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GOOD FOOD GONE BAD

**THE GMO
COOKBOOK**



**GENETICALLY MODIFIED
RECIPES FOR DISASTER**

A ^h _v treat for the whole EU family

Angry Farmer Antipasti

Make a salad from **High Seed Prices** and **Spiralling Farm Inputs**. In a separate bowl, make a tapenade of mashed **Superpests** and **Superweeds**.

These are tougher than they used to be and may require a dressing of unusually strong chemicals. Arrange on a plate alongside a row of **Disappointing Harvests** and you are almost there. Round the selection off with a sprinkling of **GM Contamination** and serve.



The Ingredients

High Seed Prices - GM seeds trap farmers in a spiral of expensive seeds and agrochemicals. Since 2000, as GM soybean started to dominate the US market, soybean seed prices have risen 230%. Seed prices rose only 63% in the previous 25 years (*Benbrook 2009a*).

Spiralling Farm Inputs - Industrial GM farming relies on expensive non-renewable inputs (agrochemicals and fossil fuels). Global nitrogen fertiliser use rose eight-fold from 1961 to 2006, while grain yields only increased 1.5-fold (*FAOSTAT 2009*). US insecticide use grew ten-fold from 1945 to 2000, but insect-related crop losses doubled (*Pimentel et al. 2008*).

Superpests / Superweeds - Herbicide-tolerant GM crops promote weed resistance (*Binimelis et al. 2009; Nandula et al. 2005*). Millions of hectares of US armland are infested with weeds, forcing farmers to use more agrochemicals (*Benbrook 2009b*). Insect-resistant crops also lead to 'superbugs' (*Tabashnik et al. 2008*) or allow other harmful species to take the place of those removed (*Catangui et al. 2006*), forcing farmers to use more toxic pesticides.

Disappointing Harvests - Monsanto GM RoundUp Ready Soy produces up to 10% less than conventional varieties (*Elmore et al. 2001*). GM cotton is an economic failure in India (*Gruère et al. 2008*) and Colombian GM farmers saw yields drop by 12.8% (*Fonseca Prada 2009*).

GM Contamination - GM crops can spread uncontrollably, with severe economic consequences. In 2006, the accidental release of unauthorised GM rice lost US farmers and the rice industry up to \$1.28bn (*Blue 2007*). To prevent GM contamination, farmers, processors and food distributors suffer high costs (*Menrad et al. 2009*).

Corporate Control Tart



Place a pack of thick crust GM pastry on the table and roll it out extensively, removing all obstacles until you get a thick layer of **Corporate Domination**. A dusting of **Abuse of Market Power** will help with this. For a good rich filling, beat together **Patent Control** and **Corporate Lawsuits** before straining through a sieve of **Secret Safety Tests**. Add filling to pastry, bake and serve with a sprinkling of **Record Profits**.

The Ingredients

Corporate Domination - GM crops belong to six companies: Monsanto, Dow, Syngenta, Bayer, Dupont and BASF (with Monsanto owning 87% of all GM seeds). These six also control 73% of the agro-chemical market (*ETC Group 2008*). So the same firms making GM seeds profit from the extra pesticides necessary for GM farming (*Benbrook 2009b*). Monsanto, DuPont and Syngenta are also the largest seed firms in the world (*ETC Group 2008*).

Abuse of Market Power - Monsanto is being investigated by the US Department of Justice for abusing its market power to frustrate competition and raise seed prices (*NY Times 11 Mar 2010; W Post 29 Nov 2009*).

Patent Control - Farmers are banned from saving GM seeds for next year, ending a 10,000 year tradition (*Monsanto Technology Stewardship Agreement 2010*). Farmers also end up depending on herbicides sold by the same companies producing GM crops.

Corporate Lawsuits - Monsanto hires private investigators and has sued hundreds of US farmers for seed saving. From 1996 to 2007, Monsanto forced farmers to pay over \$21m in fines, and up to \$160m in out-of-court settlements (*Center for Food Safety 2007*).

Secret Safety Tests - Biotech companies do not allow independent safety or performance verification. "No truly independent research can be legally conducted on many critical questions" (*Statement by crop scientists to US Environmental Protection Agency Feb 2009*).

