



FIELDS KICK-OFF Meeting
Department of Agricultural
Forest and Food Sciences
University of Turin

Turin, 03/02/2020

Prof. Remigio Berruto



UNIVERSITY OF TURIN

Description

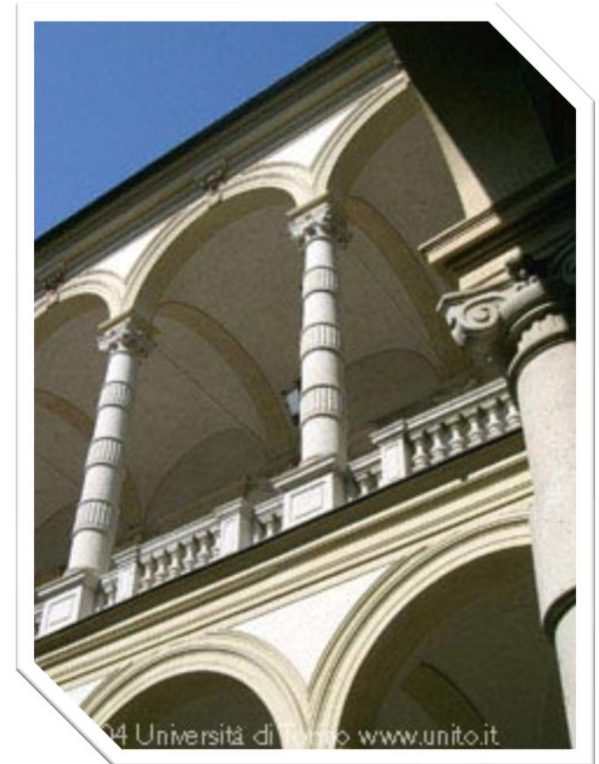
- **600 years old**
- **Founded in 1404 (Prince of Acaja)**

The University in numbers

- 27 Departments
- \approx 73000 students
- \approx 4000 teaching and technical staff in permanent position
- \approx 4000 staff in not permanent position
- \approx 20 professionals to manage EU projects (CSTF)

Nobel prizes

- Rita Levi Montalcini
- Renato Dulbecco
- Salvador E. Luria





Department of Agricultural, Forest and Food Sciences - DISAFA

Description

- The DISAFA is the main Piedmont's research centre in the fields of agriculture, forest and Food Sciences
- DISAFA was awarded in 2017 as the excellence department

The Department in numbers

- total surface area of the Department is 8000 m²
- total area of research laboratories for analysis is 3400 m²
- specialized lab of Crop Protection Technology 500 m²
- test centre for development and certification of sprayer machinery is active

Staff

- 120 professors/researchers
- 94 administrative/technical staff
- 320 fellowships and post-doc

Grugliasco Campus



Largo P. Braccini 2 - 10095
Grugliasco, Italy



Department of Agricultural, Forest and Food Sciences - DISAFA

Description

- **The DISAFA is the biggest department of Agricultural and Food sciences in Italy**
- **Unique dept. in Italy that has all competencies along the food supply chain from primary production to distribution**

1 in Department of excellence

- Dipartimento di scienze Agrarie, Forestali e alimentari – Università di Torino 98 pts
- Scienze e tecnologie agro-alimentari, Università di Bologna 97
- Agronomia Animali Risorse Naturali Ambiente, Padova 95



DISAFA - Education

Description

- The School of Agriculture and Veterinary medicine has 26 classrooms with a seating capacity ranging from 15 to 300 places in the Grugliasco campus (near Turin)
- Three additional sites are used for teaching in Alba, Asti and Cuneo (80/100 km from Turin)

Courses

- **Bachelor's degrees in:**
 - Agricultural Science, Forest and Environmental Science, Food Science, Viticulture and Enology
- **Master degrees in:**
 - Agriculture Science, Sustainable development and territory management (UNESCO Chair)
 - Food Sciences, Viticulture and Enology (European Consortium EMAVE)
 - Animal Science
 - Plant Biotechnology
 - **Master di II livello in Scienze e Tecnologie Alimentari per la Nutrizione Umana - Michele Ferrero**
 - Park, Gardens and Landscape (inter-institutional agreement with the University of Genova)
 - Unique logistic of agri-food course in Italy
- **PhD course:**
 - "Agricultural, Forest and Food Sciences" as part of the Doctoral School of Sciences and Innovative Technologies



DISAFA - Entrepreneurship

Description

- **Since 2007, UniTo has set up a business incubator (2i3T - www.2i3t.it) that has generated 48 start-up companies, 6 from DISAFA**
- **DISAFA has also AGROINNOVA, an excellence research center lead by prof. Maria Ludovica Gullino**

