**Information and DSS in fruit production** *(F. Mazzetto)*

**Learning outcomes** - The course aims to introduce the student to issues of decision-making processes of the agro-environment enterprises, mainly focusing on the requirements of farms oriented to fruit productions. Theoretical and practical aspects of the use of Farm Information Systems (FIS) and interactions between Information and Communication Technologies (ICT) and farm mechanization components will be presented and discussed in an integrated way. Relevant emphasis will be given to the designing, implementation and use of farm databases, particularly in view of their integration with GIS tools.

**Course content** - The course will cover the following topics:

1. **ICT REQUISITES FOR PRECISION HORTICULTURE (PH).** The ICT’s frontier in the context of agro-environmental and horticulture farming systems, between the emerging needs of precision farming and information management. The new requirements of the fruit supply full chain for traceability, reporting of processes and activities, automation in field process controls, site-specific farm management. The importance of automating data-logging and farm monitoring; types of monitoring and surveys classifications (environmental, crop and operational).


3. **PH APPLICATIONS.** Operational monitoring: the role of moving- and stationary-user point mechanisation; the tractor as data-logger and information carrier; Computerized Farm Registers (CFR): general features and functionalities; basic structural frameworks (tractor-oriented and implement-oriented); inference engine algorithms to interpret the meaning of farm operational raw-data: from the elementary and single field-activity to the farm historical memory. Crop monitoring: optical and acoustic sensors for performing remote- and proximal-sensing applications; discussion of some case-studies to detect the vigour and the volume of the crop canopy; from thematic maps to prescription-maps. Outlines on prescription farming solutions and related VRT technologies for automating field processes.

**Teaching methods** - The course consists of lectures (18 hours frontal lessons) during which the Professor presents the different topics. Practical lessons and laboratory activities (12 hours laboratory) conducted by the Teacher and the Teaching Assistants are planned as well, to show DBMS and Crop Monitoring applications.
Readings/Bibliography


Assessment methods - Assessment (at the end of the course) is conducted via oral examination that includes: i) questions to assess the knowledge and understanding of the course topics, ii) questions designed to assess the ability to transfer these skills to case studies of crop production, and iii) ability to manage the experiences carried out in laboratory, with special regards to the use of DBMS for PH.

Attribution of a single final mark awarded on the basis of the following criteria: the clarity of the response, the ability to summarize, evaluate, and establish relationships between topics, the independence of judgment, the ability to rework.

Teaching tools Course topics will be presented using Power Point presentations and at the end of a single lesson a paper copy will be distributed directly to students.