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# GM agrofuel maize to enter SA food system!

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african centre for biodiversity

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## Introduction

According to the Department of Agriculture, Forestry and Fisheries' (DAFF) website, in February 2017, Minister Senzeni Zokwana granted Syngenta SA a commodity permit to import genetically modified (GM) maize that is genetically engineered for enhanced ethanol production for the agrofuels industry. (The maize expresses an enzyme which degrades the starch, thereby enhancing ethanol production.) The maize in question is “stacked” – meaning that, in addition to ethanol production, it is also genetically engineered for pest resistance and herbicide tolerance. While the South African authorities previously gave the green light to the herbicide tolerant and pesticide traits, in 2006 the Executive Council (EC) regulating GMOs in the country rejected Syngenta’s application for the ethanol production trait. Their decision was based on concerns over health risks presented by the trait, as well as about contamination of South Africa’s food supply and potential impact on South Africa’s maize trade.

In 2014, the EC also rejected Syngenta’s permit application to import the stacked maize, on the basis that South Africa’s Biofuels Industrial Strategy (2007) specifically excludes maize as a biofuel feedstock. The rationale for this exclusion is that it maize is a food security crop that should never be put at risk by a competing market for agrofuels. However, Syngenta appealed the decision, and, astoundingly, the Minister supported their appeal and allowed the permit. It is unclear why South Africa would desire the import of maize genetically engineered for agrofuel production, if it may not be used for this purpose, or how this GM maize in our staple food chain will impact on food safety and quality. It is also unclear how the health and trade risks identified by the EC in 2006 have been resolved. What is clear, however, is that food is fast becoming interchangeable with industrial products, and this is apparently acceptable to our Minister of Agriculture.

## No maize for agrofuels in South Africa

In December 2007, the Department of Minerals and Energy released South Africa’s Biofuels Industrial Strategy, which specifically excluded maize (and an alien invasive species called *jatropha*) as a possible agrofuel feedstock, despite heavy lobbying from the grain sector. In 2008, a bumper season with a surplus maize crop in excess of 4 million tonnes, GrainSA and the SA Bio-Energy Association (SABA) argued strongly that allowing the surplus to go into agrofuel production would stabilise prices and markets and protect labour. However, as the African Centre for Biodiversity (ACB) and others pointed out, in years of a maize shortfall, markets would compete for food and fuel, creating massive and unacceptable vulnerability in both food prices and food availability<sup>1</sup>. Fortunately the industry lobby was not successful, and South Africa did not have to face this eventuality in the 2015/16 season, when drought hit so hard, that the country was set to import as much as 5 million tonnes of maize to cover domestic demand<sup>2</sup>.

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1. <http://acbio.org.za/wp-content/uploads/2015/02/Agrofuels.pdf>

2. <http://ewn.co.za/2016/01/15/SA-might-import-5-million-tonnes-of-maize-this-year>



### Agro-fuels vs biofuels

The term “agrofuels” was coined by social movements in Latin America to describe the use of food and oil crops produced in large-scale plantation style systems. These crops are processed and blended with petroleum and used as an energy source, primarily for motor vehicles. Biofuels, on the other hand, describe the traditional use of wood, dung and other biological materials for fuel.

It is important to dispel the perception that fuels based on industrial monocrops presents a desirable “green” alternative to fossil fuels. On the contrary, their production in the field is environmentally damaging and resource heavy, and the conversion to fuel takes an enormous amount of energy. In addition, agrofuel crops compete with food crops for land and water, and threaten food security.

## 2006: Syngenta’s GM ethanol maize is rejected in South Africa

In 2006, Syngenta applied to South African authorities for a permit to import 3272 maize for industrial purposes. ACB, in conjunction with the Center for Food Safety, an American non-governmental organisation, submitted an independent scientific and socio-economic analysis of Syngenta’s safety data and highlighted extensive concerns about this first-ever application to produce maize engineered for industrial purposes, rather than food.

ACB presented scientific literature pointing to grave risks regarding the safety of consuming this maize, and highlighted Syngenta’s lax approach towards ensuring segregation of 3272 maize from the general human food chain. Of particular and serious concern was the fact that 3272 contains a novel enzyme derived from a little-known deep-sea organism, of a class known to cause allergies. The release of this enzyme into our food chain is obviously utterly unacceptable.

The EC was in agreement with ACB and in March 2006, formally rejected Syngenta’s application on the basis that the safety data and experimental design were grossly inadequate and that Syngenta had failed to adequately assess the allergenic potential of their product. In addition, the EC determined that the potential of South Africa’s maize becoming contaminated posed an unacceptable risk to the export market.

In 2011, Syngenta obtained permission to release their GM maize engineered for ethanol production onto the American market, on the basis that it supports United States’ statutorily created biofuel goals, which are driven and supported by policy and subsidies. The ethanol trait is designated as ‘3727’ and marketed under various names, including Agrisure and Enogen. Permits for cultivation have also been granted in Canada, Japan, Brazil and Australia.



## 2016: Syngenta's stacked ethanol maize is inexplicably approved in South Africa

Despite the rejection of 3272 maize in 2006, in November 2016, Minister Senzeni approved Syngenta's latest application to import maize that is "stacked" with a number of traits: multiple pest resistance, tolerance to two herbicides and "enhanced ethanol production". This maize has been specifically created to feed the United States' agrofuel industry; it is not a food and was not designed for consumption. It is designated as 3272 x Bt11 x MIR604 x GA21 and traded, inter alia, as Agrisure CB/LL, Agrisure RW, Enogen and Agrisure GT.

In support of his decision to overturn the EC's rejection of the permit, the Minister said that there are no biosafety concerns with the product, and that Syngenta had indicated that the maize would not be used for agrofuel production but did not specifically say then what it will be used for. He also alluded to the fact that he was not concerned about the food chain becoming contaminated, as Syngenta's application:

"is premised on ensuring compliance with the Genetically Modified Organisms Act, 1997 –

- a) In the limited circumstances where low-levels of the GMO maize grain may incidentally enter South Africa in commodity maize grain consignments used for food or feed;
- b) In the case of the GMO maize co-products of the dry-grind ethanol process such as Dry Distillers Grains and Soluble (DDGS); and
- c) In the use of the GMO maize in processed food or feed products imported into South Africa".

## 2017: Nebraska farmers suffer contamination

In April 2017, media reports began to surface in the United States of white maize becoming contaminated with Syngenta's Enogen (ethanol) maize. Farmers in the State of Nebraska complained about cross pollination and contamination resulting in loss of markets for their white maize, grown for human consumption. When Enogen is detected in their produce, it can no longer be sold as food and must be sold cheaper for feed, or ironically, ethanol<sup>3</sup>. Due to the presence of the enzyme that breaks starch into sugars, the first step in ethanol production, the maize becomes useless for milling, turning soggy or crumbly. The North American Millers Association warns that "it would only take one kernel of Enogen corn mixed with 10,000 kernels of food corn to ruin the food processing abilities of food corn"<sup>4</sup>.

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3. [http://www.huffingtonpost.com/entry/gmo-ethanol-corn-contamination-raises-concerns-about\\_us\\_58e52857e4b0ee31ab9533dd](http://www.huffingtonpost.com/entry/gmo-ethanol-corn-contamination-raises-concerns-about_us_58e52857e4b0ee31ab9533dd)

4. [http://www.huffingtonpost.com/entry/gmo-ethanol-corn-contamination-raises-concerns-about\\_us\\_58e52857e4b0ee31ab9533dd](http://www.huffingtonpost.com/entry/gmo-ethanol-corn-contamination-raises-concerns-about_us_58e52857e4b0ee31ab9533dd)



### What does commodity import, or import for food, feed and processing (ffp) mean in relation to Syngenta's Enogen maize?

A commodity import licence allows the GM maize to enter South Africa for the purpose of using it for food, animal feed and processing. However, the licence does not give permission for that maize to be cultivated in South Africa.

## Conclusion

Our staple food is barely food anymore. Research and development is tethered to corporate interests to ensure that seed is transformed to fit into the industrial agricultural system, which is reliant on the purchase of agrochemicals and fertilisers. The maize produced from this system (even in the absence of a variety bred for ethanol production) is so devoid of nutrition by the time it is processed, that it is mandatory that artificial nutrients be added before it is marketed.

There is simply no plausible explanation for South Africa to give Syngenta a permit to import this GM maize given that it may not be used for ethanol production. The Minister's decision to overturn the EC's perfectly sound decision appears incomprehensible. Our own regulators ruled in 2006 that 3272 presents a risk to both health and trade, and this decision does not appear, according to our research to have been challenged. It remains unclear how these issues have been resolved. Experiences in America show that contamination is not only possible, but inevitable, and our local food security as well as our export market are at risk. Contamination of our food chain with 3272 could unleash an allergen on our population and render our maize unfit for milling. What can possibly justify such a decision?

As we move into an increasingly uncertain future, it is clear that our current industrial model is fixated on promoting and protecting corporate agendas, is ecologically unsustainable, lacks nutrition and introduces unacceptable vulnerability. We need radical reforms in agriculture and food systems – reforms that are ecologically and socially just, and ensure safe, healthy, and nutritional food for current and future generations.

#### Note:

ACB's 2006 submission on 3272 and a related briefing paper can be accessed here:

- Comments on Syngenta's Application for Commodity Clearance of Genetically Modified Maize, Event 3272. Available at: [http://acbio.org.za/wp-content/uploads/2015/02/comments\\_maize3272.pdf](http://acbio.org.za/wp-content/uploads/2015/02/comments_maize3272.pdf)
- South Africa, bioethanol and GMOs: a heady mixture. Available at: [https://acbio.org.za/wp-content/uploads/2015/02/southafrica\\_bioethanolgmos\\_areadymixture.pdf](https://acbio.org.za/wp-content/uploads/2015/02/southafrica_bioethanolgmos_areadymixture.pdf)