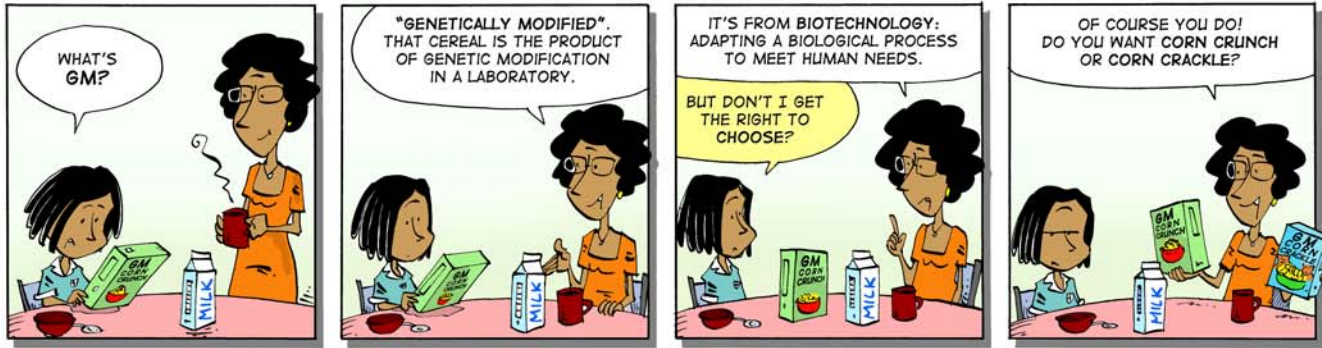


# BIOTECHNOLOGY: GENETIC MODIFICATION OF CROPS



**1** TO GROW MAIZE IN A DRY AREA, FIND A PLANT THAT SURVIVES SEVERE DROUGHTS.

**2** IN A LABORATORY, IDENTIFY THE GENE THAT GIVES THE PLANT ITS SPECIAL DROUGHT RESISTANCE.

**3** INSERT THE GENE INTO A MAIZE CELL AND GROW A NEW PLANT FROM THIS CELL.

**4** WHEN THE MAIZE GROWS, IT IS ABLE TO SURVIVE BETTER IN DRY CONDITIONS.

GENETIC MODIFICATION INTRODUCES CHARACTERISTICS FROM ONE LIVING THING INTO ANOTHER. BUT HOW IS IT DONE? AND WHY?

resurrection plant

A GENE IS A SECTION OF DNA, WHICH CARRIES INFORMATION ABOUT A PARTICULAR CHARACTERISTIC.

resurrection plant gene

maize DNA

THE TRANSFER OF SPECIFIC GENES IS THOUGHT TO BE MORE PRECISE AND IS MUCH FASTER THAN CONVENTIONAL BREEDING TECHNIQUES.

## GM IN SOUTH AFRICA

GM CROPS HAVE BEEN GROWN COMMERCIALY IN SOUTH AFRICA SINCE 1997. THEY CURRENTLY INCLUDE MAIZE, COTTON AND SOYA BEANS.

maize cotton soya beans

THE GMO ACT OF 1997 GOVERNS THE USE OF GENETICALLY MODIFIED ORGANISMS (GMO'S) IN SOUTH AFRICA.

NEW GMO'S MUST BE APPROVED BY THE DEPT. OF AGRICULTURE ADVISED BY THE GMO EXECUTIVE COUNCIL. APPROVAL INVOLVES ASSESSMENT OF IMPACT ON HUMAN HEALTH, THE ENVIRONMENT AND SOCIO-ECONOMICS.

## FOOD SECURITY

FEEDING THE WORLD, NOW AND IN THE FUTURE.

WHILE GM, AMONG OTHER TECHNOLOGIES, MIGHT HELP, IT CANNOT ALONE ENSURE FOOD SECURITY. POLITICS, ECONOMICS AND POOR FARMING TECHNIQUES ARE MAJOR CONTRIBUTORS TO FOOD SHORTAGES.

TO ENSURE SUSTAINABLE FOOD PRODUCTION, SMALL-SCALE FARMERS NEED TO HAVE CONTROL OVER LAND, WATER, SEED AND ACCESS TO MARKETS.

MANY PEOPLE FEEL THAT RETAINING TRADITIONAL FARMING METHODS IS CRITICAL TO FOOD SECURITY PROVIDED ATTENTION IS GIVEN TO SUSTAINABILITY AND POVERTY ALLEVIATION.

## HOW DO YOU FEEL ABOUT GENETIC MODIFICATION?

AS WITH ALL TECHNOLOGIES THERE ARE BENEFITS AND RISKS.

**GM MAY SOON ALLOW US TO:**

- GROW MORE CROPS ON LESS LAND, AND GROW CROPS WHERE PREVIOUSLY IT WAS TOO DRY OR SALTY.
- GROW CROPS FOR NEW USES, LIKE BIODEGRADABLE PLASTICS, NUTRITIONAL SUPPLEMENTS OR PHARMACEUTICALS.

**BUT CONCERNS HAVE BEEN RAISED OVER HEALTH AND ENVIRONMENTAL RISKS**

- WILL MOVING GENES BETWEEN SPECIES PRODUCE TOXINS THAT ARE CURRENTLY NOT TESTED FOR?
- WILL GM CROPS CROSS-POLLINATE WITH WILD PLANTS, TRANSFERRING UNWANTED CHARACTERISTICS THAT MAY THREATEN BIODIVERSITY?

**...AS WELL AS SOCIAL AND ECONOMIC RISKS**

- GM PRODUCERS USE PATENTED GENES THAT CAN COST MORE AND HAVE GROWING RESTRICTIONS.
- WILL THESE CROPS BE AFFORDABLE AND ACCESSIBLE TO FARMERS NOW AND IN THE FUTURE, AND WILL TRADITIONAL SEED AND TECHNIQUES BE MAINTAINED, OR LOST FOREVER?

GM IS HERE WITH ITS BENEFITS AND RISKS. WHAT CHOICES WILL YOU MAKE ABOUT USING IT?

