

150 Nobel Laureates support GMOs

Richard J. Roberts



CIGS, November 25th 2019



- Marc Van Montagu and Jeff Schell
- Discoverers of Ti plasmid transformation
- together with Mary Dell Chilton



**Remember that for the 800 million
who go to bed hungry at night**

FOOD is MEDICINE

Nobel Laureates call for science honesty about GMOs

Conceived in December, 2013

Planned during 2014-2015

Formal organization begun in July, 2015

Launched June 30th, 2016

We call on the Green parties to stop scaring the public by pretending that GMO foods must be banned because they are dangerous.

150 Nobel Laureates have written an open letter to Greenpeace and every UN Ambassador urging an acknowledgment that GMO technology is basically safe and should be supported for the sake of the developing world, who desperately need better yielding crops with added nutritional value.



<http://supportprecisionagriculture.org/>

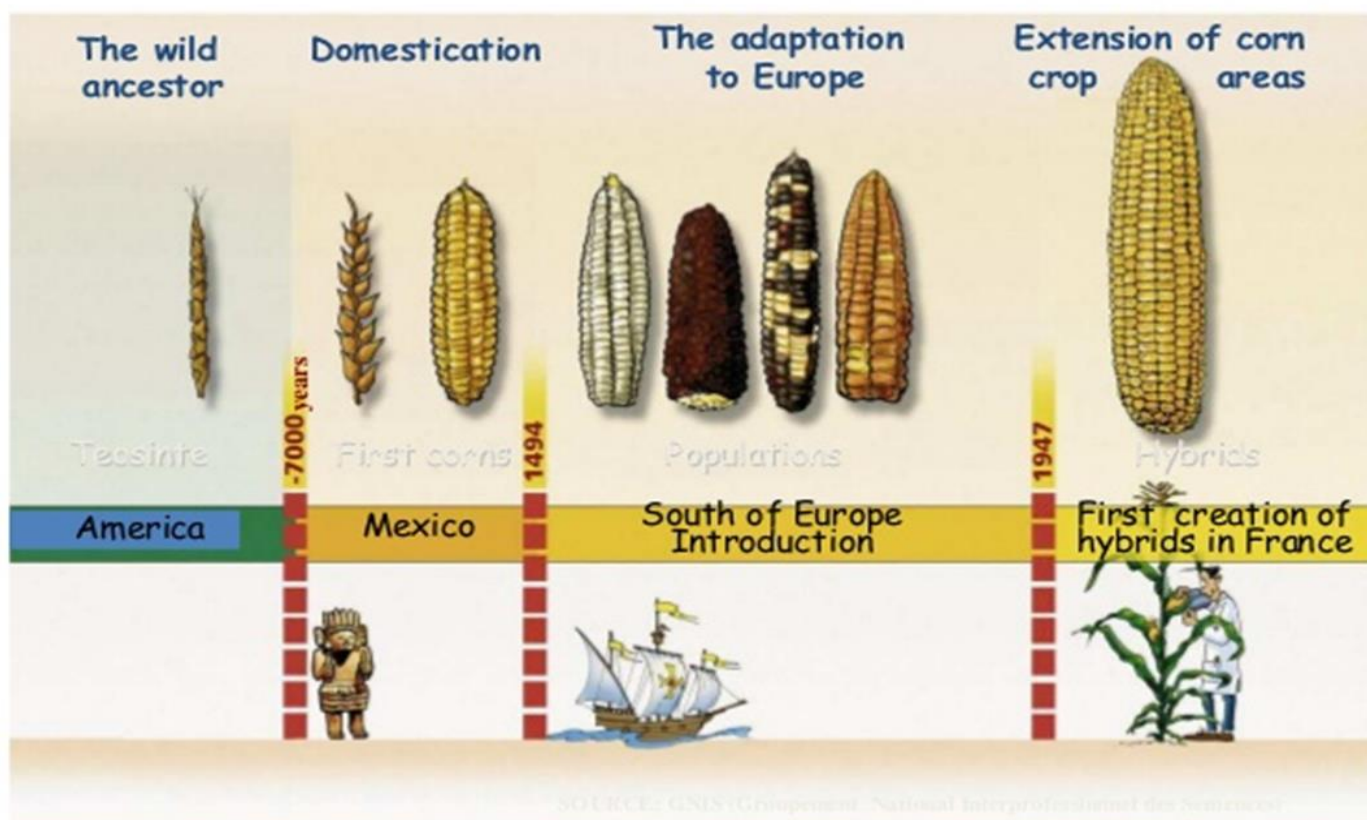
Food means Agriculture

For 10-12,000 years we had been using crude genetics

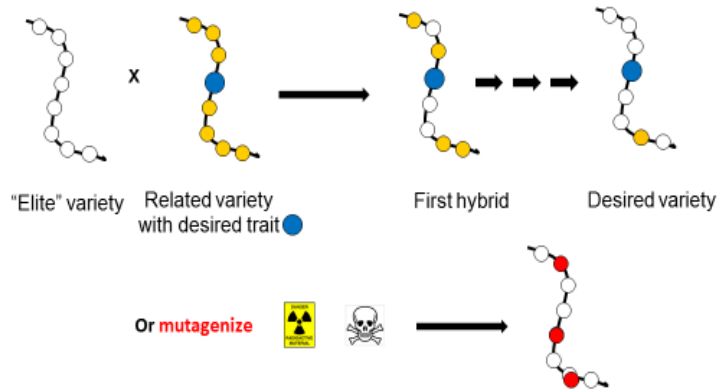
But in the 1980's we learned how to be precise



The evolution of maize (corn)



Conventional Breeding



Precision Breeding (GMO)



This approach follows the "natural" way in which *Agrobacterium tumefaciens* and its relatives transfer genes into plants as discovered by Marc Van Montagu and Jeff Schell. An alternative approach is simply to "shoot" the new gene directly into plant cells.

'This is safe!'

← Greenpeace says →

'This is dangerous!'

Traditional versus precision methods

I want to move a GPS system from my old car into my new one

Should I disassemble two cars, mix up the parts and then “select” for the one with the GPS, ignoring what else it might have picked up?

Or should I take the GPS from one car and move it to the other?

Traditional versus precision methods



**If I take a GPS from an airplane
will the new car fly?**

