

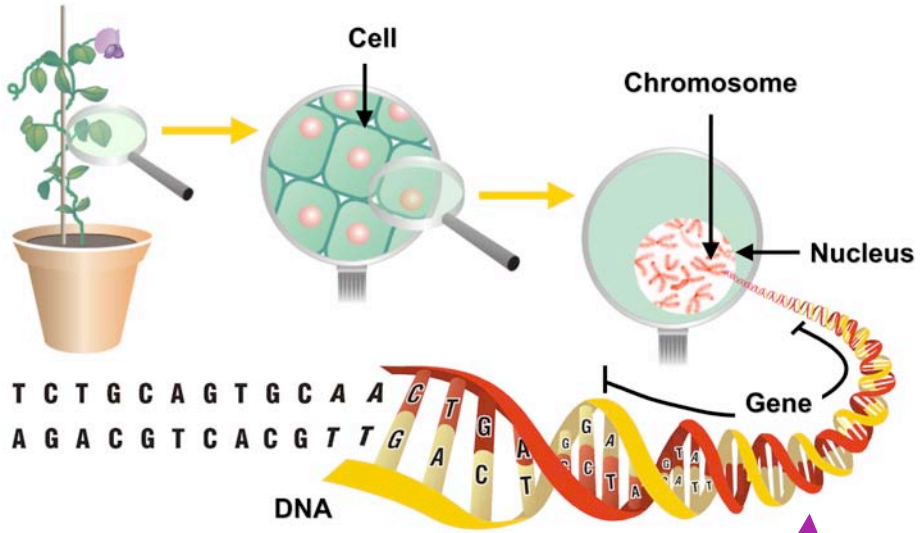
Genetically Modified Food – Facts, Beliefs and Misconceptions

World Association of Chefs Societies Congress, Santiago, Chile 2010

Dr Jim Peacock
CSIRO Plant Industry
Canberra, Australia
26 January 2010



DNA – the language of life



Splicing a new gene into a crop plant chromosome

Gene from a donor species

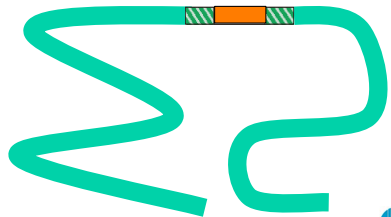


Gene from the crop plant

Donor gene coding segment with added DNA control segments from the crop plant



Insertion into chromosome



Many meals have meat and a variety of vegetables

In each mouthful the different foods contain many thousands of genes



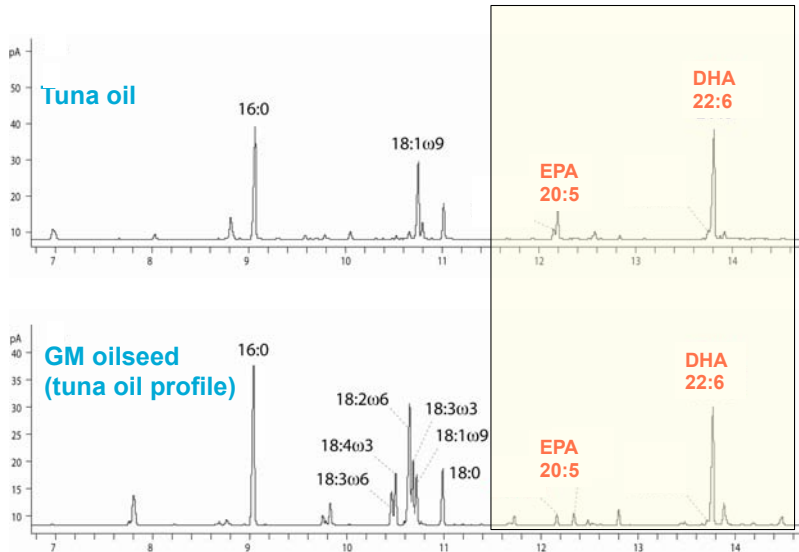
We eat hundreds of millions of genes in every meal



