



# **SUSTAINABLE AGRICULTURE:** **Challenges and opportunities of plant biotechnology in Europe**



**ALAS (Alianza por una agricultura sostenible)**



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### FIGURES



25,357 M € of production // 17 M ha of cultivated area



749,700 employees (in the agricultural sector as a whole -agriculture and livestock-). More than two million in the agro-industrial sector



One million farms



Agri-food system is the second biggest industry in the country, very close to tourism, with 10.6% of GDP and 14.2% of employment.



2nd country in the European Union in terms of agricultural area and production.



Country with the greatest diversity of crops in the EU (2.6 points on the Herfindalh index, ahead of France, Germany and the Netherlands).





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## OBJECTIVES

- Promote Sustainable Agricultural production: 3 ways; Social, Economic and Environmental
- **Inform CITIZENS & CONSUMERS** about the **reality of the countryside**, agricultural, livestock production, rural environment and food.
- **OPEN OUR FARMS.** Building bridges to urban society by communicating the ways and means of production in the agricultural sector.





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## OBJECTIVES

- SERVE AS A FORUM & MEETING POINT AND **COOPERATION, between the public and private sectors, to promote sustainable** agricultural practices and technologies
- Defense of innovation and sustainable agriculture through communication (proactive and not reactive). Establish principles with **scientific arguments (EFSA)** and counteract emotional feelings.







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### OBJECTIVES

- **PUT IN VALUE AGRICULTURAL AND LIVESTOCK PRODUCTION** as the base of the agri-food industry in Spain and its contribution to the economic and social development of the rural areas of our country.





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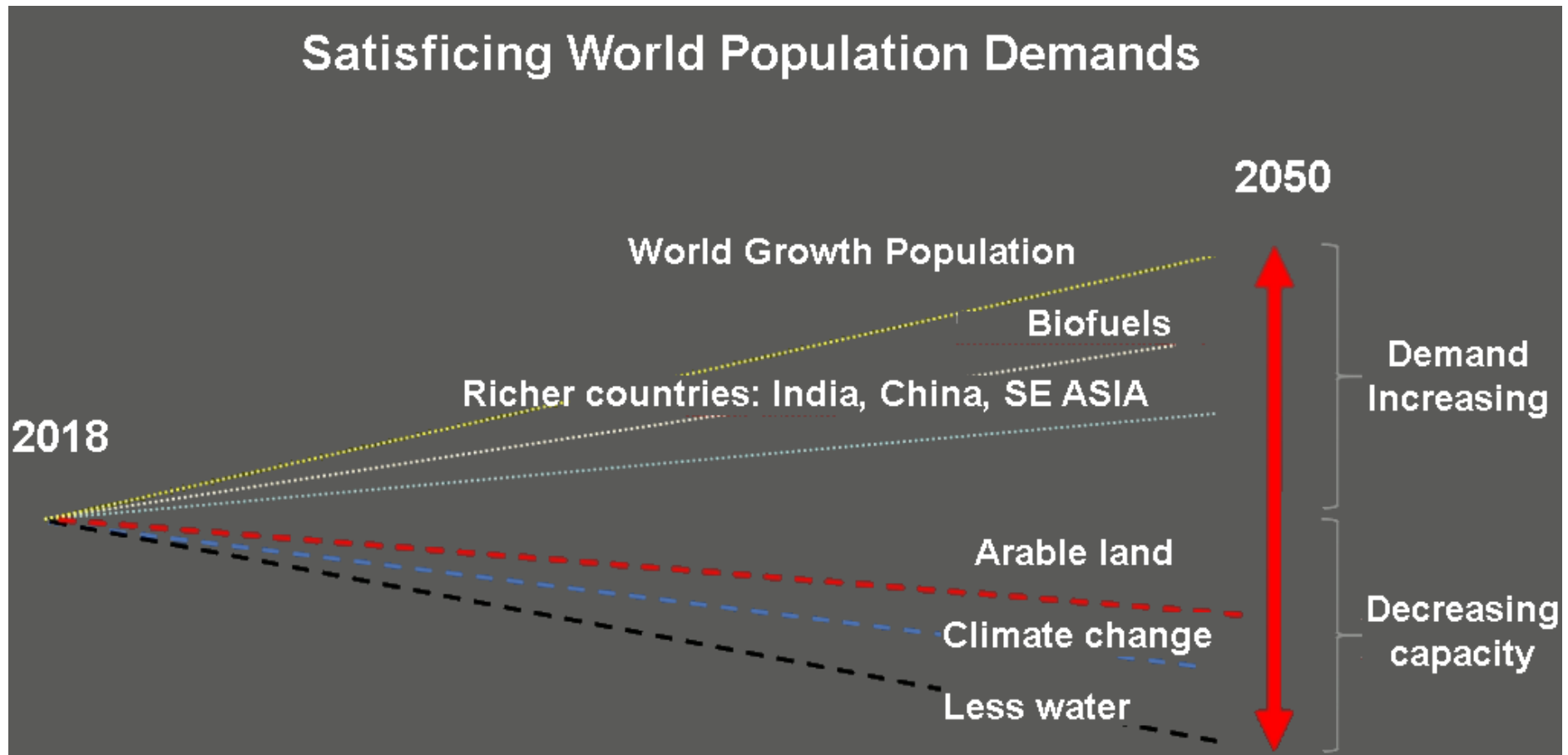
The big challenge of agriculture: To produce more Food in a limited area + limited resources under fluctuant climatic conditions