Genetic Modification refers to a method

But what is important is the

PRODUCT

not the

METHOD

This is just as true for traditional breeding

Plants can't run away from predators

So how do they protect themselves?

With pesticides!

Many common vegetables have high levels of natural pesticides.

Dietary pesticides (99.99% all natural)*

(carcinogens/mutagens/clastogens/coffee)

BRUCE N. AMES^{†‡}, MARGIE PROFET[†], AND LOIS SWIRSKY GOLD^{†§}

Table 2. Some natural pesticide carcinogens in food

Rodent carcinogen	Conc., ppm	Plant food
5-/8-Methoxypsoralen	14	Parsley
	32	Parsnip, cooked
	0.8	Celery
	6.2	Celery, new cultivar
	25	Celery, stressed
	<i>p</i> -Hydrazinobenzoate	11
Glutamyl <i>p</i> -hydrazinobenzoate	42	Mushrooms
Sinigrin* (allyl isothiocyanate)	35-590	Cabbage
	250-788	Collard greens
	12-66	Cauliflower
	110-1,560	Brussels sprouts
	16,000-72,000	Mustard (brown)
	4,500	Horseradish

+ 11 more



Food in Developing Countries

Africa, S. America, Asia need better crops with higher yields.
They need the products of precision breeding

Europe doesn't

So why doesn't Europe endorse this?



Could it be politics, or money or both?

The Real Problem

Europeans did not want US companies to control their food

How can that be prevented?

Ban Monsanto and the other big US agribusinesses

Not so fast - the farmers buy their seeds from them

The Green Parties Solution

Assert that precision breeding *might* be dangerous!

The politicians and the green parties will protect you from this risk by banning **growing** GMOs

Best of all

This has no economic consequence for Europe !

The tragic consequences

Not content with blocking precision agriculture in Europe many politicians and NGOs like “Greenpeace” and “Friends of the Earth” are now spreading their message to the developing countries



A case study

Vitamin A-deficiency

Global population mortality (in millions)