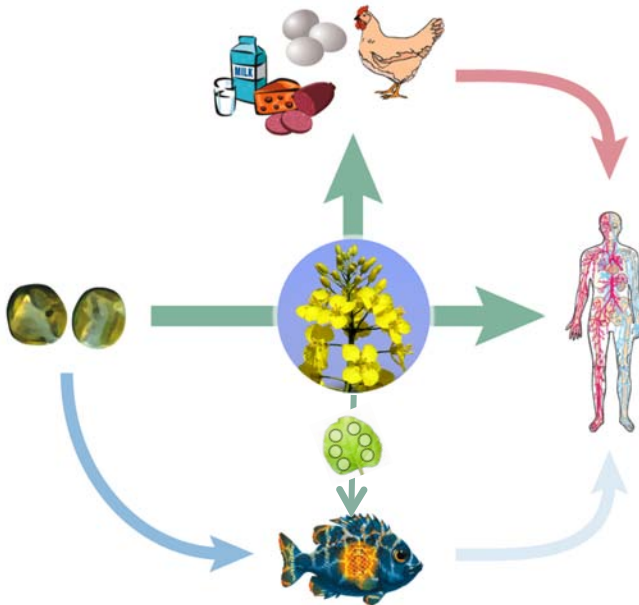
Marine Microalga – *Micromonas pusilla*



~~Fish Oils in Plants~~



Plant longchain Omega-3 oils for healthy foods and health

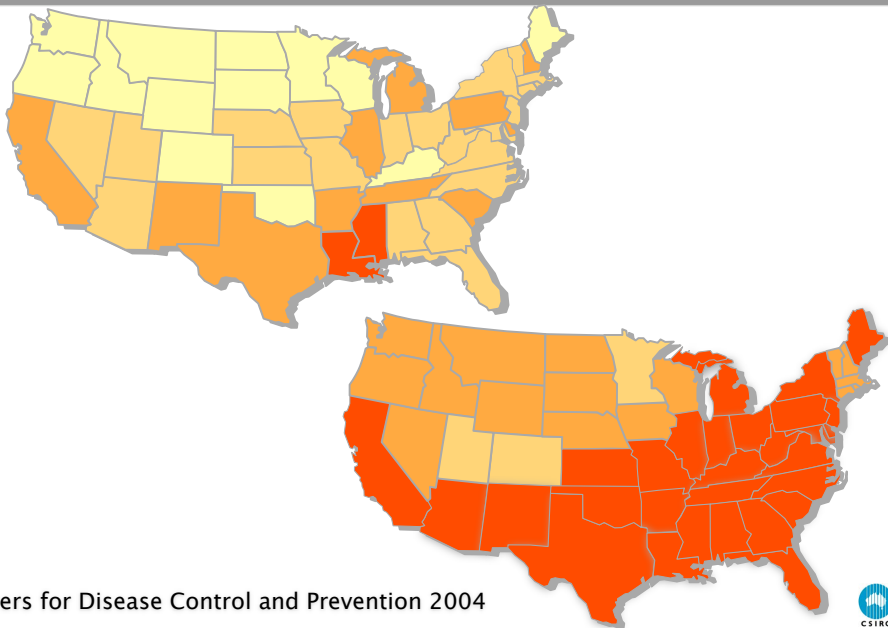


GM Golden Rice to correct Vitamin A deficiency



Golden Rice: the intensity of the colour shows the content of provitamin A.

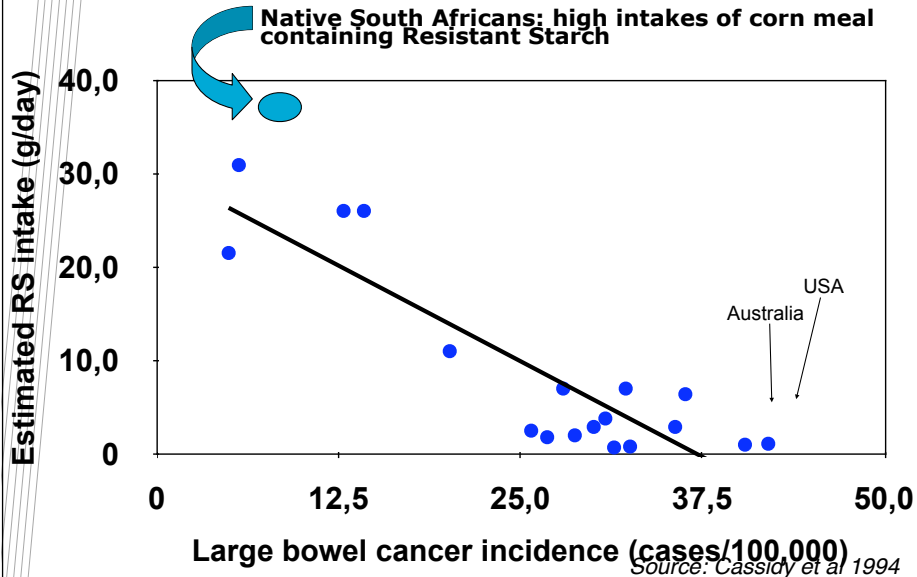
Diabetes 2 : United States 1994 / 2002



Centers for Disease Control and Prevention 2004



Resistant starch intake and large bowel cancer incidence



BARLEYmax has a high amylose level

A scanning electron micrograph (SEM) showing numerous starch granules of various sizes and shapes, including oval, circular, and irregular forms. The granules have a textured surface with some smaller particles attached. The background is dark, making the granules stand out.

