



1S3 THEMATIC WORKSHOP

Key Enabling Technologies for Smart Specialisation Strategies (RIS3) on Agrofood

Critical KETs to support a competitive economy in Europe
and prioritisation in the field of agrofood.

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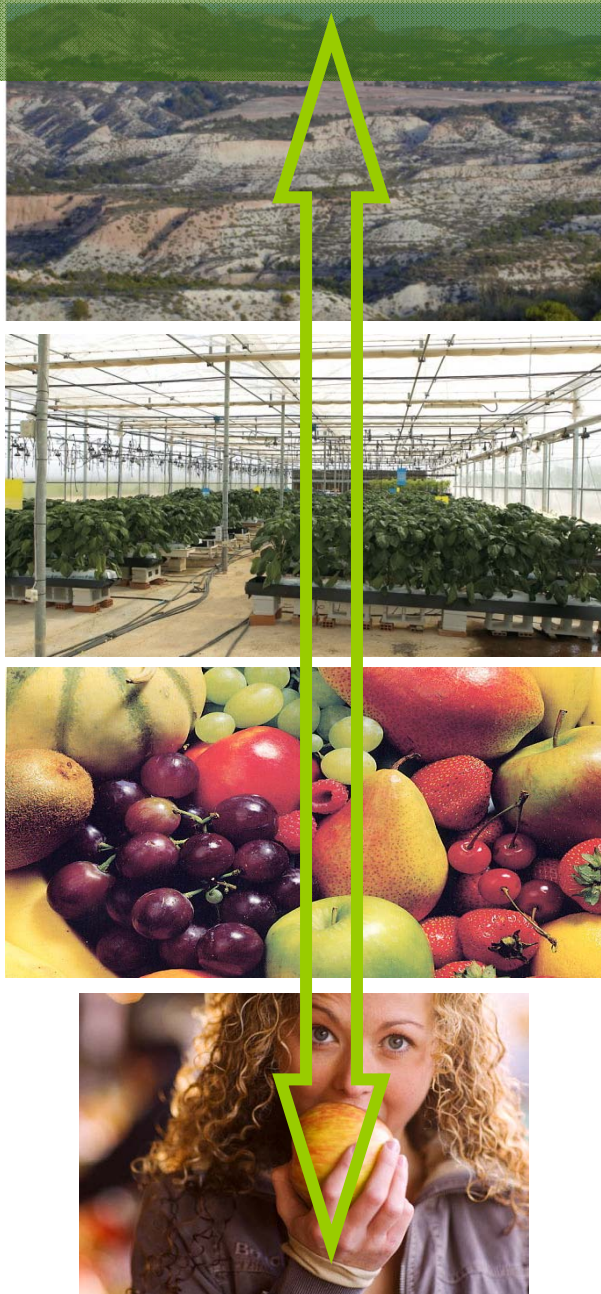
Strategic location of MURCIA

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FROM ENVIRONMENT TO CONSUMERS

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ENVIRONMENT (SUSTAINABILITY)

Soil and Organic Matter (Organic Wastes Recycling)
Sustainability of plant and soil
Water management

FOOD PRODUCTION (FOOD SECURITY)

Plant nutrition
Biology of abiotic stress and pathology
Breeding

FOOD PROCESSING (FOOD AVAILABILITY)

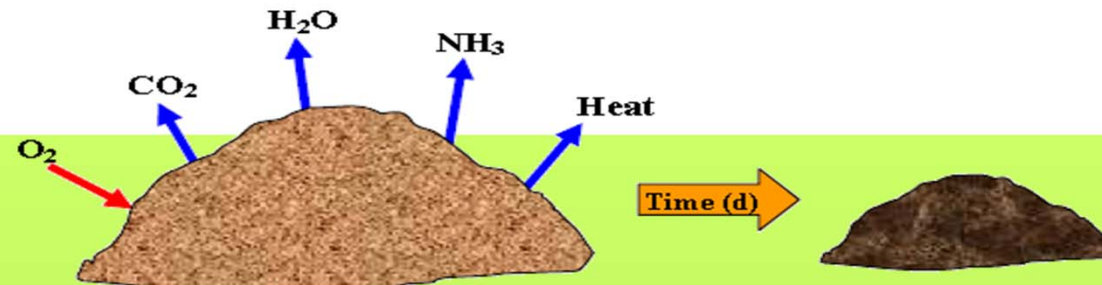
Production of high quality, healthy and safe products