Vitamin A-deficiency	1.9-2.7
HIV/Aids	1.7
Tuberculosis	1.4
Malaria	0.75

Golden Rice

A new source of Vitamin A

Suggested by Peter Jennings in 1984

Brought to fruition by
Ingo Potrykus, ETH Zurich
Peter Beyer, U. Freiburg



Courtesy of Ingo Potrykus

Golden Rice

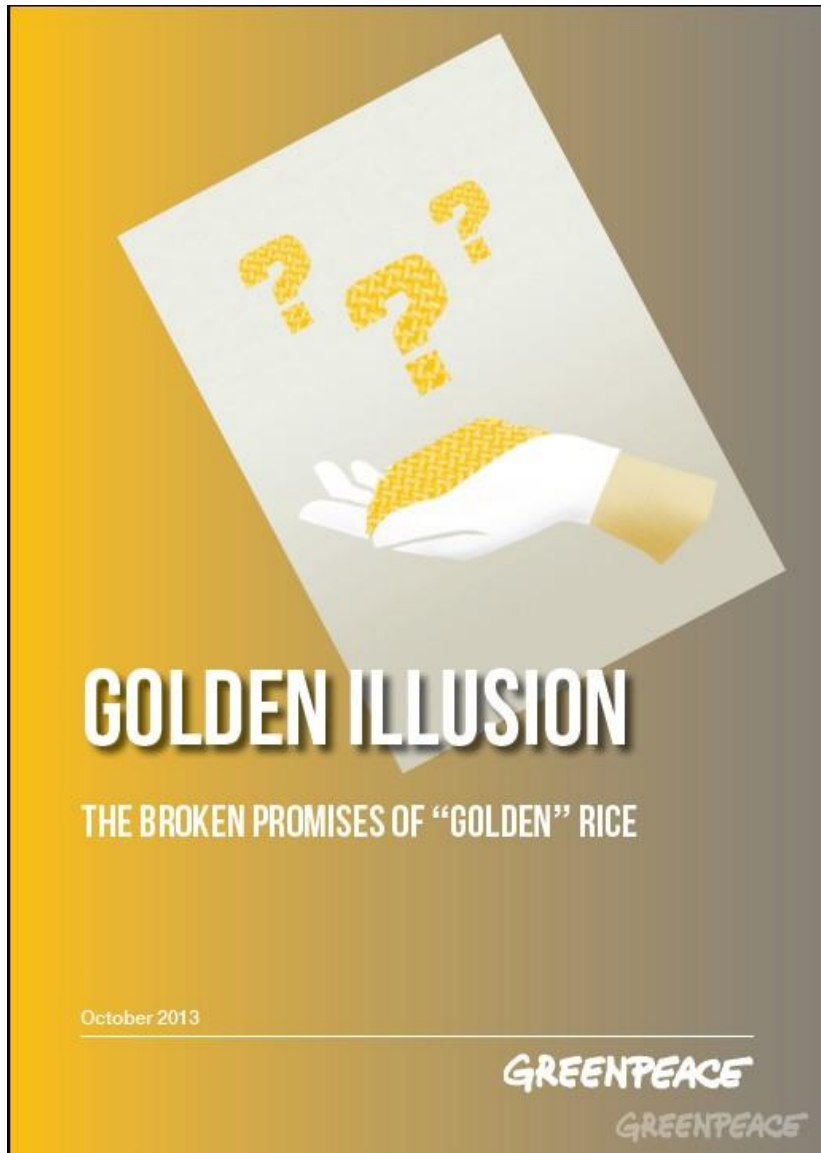
Became a reality in February, 1999.

Could have begun the improvements necessary for commercial production in the field within 2-5 years

But it's a '**GMO**' and only now will it soon be available

Multiple years of delay due to regulation and opposition.

Science Fiction



Greenpeace blocks development

And then claims

It has taken so long it can't possibly work

Since 2005 millions of children have died or suffered because of Vitamin A deficiency

How many must die before we consider this a “**crime against humanity**” that should be prosecuted?

The Banana Problem



Xanthomonas wilt

No natural varieties are resistant so no traditional breeding solution

BUT

Sweet pepper is resistant to *Xanthomonas campestris* and two genes are known that mediate this resistance. Using precision techniques these genes have been transferred to banana and these modified bananas are now beginning field trials.



FALL ARMYWORM: A NEW THREAT IN SOUTHERN AFRICA

At least 10 African countries were affected by the fall armyworm infestation damaging some 124 000ha of crop land between 2016 and February 2017.