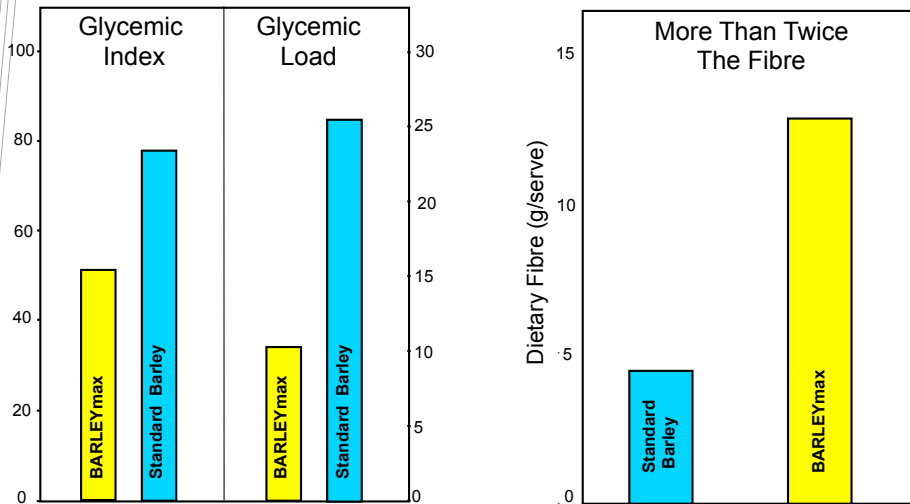
**Now 25%
Amylopectin**

**77% Amylopectin :
highly branched
glucose polymer**

**Now 75%
Amylose**

**23% Amylose :
minimally branched
glucose polymer**

BARLEYmax™ - High Resistant Starch, Low Glycemic Index, High Fibre

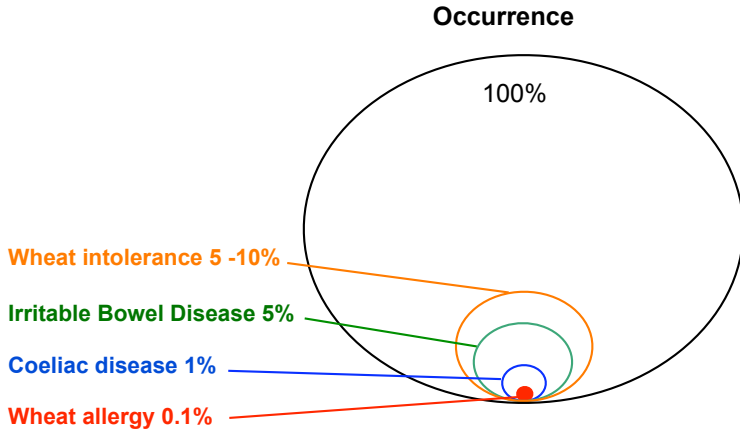


BARLEYmax™ Breakfast Cereals

High Resistant Starch, Low GI, High Fibre



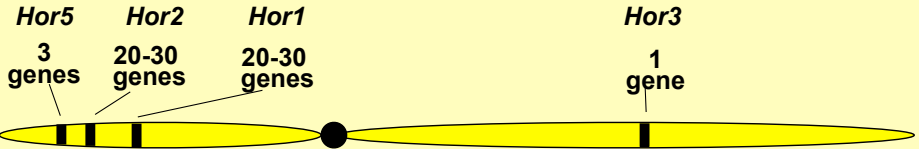
Adverse reactions to gluten



50-100 gluten genes in barley and wheat

BARLEY

chromosome 1 – location of hordein genes



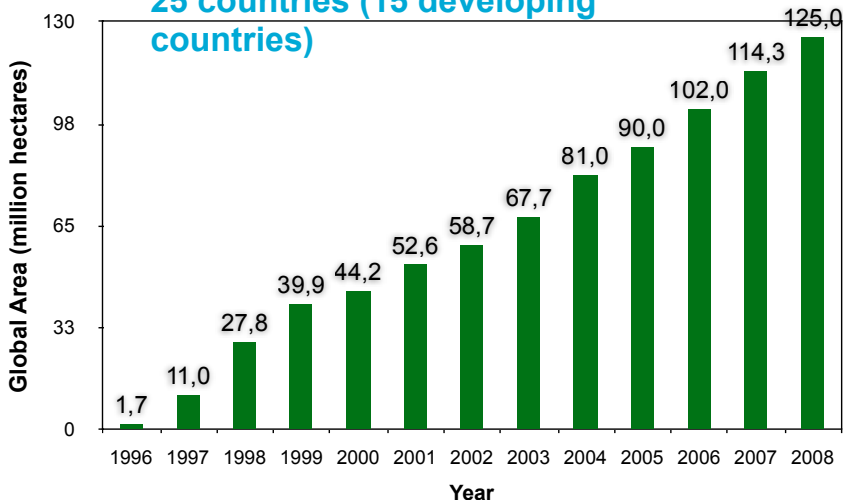
WHEAT



Global area of GM crops – 1996-2008

13 million farmers

25 countries (15 developing countries)



2008 – major global GM crops

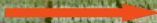


Reduced dependence on Agrichemicals



Gene technology for smarter breeding

Present markets
Non GMO + (GMO)



Future markets
Non GMO + GMO

