About us

Who is Semillas Fitó?

www.semillasfito.com
Multinational

- A clear reference point in the Mediterranean and Latin America
- 58% of turnover corresponds to export with sales in more than 70 countries
- 7 subsidiaries and we have representatives in more than 10 countries
- In 2014 two new subsidiaries: Chile & India
- Operations in:
  - Spain (Barcelona, Bellpuig, Don Benito)
  - Turkey (Antalya)
- 486 employees (406 Spain, 80 worldwide)

Family Business

- Fifth Generation
- Founded 1880
- 40’s Specialization on Seeds
- 60’s Diversification
- 70’s First in selling Vegetable Hybrids in Spain
- 80’s Start with Biotechnology
- 90’s Internationalization
R&D&i

- R&D&i: Mainstays of growth of Semillas Fitó. Investment of 15% of our turnover
- 7 R&D centers:
  - 3 for Agronomics: Spain (Don Benito + Lleida), Switzerland
  - 4 for Vegetables: Spain (Almería + Cabrera), Antalya (Turkey) & Culiacan (Mexico)
- Biotech center in Cabrera (Barcelona) since 2007
- Trials stations in more than 15 countries
- Collaborations with public and private organizations

About us

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Business units

- **VEGETABLES**
  - Since 1880
  - Tomato, Pepper, Eggplant, Melon, Cucumber, Squash, Watermelon

- **FIELD CROPS**
  - Since 1972
  - HYBRIDS

- **TURF GRASS**
  - Since 1960
  - HYBRIDS

- **HOBBY**
  - Since 1940
  - HYBRIDS

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The Seed Business

Seed Company
- Margin
- Reliable delivery

Distributor ➔ Nursery ➔ Farmer ➔
- Yield (kg)
- Security (resistance)

Packing ➔
- Uniformity
- Minimal rejection

Wholesaler ➔ Retail ➔ Consumer
- Conservation
- Presentation
- Availability 365d
- Rotation
- Shelf life
- Flavor
- Food Safety

Breeding and Biotech

BIOTECH

VARIABILITY

SELECTION
Precision

PRODUCTION LINES
Velocity

HYBRIDS
Crosses and trials

PRODUCTION

QUALITY CONTROL

DEVELOPMENT

SALES

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Biotech in Semillas Fító

Knowledge
Tool development
Optimization
New varieties

BASIC RESEARCH
BIOTECH RESEARCH
APPLIED BIOTECH
BREEDING

Collaboration
Public projects

Collaboration
Public projects

Collaboration
Public projects

HEAD OF R&D
test line

RESEARCH
BIOTECH
labor platform

APPLICATIONS BIOTECH
and Services

GENOMIC LAB
CELL BIOLOGY
PATHOLOGY

PROYECTOS

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Biotech in Semillas Fító

Genomics
Provide Molecular tools and genomic information to the Breeding programs

Cell Biology
Generates variability and accelerates creation of new parental breeding lines

Phytopathology
Bioassay based test for natural pathogen resistance

PreBreeding
Trait screen and increase natural and induced variability

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Collaboration since 1990

- Official contractual setup Mixed Unit of Research 2000
- Fitó Research projects
- Access to cutting edge technologies
  - NGS, de novo sequencing, resequencing, Bioinformatics
- Participation in public research projects as industrial partners
- Scientific Network with international recognized Researchers and groups

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Biotech in Semillas Fító

Genomics

Marker Development

Trait marker development

QTL Mapping

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**Biotech in Semillas Fító**

- **Genomics**
  - MAB: Marker assisted Backcrossing
  - MAS: Marker assisted Selection
  - GDA: Genetic distance analysis

**Cell Biology**

- **Production of:**
  - Double Haploid lines (DH) [Pepper, Eggplant, Melon, Cucumber]
  - Tetraploidization [Watermelon]
**Biotech in Semillas Fító**

- Bioassays for Virus, Fungi, Aphids and Nematodes
- Information of RESISTANCE

Process of inoculation of **OIDO** in melon

Process of inoculation of **FUSARIUM** in melon

Process of inoculation of **TMV** in pepper

**Phytopathology**

**Biotech**

**Breeding**

- Genomic Breeding tools
- Cell Biology
- Natural resistances
- Higher Yield
- Higher Fruit quality
- Better Shelf life
- Better Taste

**PreBreeding**

**MATERIAL NO ADAPTADO. SALVAJE**

**MATERIAL DOMESTICADO**
Biotech in Semillas Fito

- Trait Mining and Breeding
- Screen for new alleles, natural and induced (TILLING, EcoTILLING, Germplasm)
- Phenotyping

Breeding and Biotech

2-4 years

- Breeding:
  - R+D+i
  - Genomic Breeding tools
  - Cell Biology
  - Phytopathology
  - Genetic Variability

- Biotech:
  - Natural resistances
  - Higher Yield
  - Higher Fruit quality
  - Better Shelf life
  - Better Taste
Challenges

- Development of more genomic tools for faster and more precise Breeding for complex traits
  - GWAS
  - Genomic selection
  - Visualization tools (how to read genotype information easy to use)
- New technologies to increase genotyping throughput at less cost
- New Breeding Tools (NBTs)
  - Genome engineering (TALENs, CRISPR/CAS, TILLING, etc)
  - Reverse Breeding
  - Epigenomics
  - Cisgenesis
- Gene candidate discovery - bioinformatics, data integration and meta-analysis
- Digital and automated phenotyping - How to measure, where to store and how to analyze

THANK YOU VERY MUCH