committee that reviewed this report. The report states —

On September 20 2002, the Council issued the following instruction to the Committee in its consideration of the Bills:

That it be an instruction to the Environment and Public Affairs Standing Committee in relation to its consideration of the Gene Technology Bill 2001 and the Gene Technology Amendment Bill 2001 that, where it is of the opinion -

- (a) *that clause 21 of the Gene Technology Bill requires a more extensive examination than might otherwise be permitted by the clause as drafted, of the State's ability to designate areas of the State with the intent of identifying and maintaining GM crops; or non-GM crops, for the purposes of marketing;*

Cause 21 of Gene Technology Bill is where we can put in our desire to be able to assess GM crops from a marketing perspective. The report continues —

- (b) *that collateral issues relating to the introduction into the State, and the subsequent regulations of the GMOs have relevance in assessing the suitability of the regime provided for in the Bill(s),*

the Committee have power to include the matters referred to in paragraphs (a) and (b) within the scope and purpose of its inquiry and report on them in its report on the Bills or separately, whether before or after the date on which it is to report the Bills to the House.

The committee of, I think, eight members representing Labor, Liberal, Greens and One Nation produced a unanimous 220-page report plus an additional 200 pages of appendices. The committee surveyed the markets we sell to, the public and the farmers. They talked to many different people. We think of this in terms of wheat, because, of course, back then they were not thinking about wheat. They were looking at canola and cotton at that time. The findings at paragraph 11.2 in the report states —

The Commonwealth *Gene Technology Act 2000* and the Main Bill —

This is the Gene Technology Bill 2001 that at the time they were looking at —

provide for a division of responsibility in relation to the use of gene technology in crops. It is the responsibility of the Regulator to ensure that GM crops pose no risk to health, safety and the environment.

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That is the federal government's role. The regulator looks at health, safety and the environment. The report continues —

It is the responsibility of each individual State to determine the marketing implications of the commercial release of GM crops on its markets. The Committee is of the view that these are important responsibilities that must be assumed with care and diligence.

Remember that this report has come down unanimously from the Standing Committee on Environment and Public Affairs. At paragraph 11.4 the report states —

Most importantly, the Committee is of the view that the market impact of commercial GM crop plantings needs to be carefully understood and addressed by industry and the State prior to the commercial release of GM crops. It is also highly important that appropriate identity preservation and supply chain management systems are established to meet the demand for non-GM or identity preserved crops, should that be what WA markets continue to require. Significant industry and government investment will be required to establish and sustain the infrastructure to support this.

Back in 2003, the committee was looking at identity preservation so that GM-free markets would know that they were getting GM-free crops or seed or wheat and GM markets could sell their products as GM. It could have been that GM turned out to be better in some way, but it has not. But we could have been able to identify it. The committee recognised that we needed significant investment to separate these two. However, instead, we have gone with adventitious tolerance and said that we will accept a little bit of crossover. At paragraph 11.7, the report states —

In Canada, the Committee found that costly segregation of GM canola was abandoned once market access for GM canola was achieved, but that some markets were lost as a consequence.

Imagine if that were to happen to us. Think how many people are growing wheat. We might introduce GM wheat and find it is too difficult to keep crops absolutely GM-free, because that is what the bread manufacturers are asking for. What do we do? Do we say, “Forget it. It’s in here. The genie is out of the bottle. Let’s go with it. We’ll all grow GM wheat and see what happens to our markets”? That would not be a very good day for us because there will always be people in the world who want GM-free, because they are still not convinced, and probably never will be, that it will be just as safe for them to eat it. GM crops are bred for chemical resistance, which means that they may be sprayed later in their life and are, therefore, likely to have more chemical residue. The next point the committee raises is at paragraph 11.10, which states —

The Committee is of the view that, at the current time, the balance of evidence suggests that the potential benefits from the commercialisation of GM crops are not sufficient to weigh against the risks.

If we look at this cost–benefit analysis—we always talk about that; we like the idea of it—we see that we have another tool in the shed for treating weeds. We would thereby breed more resistant weeds, but there is a tool in the shed for treating tweeds. There is a perception that we might make more profit from it, but that is debatable—it is not even debatable. The profit is coming from the hybridisation leading to greater production values. That is what it is bred for. The GM content is bred to be weed resistant. Then we have the costs. We have the cost of segregation and the cost of liability for contamination, which we are looking at that through another process of this house. We also have the cost of trying to fight those resistant weeds. How will we manage that? Will we find something that worked as well as glyphosate did in the early days? Then we have the cost of those lost markets. I do not understand why Western Australia would want to give the federal regulator the right to determine whether we may lose our wheat markets. I surely would not want to give that up. Paragraph 11.15 states —

The Committee is of the view that a cautious approach, at this time, best reflects the views of the WA community, as presented to the Committee, and will ultimately result in the best long-term outcome for WA and its citizens.

Paragraph 11.19 states —

The Committee was only able to consider the basic principles of the Genetically Modified Crop Food Areas Bill 2003 ...

At the time it was looking at that bill. The paragraph continues —

... due to the time constraints under which the Committee was required to report. However, the GMCFA Bill covers the very important ability of the State to regulate the use of GM crops, which are recognized under clause 21(1)(aa) of the Main Bill and s21(1)(aa) of the Commonwealth *Gene Technology Act 2000*.

That section in both acts is the same, other than it refers to Western Australia in the state act. It is now called the governance forum under the Gene Technology Act, but I will continue to use “ministerial council” as that is how it is written. The section states —

- (1) The Ministerial Council may issue policy principles in relation to the following:
 - (a) ethical issues relating to dealings with GMOs;
 - (aa) recognising areas, if any, designated under a law of Western Australia for the purpose of preserving the identity of one or both of the following:

- (i) GM crops;
 - (ii) non-GM crops;
- for marketing purposes;

In both Gene Technology Acts one little section states that if WA has a law that it wants to designate the areas and where it believes GM crops can be grown, the council will follow that in its policy principles. A few other things from that report were of interest. Under the title “Omissions and Inadequacies”, the report states —

- 7.14 The Committee is of the view that there are important matters not addressed or that are not adequately addressed by the Australian national regulatory scheme:

This cross-party report came out stating that issues need to be addressed by the state. The gene technology intergovernmental agreement states —

- B. the Scheme should:
- a) provide an efficient and effective regulatory system for the application of gene technologies;

The report states —

... however, the regulatory scheme does not provide for, or outline, how GMOs and dealings with GMOs or GM products are to be managed once approved release occurs. Industry is left to self-regulate and determine its own requirements, for example, for identity preservation. Further, it appears that the current attempts by industry to set protocols are deficient ...

The committee gives more detail on that elsewhere in the report. The committee is looking at the fact that the federal government has told the states to look after this and the states can decide whether the industry can look after it or whether they want to be involved. In this case, it makes sense that the state is involved because the industry is not doing what we need it to do. When this legislation was brought in, we were told that they would be completely segregated. Then it came up with “except for this 0.9 per cent”. Then others are saying that it is not necessary to keep it like that. For the markets from which people want to purchase it, it is necessary.

In the same section, the committee raises the point that —

- ii) The issue of liability is not addressed by the regulatory scheme provided for by the Bills ... The Committee considers that this leaves great uncertainty about the level of protection afforded non-GM growers who may be affected by contamination. The lack of liability measures also means there is no precautionary insurance to cover unintentional health or environmental consequences.

At least we are now looking, through the committee system, to see whether we can address that issue. The committee report states —

- iv) There is inadequate provision for specific State-based public participation in the regulatory regime. For example, there exists no WA-based advisory body that the people of WA may refer to.

Why are we not taking this out to the public? Why can the public not be involved in these discussions? The federal government might be looking at that, but at a state level we should still be talking to our constituents and the people who live here and eat the grain we grow. The report further states —

- viii) There is limited avenue for third party review of the decisions of the Regulator.