Record Profits - During the 2008 global food crisis, GM seed prices significantly increased. At the height of the crisis in 2008, Monsanto's third quarter profits jumped 42% (*ETC Group 2008*).

Food Insecurity Tacos

For a spicy filling, chop up fresh **Marketing Hype** and **Corporate Smoke and Mirrors** along with a pack of **Debt Ridden Farmers**. Next, **Squash Sustainable Farming**. This is a healthy and inexpensive ingredient in its natural state, but should be squashed for a rich tasting taco. Pack the ingredients into a toasted tortilla of **Rural Poverty** for a wonderfully ethnic side dish.

The Ingredients

Marketing Hype - Despite industry claims, GM crops do not increase yields (*Gurian-Sherman 2009*). GM soy, the most widely planted GM crop, yields 5-10% less than conventional counterparts (*Elmore et al. 2001*).

Corporate Smoke and Mirrors - GM crops do not and will not feed a billion hungry people. Access to food and means of production are the real issue (*UN Global Agriculture Assessment - IAASTD 2009*). GM crops thrive on large-scale intensive agriculture with heavy use of chemicals and machinery. This exacerbates food insecurity by degrading soils, polluting water and fuelling climate change.

Debt Ridden Farmers - Farmers are frequently locked into buying expensive patented GM seeds (*Deutsche Bank 2009*) as well as pesticides made by the same GMO companies.

Squash Sustainable Farming - GM crops drain funding from ecological farming. Ecological farming is the most beneficial system for poor farmers (*Deutsche Bank 2009*; *UN Global Agriculture Assessment - IAASTD 2009*).

Rural poverty - Forests have been cleared for vast GM crop plantations in Latin America, while displacing smallholders (*Benbrook 2005*), increasing pesticide poisoning (*Palau 2004*) and causing rampant herbicide-resistant weed growth (*Cerdeira et al. 2007*).



Climate Change Flambé

This recipe requires **GM Miracle Crops**, which can be hard to find in the shops. Finely chop one or two and stir in a tub of **Greenwash**. Greenwash has no real substance, but smells good and makes miracle crops go further. Turn onto a plate and set alight with a match. Many chefs experience problems with **Heat Failure** and **Biodiversity Loss**, so be warned - this dish is not for the amateur. No flambé is complete without a sprinkling of carbon-rich fertiliser.

The Ingredients

GM Miracle Crops - Despite long-standing industry promises, no drought or flood-resistant GM crops have been brought to market. Existing GM crops are only designed to tolerate high concentrations of herbicides and to produce their own pesticides.

Greenwash - Despite efforts to green its products, the industry remains chemical and energy intensive. Monocultures of genetically identical plants are the most vulnerable farming system to climate and pest stress (Fraser 2007).

Heat Failure - GM crops fail under climate change conditions. Temperature fluctuations caused crop losses in GM cotton in China (Chen et al. 2005) and GM soybeans suffered unexpected losses in the US during hot weather (Coghlan 1999).

Biodiversity Loss - GM crops undermine biodiversity and reduce genetic diversity in crops (Lövei & Arpaia 2005; Dively et al. 2004). Biodiversity and genetic diversity are essential to make farming systems resilient to climate shocks (Di Falco 2006, 2008; Diaz et al. 2006).



Poisonous Environment Mousse

Take a block of GM chocolate and whisk in a few **GM Plant Toxins**. For best results, leave the lab and do this part outside. Next, add a good amount of **Pesticides** until you start to see **Biodiversity Loss**. Many pesticides are less effective these days, so be sure to use extra strength brands. Beat in a little **Antibiotic Resistance** and whisk into a thick **Health Impact**. Serve with a shaving of **GM Contamination**. Delicious!



The Ingredients

GM Plant Toxins - The detailed functioning of GM plant toxins is poorly understood. Science cannot explain why identical MON810 GM maize plants produce different levels of toxin or exactly how GM plant toxins affect insects (Nguyen & Jehle 2007; Lóvei & Arpaia 2005).

