



Better Training for Safer Food *Initiative*

**Case study (Lecture 11):
European activities concerning precision
farming. Application of new technologies**

ISAFRUIT Project

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ISAFRUIT Project (2006-2010)
funded by European Union in the ambit
of 6th Framework Research Programme



General objective

**INCREASING FRUIT CONSUMPTION THROUGH
A TRANS-DISCIPLINARY APPROACH
DELIVERING HIGH QUALITY PRODUCTS FROM
ENVIRONMENTALLY FRIENDLY, SUSTAINABLE
PRODUCTION METHODS**

Specific objective of ECOFRUIT Working Pillar within ISAFRUIT Project



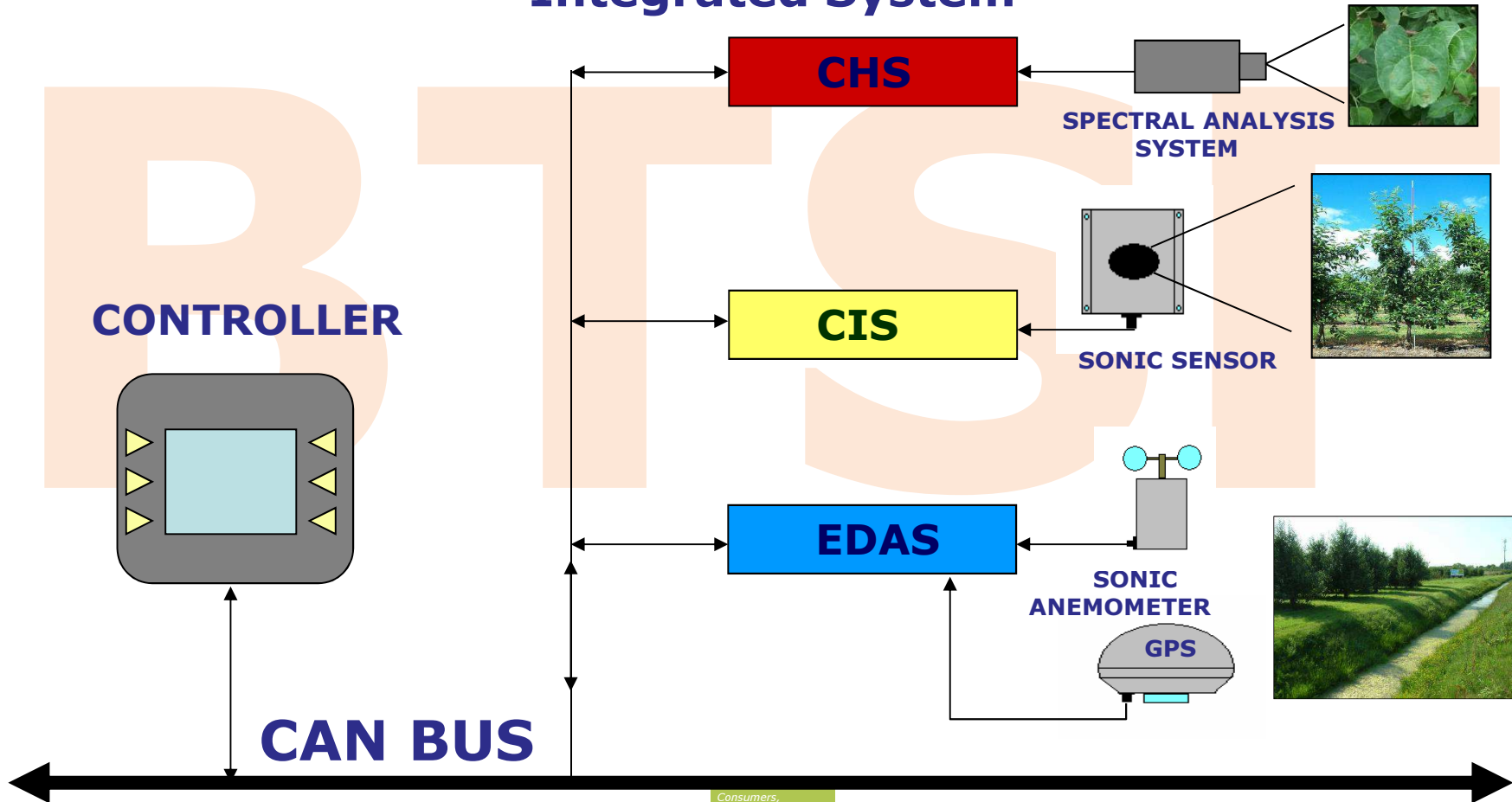
To develop an orchard sprayer (CASA sprayer) able to:

- 1) Recognize the plant diseases and limit the PPP application to the infected plants**
(Crop Health Sensor, CHS)
- 2) Identify the target**
(Crop Identification System, CIS)
- 3) Consider the environmental circumstances**
(Environmentally Dependant Application System, EDAS)



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CASA
Crop Adapted Spray Application
Integrated System





Crop Health Sensor

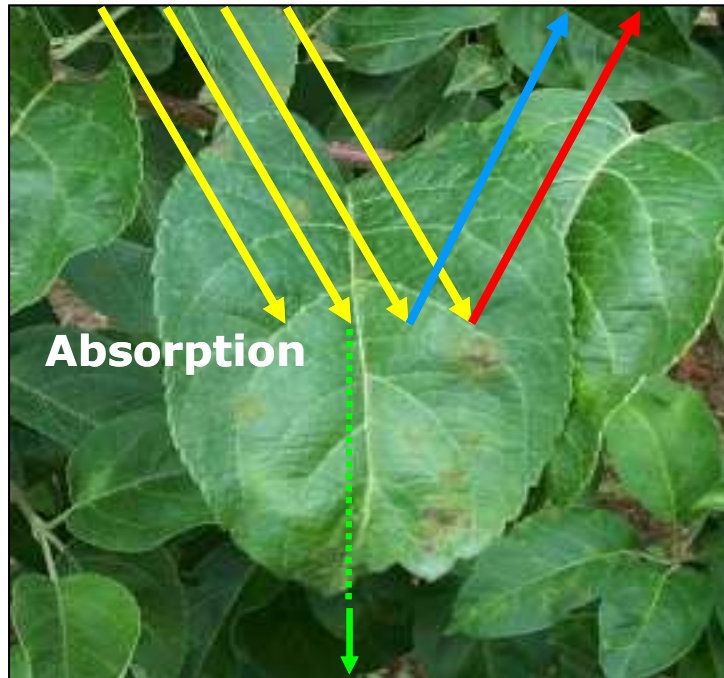
Spectral analysis for identification of object properties

fluorometry spectrometry
Energy Emission Reflection

Developed by:

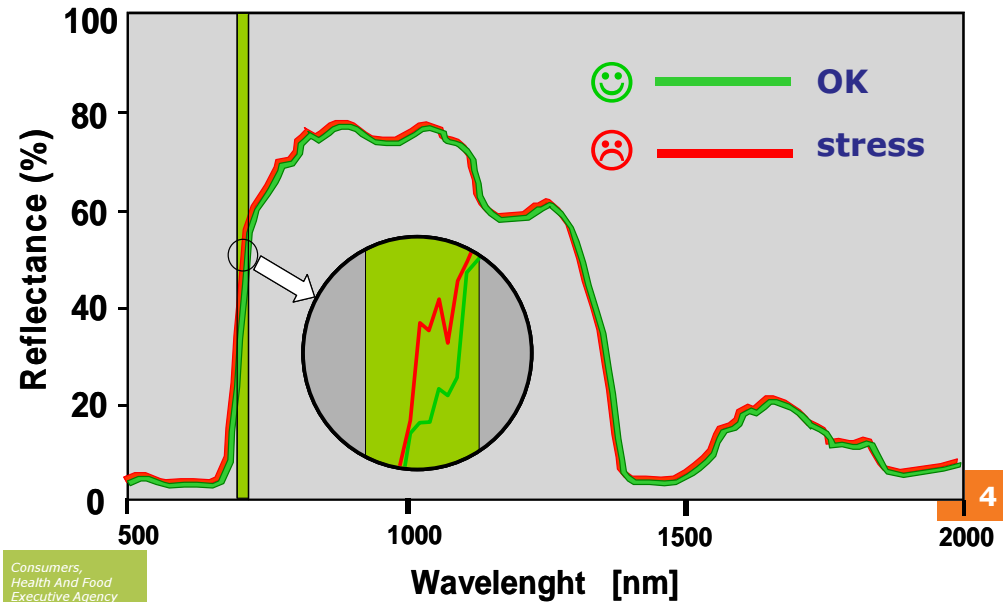


Energy



Transmission

Identifying plant stress (hyperspectral analysis)



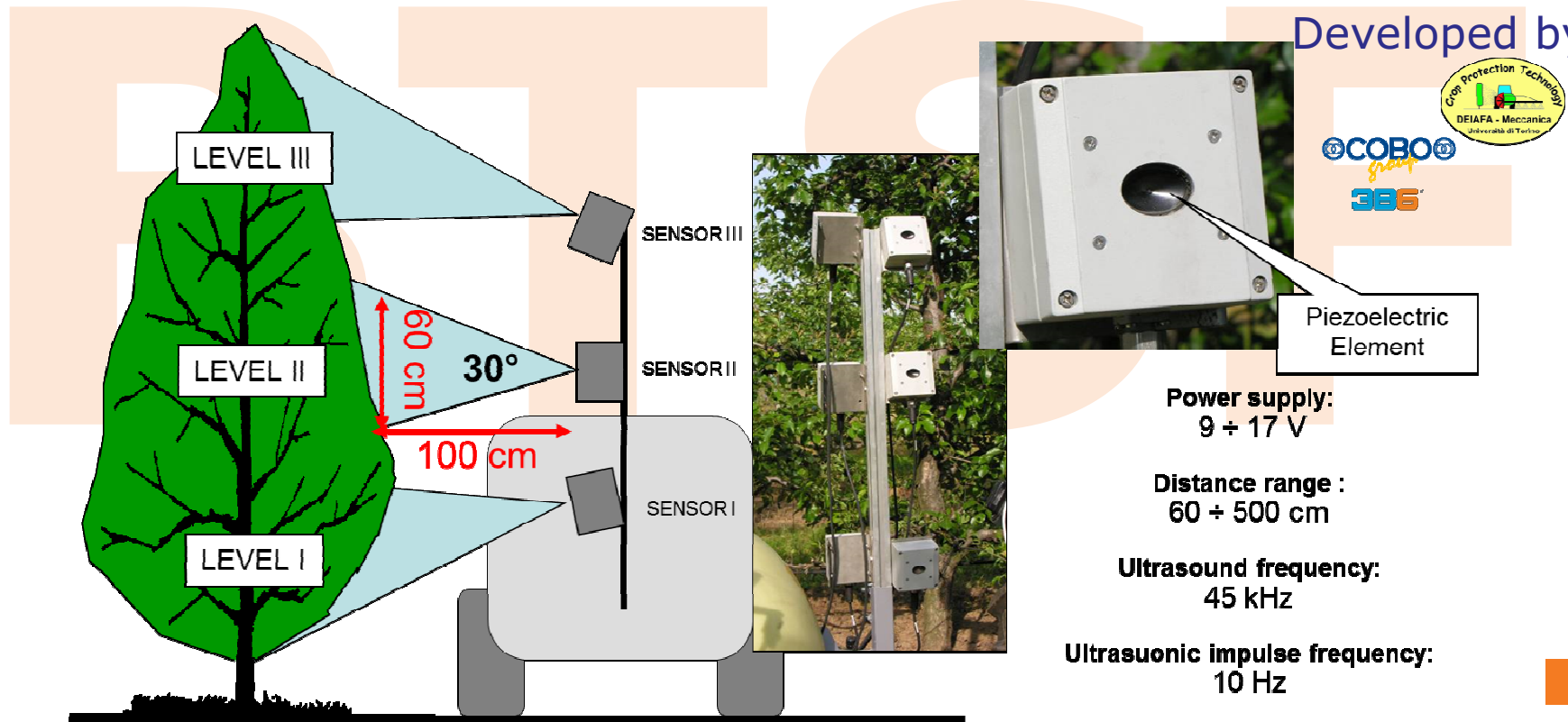


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CIS *Crop Identification System*

Identification of plant size and density

Ultrasonic sensors identifying canopy **WIDTH** and foliage **DENSITY**



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Environmentally Dependent Application System

Identification of environmental circumstances



ISK - SKIERNIEWICZE

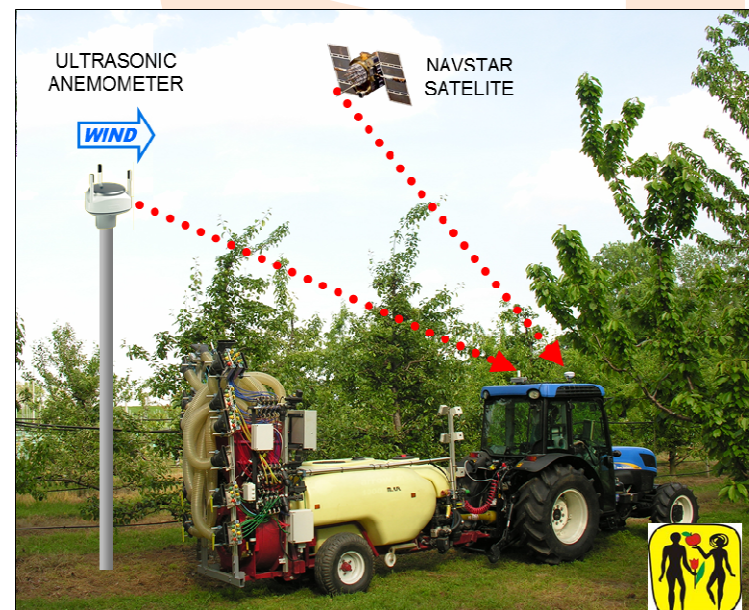
The concept

Sprayer position is based on **DGPS SYSTEM**

Wind velocity and direction are measured with **ULTRASONIC ANEMOMETER**

Application parameters are adjusted depending on **sprayer position** and **wind situation**, in order to minimise spray drift and protect sensitive areas from contamination:

- **SPRAY QUALITY** – by altering FINE / COARSE SPRAY nozzles
- **AIR FLOW** – independently for left and right sides