HUMAN NUTRITION (FOOD and HEALTH)

Foods for Health

SUSTAINABILITY (Soil)

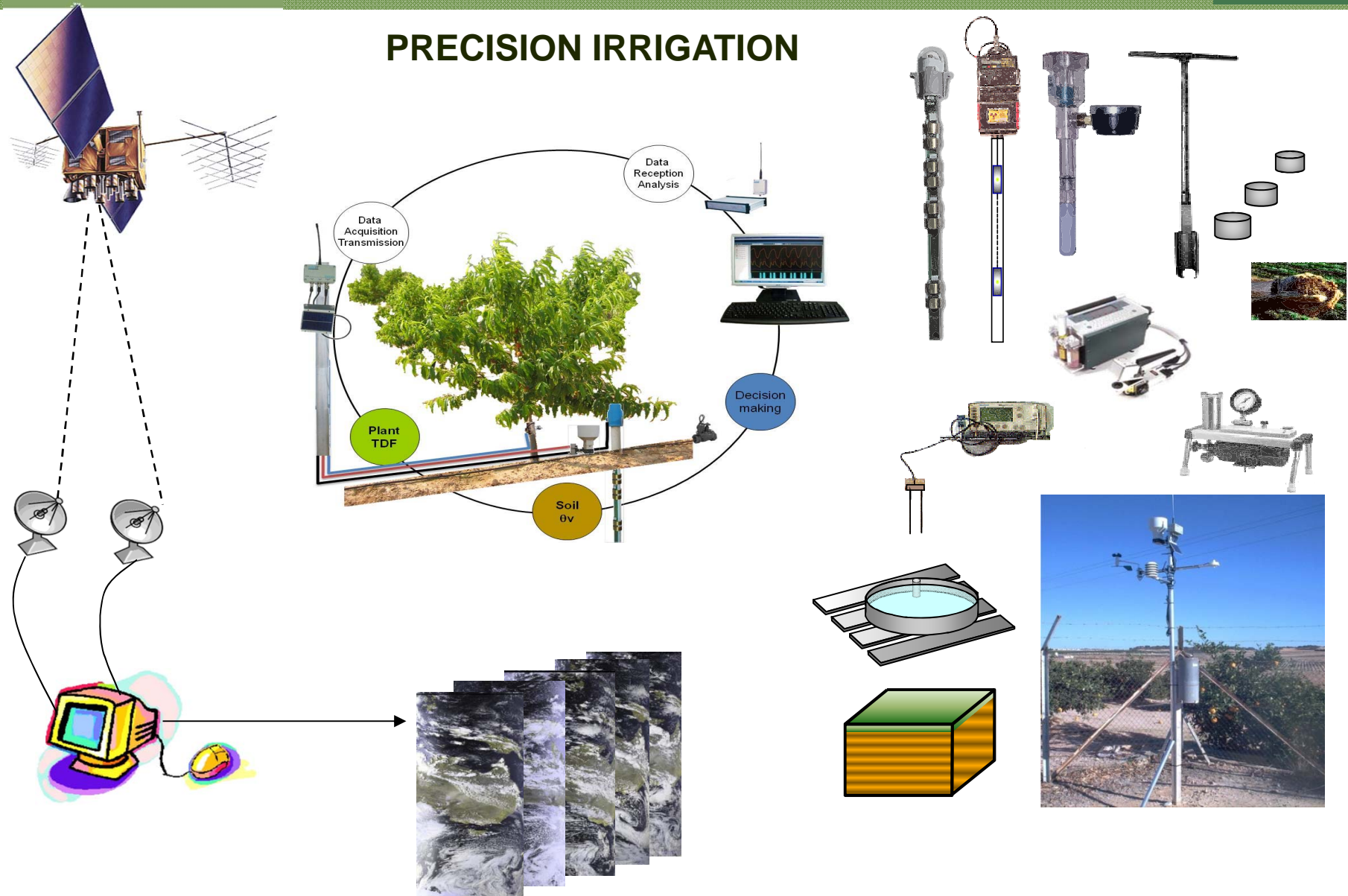
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SUSTAINABILITY (Water)

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PRECISION IRRIGATION

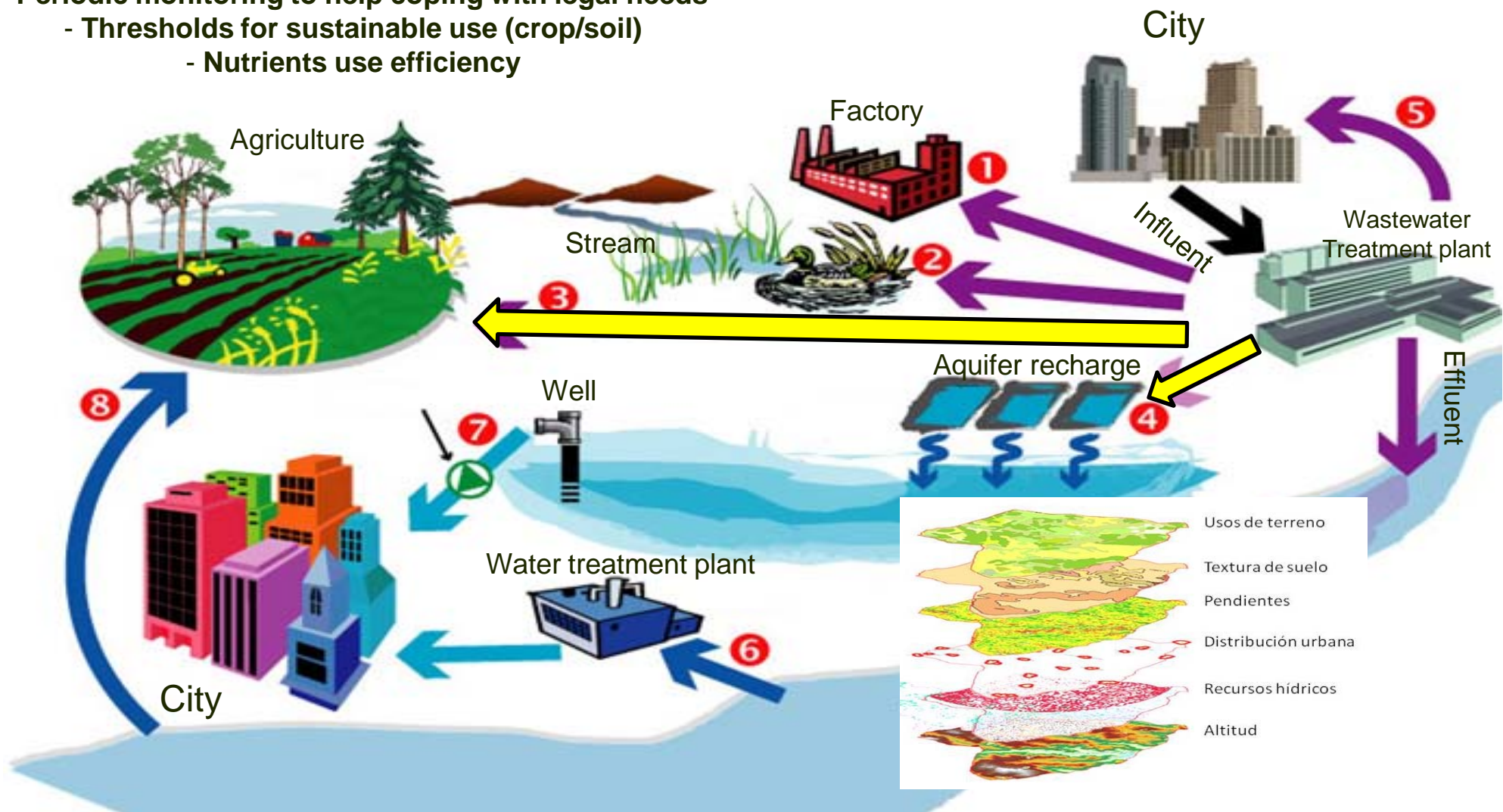


SUSTAINABILITY (Water)

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USE OF RECLAIMED WATER FOR IRRIGATION

- Periodic monitoring to help coping with legal needs
 - Thresholds for sustainable use (crop/soil)
 - Nutrients use efficiency



