Form (ENG):	AGR/03 − Fruit Tree Crops		Year: 2016
Representative:	Andrea Pitacco	Associate Professor	andrea.pitacco@unipd.it
Components:	Claudio Bonghi	Associate Professor	claudio.bonghi@unipd.it
	Benedetto Ruperti	Associate Professor	benedetto.ruperti@unipd.it
	Alessandro Botton	Researcher	alessandro.botton@unip.it
	Franco Meggio	Researcher	franco.meggio@unipd.it

N.	Research: main topics and strategic initiatives	Notes
01	**Main topic:** Molecular physiology of tree fruit development, abscission and ripening. **Strategic initiatives:** Collection and integration of experimental transcriptomic and metabolomic data to model basic aspects of fruit development, abscission and ripening in response to endogenous and environmental factors.	
02	**Main topic**: Sustainable viticulture. **Strategic initiatives**: - Development of mitigation strategies of the impacts of climate change. - Monitoring of greenhouse gases fluxes in the frame of the European Strategic Research Infrastructure ICOS. - Determination of grapevine water use for the development of high-efficiency irrigation strategies. - Development of practices to improve wine industry sustainability.	
03	**Main topic:** Fruit quality for consumption, storage and transformation **Strategic initiatives:** Design innovative strategies (identification of biomarkers: genes, metabolites, epigenetic marks) to improve fruit quality for consumption (determination of allergenic potential and selection of hypoallergenic varieties, nutraceutical composition), storage (prediction of susceptibility to storage disorders and maintainance of quality) and transformation into higher value products (optimizing oil and wine quality and regional tipicity).	
04	**Main topic:** Ecophysiology of tree crops **Strategic initiatives:** - Characterization of physiological responses to environmental variables in grapevine. - Study of the effects of extreme weather events and combined stresses on grapevine physiology. - Development, evaluation and application of models for the assessment of growth, biomass partitioning and water use efficiency in tree crops. - Development of forecasting models of phenology and ripening dynamics in the context of precision viticulture.	
05	**Main topic**: Abiotic stresses in tree crops **Strategic initiatives:** - Study and modelling the responses of trees to various abiotic stresses (flooding, drought, heat and their combinations) and their impact on performance and final quality. - Identification, through combined eco-physiological and omic approaches, functional markers for the selection of stress-tolerant plants (e.g.rootstocks).	

Laboratory:
- Micrometeorology and Ecophysiology of Tree Crops
- Molecular Biology of Tree Crops

Species: apple, peach, grape, pear, olive

Technologies/Metodologies:
- Transcriptomics, metabolomics, bioinformatics
- Fluorescence and light microscopy
- Micrometeorology (eddy covariance, scintillometry)
- Systems for leaf gas exchanges measurement
- IR thermography, Remote sensing

Main ERC fields and subfields:
LS9 Applied life sciences and biotechnology,
LS9_5 Agriculture related to crop production, soil biology and cultivation, applied plant biology

Notes: