HELPING FARMERS GROW MORE, BETTER AND MORE AFFORDABLE FOOD WITH LESS

Monsanto in EMEA
MONSANTO IN EMEA

1. The world we live in

2. Producing more with less

3. Enabling choice
1. THE WORLD WE LIVE IN
GLOBAL POPULATION, RESOURCE AND WEATHER TRENDS CREATE A NECESSITY TO PRODUCE MORE FOOD, FEED, FUEL AND FIBRE WITH LESS

**RISING population**
- 1980: 4.4 billion
- Today: 7.1 billion
- 2050: 9.6 billion+

**DECLINING arable land**
- 1961: 2.5 hectares per person
- 2050: less than 8/10 hectare per person

**GROWING water needs**
- We need an increase of 64 billion cubic metres of freshwater every year

**CHANGING climate**

Source: United Nations
THE EU IS HIGHLY DEPENDENT UPON AGRICULTURAL IMPORTS, ESPECIALLY COMMODITIES SUCH AS SOYBEANS AND OILSEEDS

In billions of euros

Sources: Agricultural Trade in 2012, European Commission, 2013; and COMEXT
WORLD GRAIN SUPPLIES ARE ALREADY HISTORICALLY LOW AND WILL PROVIDE LITTLE RELIEF IF MORE HARVESTS FAIL

World Grains: Days of Supply

A bad season can quickly make production fall and prices spike.

Source: USDA
WHAT IS SUSTAINABLE AGRICULTURE?

Assuming that arable land is finite, different production methods are equally safe and the resulting food is healthy and nutritious...

Is farming more sustainable if it needs more or less:

1. Needs less land, or more land, per unit of output?
2. Needs less water, or more?
3. Needs less energy, or more?
4. Needs less tillage, or more?
5. Results in less waste, or more?
6. Results in more stable yields, or less stable yields?
7. Results in better livelihoods for farmers, or worse?
8. Results in more affordable food, or more expensive food?
HOW THE EUROPEAN UNION DEFINES SUSTAINABLE AGRICULTURE

1. Produce safe and healthy food
2. Conserve natural resources
3. Ensure economic viability of farms
4. Protect soils and biodiversity
5. Improve quality of life in rural areas

“The thrust is to improve the quality of life in rural areas.”

Source: Sustainable Agriculture for the Future We Want, European Commission, 2012.
2. PRODUCING MORE WITH LESS
MONSANTO’S MISSION IS TO IMPROVE LIVES BY HELPING FARMERS

...PRODUCE MORE

...WITH LESS
WE HELP FARMERS PRODUCE MORE WITH LESS IN KEY CROPS INCLUDING MAIZE, OILSEED RAPE AND FRUITS AND VEGETABLES
...WITH A FAMILY OF SUCCESSFUL BRANDS
BREEDING, BIOTECH, CROP PROTECTION TECHNOLOGIES AND ADVANCED AGRONOMIC PRACTICES EACH HELP FARMERS

PRODUCE MORE FOOD from less land

SUSTAINABLY REDUCE water use

MAINTAIN AND BUILD healthy soil

MITIGATE THE IMPACT of drought

REDUCE THE AMOUNT of energy and emissions required to grow food
MANY OF THE FOODS THAT WE EAT TODAY ARE A RESULT OF THOUSANDS OF YEARS OF DELIBERATE BREEDING BY MAN

People have been breeding plants since the dawn of time. As our understanding of genetics has evolved, we’ve improved our efficiency and accuracy in breeding.
MODERN SEED CHIPPERS HELP BREEDERS ACCELERATE THE DISCOVERY OF DESIRABLE TRAITS AND GET THEM TO FARMERS FASTER

- Chippers for six kinds of seeds
- Millions of seeds a year tested
- Increases success rate to 1 in 5 from 1 in a trillion
- Shaves 2 years off breeding process
ADVANCED BREEDING AND HOLISTIC AGRONOMIC PRACTICES IN OILSEED RAPE CONTRIBUTE TO A MORE SUSTAINABLE AGRICULTURE

- Making better use of nitrogen with higher yield per unit of inputs
- Doubly resistant to pod shatter and blackleg disease
- Promoting energy-saving farming techniques, reducing the frequency of treatments and reducing greenhouse gas emissions
- Increasing the productivity and reliability of hybrids and producing higher-value harvests such as oil low in saturated fat—the result of 30 years of research
BREEDING BENEFITS CONSUMERS AS WELL AS FARMERS: VISTIVE RAPESEED OIL IS LOW IN SATURATED FATS, COMPARES WITH OLIVE OIL

Vistive high oleic, low linolenic oilseed rape:

1. Helps farmers get premium prices: farmers are being offered a premium on every ton of Vistive oilseed rape
2. Helps governments in their campaigns to promote better diets*

*e.g. UK Food Standards Agency campaign
www.vistive.eu
BREEDING DELIVERS CONSUMER BENEFITS IN THE FORM OF IMPROVED TASTE, NUTRITION AND CONVENIENCE
A study by Humboldt University in Berlin found the use of fungicides and modern crop protection products created more than €6 billion a year in societal benefit by reducing land needs and avoiding CO₂ emissions.
CUTTING-EDGE PLANTING TOOLS AND DATA ANALYSIS HELP PRODUCE HIGHER YIELDS WITH LESS LAND, WATER, ENERGY, WASTE AND WORRY.

OUR INTEGRATED AGRICULTURE PLATFORM
AQUATEK™ DRIP IRRIGATION PROJECT SHOWS OPPORTUNITY TO PRODUCE MORE MAIZE WITH LESS WATER, WASTE AND WORRY

AquaTEK™ project demonstrates opportunity to produce more maize with less land and water.
WE ARE ACTIVELY INVESTING IN R&D IN HONEY BEE HEALTH
An agricultural supply chain alliance to integrate efforts in promoting technologies, techniques & agronomic practices that contribute to a more sustainable food production through resource efficiency.
MONSANTO IS PARTNERING WITH OTHERS TO DEFINE AND MEASURE SUSTAINABLE AG

New Vision for Agriculture
3. ENABLING CHOICE
WHATEVER YOUR NEEDS, WE CAN SUPPLY

Conventional / Organic / Biotech

Organic and conventional don’t always offer the solutions farmers need.

Depending on farmers’ needs and where they have a choice.
BIOTECHNOLOGY IMPROVES AGRICULTURE AND PEOPLE’S LIVES WHEREVER FARMERS ARE FREE TO CHOOSE IT

Developing countries now grow more than half the world’s biotech crops.

Source: ISAAA 2012 report

- Maize that is resistant to drought, insects and disease
- Papaya that resists a disease that threatened to wipe out the crop
- Cotton with reduced pesticide usage that enables us to produce more fibre for clothing and other goods
WE ENABLE CHOICE

From breeding to planting to growing to harvesting, we support farmers’ right to choose the best available technologies to meet their needs.

FROM THIS

TO THIS
BIOTECH CROPS HAVE BEEN TESTED MORE THOROUGHLY THAN ANY OTHER FOODS EVER GROWN, SERVED OR EATEN IN THE HISTORY OF MANKIND

3 trillion meals served since 1996

28 countries now grow biotech crops

52 percent of land growing biotech crops is in developing countries

170 million hectares planted globally

Source: ISAAA 2012 report