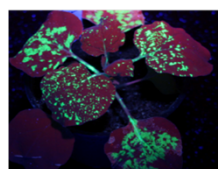
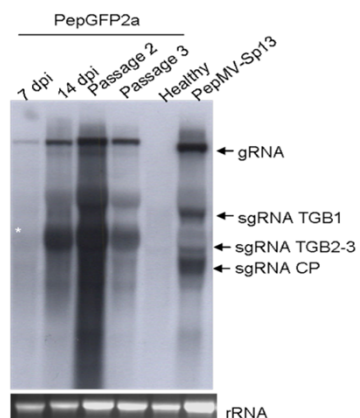
FOOD SECURITY (Breeding)

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Viruses cause most of the new, emergent plant diseases



Resistant cultivars can be developed by identifying sources of resistance in germplasm collections



Selectable virus strains can help in massive, high-throughput screenings

FOOD SECURITY (Breeding)

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Mirlo Blanco



Mirlo Naranja



Mirlo Rojo



Toñi



Sublime



Estrella



Rosa



Maravilla



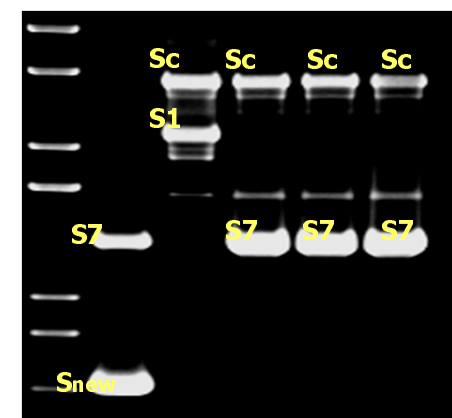
Valorange



Murciana



Dorada



High fruit quality (taste, colour and firmness)

- Resistance to Sharka (Mirlos, Rojo Pasión, Murciana)
- Self-compatibility (with the exception of 'Sublime', 'Estrella', 'Rosa' and 'Maravilla')

FOOD SECURITY (Breeding)

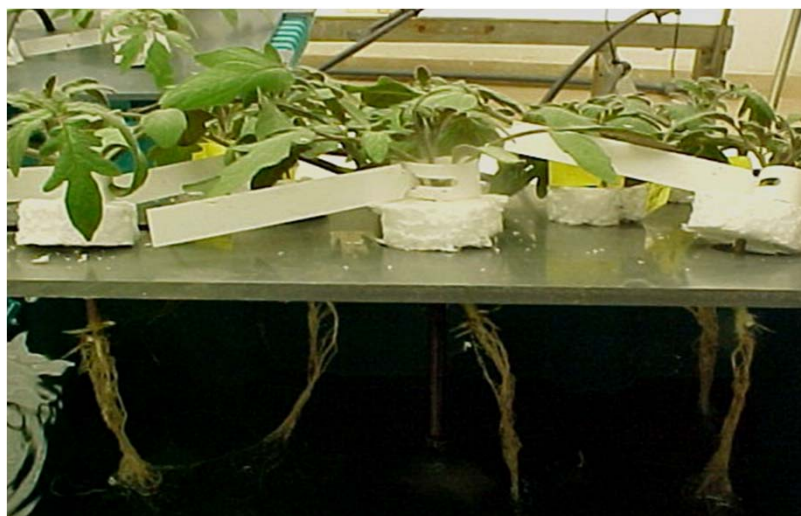
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TOLERANCE TO ABIOTIC STRESS

