A farmer's perspective on agriculture and biotechnology in Portugal and Europe.
My farming background

• I am the third of four sisters
• We represent the 4th generation of farmers
• I am an agronomist
• I have been managing the family farm for the last 23 years
• Under No-Till/Minimum Tillage since 1998
• Under IPM from 2000
• Main Crops: maize, wheat, barley, peas
• Beef Cattle
What does Europe expect of me as a farmer?

To practice sustainable farming
i.e., Produce safe food, feed, services
while protecting natural resources
and remaining profitable
Potencial Risk of Erosion in Southern Europe

Corine Project

EEA (1992)
Erosion on a conventional tillage maize field
My Top 10 goals as a farmer

1. Control Erosion
2. Resist pests & diseases
3. Control weeds
4. Reduce the use of pesticides (32 a.i less in Europe)
5. Increase soil fertility
6. Reduce water consumption
7. Reduce energy consumption
8. Minimize agricultural side effects like nitrogen contamination of water (Vulnerable Zones)
9. Maintain biodiversity & animal well-being
10. Be profitable – Stay in Business
What Tools do I have?

- Few Conventional Crops → Agrochemicals
- 1 Biotech. Crop (Bt maize),
- No -Till / Minimum Tillage,
- IPM Integrated Production Management
- Organic Farming
What tools did I chose?

• **1st**: Conservation Agriculture (No-Till, Minimum Till & IPM)
  
a) Control of Erosion
b) Reduction in water consumption (10%)
c) Reduction in energy - electrical (10%) and fuel (30%) - consumption
No- Till Maize
Winter: Grous (*Grus grus*)
What other tools did I chose?

2nd: Integrated Production Management (IPM)

a) Integrated use of Insecticides & Herbicides

b) Reduced Nitrogen application
What other tools did I choose?

• **3rd: GMO Bt Maize (2006)**

  a) Reduction on insecticide (2 applications) to corn borers
  b) Higher quality of silage & grain (no mycotoxins)
  c) Higher yield (10%)
What could I Achieve?

- ↓ Agrochemicals: 750 lts total/year
- ↓ Fuel: 70 lts/ha/yr = 17,000 lts total *
- ↓ Water Consumption - 15%/year *
- ↓ CO2 emissions - 45 tons total *
- ↓ Erosion*
- ↑ Soil fertility (o.m) – 5%/year → Carbon sink*
- ↑ Contribution to mitigate climate change

* could carry on with CA
What could I not achieve?

- A higher reduction in insecticide due to other pest pressure
What else could I not achieve?

- Almost no reduction on herbicides due to increasing difficulty to control weeds when in Conservation Agriculture (CA)

*Abutilon theophrasti*  
*Echinochloa crus-galli*  
*Rumex spp*
What else could I not achieve?

- Higher reduction in water and energy (electrical) consumption
What else do I need to pursue my goals?

• Genetics
• Research in IPM and Organic farming
• Research in No-Till/Minimum Till for other crops
• Alternative crops to introduce in the rotation
What is already available?

- Crops resistant to herbicides - e.g. GM resist to glyphosate
- Crops with drought tolerance – GM
- Crops Resistant to pests and diseases -GM
- Crops with nitrogen use efficiency.
Agricultura de Conservación + Biotecnología

Fuente: AEAC.SV
Farmer’s GMO adoption by Age In Portugal (in Min. Agriculture)
Farmer’s Adoption of GMO Education Level (in Min. Agriculture)

- A Levels: 29%
- B Levels: 18%
- C Levels: 14%
- Primary Sch.: 21%
My Three Wishes for the Future:

- Freedom of choice for every farmer to decide which tools & type of farming to use in his pursuit for better life;
- EU Institutions decisions based on science;
- Public researchers and companies carry on bringing new biotech crops.
Eisenhower said: “Farming is very easy when the plough is a pencil and corn fields are many miles away”

Thank you very much