It is not as though we can jump in there later. It states very clearly it will look to any law set by Western Australia. It is not as though it will approve wheat and then we can come back and say, “Oh, can you just hold off a bit? We want to think about this.”

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It is not there. Provision for the assessment of marketing implications is limited with the delegation of these matters to the state. Paragraph xiii states —

There is no long-term follow up, for example long-term post-release studies of food or environmental safety after the approved release of a GMO into the environment, including monitoring potential instability of transgenic cells.

In a way, the current committee’s inquiry into compensation is doing some of that follow-up. But we are not looking at whether there have been any cross-bred weeds, which was one of the initial concerns, so maybe we should look for them before we bring in another crop.

In the conclusion in this report, paragraph 7.15 states —

The Committee acknowledges that there are inherent risks in gene technology that the Regulator is accountable for managing. The public needs to be confident that the Regulator can stay abreast of very complex scientific and ethical questions, and commercial pressures.

Paragraph 7.18 states —

The Committee has examined the Main Bill —

That is the Gene Technology Bill —

and, whilst it supports its objectives of protecting the environment and human health and safety through its identification and management of the risks associated with gene technology, it is of the view that there are important matters which are omitted or inadequately addressed.

Paragraph 7.19 states —

The Committee is of the view that GMOs must be managed once approved by the Regulator, not only to ensure the effective and safe application of gene technologies, but also to ensure that their use does not prove harmful to the environment or have an adverse impact on people and markets.

That is a big part of this issue. It is about our markets. If we introduce another crop just because the Australian federal regulator says that it is okay for health and safety and the environment, what will it do to our markets? I think that is something that Western Australia should retain the right to assess.

Paragraph 8.163 states —

The provisions of the GMCFA Bill go to the heart of the powers remaining for WA (as a participant in the national regulatory scheme) to regulate the introduction of GMOs into this State which are recognized under clause 21(1)(aa) of the Main Bill. The Committee considers that it is critical that the State thinks very carefully about the application of these powers for the designation of GM and non-GM crop areas.

Paragraph 8.164 states —

The Committee considers it is appropriate to implement a gatekeeper approach to prevent any potential damage to WA's agricultural markets ...

The report goes on to state —

- The Committee is concerned that, depending on the way that the provisions of the GMCFA Bill are used, it is possible for there to be a time-lapse between the approval by the national Regulator of a crop, and the full and proper State consideration of the marketing implications of that same crop for the WA economy, or indeed, the impacts on another crop, the market for which may also be secondarily affected by the initial GM crop's introduction.
- ...
- A further benefit of applying a gatekeeper approach is that it can allow for a State approval process for each 'area permit' for particular GM crops. This approval process could be made robust enough to cover issues the Committee has identified elsewhere in this report as unresolved in the national regulatory scheme, including, where appropriate, the need to establish apportionment of liability for contamination, transport and segregation arrangements, adequate crop buffer requirements, designation of additional costs, and consultation of WA stakeholders.
- There is no provision for community and stakeholder consultation when determining whether to open a particular area for a particular crop.

The report came out—all 400 pages of it—and stated very clearly that we needed the Genetically Modified Crops Free Areas Act, and we had it for a period of time. Then it was opened up and we now have canola, which 20 per cent of farmers are using for weed control, further developing resistant weeds. It seems to be a bit backward to me. I find it hard to believe that people would think that this is a good idea and that people would want to allow this to happen again with wheat, given our concerns about our markets.

I will conclude by restating the bit about the costs and benefits. We talk a lot about costs and benefits, but when we make a decision, sometimes we ignore them. This has happened quite a bit in the past. One of the benefits of introducing GM wheat if the federal regulator says that it is okay is that we could control a few of those weeds that come up around wheat crops, until they become resistant to glyphosate. We could introduce that wheat crop and find that our markets do not want to eat the GM content in the wheat plant—the wheat seeds that we grow and sell—and so we would not have a market for it. We could introduce that crop and find that it still has the adventitious tolerance label on it so that only 0.9 per cent of it is GM. But that 0.9 per cent would then appear in the seed that we sow to grow GM-free wheat, and so we would continue to have more and more GM content in it until we end up like Canada and just say, "Forget it; that's all we do." Even if we did not, we would still have the costs of segregating our wheat, and we would still have issues when a truck carrying GM wheat tips over on the road, as one carrying canola did in Williams some years ago. There would be the introduction of more GM seed that we did not intend—an unintended introduction. We might find that farmers say that they have more productivity from the GM crop, especially if it is the one that resists rust, but to what point, and why would we not be conventionally breeding to try to address that? Conventional breeding has got us

a long way. As I said, GM canola has not taken over; only 20 per cent of farmers are growing it. The benefits will be negligible to a large extent, whereas the costs will still include the cost of segregation, the cost of compensation for farmers who are unfairly penalised through the price they receive when what they grew as GM free is no longer able to be grown that way, the cost of treating herbicide-resistant weeds, and the cost to our markets. Wheat is our largest agricultural crop. We are known as providing clean, green food. Why would we destroy that? Why would we allow that to happen? I know there are significant pressures from industry on farmers and politicians—on many people—but we have to withstand that. There is no reason to allow the Australian government regulator to allow that introduction into WA without us having any say whatsoever.

HON JIM CHOWN (Agricultural) [1.48 pm]: It is most unfortunate that Hon Diane Evers was not a member of the thirty-ninth Parliament when this matter was debated on a number of occasions, culminating in the repeal of the Genetically Modified Crops Free Areas Act. Here we are again with a motion that asks for a ridiculous response from this house to reintroduce the act and to revisit the debate about GM crops across this state. The act had reached its use-by date. Farmers today are prepared to utilise any modern agricultural advantage they can get over their international competitors, and that includes GM canola and any future GM crop that is approved by the Office of the Gene Technology Regulator.

Let me address a couple of the matters raised by the member. We are living in a drying climate; there is no doubt about that. Wheat is probably our largest bulk exported grain in this state. It is certainly not the most profitable. In fact, today it is almost becoming non-profitable to grow grain, especially wheat. With a drying climate, GM wheat is being trialled in both this state and South Australia apparently, as well as in the eastern states. From an environmental perspective, they certainly would be looking at frost-resistant strains and more water efficient strains. Water efficiency means drought tolerance.

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There are certainly varieties of wheat that would make our farmers in this state more competitive in the free market. Let us talk about free markets. The member talked about marketing and how grain exports out of this state could be adversely impacted if large areas of GM wheat were grown and exported. I assure the member that our farmers believe in choice. That is the basic parameter of democracy. They are very aware of market forces and they would not grow a single grain of any grain if they did not believe they had a market for it and could make a profit out of it. It is as simple as that. Let us not forget about free markets. They are the parameter and underlying rule that makes this state and the Western world a better place to live than anywhere else on the globe. Choice is also an important parameter of our democracy. I have said before in this place that I do not believe a member of Parliament should be telling industry what it can and cannot do within the industry's legal parameters. At this stage, GM crops are legal in this state, so it is up to growers themselves to make that choice, not for Parliament to dictate to them what they can and cannot do based on political ideology. It is just wrong in every parameter.

On glyphosate resistance, I know the member is not a farmer—she is certainly not a broadacre farmer—but chemical resistance has been with us for at least 25 years. It is not only glyphosate. It is a whole range of chemicals. Our farmers have strategies to overcome resistance to all herbicides. That is usually done by rotation and using different chemicals and they are currently on top of it. It got out of hand in areas of the state and resistance to all chemicals is true in some areas in the south. But in this state, science and farmer ability has overcome the threat of resistance.

GM canola is a very good environmental tool, as are other GM crops. Later in my address, I will go into that in more detail. It is incomprehensible that we are debating this at this stage. We have all heard from the member on her motion. I have issues with a couple of things she stated prior to her address today. She has stated that Europe was GM free. It is not GM free. In fact, I have a press release from the Victorian *The Weekly Times* of 3 May 2016, which is not very long ago. It states —

Five ships from Australia with GM canola landed in Europe late last year, according to grain industry sources and Monsanto, which owns the Roundup Ready gene patent used in Australian GM canola.