In vitro



In vivo



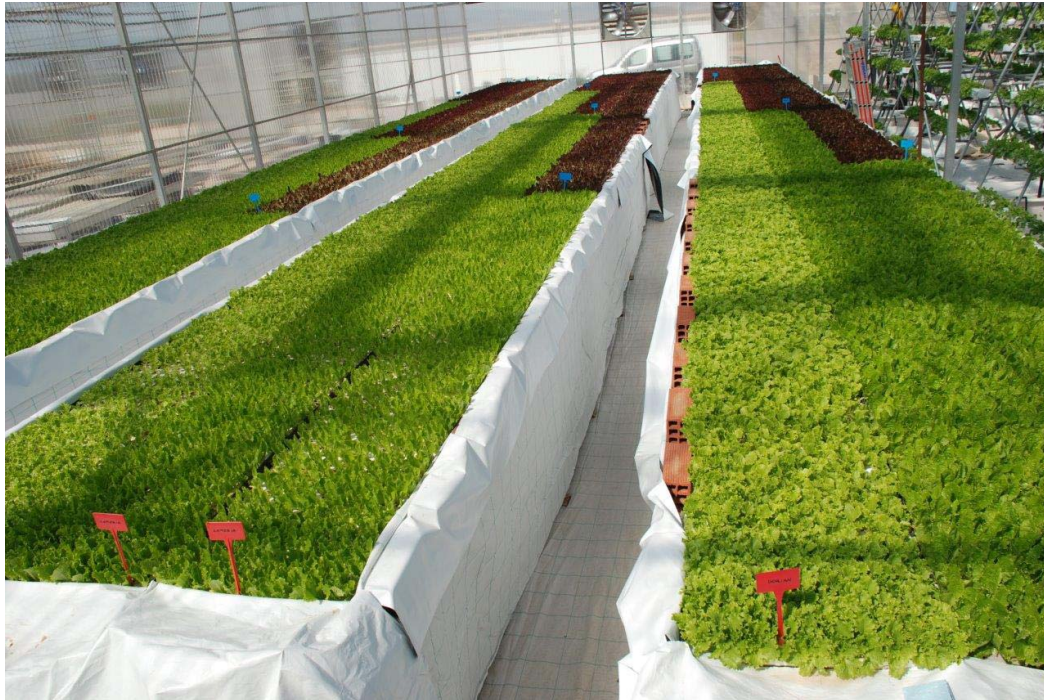
**Soil-less
cultivation**



Greenhouse

FOOD SECURITY (Cultivation)

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New cultivation systems

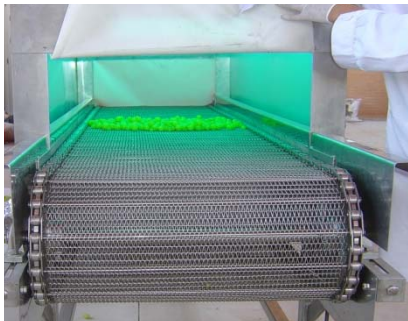
- Vertical cultivations
- Floating cultivation
- Hydroponic cultivation

Intelligent greenhouses

- Temperature control
- Relative humidity
- Nutrition solutions

FOOD AVAILABILITY (Convenient)

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Postharvest storage
Controlled atmospheres
MAP
New packaging

Minimal processing
Fresh-Cut vegetables
Fresh-cut fruits
F&V juices

FOOD & HEALTH

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Technologies for healthy food ingredients



PAST 92-40

EXPRIMIDO

HPH 150-68



New extracts
New constituents
New formulations
Increased bioavailability

Enhanced foods
Enhanced bioavailability
Protection of nutrients
Symbiotics

Nutraceuticals
Food and beauty
Food and performance
Food and function

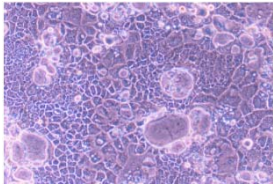
Technologies for evaluation of health effects

ANIMAL MODELS (pig, rat, mouse)



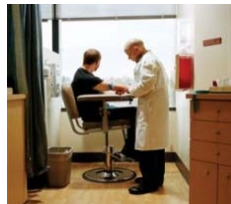
- ✓ Oxidative stress, cardiovascular risk, chronic and acute inflammation
- ✓ Markers (ELISA, WB, protein arrays...), gene expression (**microarrays, RT-PCR...**)

CELL CULTURES:



- ✓ Effects on cancer and normal cells using metabolites at physiological concentrations depending on the cell type.
- ✓ Markers (ELISA, WB, protein arrays...), gene expression (**microarrays, RT-PCR...**)

HUMAN TRIALS:



- ✓ Double-blind, placebo-controlled, randomised trials in healthy subjects or affected by different pathologies
- ✓ Specific biomarkers
- ✓ Gene expression-**transcriptomics** (biopsies and blood cells). **Metabolomics.**

KEY TECHNOLOGIES IN R&D INSTITUTIONS

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Sustainability
Food security
Food availability
Food and health