SPIN-OFF companies and Excellence research centers

- **AGRO-INNOVA** → Excellence research center for plant pathology (www.agroinnova.it)
- **GRAPE** → Activity in vineyard and oenology production (<http://www.grapesrl.it/>)
- **HORIZON** → Environmental service, soil bioremediation (<http://www.horizon.to.it/>)
- **STRIGOLAB** → Synthesis and distribution of organic molecules, including strigolactones analogues (www.strigolab.eu)
- **UP TO FARM** → Supply services and development of innovative products for the sustainable use of recyclable resources in agriculture (<http://www.uptofarm.com/>)
- **AGRINEWTECH** → AgriNewTech Ltd is a spin-off of the University of Torino in the field of agricultural and environmental biotechnologies (<http://www.agrinewtech.com/>)



DISAFA – Knowledge Transfer

Description

- DISAFA work hard to promote knowledge transfer and innovation of education in agriculture and agrifood. This include the implementation of software, establishment of innovative model for training and teaching.

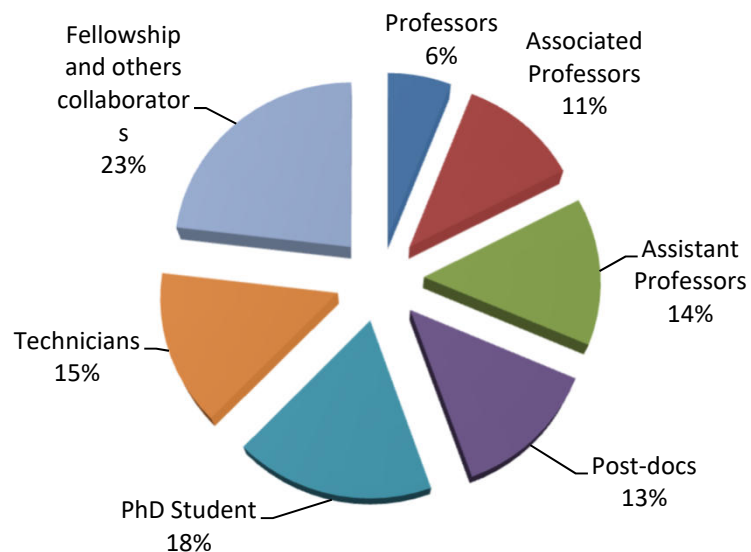
Related projects – knowledge transfer and education

- EU IEE/13 – BIOGAS3, Sustainable Small-scale biogas production from agro-food waste for energy Self-sufficiency - <http://www.biogas3.eu>
- EU IEE/13 - BioEnergy Farm II, manure, the sustainable fuel for the farm, <http://www.bioenergyfarm.eu>
- EU Erasmus+ strategic partnership – Food4Growth - Increase key skills in communication and responsibility for the growth of Agro Food - <http://www.food4growth.eu>
- EU Erasmus+ FOODLAB- European Foodbusiness Transfer Laboratory for stimulating entrepreneurial skills, for fostering innovation and for business creation in the Food Sector
- EU Erasmus+ strategic partnership – ESCAPE - Enhance sales capacities for agrifood products in Europe - <http://www.escape-project.eu>



DISAFA – International Research

- 460 people involved in research
- Research programs:
 - Belgium, Spain, Czech Rep., Poland, Portugal, France, Israel, USA, Canada, Brasil, Africa,... China
 - BUA
 - China Agricultural University
 - Academy of Agriculture
- Partner of more than 40 EU projects
- **Coordinator of 2 Horizons:**
- **EMPHASIS and TOMRES**
- **Unique Department in**
- **KIC EIT FOOD**
- Exchanges:
 - researchers
 - professors
 - students



Scientific production (mean 2012:2016)

450/yr papers on International sc. journal (IF)
16/yr reviews and Sc. Book contributions
5/yr patents
300/yr papers on technical magazine etc.



Research Topics - 1

Economics and Rural Valuations

- The Medicinal and Aromatic plants sector
- Forest and environmental policy and economics for the valorization of marginal lands
- Economics of the agri-food system, markets and policies

Agronomy and Herbaceous Cultivations

- Strategies for cereal productivity, sustainability and quality
- Agronomy of agricultural systems and agroecology
- Grassland Ecology & Management (G.E.M.)
- Sustainable Weed Management
- Greenhouse gas emissions from agroecosystems



Research Topics - 2

General Arboriculture and Arboreal Cultivations

- Sustainable tree crops systems
- Biodiversity and breeding of nut and fruit woody species
- Postharvest technology and fruit quality
- Fruits quality

Horticulture and Floriculture

- Landscape restoration and management
- Environmental horticulture and urban greening
- Ornamental & Medicinal and Aromatic Plants