...

Australian Oilseeds Federation executive-director Nick Goddard said the non-GM premium had reached a point where canola buyers were willing to accept GM product.

In Europe. The press release continues —

Victorian Farmers Federation grains president Brett Hosking said growing acceptance of GM was encouraging.

“I think it's validation of the science and research that's goes into GM ... it has a place in our production system and should be evaluated on its merits,” he said.

The Europeans are obviously prepared to take GM canola from not only Western Australia but also Australia if the price is right. On that occasion the price was right and over 200 000 tonnes of GM canola were taken into Europe. The member also said that Japan was GM free. It took a bit of work to find out whether that is factual or not, but it turns out

to be non-factual. The Australian Oilseeds Federation was established in 1972 to represent the common interests of all Australian oilseed industry participants. Part of its brief is to look at international marketplaces to see where canola goes so it can inform its members about required marketing strategies. It has informed me that Japan takes 2.5 million tonnes of GM canola and 3.2 million tonnes of GM soybeans per annum which are primarily sourced from Canada and the United States. I might add that that is about one-third of each variety that Japan imports. The member obviously needs to do a bit more research about her motion before she makes statements such as we have heard.

From a humanities, environmental and agronomic perspective, GM crops are some of the best crops a nation can grow to enhance the wellbeing and food safety of agricultural products in the community at large. I am almost surprised that every time this comes up for debate nobody talks about GM pharmaceuticals. Why is it always crops?

Hon Rick Mazza: Or carnations!

Hon JIM CHOWN: Or carnations. They are all genetically modified organisms. Worldwide, insulin is used by hundreds of thousands of people, if not millions. In 1982 insulin became genetically modified. It is directly injected into the system of a person suffering from diabetes. Natural insulin can still be used and some people have an adverse effect to GM-derived insulin, but that is a very small percentage. In fact, currently 1.1 million Australians have been diagnosed and are registered under the National Diabetes Services Scheme, with 80 per cent of those people living a healthy life on GM-derived insulin. But when we discuss issues such as this, we never talk about GM-derived products that are saving lives and helping people live healthier lives. I wonder why that is.

The Zika virus hit the news sometime last year, but that debilitating infantile disease has been around for years. It is spread by bites from the *Aedes* mosquito, which bites during the day and night. The infection is transmitted from a pregnant woman to her foetus because blood is going between both bodies. During pregnancy it can cause a birth defect of the brain called microcephaly and other severe brain defects. It is also linked to other problems such as miscarriage, stillbirth and reduced mental capabilities of the child when it grows up. A British biotechnology company called Oxitec genetically modified the *Aedes aegypti*—that is the name of the mosquito. It is done mainly with males, which do not bite; the mosquitoes that bite people at night are the females.

As an interesting sideline, when a mosquito sounds far away, it is actually close; mosquitoes seem to be able to harmonise their wings so the victim thinks that they are further away than they are. That is probably why we all get bitten.

The genetically modified mosquitoes have been released and the success rate for sterilising and knocking out the species that carries the Zika virus has been 90 per cent over a six-month period. The GM mosquito has been deployed successfully in the Cayman Islands, Brazil and Panama.

Hon Alannah MacTiernan: How does it work?

Hon JIM CHOWN: I have just explained it, if you were listening.

Hon Alannah MacTiernan: You said that it produced male flies; is that all it does?

Hon JIM CHOWN: Yes. When they breed with the females, they are sterilised and cannot breed again. I do not know how many eggs the females lay, but the numbers of the species are in decline. I have an article that states —

Eradication of the *Aedes aegypti* mosquito in the wild would likely not harm other living things, because no other species depend solely on it for food ... the use of genetically engineered mosquitoes has proved more ecologically friendly than pesticides, which can harm bees and other insects.

<007> I/E

That is another good outcome from a genetically modified organism-derived product that is saving lives, especially those of young babies.

Another thing that astounds me about anti-GM theology or policy is the matter of golden rice. For people who live in Third World countries, rice is their staple food, and it has no vitamin A in it. Golden rice is going to be released in Pakistan, and I am going to refer to an article by Mark Lynas, whom I will talk about in a minute. The release of golden rice has been delayed for several years for technical reasons and is now going to be deployed in Bangladesh. It was recently approved for consumption by Food Standards Australia New Zealand and the Canadian government. It is considered safe for human consumption. The World Health Organization estimates that between 250 000 and 500 000 children per annum suffer from blindness, and at least 40 per cent of them die in a given year from vitamin A deficiency. Once golden rice is established it will overcome that. Once again, the anti-GM lobby group does not give a damn about humanity and makes non-factual, non-science-based emotional statements to the degradation of people who could utilise these crops to their benefit. That also applies to our Western Australian growers. In fact, we have heard the conspiracy theories about big business controlling GMs as well. I will quote from this article by Mr Mark Lynas, titled “Anti-GMO activists convene to target Golden Rice”. It states —

Many of the Golden Rice opponents subscribe to a conspiracy theory that it is part of a plot by corporations and banks to seize control of a nation’s seeds and farming.

In reality, although Syngenta was an early research partner in the mid-2000s, Golden Rice currently is being developed in the public sector by the International Rice Research Institute and a network of partner government and academic institutions. It will be provided —

To those particular countries that wish to use it —

patent- and royalty-free to poorer farmers on a non-profit basis. Funding is provided by the Bill & Melinda Gates Foundation, and other international and philanthropic donors.

I will quote once again from Mr Lynas's article about one of the anti-GM people who have actually dropped out of this debate —

Notably absent from the latest list of campaigners against Golden Rice is the international environmental group Greenpeace, which in the past has attracted severe criticism for its opposition to the project.

Let me talk about Mark Lynas, the journalist who wrote this article. Mark Lynas is a British author of several books on the environment, so he is an environmentalist. He is also a journalist and environmental activist who focuses on climate change. He is a frequent speaker around the world on climate change, biotechnology and nuclear power, and was climate change adviser to the President of the Maldives between 2009 and 2011. He now works with the Cornell Alliance for Science and, interestingly enough, he was once a Greenpeace extremist who today admits to aiding the destruction of GM crops in the name of the environment. That was before he embraced evidence-based knowledge and realised his beliefs about GMOs were predicated on an extravagant dismissal of scientific consensus. In January 2013 he made an apology to the Oxford Farming Conference. I will quote Mr Lynas —

I am also sorry that I helped to start the anti-GM movement back in the mid 1990s, and that I thereby assisted in demonising an important technological option which can be used to benefit the environment.

As an environmentalist, and someone who believes that everyone in this world has a right to a healthy and nutritious diet —

That is exactly what I was saying earlier —

of their choosing, I could not have chosen a more counter-productive path. I now regret it completely.

I tried to research as much as I could to respond to this outdated motion. I came up with a report and I will give members the title, because if they are interested it is worth reading. A lot of the information we have received from Hon Diane Evers is at least 14 years old. Why would she quote a report that is 14 years old when technology is moving forward more quickly than the eye can blink? Safeguards have been put in place that overcome all these matters. The member initially talked about tobacco. Yes, the world has only just woken up to tobacco, but I can guarantee the member that if tobacco had been put in the marketplace 20 or even 25 years ago, it would not have been approved, for a whole host of reasons, under the scrutiny that is put on new products and new drugs today. The member also went on about thalidomide at one stage and used emotional rhetoric—"This is what could happen if we're not careful about GM crops". It is rubbish, absolute rubbish. It has no foundation in fact at all. Thalidomide was introduced in Germany in the mid-50s. It was introduced into this country in 1960 and withdrawn in 1961. If thalidomide were introduced now and put under the same scrutiny as GM crops, once again it would not have got the tick of approval at all. In fact, thalidomide was never approved in the United States. It was probably used off-label, but if anyone uses a GM crop off-label in this country, the fines are huge. I cannot quote what they are, but they are substantial.