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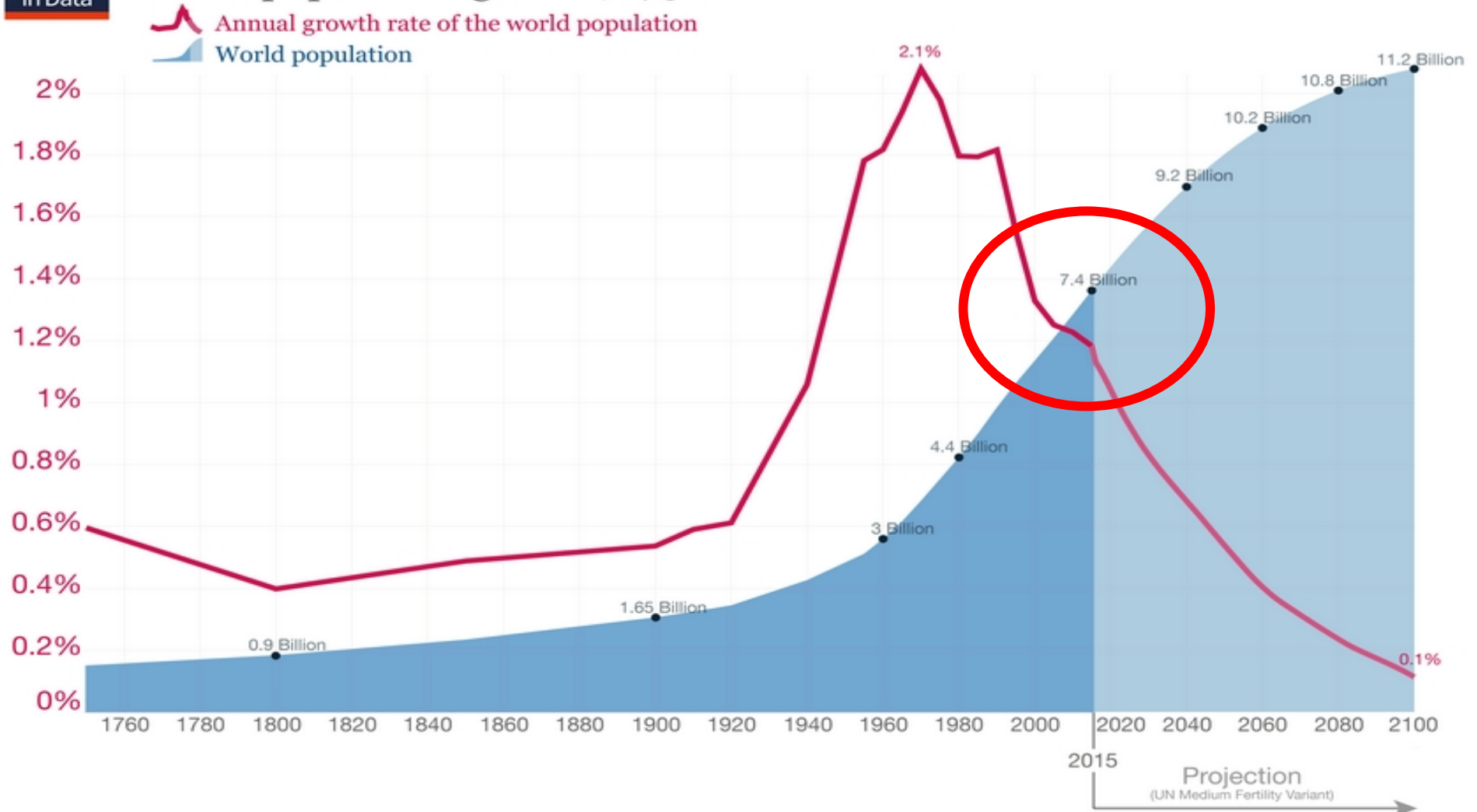
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Our World  
in Data