ZIMBABWE
130 000
hectares of maize
could be affected



ZAMBIA
90 000
hectares of maize
have been affected



NAMIBIA
50 000
hectares of maize and
millet have been affected



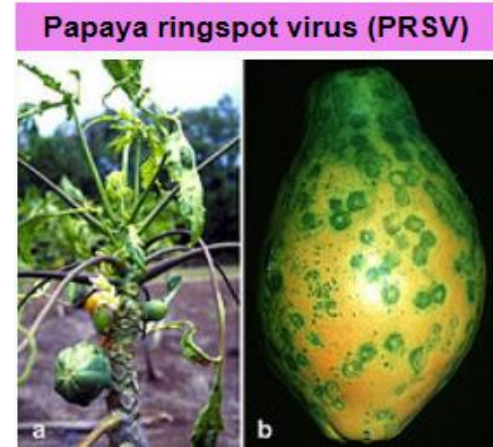
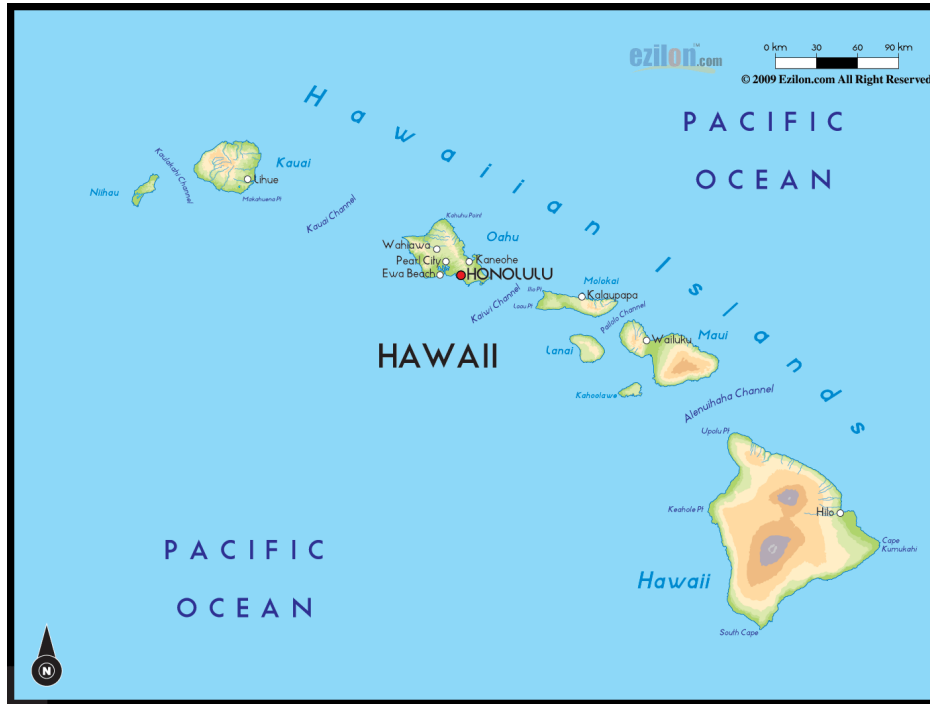
MALAWI
17 000
hectares of maize and
have been affected

Bangladesh: Bt eggplant



Hawaiian papayas

Almost a disaster



GMO Papaya saves the Hawaiian crop

In the 1990s, Hawaiian papaya trees were plagued by the ringspot virus which decimated half the crop in the state.

In 1998, Dennis Gonsalves from the University of Hawaii developed a transgenic fruit called Rainbow papaya, which is resistant to the virus.

Now 77 percent of the crop grown in Hawaii is genetically engineered and being eaten in the USA.

But in Thailand this solution is banned

Food choice is a luxury of the developed world

If you don't want to eat foods derived by GM techniques, then don't. It's your choice

But don't pretend such foods are dangerous

If anything

**They are probably safer than
traditional foods**

Science Facts

For developed countries food is not a problem.

We must never forget the consequences of our actions for the developing countries

**We need more science in politics
And less politics in science**

Actions needed around the world

Politicians should listen to the scientists they fund

Stop supporting the idea that foods produced by precision breeding methods must be inherently more dangerous than traditional methods, when science shows they are not

Civil Society must play its role too

The major religious leaders should speak out

Groups such as the Rotary Clubs should speak out

Influential celebrities should speak out

The media should present science facts not science fiction

CONGREGATION FOR DIVINE WORSHIP
AND THE DISCIPLINE OF THE SACRAMENTS

Prot. N. 320/17

**Circular letter to Bishops
on the bread and wine for the Eucharist**

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-
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5. The same Congregation also decided that Eucharistic matter made with **genetically modified organisms** can be considered valid matter (cf. Letter to the Prefect of the Congregation for Divine Worship and the Discipline of the Sacraments, 9 December 2013, Prot. N. 89/78 – 44897).