Pesticides - GM cultivation causes the emergence of weed and pest resistance (Binimelis et al. 2009; Tabashnik et al. 2008) and new pests (Cloutier et al. 2008; Catangui et al. 2006) causing farmers to use more and different pesticides. From 1996 to 2008, 144,000 tonnes more pesticides were used in the US due to GM cultivation (Benbrook 2009b).

Biodiversity Loss - Pesticide-producing GM crops do not only kill target pests but also harm beneficial insects (Dively et al. 2004; Andow & Hilbeck 2004; Harwood et al. 2005; Obrist et al. 2006).

Antibiotic Resistance - The Amflora GM potato could increase bacterial resistance (EFSA Biohazard Panel scientists 2009) to life-saving medicines for tuberculosis (WHO 2005; EMEA 2007).

Health Impact - We do not know if GM crops are safe to eat. Independent studies are severely lacking from scientific literature (Vain 2007; Domingo 2007; Pryme & Lembcke 2003). Pesticides are tested for two years, GM at most for 90 days. The increased use of agrochemicals in GM cultivation has known health implications for humans and animals (Gasnier et al. 2009; Polletta et al. 2008) and GM crops can cause allergic reactions (Bernstein et al. 2003; Freese & Schubert 2004; Prescott et al. 2005).

GM Contamination - Since 1996, there have been nearly 300 cases of accidental contamination by GMOs in 57 countries (www.gmcontaminationregister.org).

A Recipe for Success



To make a healthy ecological farming cake, mix equal amounts of **Low Carbon**, **Low Costs** and **Low Impact** fruit with a bucket-load of **High Yields**. A little **Biodiversity** is essential to absorb harmful pests and to prevent the cake burning in a hot oven. Bake for 20 minutes. Make a topping of **Modern Breeding Techniques** by stirring with

Sustainable Pest Management and **Climate Resilience** and spread on top. Bon appétit!

The Ingredients

Low Carbon - Ecological farming relies less on carbon-intensive fertilisers and machinery and stores carbon in the soil (Smith et al. 2007). Ecological farming also improves food security (Nellemann et al. UNEP, 2009).

Low Costs - Ecological farming can increase productivity and raise farm incomes with low-cost, locally available technologies and minimal or no artificial fertilisers and pesticides (Chavas et al. 2009; UNEP/UNCTAD 2008; UN Agriculture Assessment – IAASTD 2009).

Low Impact - Ecological farming protects soils from erosion and degradation, increases soil fertility, conserves water and protects natural habitats (Nellemann et al. UNEP, 2009).

High Yields - Ecological farming practices can produce as much, if not more yields than conventional agriculture. Up to 80% more food can be produced in developing countries (Badgley et al. 2007), where food production is most needed (FAO 2007).

Biodiversity - Ecological farming retains biodiversity. Annual loss of biodiversity will cost €14 trillion globally by 2050 (European Commission TEEB 2009).

Modern Breeding Techniques - Modern breeding technologies, such as Marker Assisted Selection, are much more effective in increasing stress tolerance in crops than genetic engineering (Singh et al. 2008; Murphy 2007).

Sustainable Pest Management - Ecological farming protects against pest invasion (Altieri & Nicholls 2003, 2005; Hassanali et al. 2008; Zhu et al. 2000, 2003). Kenyan farmers overcome pests and weeds infestations with effective ecological solutions, increasing maize yields without chemicals and other expensive inputs (Khan et al. 2008; Midega et al. 2005).

Climate Resilience - Bio-diverse ecological farming is the most effective strategy to adapt agriculture to climate shocks. A mix of crops and varieties grown in the same field is a proven and highly reliable method to counter erratic weather (UN Agriculture Assessment – IAASTD 2009; Di Falco and Chavas 2006, 2008; Reusch et al. 2005; Zhu et al. 2003).

“A triumph of bad taste. Surely the most unpopular
cookbook in a decade. Brilliant.”

Jamie O’Liver (Chef)

“So much risk, so little point - we love it! *****”

Monsanto Tribune

“These guys really know how to make a mess.”

Angie Kneerd (Food critic)



GREENPEACE

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ISBN 1507-BT-11-LL-62



A MFLORA MON810