### World population growth, 1750-2100



Data sources: Up to 2015 OurWorldInData series based on UN and HYDE. Projections for 2015 to 2100: UN Population Division (2015) – Medium Variant. The data visualization is taken from [OurWorldInData.org](https://ourworldindata.org). There you find the raw data and more visualizations on this topic.

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### **World Population (regions) 2017, 2030, 2050, 2100 According to the average projection variant**

REGION	2017	%	2030	2050	2100	%
Africa	1.256	17%	1.704	2.528	4.468	40%
Asia	4.504	60%	4.947	5.257	4.780	43%
Europe	742	10%	739	716	653	6%
South America	646	9%	718	780	712	6%
North America	361	5%	395	435	499	4%
Oceania	41	1%	48	57	72	1%
Total World	7.550	100%	8.551	9.773	11.184	100%

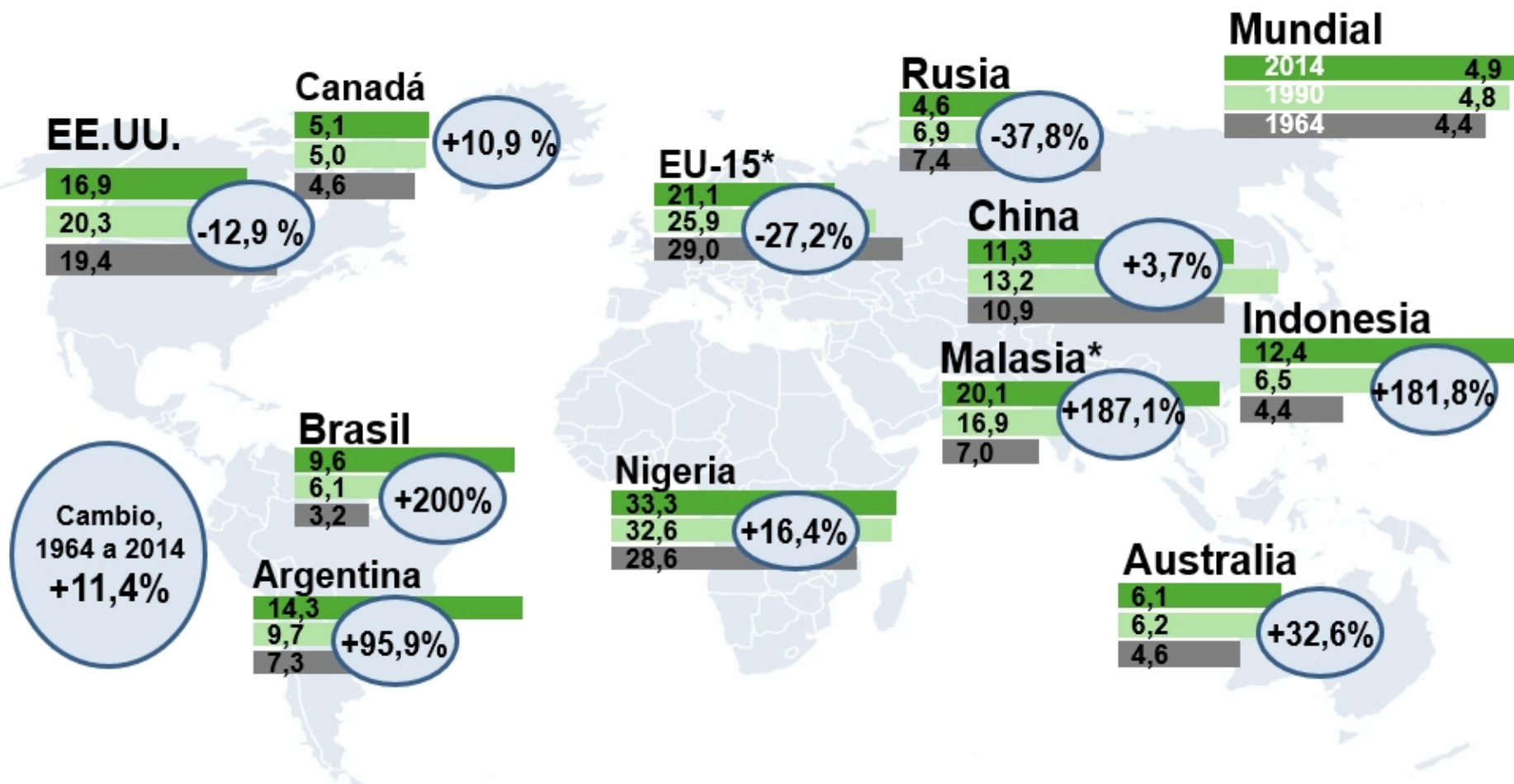
Source: United Nations, Department of Economic and Social Affairs, Population Division (2017).  
World Population Prospects: The 2017 Revision. New York: United Nations.



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La tierra arable sigue siendo escasa! ¡Crecimiento limitado! Proporción de tierra cultivable \* sobre la superficie total de la tierra (%), en 1964, 1990 y 2014





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**Population is growing !!!!**







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Biotechnology:  
Benefits for the  
agrifood sector and  
the consumers



- Increase productivity of crops while reducing production costs and inputs (soil, water, fertilizers, crop protection products)
- Preserve and promote biodiversity: by increasing productivity allows space for biodiversity
- Social aspect: More than 50% of Food production comes from smallholders farmers, in some areas 80%. Training and biotechnology allow them to increase their yields, their revenues and then improve their life conditions and the ones of their family.
- Climate protection and sustainability: By reducing needs of natural resources and inputs, improve ecological footprint and reduces greenhouse gas emissions.
- Benefits for consumers: improve quality of Food, for example a wheat without gluten for celiac people, an apple without oxidation when cut, a sorgho with higher content of vitamins, etc





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Biotechnology: New biotech  
technics need an adequate  
regulation



- More than 190,4 Mio ha in the world are cultivated with GMO crops but only 0,1 Mio ha in EU
- New genomic techniques bring a lot of benefits for farmers and consumers but also have a lot of applications in animal and human health
- European court of justice indicated in 2018 that the genome editing technique like CRISPR-Cas9 should follow a directive who is from the last century
- For a sustainable food production in Europe we, (farmers, researchers, industry & consumers), can't lose this opportunity and need an adequate regulation to promote innovation and enjoy its benefits



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### TARGETS

At the beginning of the 1960s, the average production of a hectare of maize in Spain was around 3.3 t/ha.

# +350%

Today, the national average has increased 3.5 times, reaching 11.5 t/ha.





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### TARGETS



#### TOMATO CULTIVATION BETWEEN 1980 AND 2008

for every ton tomato  produced

- land use was reduced by more than 52%. 
- water consumption by 31% or more than 34% in the case of irrigation water. 
- energy consumption by 12.5% and soil loss through erosion by 52%. 



