European farmers in general and Portuguese farmers in particular are facing increasing problems controlling pests and weeds. Additionally, several molecules of pesticides have been withdrawn from the market as they are not allowed in Europe anymore. Portugal has an additional problem by controlling an enormous rate of erosion every year and has identified regions where nitrogen applications have by law to be reduced. Moreover, having a Mediterranean climate the country faces cyclically severe droughts. 2012 was the worst of the last 70 years. Several Portuguese farmers, as farmers in other parts of the World, have chosen Conservation Agriculture (CA) practices as no-till and minimum-till to be able to avoid these devastating processes. As many people know, these highly favorable to the environment techniques lead however to increasingly problems to control mainly weeds. In the USA and South America farmers under CA could continue due to GMO’s and the surface with these technologies does not stop to increase. In Portugal the surface tend to decrease. Though, the main intention with the presentation will be to prove how important GMO’s can be to solve farmer’s difficulties and European requirements.
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 4\textsuperscript{th} 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 8 goals as a farmer

1. Control Erosion & Increase soil fertility
2. Resist pests & diseases
3. Control weeds
4. Reduce the use of pesticides (32 % a.i less in Europe)
5. Reduce water & energy consumption
6. Reduce nitrogen contamination of water (Vulnerable Zones)
7. Maintain biodiversity
8. Be profitable – Stay in Business
What Tools did I chose?

- Few Conventional Crops → Agrochemicals
- 1 Biotech. Crop (Bt maize),
- No -Till / Minimum Tillage,
- IPM Integrated Production Management
No- Till Maize
What could I Achieve?

- ↓ Agrochemicals: 750 lts total/year
- ↓ Fuel: 70 lts/ha/yr = 7.000 lts total *
- ↓ Water Consumption - 15%/year *
- ↓ CO2 emissions - 20 tons total *
- ↓ Erosion*
- ↑ Soil fertility (o.m) – 5%/year → Carbon sink*
- ↑ Contribution to mitigate climate change
- ↑ 10% Increase on yields
- ↑ Better quality – grain & Silage

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

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

- Almost no reduction on herbicides - difficult weed control when in Conservation Agriculture (CA)

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

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

- Genetics - Biotechnology
- Research in IPM
- Research in No-Till/Minimum Till for other crops
- Alternative crops to introduce in the rotation - Available Biotech crops
Future 3 Capes of Good Hope:

• 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