Agricultural Genetics

- Characterization and use of biodiversity in vegetables for environmental sustainability and product quality improvement
- Genetic variability analysis of forest tree species and definition of strategies for its preservation



Research Topics - 3

Agricultural Mechanics

- Technologies end equipment for plant protection
- Mechanization, work organization and operator safety in forestry
- Agro-zootechnical biomass management
- ICT, Logistics, Sustainability for Agriculture and Agrifood Chains
- Knowledge transfer and innovation of education in agriculture and agrifood
- Precision farming, robotics & automation in agriculture

Agricultural Chemistry

- Soil degradation and protection
- Soil Biogeochemistry and Fertility

Soil Science

- Soil formation and climate change



Research Topics - 4

General and Applied Entomology

- Beekeeping and Pollination
- Insect vectors of plant pathogens
- Forest entomology and zoology
- Sustainable crop pest management

Plant Pathology

- Plant pathology and plant disease management
- Forest pathology
- Biotechnological applications to plant pathology
- Valorisation of biomasses and wastes for sustainable crop protection



Research Topics - 5

Food Science and Technology

- Functional foods
- Oenology studies and process improvement
- Valorization and certification of local production and wines
- Wine Microbiology
- Technology innovation to reduce sulphites use in wine
- Sustainability improvement of wine processes
- Shelf life increase in oenology products
- Technological approaches to reduce alcohol in wine
- Food by-products and waste valorization

Agricultural Microbiology

- The diet-microbiota-human health axe
- Study of microbial role in food fermentation processes
- Molecular approaches for the understanding of prevalence and behavior of foodborne pathogens
- Probiotic microorganisms isolated from foods and their effect on human microbiome
- Agro-environmental Microbiology



Research Topics - 6

Alternative Fish Cultivation and Insect Growing

- Fish farming systems
- Insect meals in animal feeds

Zootechnic and Genetic Improvement

- Strategies to reduce the environmental impact of livestock systems
- Optimization and valorisation of meat and milk production
- Piemontese breed: which possibilities of improvement?
- Genetics and quali-quantitative characteristics of the milk

Nutrition and Animal Feed

- Technics of evaluation of feeds digestibility
- Alternative vegetable feeds in animal nutrition



Research Services Provided

- Experimental winery
- Agronomy and manure management
- Forestry management
- Soil preservation and fertility
- Field trials
- Sprayer testing
- Food quality assessment
- Microbiology assessment
- Weed and pathogens control
- Testing of new chemicals – Essay centre
- Climatic chambers

- Software development
- Simulation and optimization
- Mycotoxins management
- Technology and equipment
- Logistic
- Market analysis and strategies
- Sustainability and resource efficiency – LCA
- Business models and business plans
- Communication and dissemination
- Project management



Innovation and Solution Provider

- Innovative spraying equipment
- Active resistance to insects and fungi
- Precision farming solutions
- Breeding and biodiversity
- New post-harvest solutions
- Training with flipped classroom
- Tools and web applications
- Consumer willingness to pay and attitudes
- Circular bioeconomy solutions

- New food products
- New wines
- New wine technologies
- New varieties
- New feed products
- Insect farming
- Regional modelling
- Tools for project management
- KIC summer school



Excellences in Research Areas

Vertical skills

- Wine
- Rice
- Agronomy (corn, wheat)
- Weed control
- Microbiology
- Post-harvest
- Food quality and innovation
- Pest management
- Forestry management
- Bioenergy and Future Energies
- Alternative feeds and insects
- Bioeconomy
- Genetics

Horizontal skill

- Agricultural equipment
- Logistics and RFID, traceability
- Entrepreneurship
- Flipped classroom
- Business plans & Business models
- LCA assessment
- Innovation & Knowledge transfer
- Funding opportunities
- Industrial PhD and masters
- Local development
- Financial reporting tools & services
- KIC summer school



Relevant Duties in Network and Research Community Infrastructure

- Engaged with major farmer associations in Italy
- Member of many network as University
- Member of the EIT FOOD kic
- Member of Food For Life Platform Board
- Member of national food technology platform – Cluster
- President of Italian Agronomy Society
- President of Agricultural Societies - AISSA – Italy
- Chair of EFITA
- Chair of World Association of Agricultural Engineers – Section V

- President of INFITA – International Federation of ICT for Agriculture and AgriFood
- Many members of Georgofili Academy – Italy
- Courtesy professors at University of Florida, USA
- Chair of the logistic WG within world association of agricultural engineers

Thank you for your attention!



UNIVERSITÀ
DEGLI STUDI
DI TORINO



«*Infinite energy is people*»

Italian Pavillion, FUTURE ENERGY EXPO 2017, Astana

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