

FOOD FASCISM OR FOOD SECURITY:

THE PROS AND CONS OF MONSANTO AND GENETICALLY MODIFIED MAIZE

Is there poison in your pap? Or is genetically modified food the way of the future? By **Heather Dugmore**

I keep picturing Snow White's apple when I see genetically modified (GM) maize or mealies as we call them. If you see them ripening in the fields they are beautiful. They grow tall and strong and each cob is perfectly formed. Just like Snow White's apple.

But what is inside these mealies and what does it mean for South Africa that we are the only country in the world with a GM staple food? Of the three-million hectares of maize grown in South Africa, 80% of all white maize and 90% of yellow maize is GM.

The largest supplier of GM seed to South Africa is the global seed giant Monsanto, which controls 63% of our country's seed market. It is the best known of three global GM players dominating the seed (maize and soya bean), cotton and chemicals market in South Africa. The other two are Bayer and Dow AgroSciences.

It goes without saying that the majority of our people eat mealie meal made from white maize but what most people don't know is that the mealie meal on the commercial market is GM. Sure we can buy mealie meal that is not GM in health shops — but at a far higher price, which is not possible for most South Africans. Our yellow maize is predominantly used for animal feed.

Whether or not it is healthy for humans and livestock to consume GM feed is one of the most pressing questions facing humankind right now.

On visual appeal, GM maize certainly looks healthy when you see it growing in great green swathes in the Free State and other parts of the country. The managing director of Monsanto Sub-Saharan Africa, Kobus Lindeque, could not agree more:

"The yield increases we are seeing from GM mealie seed today are fantastic. A few years ago farmers were harvesting two to three tons per hectare; today it's five to six tons. What this means is that 15 years ago, before the introduction of GM maize, farmers had to plant more than double the maize we plant today, which is just less than three-million hectares. This feeds our nation and there is surplus for export, and that is a major positive."

The Consumer Goods Council of South Africa echoes his sentiment. In a press release issued last year it stated: "Genetic modification has been used in the global forefront for decades and these modifications are essential to assist globally in sustainable food supply. GM products have been used and are approved by the South African government as being safe for human consumption."

But if it's all so safe and wonderful, why are Nestlé and Purity going to great lengths to pronounce their baby foods GM-free, and why are high performance supplements for athletes like FutureLife pledging the same?

"Baby food is an emotive product because it is the first food that

babies consume and when we started doing tests on a range of food products in South Africa, consumers were outraged at baby food being GM. This put pressure on companies to go GM-free on baby food," says Mariam Mayet, executive director of the African Centre for Biosafety, a Johannesburg-based NGO that focuses on actively informing people about the implications of GM food and on lobbying government to adopt the cautionary principle.

"The tests were conducted through an independent laboratory at the University of the Free State headed by Professor Chris Viljoen and we shared the test results with food companies and the media. We tested several products — from baby food to high-performance health products."

Mayet says that while our government has promised revised labelling laws make it mandatory for producers to state that it is GM, it is hardly cause for comfort. "If all maize on our commercial market is GM then what choice do consumers have, particularly those who consume maize as a staple food?" she questions.

Regarding the health and safety impact of GM foods, Mayet says this has been a highly controversial issue since the first plantings in the 1990s. Independent scientific studies, such as one carried out in France by French scientist Gilles-Eric Seralini, have raised worldwide concern. Animals that were fed GM food showed organ damage, cancers, allergies and birth defects, along with reduced fertility.

While this and other research has been dismissed as misleading or unreliable by the GM industry, Mayet says a growing body of



international peer-reviewed research asserts that the current methods used by Monsanto and other GM companies for testing the safety of GM food are dangerously inadequate, and that long-term, independent and publicly conducted food safety studies are urgently needed.

"This has resulted in the European Food Safety Authority (EFSA) agreeing to conduct long-term food safety studies to assess the risk of long-term toxicity from GM foods," she explains.

The potential risks call for extreme caution, which is the route that Europe and other countries are taking, including African countries like Kenya. They have not accepted GM maize for human consumption on the grounds that far more in-depth research is required before giving it the green light.

South Africa, by contrast, is throwing caution to the wind. In July last year our government approved the importation of genetically modified 'Agent Orange' mealies from the US, stating that it was satisfied this would not pose a threat to human health.

The new mealies, designed by Dow AgroSciences, have been engineered to tolerate the 2,4-D pesticide that kills broad-leafed weeds. 2,4-D is one of the main ingredients of the Agent Orange toxic chemicals sprayed over Vietnamese jungles in the 1960s by the US military.

"Many South Africans are not aware of what goes into GM seed, nor are they aware of the growth of the GM food industry. Companies like Monsanto increasingly dominate the seed and therefore the food supply and food security of the country," says Earthlife Africa's Vanessa Black, whose organisation participated in the march against GM foods in May

this year. 'There's poison in your pap!' was one of the main themes of the protest.

"GM seed was introduced as an improved hybrid seed to the South African market in the mid-90s when Monsanto began to buy up biotech and seed companies all over the world. In South Africa, the liberalisation of the agriculture sector facilitated the entry of multinational companies into South Africa, when Monsanto bought two big SA seed companies, Sensako and Carnia," she explains.

"If Monsanto and the other global GM companies had a complete free hand they would soon own all the seed companies and patent all food seeds. All farmers would then have to pay their fees to buy seeds from them each year. This would dangerously threaten food security."

So, who to believe? Before we make up our minds, let's explore the pros and cons of GM and — bearing Snow White's apple in mind — ponder the future outcome of that first big bite. Will it be life threatening or will it prove to be the redeeming prince of productivity?

The pro GM position: Food security from the Monsanto perspective

"GM technology is not something new; it has been tested for over 30 years, and GM-tested foods are the best tested in the world today," assures Monsanto's Kobus Lindeque. "Science has shown there are no ill effects from GM foods and we have yet to find a peer-reviewed scientific paper that reveals negative effects."

He is adamant that Monsanto does not have any intention of taking over the world's seed. "What we do say is that if we add value to the farmer and the farmer can sustainably produce food for nine billion people one day without destroying indigenous forests and the natural environment, that will be a great day."

Apart from an increased yield, he says that Monsanto and the new biotechnology GM traits (known as 'stacked genes') that protect maize from weeds and pests have added "a lot of value" to veld conservation and carbon emission reduction. "The Bt stalk borer resistant gene means there is no need to spray millions of hectares for stalk borer, which can destroy anything from 15 – 45% of yields. Not having to spray for stalk borer also helps conserve all the other species, including butterflies, beetles, birds and the entire ecological chain. Farmers have reported increases in bird populations since using GM seed," he explains.

"In addition to the Bt gene we also have a Roundup Ready resistant gene in our maize. This means that when farmers spray their maize fields to get rid of weeds with this eco-friendly herbicide, the weeds die but not the maize. All available water then goes straight to the maize, which helps farmers in drought conditions."

It sounds fantastic but genetically modifying seed is not a perfect science and there are problems. In 2008/9 there was a production flaw and the plants did not pollinate properly. "We replaced the seed and Monsanto paid out all the farmers for the drop in yield even though it was still a good production year," he says.

Adaptation to the gene can happen and pests can develop tolerance to the herbicides and pesticides, but will this lead to the evolution of 'super pests'? "Absolutely not," says Lindeque. "What will happen is your normal evolution of life, which is what happens with all chemicals. We haven't seen any need for adaptation to maize pests in 12 years, and if one appears then we will add another gene to deal with that."

Another issue that raises concern is the

cross-pollination of seed between GM and non-GM crops. "Mealies are wind-pollinated and, depending on which way the wind blows, the first eight rows of maize between farmers can be affected," Lindeque explains. This is a problem for farmers who do not want GM maize.

As for the price, Lindeque says, "In general terms it will cost a farmer more or less R300 per hectare more for a stack hybrid (GM seed) than for conventional maize seed because of the value GM seed offers. You should also bear in mind that when farmers plant our Bt maize, they use less insecticide and thus save on the chemical as well as the application costs.

"We believe the value we are offering is reflected in the 80% statistic of farmers' fields in SA planted with GM seed. The farmers who use our seed range from small-scale farmers with one to three hectares of maize to large-scale farmers with 3 000 – 4 000 hectares. We promote the use of GM seed across the socio-economic spectrum and we work with emerging farmers to show them the advantage of this product."

Lindeque says that an increasing number of countries in Africa are looking into GM products. "This year they have conducted their first GM trial on cotton in Malawi, and they completed trials on both maize and cotton in Kenya. In Kenya they are still debating their position on GM seed in government. In Burkina Faso over 300 000 small-scale farmers have planted biotech/GM cotton and it has served that country very well."

He emphasises that Monsanto is not against re-seeding "but we are saying that if you want to maintain your yields, buy every year".

Farmers that know agriculture "fully realise" that they need to buy fresh seed every year. "I have no idea why there is such emphasis on heritage seed because maize does not come from Africa; it was brought in from South America many years ago," he says. "They might say that farmers have developed certain seed banks through the generations, but what we know is that when we plant GM maize next to farmers' own adaptable varieties, the GM maize outyields them significantly."

Lindeque believes that GM crops could be part of the answer of achieving the 70% increase in food production that will be required to meet the world population growth of nine billion by 2050. Perhaps the world should rather be focusing on limiting the population growth and increasing sustainability, but that is another long debate.



Kobus Lindeque



Protesters rallied in the streets against the Monsanto corporation.



Gilly Scheepers

GILLY SCHEEPERS: 2012 SA Grain Producer of the Year

"We've got to survive from our land and to achieve this, there is no better seed than Monsanto," says Gilly Scheepers, 2012 SA Grain Producer of the Year, from Bloukruijn Estate near Fouriesburg. He started farming on 1 260 hectares of leased land in 1985, expanding over the years to several thousand hectares today, and he is a major commercial farmer.

"When I started farming, a top crop was about three-and-a-half to four tons per hectare; since we have been planting GM seed, the average crop is six tons. I changed to GM seed in 1996/7 because we had significant problems with stalk borer and we had to spray the maize three times a year, which would kill all the other birds and insects at the same time. Once we stopped spraying we found the bird and insect populations started picking up again.

"We plant a fair amount of maize but we are far bigger on wheat and dried beans. Unfortunately there is no GM seed for wheat — if there was I would definitely use it.

"It doesn't bother me at all that you can't replant GM maize seed. If we did, we'd have knee-high maize. Every year we buy fresh Monsanto GM seed for maize and there has never been a shortage of it."

For more information on Monsanto South Africa go to monsanto.co.za.



Genetically modified corn with bio-hazard sign

Snapshot of some of the reasons not to choose GM maize:

- People question the long-term safety and health implications of GM food.
- People respond on religious grounds — they say that the gene manipulation in GM seed is 'playing God'.
- People find the notion of ownership of life (patents held by Monsanto on seeds) frightening and unacceptable.
- GM seed is more expensive than non-GM seed, and people question who is benefiting from the increased yields. Mayet explains that 2010 was a bumper maize harvest in South Africa yet the price of maize went up. "A 5kg bag of maize meal is 84% more expensive today than it was in 2008. Fifteen years of GMOs have not brought down food prices or brought relief to millions of people still without adequate access to food," says Mayet.
- Harvested GM seed does not do well when replanted and therefore new GM seed is planted each year — this gives multinational GM seed companies like Monsanto ultimate control over the price and availability of seed and therefore over food security, and erodes farmer and consumer choices.
- People regard it as ecologically unsustainable because of the inevitable pest resistance that occurs as well as 'superweeds' developing resistance to herbicide-tolerant GM crops.
- GM fields of maize can pollinate non-GM fields when they are side by side, which means that farmers' traditional varieties bred over many generations are potentially threatened.

The 'anti' position: Fascist force-feeding



Mariam Mayet



Lawrence Mkhaliphi



Vanessa Black

"One of our main objections to the government's support of GM maize is that this is fascist force-feeding of the nation with GM food without giving people an alternative and without sufficient caution regarding possible human health impacts," says Mariam Mayet of the African Centre for Biosafety.

"People should at least be given a non-GM alternative at the same price for a staple like maize, irrespective of their reasons for choosing GM or non-GM food. Food is precious and there are major questions around the health and safety of GM food, which is why the European Union has, in the last month, decided to conduct a major two-year biosafety study. For this and other reasons we can say with assurance that the South African government has been remiss in not conducting independent safety studies.

"Our government relies on an advisory committee that the minister of agriculture has appointed, yet the names of the council members are kept secret, and requests for them to be named in an open and transparent process have failed. Why is this so?"

In the absence of answers, the African Centre for Biosafety has called for an urgent parliamentary hearing on GM crops in South Africa, including a full transparent review of the risk assessment and risk management procedures and public participation in GMO decision-making.

(When an organism's genetic material has been changed using genetic engineering techniques, it is known as a GMO, a genetically modified organism.)

"Damning evidence of genetically modified organisms (GMOs) and the associated glyphosate Roundup Ready (a weed-killer marketed by Monsanto) has been mounting over the years. What if a staple food shows that it is potentially compromising the health of the nation?" questions Mayet.

Mayet also questions the sustainability of GM seed, especially Bt maize. "Results from an extensive survey reported the presence of stalk borer adaptation to Bt maize in the South African maize region, observed over a number of cropping seasons. In some districts, farmers experienced infestation levels in excess of 50% on Bt maize, compelling them to apply insecticides to prevent economic loss. A conservative estimate is

that approximately 250 cases of Bt maize failure have been reported annually over the past couple of years. In order to address this failure, Monsanto has introduced a new GM maize variety — a stacked GM maize variety comprising two Bt genes. However, scientists in South Africa have warned that this too is doomed to failure and the stalk borer will develop resistance to this GM variety in time."

Earthlife Africa's Vanessa Black says that for these and other reasons, her organisation does not regard GM seed as environmentally or economically sustainable.

"It is an expensive technology requiring expensive inputs, and it promotes large-scale monoculture. Despite Monsanto's claims that it empowers small-scale farmers, it does not. It is not effective for small-scale or emerging farmers with limited resources and no financial backing. What it does is tip them into debt, and they soon run out of the funds required to purchase expensive

GM seed each year. Farmers have always saved seed from the previous harvest — it's an age-old practice that needs to be protected.

"We need a diversified system of farming that includes small-scale producers. We support a revitalisation of small-scale farming with proven, ecologically sensitive methods of revitalising the soil and nurturing a sustainable, biodiverse environment that produces healthy, GM-free food."

Biowatch's agri-ecology manager Lawrence Mkhaliphi, who works with 600 smallhold or family farmers in KwaZulu-Natal and the Eastern Cape, adds, "Our main concern about GM seed is that unless you farm on a large commercial scale it is too expensive for farmers to buy seed every year, and we also do not know how GM seed impacts on the environment or on human and livestock health.

"It is not a sustainable system of agriculture and we need the government to support sustainable, small-scale and family scale farming because this is how we will increase food security and provide a livelihood for millions of rural people in our country. Supporting the mechanisation of food production on this scale, and promoting a system that profits only the global monopolies and the largest commercial operations, is not food security. It is nothing more than a new form of apartheid farming."

"We need a diversified system of farming that includes small-scale producers."

Glyphosate risks to human health (information supplied by the African Centre for Biosafety)

South African use of the glyphosate Roundup (the weed-killer marketed by Monsanto) rocketed from 12-million litres in 2006 to 20-million litres in 2013. In addition, between 2007 and 2011 glyphosate imports increased by 177%. This is particularly disturbing in the case of South Africa, as it is clear that our food safety authorities do not have the capacity to adequately monitor pesticide residue levels in our food. Maize is a prime example. Another is the cultivation of Monsanto's GM soya beans, which has increased substantially in South Africa. GM soya plantings have risen sharply in the last three years: from 184 000 hectares in 2008 to 480 000 hectares in 2011. This figure has further increased in the last two years and 98% of all soya beans currently grown in SA is GM. GM soya beans are genetically engineered to be resistant to glyphosate and massive amounts of glyphosate are sprayed onto GM soya beans to kill weeds in the plantations. Glyphosate formations can induce cell death in human umbilical, embryonic and placental cells. In Ontario, Canada and Argentina, glyphosate use has been associated with an increased risk of spontaneous and late abortions among farm workers.



The Pig Study

Dr Judy Carman is an epidemiologist, biologist and director of the Institute of Health and Environmental Research in Adelaide, Australia. Carman and her team studied 168 newly weaned pigs over the course of 22.7 weeks in a commercial US piggery. Half the group received genetically modified corn and soya, while the other half received a non-GM equivalent. After five months the pigs were slaughtered and brought to veterinarians who had no knowledge of which group received the GM diet. Upon examination, the doctors concluded the pigs on the GM diet had significantly higher rates of stomach inflammation — 32% compared to 12% in non-GM diet pigs — and that the severity of the inflammation was worse too, by a factor of 4.0 in males and 2.2 in females. Pigs fed the GM grain also had 25% larger uteri than non-GM-diet pigs.

For more information:

Biowatch South Africa

Biowatch South Africa publicises, monitors and researches issues of genetic modification, and promotes biological diversity and sustainable livelihoods. Biowatch's head office is in Durban, KwaZulu-Natal. A rural office in Mtubatuba works with small-scale farmers on sustainable agriculture, food and seed security, and farmers' rights. biowatch.org.za

Earthlife Africa

Earthlife Africa is a non-profit Johannesburg-based organisation that seeks a better life for all people without exploiting other people or degrading their environment. Earthlife Africa encourages and supports individuals, businesses and industries to reduce pollution, minimise waste and protect our natural resources. earthlife.org.za

African Centre for Biosafety

The African Centre for Biosafety focuses on actively informing people about the implications of GM food and on lobbying government to adopt the cautionary principle. acbio.org.za

GMO Bill

"Written By Monsanto"
Signed Into Law by Obama

United States President Barack Obama

Photo: mistydawnphoto / Shutterstock.com

The Monsanto Protection Act, essentially both written by and benefiting Monsanto Corporation, has been signed into law by United States President Barack Obama. The infamous Monsanto Corporation will benefit greatly and directly from the bill, as it essentially gives companies that deal with genetically modified organisms (GMOs) and genetically engineered (GE) seeds immunity to the federal courts, among other things.

The Bill states that even if future research shows that GMOs or GM seeds cause significant health problems, cancer, etc, anything, that the federal courts no longer have any power to stop their spread, use, or sales.

There are of course arguments to be made that not enough research has been done yet to accurately determine the effects that GMOs have on human and animal health (though the research already done should make you stop and think). This bill sidesteps that completely though, and simply states that even if there are problems, that the federal courts can no longer do anything about it. And this bill is now law, thanks to President Obama and the US Congress.

Some other interesting things to keep in mind:

- The bill was apparently written by freshman Sen. Roy Blunt in collusion with Monsanto, with them helping to craft the exact language of the document.
- "The Center for Responsive Politics notes that Sen. Blunt received \$64 250 from Monsanto to go towards his campaign committee between 2008 and 2012. The Money Monocle website adds that Blunt has been the largest Republican Party recipient of Monsanto funding as of late."
- Many members of Congress were apparently unaware that the Monsanto Protection Act was a part of the spending bill that they were voting on.
- Obama had no problem signing it into law (not really a surprise, he's been rather soft on GMO policy).
- The Bill will only remain in effect for a limited time, but it's a bad sign. With the ease that this bill passed, it'll be interesting to see what future bills look like.

As the *Daily News* asks, "Who's more powerful, the world's largest producer of genetically modified crops or the US government?"

"On Tuesday, President Obama inked his name to H.R. 933, a continuing resolution spending bill approved in Congress days earlier. Buried 78 pages within the bill exists a provision that grossly protects biotech corporations such as the Missouri-based Monsanto Company from litigation."

"In light of approval from the House and Senate, more than 250 000 people signed a petition asking the president to veto the spending bill over the biotech rider tacked on, an item that has since been widely referred to as the Monsanto Protection Act."

"But Obama ignored [the petition]," as the *IB Times* notes, "instead choosing to sign a bill that effectively bars federal courts from being able to halt the sale or planting of GMO or GE crops and seeds, no matter what health consequences from the consumption of these products may come to light in the future."

GMOs, while they may cause problems for human health, are primarily a problem for other reasons, mostly to do with crop/genetic diversity and overly complex industrial systems. And also the fact that they often don't even work the way that they are 'supposed' to.

When taken in context though, GMOs are really just another in a long line of environmentally damaging practices that people have done for short term gain/profit. From the large-scale deforestation of the world's old-growth forests, to sustenance farming, to modern imported-fertiliser/pesticide/herbicide/fossil-fuel dependent industrial agricultural, the trend has been consistent. GMOs are just another in that line of attempts to temporarily maintain/raise crop yields. Regardless of the type of agriculture or the location, there are limits to how long any land can remain productive. Applying imported fertilisers, or utilising GMOs, only provides, at best, a temporary halt to the land's transition to non-productive 'wasteland', and to desertification.

- By Global Research News, www.globalresearch.ca, Global Research, May 25, 2013.