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Tractors  
Reduced  
Nitrogen  
95% from  
2.000

HOUSEHOLD FEED  
EXPENSES:  
1960 55%  
2018 15%

Greenhouse  
emissions  
reduced  
-24%  
since 1990

Increase  
of  
productivity  
+9%  
since 2005





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### **COMMUNICATION**

- Food supply 3 times a day, sustainability highest standards = European
- EFSA Scientific Criteria
- Enhancing the value of agriculture in the face of attacks (Proactive)
- Rural villages alive where there is #Agriculture
- Soils, our children's heritage
- Climate change only agriculture "decontaminates".
- Pest laboratory (Spain)
- Terminology: Medicines Plants



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## COMMUNICATION

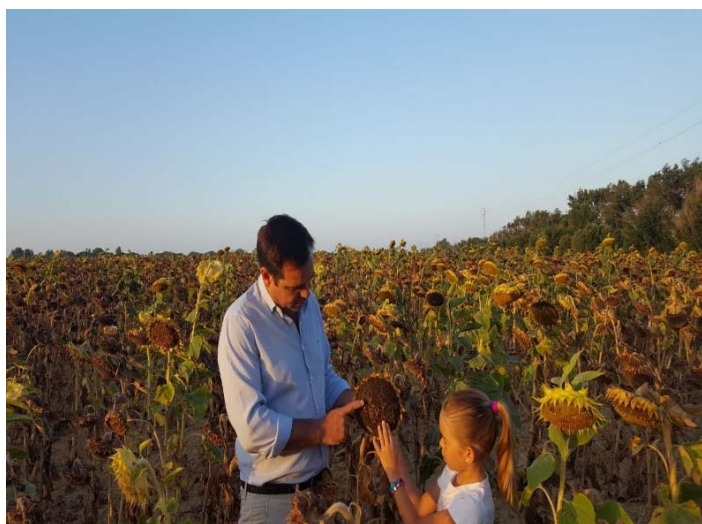




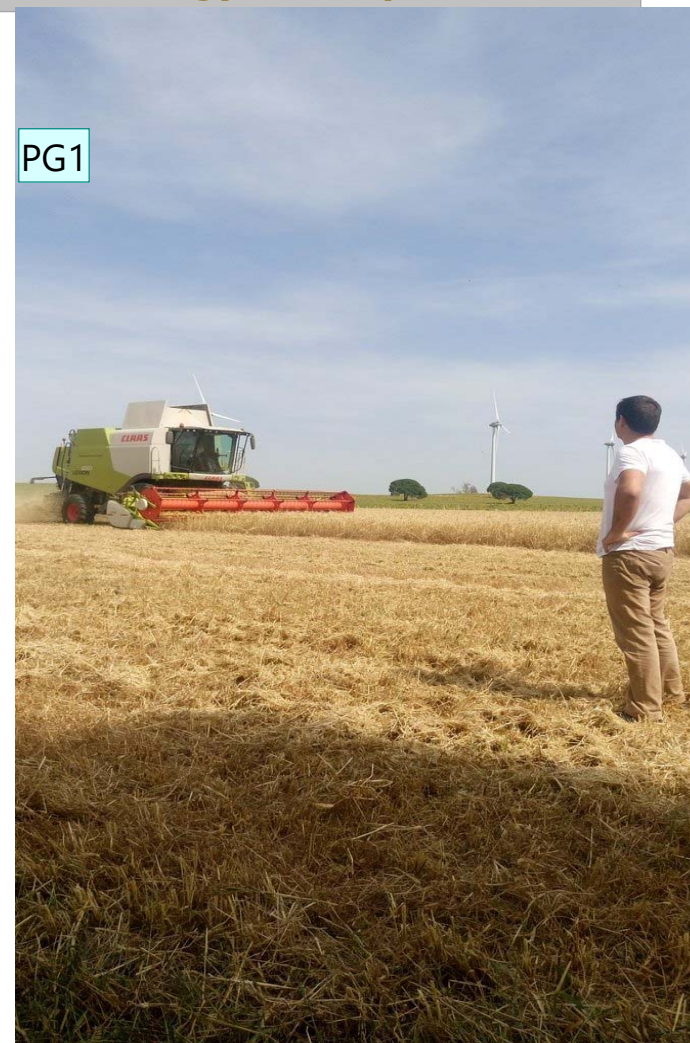
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**Thank you**



PG1



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