I turn to this report from 2017, and I will quote a number of pages and comments in it. It is titled "The Official Australian Reference Guide to Agricultural Biotechnology and GM Crops". I will list the panel of experts who put this report together. They are: Professor Marilyn Anderson, laboratory head, La Trobe University; Professor Jimmy Botella, plant biotechnology, University of Queensland; Professor James Dale, director, centre for tropical crops and bio commodities, Queensland University of Technology; Associate Professor Ros Gleadow, Monash University; Dr Allan Green, deputy chief of CSIRO plant industry; Professor Robert Henry, director, Queensland Alliance for Agriculture and Food Innovation, University of Queensland.

I am sorry; the list is long, but it is worthwhile quoting because none of these people is prepared to make emotional non-factual statements. They are all science-based statements. There is also Dr TJ Higgins, Honorary Fellow, CSIRO and secretary for biological sciences, Australian Academy of Science; our own Professor Mike Jones of the State Agricultural Biotechnology Centre; Professor Peter Langridge, University of Adelaide; Professor Ed Newbigin, University of Melbourne; Professor Tony Peacock, chief executive officer, CRC Association; Professor Jim Pratley, research professor of agriculture, Charles Sturt University; Doctor David Tribe, senior lecturer, agriculture and food systems, University of Melbourne; Dr David Vaux, laboratory head, cell signalling and cell death division, Walter and Eliza Hall Institute biotechnology centre; Professor Mike Goddard, professorial fellow in animal genetics at the faculty of land and food resources, University of Melbourne; and Professor German Spangenberg, executive director, biosciences research division, AgriBio Victoria.

Leading scientists of our nation put this report together last year and it is solely on GM crops.

<008> M/C

These people have more knowledge on the matter than we would have collectively in this place. These people have spent their lives looking at the science and breeding of crops, their relevance within the environment and the community, whether they are worthy of support and whether the safeguards in place are appropriate for them to be eaten by mankind in a safe manner without any adverse health repercussions. I quote from the report —

There is a long and productive history of using GM technology for developing medical products —

I have already spoken about that —

... and food processing aids (i.e. chymosin).

The chance of unintended changes with transgenic crops is less than the risk of unintended changes occurring in new crop varieties created by conventional breeding.

What I have just read out is from the panel of scientists. Hopefully, that puts to rest the issues that Hon Diane Evers has raised about those matters in her address here, because these are eminent scientists. They are not people she has spoken to down the street or in her group of Greens. The report continues —

Plant breeding innovations include a variety of tools that mimic techniques that have been used in conventional breeding for hundreds of years. In many cases, the plant varieties developed using breeding innovations could also be developed through conventional breeding, although this would be both less efficient, and less accurate. The most recent breeding methods allow breeders to reach the same endpoint more accurately and efficiently.

Globally, since the introduction of GM crops in 1996, they have contributed to food security, sustainability and the abatement of climate change by increasing the value of crop production by \$US168 billion, reduced pesticide usage by about 620 kilograms, and saved 174 million hectares of land from clearing because of higher productivity of the agricultural land used to grow the GM crops. GM crops also reduced CO₂ emissions in 2015 alone by the equivalent of taking more than 90 per cent of passenger cars registered in Australia off the road for one year due to a reduced number of pesticide sprays facilitating no and low-till cropping systems. Glyphosate allows us to do that. Environmentally, these are very good crops once they are approved by the Office of the Gene Technology Regulator. They have increased the incomes of more than 18 million small farmers and their families—some of the poorest people in the world—thereby helping to alleviate poverty. GM crops have also helped farmers financially globally, and GM technology directly increased farming incomes by \$US15.4 million in 2015 alone, and this is only in the US. In Australia, the farm income benefits from 1996 to 2015 from GM cotton and canola are estimated to have been \$US1 billion. In regard to the marketing issues that the member alluded to, from 1996 to 2015 cotton and canola have increased the income of farmers in this country by \$US1 billion. These calculations take into account the impact on yield and quality, and the cost of the technology such as payments for seed. According to the 2014 “Meta-Analysis of the Impacts of Genetically Modified Crops” by Klümper and Qaim published in the journal *PloS one*, issue 9(11), GM crops have reduced pesticides in this country by 37 per cent, increased crop yields by 22 per cent and increased farmer profits by 68 per cent on the occasions when they used them.

One of the questions asked in this particular report is whether it is safe to grow and eat GM crops and food. I think that is where Hon Diane Evers is going with this motion. I quote the report once again —

All crops and pasture plants have the potential to impact negatively on natural or agricultural ecosystems, whether they are genetically modified or not. Similarly, any new food could potentially carry risks if we're not used to eating it and it hasn't been assessed by scientists to determine how different it is to foods we already eat.

Before GM crops are licenced for commercial release in Australia, the Gene Technology Regulator ... assisted by the Office of the Gene Technology Regulator ... compares the risk of a genetically modified organism ... against the risk of harm from the 'parent' organism to ensure that any new GM crops released are safe for the environment and human health.

GM crops currently grown around the world and the food they produce have been studied extensively and repeatedly declared safe by scientific bodies and regulators globally. This includes the Australian regulators responsible for pre-market assessment of live and viable GMOs ...

Every legitimate scientific and regulatory body that has examined the evidence has arrived at the conclusion that GM crops and the foods they produce are as safe as their conventional counterparts. This includes the World Health Organization, the Australian Academy of Science, the European Commission, the American National Academy of Sciences, the Royal Society of Medicine and many more.

Once again, these groups of people know what they are talking about—people with science backgrounds who would not put their good name or reputation on the line in making statements such as these if they did not firmly believe that GM crops, once they have been approved by authoritative bodies, are as safe as any other food that we care to put on a plate. We must not forget that, members, when we get this emotional nonsense put up in a place such as this to revisit an act that is going to debilitate our future, and especially the agricultural industry. If the government wants to go down the track of South Australia, it can go ahead. I did not bring them in here, but there are plenty of papers out there on

how the South Australian agricultural industry is falling behind Western Australia and other states in regard to cotton—not that they grow a lot of cotton there—and certainly canola. But the real issue is the future—the future that may be available to us once GM crops are tested, proven and considered safe. Page 11 of the report I have been reading goes on to state —

No effects on human health have been shown as a result of the consumption of such foods by the general population in the countries where they have been approved.

That is a quote from the World Health Organization. The report continues —

The main conclusion to be drawn from the efforts of more than 130 research projects, covering a period of more than 25 years of research, —

We are talking about hundreds of millions of dollars, Hon Diane Evers, not a thought bubble —

and involving more than 500 independent research groups, is that biotechnology, and in particular GMOs, are no more risky than conventional plant breeding technologies.

That is a quote from the European Commission. Here is another quote —

Gene technology has not been shown to introduce any new or altered hazards into the food supply, therefore the potential for long term risks associated with GM foods is considered to be no different to that for conventional foods already in the food supply.

That is from our own people, Food Standards Australia New Zealand, considered globally as one of the top five bodies to approve or disapprove what is safe for us to eat. It is one of the best in the world. I will go back to Mr Mark Lynas and quote him. He is worthy of a quote because he saw the light. He is one of the people who started this ridiculous campaign about GM crops and then he realised he was just talking emotional rubbish and looked at the science. He understood; he opened up his mind and did not close it down to a narrow little pathway. He said —

The GM debate is over. We no longer need to discuss whether or not it is safe—over a decade and a half with three trillion —

There is a big figure, not quite the state debt yet —

GM meals eaten there has never been a single substantiated case of harm. You are more likely to get hit by an asteroid than to get hurt by GM food.

That is a quote from Mr Mark Lynas, author of six books and a well-known environmentalist—a person of reputation globally.

<009> J/K

I do not know why Hon Diane Evers did not quote him.

Let me go into the system of how a licence is granted in this nation. The process of having a GM crop approved, put in the ground and then exported costs around \$100 million. It takes many years and costs entities that put up these proposals \$100 million for one variety. Do members think they do that without giving substantial thought to whether it will be safe or not? Not all are approved.

Hon Diane Evers: We're talking about the markets, not the safety.

Hon JIM CHOWN: Maybe Hon Diane Evers was not listening. I quote —

Before a licence is granted, the Regulator prepares a risk assessment and risk management plan. This includes:

- identifying if a new characteristic of a GM crop may cause harm, compared to its conventional counterpart ...
- developing a management plan, on a case-by-case basis, to protect people and the environment — what actions might be needed, what are the consequences of those actions, and how can they be monitored?

One of the consequences of the actions, of course, is marketing and how it will affect the industry overall. All these things are taken into account before approval takes place. Of course, marketing is a separate issue entirely. I said before that under a free market regime the market dictates to the grower whether his crop will be accepted, saleable and sold. I have yet to know a grower out there who grows something and either cannot sell it or sells it at a massive loss. That will not happen, regardless of what Hon Diane Evers thinks. The member's comments on that matter have no relevance.

I turn to labelling. Australia has some of the most stringent food labelling requirements in the world. Any foods containing more than a negligible amount of one per cent of GM ingredients must be clearly labelled. There is zero tolerance for the presence of an unapproved GM or food ingredient, and these requirements are overseen by Food Standards Australia New Zealand. Some pragmatic exceptions to the mandatory labelling requirement include highly refined foods such as sugars and vegetable oils from which the genetic material is removed during the refining

process, and flavours containing novel DNA or protein in a concentration of no more than 0.1 per cent. The global hectareage of biotechnical GM crops has increased more than 100-fold from 1.7 million hectares in 1996, to 181.5 million hectares in 2016. This makes biotech crops the fastest adopted crop technology in recent history.

One of the issues debated in this place has been whether a GM crop can be grown alongside a non-GM crop. Of course they can. They are grown out there every day. Every season, 20 per cent of the canola is grown next to non-GM crops, certainly in my electorate. I quote from chapter 6 of this particular report—I will not make things up —

There is nothing unique about GM crops that makes them any more difficult to manage than their conventional equivalents. Globally, the grains industry manages the segregation of different crops very effectively; for instance keeping malting barley separate from feed barley, or durum wheat separate from other varieties.

That is all true. That is farming, and it always has been. The report continues —

The Australian Department of Agriculture has recognised that maintaining product integrity —

The member mentioned product integrity. I continue —

that is, keeping grain commodities separate from others the full length of the supply chain — has to be a priority so that all customers can be satisfied they are getting the product they have paid for.

There are many levels of regulation to ensure that farmers do what is required to stop GM and non-GM crops from mixing. These include industry protocols, contracts with the companies providing the seed, and state government policies and guidelines. On-farm management practices include the maintenance of buffer zones to maintain the integrity of both GM and non-GM crops.

When GM canola was released commercially in Australia, an additional category was introduced under national trading standards. Producers have the option to sell their crops under the CSO-1 standard with up to 100 per cent GM, or under the CSO-1A (non-GM) standard, which allows for up to 0.9 per cent unintended presence of genetically modified material.

Why do we need this technology? I quote Sir John Beddington, the former United Kingdom Chief Scientific Adviser. He said —

There will be no silver bullet, but it is very hard to see how it would be remotely sensible to justify not using new technologies such as GM. Just look at the problems that the world faces: water shortages and salination of existing water supplies, for example. GM crops should be able to deal with that.

The report continues —

Global population growth is going to create some serious challenges in the years ahead —

Hopefully, none of those challenges will visit this great state of ours, but they could affect us in a number of aspects. We have seen the expansion of China, and a lot of that is food-driven. The report continues —

with the UN Food and Agriculture Organization (FAO) estimating that food supply will need to increase by 70 per cent to feed the nine billion people expected to be living on our planet in 2050.

In fact, our department of agriculture and food has a policy in place to triple or double food production in this state. The minister may be able to advise me.

Hon Alannah MacTiernan: Sorry. It is riveting! A policy declared under the previous government was to double it.

Hon JIM CHOWN: Thank you. So to double it by 2025.

Hon Alannah MacTiernan: So not to invest in it, but to double it. I tried valiantly!

Hon JIM CHOWN: That is all right. It happens to the best of us!

Hon Alannah MacTiernan: I lasted for almost 40 minutes.

Hon JIM CHOWN: We will not go there.

Obviously the United Nations believes that food demand will increase and supply has to increase by 70 per cent. How will we do that globally? Do we knock down 70 per cent more rainforests? No; that is unacceptable. Do we displace millions of people and reclaim urban land? A lot of cities throughout the world are built on the most fertile country—that is how they started. Do we displace millions and millions of people to expand production? No; that would be unacceptable. The only way is to increase the yield of the hectareage available to us today. If we are dumb enough and gutless enough to bend over and let people dictate to us when we can use science that has been approved as safe or otherwise, quite frankly we are not worthy of being in this place. The safeguards are in place for GM crops, the marketing parameters are there; let us just get on with the job and put this motion where it should be.

HON RICK MAZZA (Agricultural) [2.28 pm]: The motion of Hon Diane Evers is pretty much aimed at the government in that she requests that the government, because it spoke against the repeal of the act, now reinstate it. I was here during the debate on the repeal and remember Hon Darren West speaking for seven hours on this issue to

get his point across. I admired his ability to speak for that length of time, and it is symbolic that I sat and listened to every word. The repeal bill was debated at length, but it eventually passed and everybody moved on. The matter is now back before the house.

<010> R/3

The motion does not specifically mention GM itself, but of course the debate is headed that way. I will provide just a little background. The Genetically Modified Crops Free Areas Act 2003 was brought in to designate an area, or the whole state as an area, where specified GM crops could not be grown. Legislation was made on marketing grounds, not safety and health assessments, which was undertaken by the commonwealth legislation administered by the Office of the Gene Technology Regulator. The commonwealth Gene Technology Act 2000 was enacted to protect the health and safety of people and the environment and to identify any risk posed by or as result of GM technology. In May 2004, the whole state was designated under the act and no GM crops could be grown. In accordance with part 4 of the act, the whole state was a declared and designated area in which GM crops could not be cultivated. The act did not disallow the planting of GM crops that had been granted a licence by the Gene Technology Regulator; it merely imposed a regulatory step that had to be undertaken before a crop could be commercially planted. After a moratorium of some five years on growing GM crops, two exemptions were granted under the act. In 2009, GM cotton and commercial planting in the Ord area was granted a licence. Cotton grown in the Ord had many difficulties in that pests in that area were ravaging their cotton crops, but now because of GM technology, a lot of that cotton is pest resistant and almost 100 per cent of cotton grown in this state is GM cotton. In fact, I think the shirt Hon Darren West is wearing is completely GM, from memory, is that right?

Hon Darren West: I don't think so.

Hon RICK MAZZA: An article in *Countryman*, dated April this year, states —

Wet season plantings have been made possible by Monsanto's release of a new genetically modified cotton variety called Bollgard 3, which has resistance to the more damaging insect pests, including one that thrives during the Kimberley wet season.

Because that GM cotton is more pest resistant, the need to apply pesticides is reduced, so obviously if fewer chemicals are being put onto these plants, it is best for the environment. One of the arguments that I find very difficult to understand from the anti-GM brigade is that a lot of this GM technology reduces the chemical application when it comes to pesticides, yet it is seen as being something to fear.

A 2015 report titled "Decision Regulatory Impact Statement: Repeal of the Genetically Modified Crops Free Areas Act 2003" was undertaken by the then Department of Agriculture and Food. It states —

Taking into account the current regulatory framework in Western Australia and Australia, the current industry management of GM crop production, and the likely impact of various options on relevant groups, it is recommended that the GMCFAA be repealed, so once a crop has been deemed safe by the Office of the Gene Technology Regulator and a commercial licence granted, there are no additional regulatory burdens for WA growers, and a reduction in red tape for the WA government.