Converts



Patrick Moore

Ex-President of
Greenpeace



Stephen Tindale

Former UK Executive
Director of Greenpeace



Mark Lynas

British author,
journalist and
environmental activist



News from Ghana: The former leader of the Peasant Farmers' Association, Ghana's primary anti-GMO farmers group, has switched sides to adopt a pro-GMO position.

Mohammed Adams Nasiru attributed his shift to receiving accurate information on agricultural biotechnology from the scientific community.



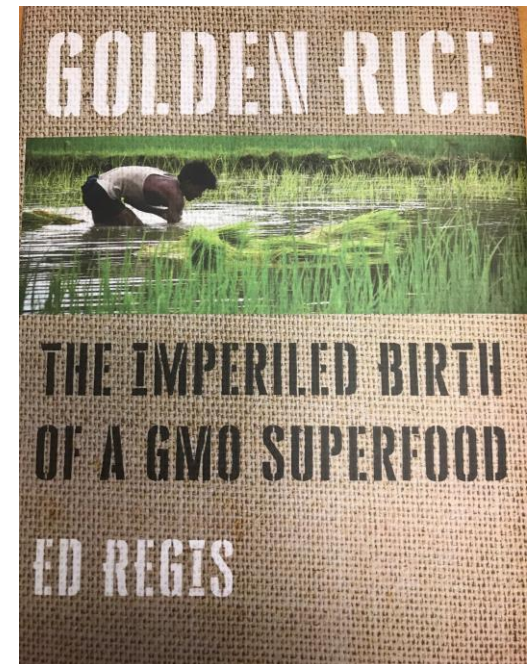
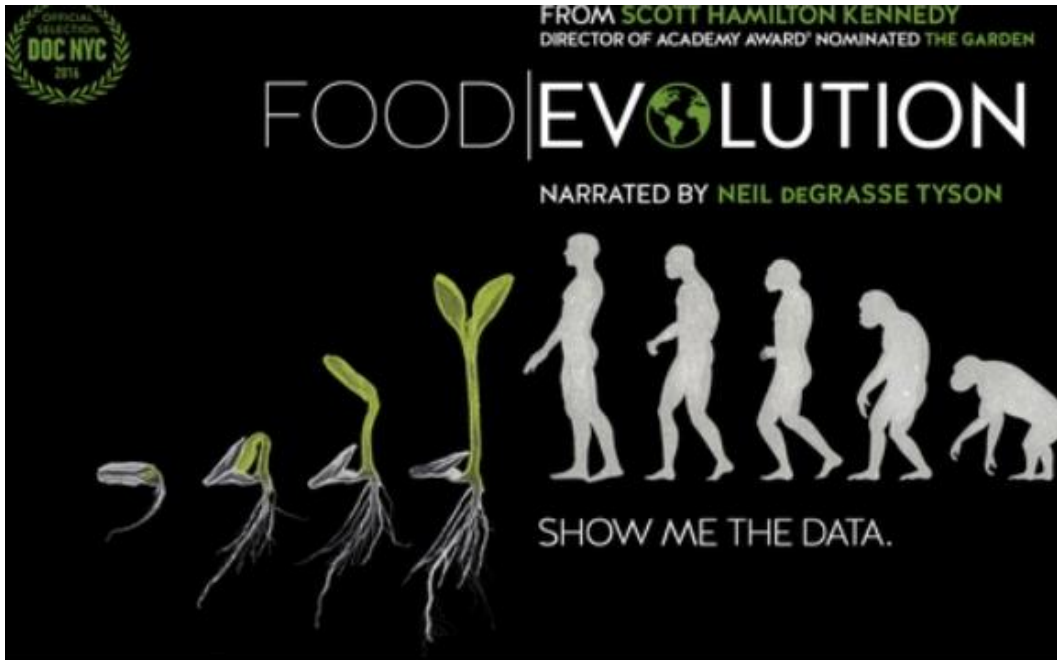
Have a heart



Non-GMO is a Western indulgence of the rich
It doesn't work for the poor in Africa who ask

Will I eat today?

Not, **What will I eat today?**



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