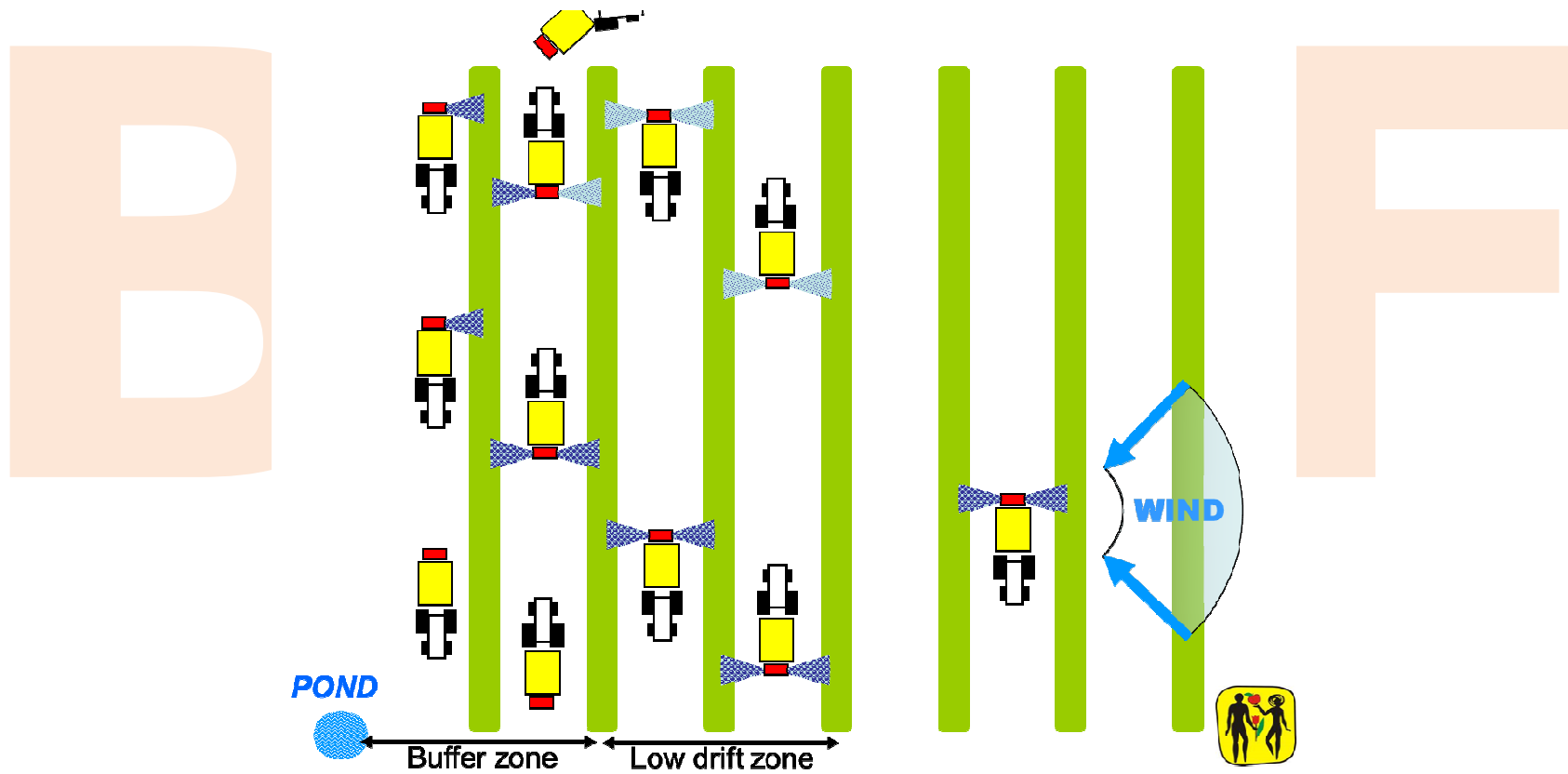


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Environmentally Dependent Application System

Identification of environmental circumstances



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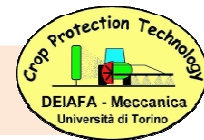


CASA

Crop Adapted Spray Application

CIS system enabled to considerably reduce (up to 82%) the volume application rate without affecting the quality of spray distribution on the target

EDAS system allowed to dramatically reduce (up to 80%) the amount of drift compared with conventional sprayers



Need to finalise CHS in order to realize a fully integrated ISAFRUIT CASA sprayer prototype



Attendants divided in two groups have to answer to the following questions:

- 1) Is Precision Agriculture on PAE a way to improve safety and sustainability of crop protection strategies?
- 2) Are the presented Projects the right way to follow in order to improve environmental protection and food quality?
- 3) Which are the main reasons that slow down the diffusion of Precision Agriculture?



Thank you for your attention.

**Better Training for Safer Food
BTSF**

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