Repealing the 2015 act would not change the way that GM is grown in the state, because the whole state had an exemption anyway, so all we simply did by repealing the crop free area was to take out a layer of red tape so that farmers did not have to get a licence. Farmers could pretty much grow GM under an exemption if they wanted to. As Hon Jim Chown pointed out, producers are not going to grow GM crops if there is no market for them. Everything is commercially driven. If there is a market for GM crops, growers will grow it; if there is no market for them, they will not. In fact, the research from my office shows that there has been a slight decline in the amount of GM canola being grown in this state. They are there to meet markets. The government repealed the act in 2016 for a good reason. It removed the potential barrier to producers wanting to access GM crops and enabled access to GM technology through the GTR with licensed GM varieties, without the need for WA exemption orders. It provided stability for researchers to further invest money into GM technology, specific to WA conditions. It has been discussed in this house that we have a drying climate and there are a lot of challenges for growers. Growing crops is a very scientific undertaking. It is not like it was 10 years ago; there is a lot of science involved for growers to grow crops commercially and successfully in the state and as things change and adaptation is required, gene technology can play a big part in improving those conditions for them. Repealing the act would also assist industry to continue to be internationally competitive, which is very important, because many other countries grow GM, including North America and Canada, and supply GM products to countries such as Japan and China. Even Mexico, I think, is a buyer of some GM products, or it might even supply GM soybeans to Japan. They are there to meet the markets.

Industry has been successful in achieving segregation between GM and non-GM crops. I think this is a very important point because there is a lot of discussion around whether someone who does not want to eat GM should not have to eat GM. But there are stringent systems in place that segregate GM crops over the non-GM crops. Segregation of GM cotton is not necessary—obviously people do not eat cotton; they wear it—but we have had success in segregating canola for the last eight years.

Hon Jim Chown: Cotton oil is used extensively for frying foods.

Hon RICK MAZZA: Thank you for that, Hon Jim Chown. Co-operative Bulk Handling Ltd is Australia's largest cooperative in Australia in the grain industry. The CBH storage system currently receives and exports more than 90 per cent of WA's grain to more than 30 countries. Since the first GM plantings in 2009–10, no shipments of grain have been rejected by trading partners due to an unintentional presence of GM material. Segregation is now a mature activity that is routinely carried out without any significant events at receival points, silos, train sets, grain centres and port terminals. CBH grower receival standards are aligned with the Australian government's Office of the Gene Technology Regulator allowance for low level presence of up to 0.9 per cent GM canola in non-GM canola. This is consistent with tolerance permitted by the European Union, Australia's major trading partner for non-GM canola. CBH sampling and testing processes ensure canola varieties are declared correctly. Growers are required to declare the variety they deliver. A sample of every canola received at all sites is collected and this may be tested in the event of a dispute of any declaration. CBH monitors and tests bulk non-GM canola as it is received and moved to port for the presence of GM material. CBH collects samples from each 500 tonnes of non-GM canola received at its sites. These are tested at dedicated off-site laboratories for the presence of GM varieties. If a load or part load of GM canola has been mixed with non-GM varieties, CBH is able to trace this back to the individual truck loads. CBH tests all non-GM stacks for the presence of GM material before the grain is moved to a shipping position. CBH uses the latest and best available technology for testing, a DNA-based method that is quantifiable down to 0.01 per cent of GM material. We can see that CBH, as the major grain handler, has some very stringent processes in place in ensuring there is no contamination of non-GM canola with GM canola. It is a very mature system. Since GM canola was released, an additional category was introduced under national trading standards. Producers have the option of selling their crops under the CSO1 standard, up to 100 per cent GM and CSO1-A, a non-GM standard that allows for up to 0.9 per cent unintended presence of GM material. International markets have not be affected by allowing GM crops to be grown in WA.

Access to gene technology has increased farm productivity, environmental benefits, reduced red tape for industry and government, and enabled producers to have the freedom of choice, which is a very important part; producers are able then to meet markets which is the most commercially viable for them. There was some talk earlier about wheat, and the fact that some people do not want to eat GM-based wheat in their bread or whatever the case is.

<011> P/4

I think there will be a time when we will have genetically modified wheat. I think the Office of the Gene Technology Regulator has been working on GM wheat. One of the issues with wheat is frost. Every year in Western Australia frosts come in and wipe out great swathes of wheat crops. Farmers have a lot of difficulty trying to insure under multi-peril insurance to cover that. It can be quite devastating for them. The Department of Agriculture and Food, under the then minister, Ken Baston, gave me a briefing on GM technology. It was a very interesting scientific briefing. It was explained to me that GM technology is not some Frankenstein method of developing a grain and it takes just as long to get a new variety as the old crossbreeding process, but the outcome is more certain than with the old crossbreeding method. After 20 or 25 years of development there is more certainty in the eventual outcome of the product, but it still takes a very long time. The department was working on using arctic grass in wheat to make it more frost resistant. I think that once that has been developed being able to grow a crop that is frost resistant will be a huge boon for Western Australia. As I say, frost impacts us every year and it can break a lot of hearts.

The act had been in place for a total of 13 years and it had been well tested. In that time, the act provided for a five-year moratorium on any GM crops being grown in Western Australia, seven years of GM cotton being grown and six years of GM canola being grown. Industry has had six years of growing, segregating and selling GM canola internationally with no major issues and another two years since the act was repealed in 2016. I cannot see any benefit in overturning, or unpicking, the legislation that went through last term. The repeal of the act in 2016 was supported by the main grower organisations, including the Pastoralists and Graziers Association of Western Australia and WAFarmers. The act is now obsolete and it should not be reintroduced. I do not see any point in doing that. Reintroducing this legislation would lead to a reduction in choice for producers, a reduction in productivity gains, a potential decline in international competitiveness, less profitable farming systems, less viable regional communities, more red tape for industry and government, and more uncertainty for research companies and producers. In February 2018, the Office of the Gene Technology Regulator granted another two licences that allow for commercial use of GM crops across Australia. There is the commercial release of GM canola for omega-3 content—obviously to improve the health of anybody who wants to eat that—and the commercial release of GM cotton for insect resistance. A lot of work has been done on developing GM technology.

I wonder about Hon Diane Evers' understanding of agriculture at times. On 11 April, the honourable member made a statement on farming techniques and practices within Western Australia. I will not read that out, but a lot of it was about reducing the size of farms and putting more animals out onto property to use their manure. Of course, animals impact and damage land a lot. For every bit of manure from a sheep that goes onto the land, 10 times the amount of nutrients have been taken out. At the end of the day, that would not work. We need to have broadacre commercial farming to be commercially competitive within Australia and internationally.

Hon Alannah MacTiernan: Can I ask a question?

Hon RICK MAZZA: Sure.

Hon Alannah MacTiernan: I know you are concerned about the number of times I invite you to things, but I thought I did invite you to the lecture by Charles Massy on regenerative agriculture. Did you take the opportunity to see him when he was in Western Australia?

Hon RICK MAZZA: No, I did not, minister. I am interested to have a look at the paper if the minister wants to send to me.

At the end of the day, I am sure that farmers do the right thing by their land.

Hon Alannah MacTiernan interjected.

Hon RICK MAZZA: I will not take any more interjections.

Farmers are not going to degrade their land if it is going to impact on the long-term viability of that land. Farmers have particular techniques—it has been referred to as industrial farming—but there is no way in the world that we are going to go back to small subsistence-type farms; it just will not happen.

As a person with an ethnic background, I enjoy growing my own vegetable garden. I put manure and compost into the soil, and my vegetables cost me 10 times more than what I can buy them for at Woolies —

Hon Adele Farina: They taste better!

Hon RICK MAZZA: They taste better, but there is no way in the world that I would ever imagine that I could do that on a commercial basis. Unfortunately, we have gone beyond that.

To wind up, I do not think there is any point reintroducing this legislation. I am not sure whether the government is considering reintroducing this legislation, I will wait to hear the minister's response, but, in short, I do not support the motion.

HON COLIN de GRUSSA (Agricultural) [2.45 pm]: I rise to contribute to the debate on this motion from the point of view of someone who not only has been an active grower of genetically modified crops, but also is very passionate about agriculture and the future of agriculture in this state.

I will start by talking a bit about the South Australian example; that is, the moratorium in South Australia and the effect that it has had on price premiums and market access for South Australian growers. A little while ago, a report from Mecardo Expert Market Analysis landed on my desk. It provides quite an interesting overview of the South Australian example. This report goes through an exhaustive analysis covering a whole bunch of commodities that contribute about 63 per cent to the agricultural economy in South Australia. I will talk about some of the findings on regulation for a start. We have heard a lot about how the regulatory framework works in this country. The Office of the Gene Technology Regulator carries out a risk analysis and then the states have the ability to determine whether GM crops can be cultivated. As members know, South Australia, Tasmania and the Australian Capital Territory forbid the growing of GM crops. If we look at exports of canola from Australia, we see that Western Australia has 18 markets for the canola it produces. South Australia has seven markets for the canola it produces. This report notes —

Interestingly, there are no export destinations with whom South Australia has traded canola with, that the neighbouring states (which permit GM canola cultivation) have not also traded.

In other words, Western Australia and other states that grow GM canola trade with the same countries as South Australia and there is no market access issue from that point of view. Western Australia is the largest producer of GM canola and it sells it into the same export destinations as South Australia. Indeed, as someone who grew GM canola for a number of years on and off, we exported it into a number of European countries. Yes, we had to declare it and it was used for biofuel, but it is still a valid market. GM canola is an important crop, but I will talk later about GM itself, because we tend to focus on only one very small part of the debate.

In terms of price comparisons for GM canola, it is true from this report, which compared the price premium or discount for canola between Adelaide and Kwinana, that the price for canola in Adelaide since 2012 to early this year is at a discount to Western Australia by on average somewhere around seven per cent.

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Even though they chose not to grow genetically modified canola, there is no price premium at all and no advantage for market access. I fail to see why we would consider going back to having areas of the state declared as no-go zones for the cultivation of GM canola.

Hon Alannah MacTiernan: Did you compare that with what the situation was before we had that differential between WA and South Australia? You have said there is a seven per cent differential. What was the differential before we had —

Hon COLIN de GRUSSA: I would not know, because I have not done the analysis, minister, but this is since GM canola has been grown in Western Australia. The suggestion here is that farmers living in Adelaide are receiving a discount to Kwinana and it is going further—it is increasing further.

Now I will move on to talk about a few other important issues. I am very offended at some of the comments that Hon Diane Evers has made about Western Australian farmers. All too often in this place and in the public commentary, farmers seem to be bashed over the head for doing what they do. The assertion that farmers in Western Australia are somehow willy-nilly making herbicide resistance worse by cultivating GM crops shows a great lack of understanding of what Western Australian farmers do. Western Australian farmers lead the world in managing herbicide resistance. Professor Stephen Powles, who is a world-renowned expert on the management of herbicide resistance, leads the Australian Herbicide Resistance Initiative at the University of Western Australia. There is no better example in the world of farmers understanding fully and managing herbicide resistance.

If we look at the approach farmers take in Western Australia to herbicide resistance, we see that this is not a new problem. It has been around for years. I can remember when it first became prevalent in the 1980s with the sulfonylurea and the fop and clethodim herbicides in the US before glyphosate resistance came about. Farmers were acutely aware of it straightaway and very quickly adapted new management practices to minimise herbicide resistance. We lead the world in herbicide resistance management. It is about not only using a different herbicide, but also adopting different practices and even cultivation when it is appropriate, but we do not want to do too much cultivation, obviously. We have moved well away from that. It is also about harvest weed seed management. Again, Western Australia leads the world in devices such as the Harrington seed destructor. Ray Harrington and others have invented equipment that can destroy resistant weed seeds at harvest time, thereby reducing the effect of herbicide resistance and allowing farmers to better manage herbicide resistance on their properties.

GM canola—Roundup Ready canola, Roundup-tolerant canola, whatever we want to call it—which is one type of GM product, allows farmers to use glyphosate herbicide on their canola instead of the triazine herbicide or the imidazolinone herbicide, which the IT canola varieties use. Again, this is part of that whole strategy. We have different horses for courses. We use different herbicides to manage weed resistance so that we are not relying on only the one herbicide. To assert that farmers just go out there and spray willy-nilly and then all of a sudden we have herbicide resistance is not fair, because that did not happen in Western Australia at all. It happened in the US where farmers grew Roundup Ready corn and soybeans one after the other for years and years. That was pretty dumb really. Western Australian farmers are not that silly. They are very acutely aware of the importance of those herbicides and the ability to use them reliably. Therefore, they have taken a lot of steps to try to reduce herbicide resistance.

Another issue that the debate about herbicides raises is that GM is all about weed control. That is not the case at all. Many other traits are being developed and will be developed down the track that provide a benefit for not only farmers, but also developing nations with health and other benefits. One example is a canola gene that reduced the shattering of pods at harvest time. I got to see that gene at a crop science lab in Belgium in 2011. The scientists found this gene and turned it off so the canola could not be thrashed out of the pods. The lab found a way to turn it off a little bit and therefore the yield increases, not through more chemicals or fertiliser, but simply because the pod shatters less at harvest time. It also allowed for direct harvesting, which we did ourselves, rather than having to swath the crop first. It saves pathways over the paddock, chemicals, diesel and a whole bunch of different things, which results in a better outcome. Obviously, profitability is also higher. However, growing GM canola is not all about weed control and we need to consider that. I will talk later about an interesting article by a gentleman in the US called Nathanael Johnson. He did some research into GM and writes for an online magazine called *Grist*. This quote is a response to his article, and it states —

When we get down to the specifics, we find that today's GMOs are neither planetary panacea nor unbridled poison. The passionate, emotion-filled debate is more about the lenses through which we see the world as it is about genetically modified foods themselves. The GMO debate is often an emphatic and barely-disguised metaphor for our larger debate about whether technology is destroying the world or saving it, whether we should try to control nature or live within it.

The whole debate about GM is not really about GM. It is more about corporatisation and homogenisation of agriculture and whether we like technology. It is not about whether it is good or bad for us, because there is no evidence either way that GM is going to save the world or that GM is going to kill us all. It is another tool in the toolbox, and that is certainly how we viewed it in our own business. It was another tool in the toolbox. We did not use it all the time, but it was good to have it when we needed it. Some traits that are coming that I talked a bit about earlier include improving photosynthesis so that we can increase crop yield without having to add more fertilisers. These are all good traits that will help farmers and the environment because we will be able to produce more from the land that we have already without needing more land, which we talked about earlier. These things are important. Nathanael Johnson said this very well in 2014. I saw him speak at a conference in New Orleans in 2014 when I was researching this issue as a part of my Nuffield scholarship. He approached the issue as a green; that was his ideology before he entered this debate. After spending six months researching GMO and working undercover in the pro-GM and anti-GM sides of things, he said —

It's a little awkward to admit this, after devoting so much time to this project, but I think Beth was right. The most astonishing thing about the vicious public brawl over GMOs is that the stakes are so low.

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Although there will be some people who cannot accept that—from both sides of the debate, I might add—if we imagine a future where the GMO-free brigade has won, what would be the difference? Farming would still look pretty much the same as it does now. Without insect-resistant crops such as Bollgard cotton, farmers spray more broad-spectrum insecticides on their crops to control the insects. Without herbicide-resistant crops, farmers spray less glyphosate, which slows the spread of glyphosate-resistant weeds and perhaps leads to healthy soil biota. Farmers also cultivate their fields more often, which then kills that soil biota and releases a lot more greenhouse gases. The banning of GMO has not led to a transformation of agriculture because GM seed was never a linchpin supporting the conventional food system. Farmers could always do fine without it. We could, but it is not going to deliver a better farming future or a more environmentally sustainable farming future. I quote again from Nathanael Johnson's article —

Anti-GMO partisans also frequently treat GMOs as a monolithic entity, and that's not any more logical. If you care about the environment it would make sense to support the responsible use of insect-resistant GMOs to help farmers move beyond chemical agriculture. It's hard to argue with scientists like Bruce Tabashnik when they present evidence that insect-resistant plants have helped the environment in the places they've been used fastidiously. Thoughtful greens might, at the same time, oppose herbicide-tolerant GMOs until we can figure out a better solution than just spraying more. Again, the different forms of GMOs don't belong in the same argument.

It is not just about herbicide resistance and insecticide resistance; there is so much more that GM technology offers. We are only at the tip of the iceberg in uncovering new traits and new things that will help people all around the world produce more and better food than they do currently. As a farmer who grew a GM crop, I know it was never about whether the GM crop was going to be more profitable. It did not make us any more money, but it allowed us to keep making money and to keep doing what we were doing, because it gave us the ability to manage wheat populations that were resistant to other herbicides, such as triazine or the imidazolinone-tolerant herbicide. It is just another tool in the toolbox that farmers should have available to them. I do not think it is appropriate that we in this place dictate to an industry what it should or should not do without any real basis for why it should or should not do it.

One of the other comments that Hon Diane Evers made was about the potential contamination of GM seed in non-GM varieties. I am a bit confused about how that might occur, particularly in the herbicide-tolerant GM varieties, because they are tolerant to different herbicides. We did the experiment; plenty of farmers have done the experiment. They have accidentally sprayed the wrong herbicide on the wrong canola crop and it has gone; there was nothing left of it. Although some GM plants may come up in the non-GM variety, when that is run over with atrazine, there is nothing left of the GM variety. It dies because it is not tolerant to that herbicide; it is tolerant only to glyphosate or whatever it is. I do not accept that we can ever achieve 100 per cent purity in any system. I think it is impossible to expect that that can be the case. It is not unrealistic to accept that there has to be a level of tolerance—whatever that might be—because it is impossible to guarantee that there will be 100 per cent purity in seed or whatever the case may be.

I do not want to spend too much time talking on this motion. The National Party does not support this motion. We went through the process of repealing that act for good reason. It was out of date and it was unnecessary, and it still is unnecessary. The then Department of Agriculture and Food stated in its submission —

... once a crop has been deemed safe by the Office of the Gene Technology Regulator and a commercial licence granted, there are no additional regulatory burdens for WA growers, and a reduction in red tape for the WA government.

This is what it stated would occur after the removal of the Genetically Modified Crops Free Areas Act —

This will have no impact on the assessment process to ensure GM crops do not pose a risk to the safety and health of people and the environment, or the ongoing monitoring and enforcement undertaken by the Office of the Gene Technology Regulator.

In its view, there was no need for the Genetically Modified Crops Free Areas Act to remain and it should be repealed. It was repealed and it should stay that way to give certainty to industry and to give farmers the ability to choose for themselves whether they do or do not grow GM canola.

Another debate that we often have is that organic, non-GM and GM farming cannot exist together. I think it can. If someone wants to be an organic or non-GM farmer, they can make that choice. It happens now. It should be up to those people to make the choice. It should not be up to legislators to impose a choice on them without consultation. That is red tape and it is over-legislating. We need to step away from that and let farmers make the choice and let markets make the choice about what they will or will not buy. Farmers will respond to that; they always do. Nobody wants to grow something that nobody wants to buy. We will adapt, as we have done. Our farmers lead the world with their management practices. Hon Diane Evers should visit some of the farms around the state to see for herself some of the very advanced stuff that we do. I think she would be very impressed. It is not all about corporate agriculture and herbicides. It is about

an industry that should be sustainable. It is about an industry that is constantly trying to improve and find better and more efficient ways to not only improve the yields of the crops, but also ensure that the land on which those crops are grown is improved. That is what modern agriculture is all about, and that in itself is regenerating the soil on which farmers farm.

HON COLIN TINCKNELL (South West) [3.08 pm]: In the short time left for today's debate, I will make a start on my comments. Pauline Hanson's One Nation will not support the motion. It has been great to hear the contributions from members today. Some of the things that I will mention have been touched upon and maybe I will give further detail. I want to read one quote from the 2016 *CropLife* magazine. It states that since the introduction of GM, which is mainly cotton, the use of over 80 million kilograms of active chemical ingredients has been avoided.

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That was in 2016. That is a fairly strong statement. We can see that in just one little area; that is a major plus. I have been getting out and speaking to farmers. I do not come from a farming background but I have lived in regional areas for most of my life. Since I have become a member I have gone out of my way to talk to farmers to get to know their issues and problems and the way that they would like to move forward in the future. It is clear to me that without science Australian farmers would not have been productive for many years now because of Australia's soils. It is quite clear that science—along with the farmers of WA and Australia—has made us one of the most productive farming nations of many crops. That is something that we should never ignore. As the previous members have mentioned, science leads the way over here.

To Hon Alannah MacTiernan, I was at the WA farmers' conference at which Mr Charles Massy spoke. Some of what he had to say interested me a great deal and interested some of the farmers. But many other farmers had question marks about what he said. It is one of the tools in the toolbox farmers need to have. He was basically talking about the need to have more productive land. Minister MacTiernan has recently announced the resurrection of the Soil and Land Conservation Council, which shows that there is a lot of work to be done on our soils in Western Australia. I am interested in being involved in any capacity and also finding out exactly what recommendations would come from that.

Hon Colin de Grussa mentioned that the Office of the Gene Technology Regulator is a science-based organisation that uses robust risk analysis, which is based on the latest evidence and widely respected international standards. GM is well known in Australia and around the world. The repeal of the 2003 act in 2015 has given farmers and producers in WA greater certainty to manage their production planning. It has given growers a greater ability to farm using best practices to maximise their farms' production and economic returns. It has reduced the regulatory burden and has provided access to new technologies, particularly in new crops, fruits and vegetables. It has improved crop varieties that are climate resistant. It has also improved quality with health benefits. The ability to improve international competitiveness is also a major factor in that sector. A lot of pluses have come from the repeal; we should not ignore that.

In recent times, chemical resistance has become a prominent issue for grain growers in WA. In some cases up to 10 times the rate of chemicals is being applied to help control weeds. The problem is costing over \$1 billion annually. That is something we should consider. Although GM is merely one of the tools in farmers' toolboxes, the banning of GM, which the 2003 act effectively allowed, is a disincentive to industry to invest in GM technology in all kinds of crops—not just canola or cotton. That would mean more chemicals and lower production. They are a few of the reasons One Nation opposes the motion.

There is no evidence of health issues emanating from the consumption of GM food. That is another consideration. It has been around for a long time and they would have shown up by now. There is no evidence of trade distortions when selling to countries that are supposedly anti-GM. Canola alone is worth in excess of \$1 billion to WA each year and over 30 per cent of the canola grown is of GM varieties. The grains industry has been successfully segregating GM and non-GM for a time. As I mentioned, the effects of GM food are well known. The current legislation allows for greater certainty for WA producers, best practices for farmers, reduced regulatory burden, and incentives to invest. I will continue later.

Debate interrupted, pursuant to standing orders.

COMMITTEE REPORTS — CONSIDERATION

Committee

The Chair of Committees (Hon Simon O'Brien) in the chair.

*Joint Standing Committee on the Corruption and Crime Commission — Seventh Report —
“Unfinished business: The Corruption and Crime Commission's response
to the Committee's report on Dr Cunningham and Ms Atoms” — Motion*

Resumed from 11 April on the following motion moved by Hon Alison Xamon —

That the report be noted.