

Biographical Sketch – Stefano Musacchi

Stefano Musacchi, Ph.D. ***Associate Professor***

DEPARTMENT OF HORTICULTURE
WASHINGTON STATE UNIVERSITY – TFREC
1100 N. Western Avenue, Wenatchee, WA, 98801
Direct phone: +1 509 663.8181, Ext. 236
E-mail: stefano.musacchi@wsu.edu

Educational Background:

Ph.D in Pomology, Dipartimento Colture Arboree, Faculty of Agricultural Sciences at University of Bologna defended in 1996. (Thesis title: Studies on physiological and biochemical aspect of graft-incompatibility). Advisor: Prof. Silvano Sansavini.

Master in Agricultural Sciences Dipartimento di Colture Arboree Faculty of Agricultural Sciences at University of Bologna (five-year graduate degree) in 1990. (Thesis title: Application of growth regulator in nursery). Advisor: Prof. Guglielmo Costa.

Honors:

Winner of the Monastra prize for young researcher (SOI-Societa' di Ortoflorofrutticoltura Italiana) awarded at a ceremony in Agrigento on 15 September 1999.

International Experience:

- Member of the eJHS (European Journal of Horticultural Science) Editorial board.
- Member of the Scientific Committee of the ISHS 9th International Pear Symposium in South Africa, 2004; Member of the Scientific Committee of the XI International Pear Symposium in Argentina, November 2010; Member of the Scientific Committee of the Training system Symposium, in South Africa, December 2012; Member of the Scientific Committee of the XII Pear Symposium in Belgium, July 2014;
- Secretary of the International Master's in Horticultural Science (IMAHS) University of Bologna from 2008 to 2013.
- Visiting scientist (9 months), United States Department of Agriculture (USDA) Fruit Laboratory, Beltsville, Maryland, Ref. Dr. Miklos Faust and Prof. Jerry Cohen, July 1994 to March 1995.
- Visiting fellow (3 months), Cornell University, working with Dr. Gennaro Fazio. 27 May – 30 August 2003.

Areas of Research Activity:

Pomology and physiology of fruit tree, pear breeding.

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Positions Held:

- **August 2013 to present.** Associate Professor, Washington State University.
- **January 2000 - June 2013.** Assistant Professor, Faculty of Agriculture, Dipartimento Colture Arboree (DCA), University of Bologna.

Teaching Experience:

University of Bologna

- Tecnica Vivaistica (2 CFU, 20 hours per year), Nursery technology, 2000-2010. Frutticoltura III (2 CFU, 20 hours per year) (Laurea Specialistica in Scienze Agronomiche e delle Produzioni Vegetali, 2002--2008. Frutticoltura III (2 CFU, 20 hours per year), course in English in the International Master's in Horticultural Science (IMAHS), 2004-2008. Tecnica Vivaistica Avanzata (3 CFU, 30 hours per year), 2004-2007. Fruttiviteicoltura (4 CFU, 40 hours per year), Laurea triennale in protezione delle piante, 2007-2009. Nursery and orchard management (5 CFU, 50 hours per year), course in English in the International Master's in Horticultural Science (IMAHS), 2008-2013. Frutticoltura (5 CFU, 50 hours per year, Fruit Production, 2007-2013.

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- Frutticoltura B Fruit Crops B (60 hours per year), 2002-07.

Recent Grant Support

- **(2007-2017) Pear breeding rootstocks and cultivars.** Working Group Leader. Budget €350,000
- **(2010-2013) National coordinator of the project on pear** “Management and crop innovations for high-quality pear production (Innovazioni di processo e di prodotto per una pericoltura di qualità) AGER-INNOVAPERO”. Total Project Budget €3,5 million. Department Budget €1,2 million, **personal budget €400,000** .
- **(2012-2014) Project Title: Improving fruit set, production efficiency, and profitability of pears.** Northwest Pear Bureau Role: Co-Pi, Total Budget \$219,545 US PI Todd Einhorn.
- **(2012-2017) NC140 Project No: NRSP_TEMP321. Title: Database Resources for Crop Genomics, Genetics and Breeding Research.** Participant Name: Stefano Musacchi leader. Other participants: Kate Evans, Lee Kalcsits and Amit Dhingra
- **(2013) Project Title: WA 38 rootstock and systems trial.** Washington Tree Fruit Research Commission (WTFRC) Role: PI, Budget: \$58,594 US
- **(2014-2017) WA 38 Rootstock and Systems Trial.** Role: PI, Total Budget: \$242,519 US, **personal budget: \$133,495 US**
- **(2014-2017) Fall and summer pruning to control vigor and Psylla in D’Anjou pear** Role: PI, Total Budget: \$215,466 US, **personal budget: \$142,082 US**
- **(2014-2017) Fruit distribution inside an open vase of cv Anjou: investigation on variation in ripening, quality and storability.** Role: PI, Total Budget: \$201,866 US, **personal budget: \$110,366 US**

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- **(2014- 2019) Funding Agency : USDA - Technical Assistance for Specialty Crops (TASC).** Proposal will be submitted by the Washington Apple Commission. Proposal will be prepared by Mike Willet - Northwest Horticultural Council. Research Leaders Stefano Musacchi CO-PIs Mark Mazzola and Karen Lewis. China apple decay: How to replace the Manchurian pollinator? Total request 1,913,832. **Personal budget (567,500 US\$) and 295,100 US\$ of overheads for WSU.**
- **(2015-2016)** Microclimate effects on physiology of apple under photosensitive anti-hail nets. PI Lee Kalcsits Co-PI Stefano Musacchi and Desmond Lane. Total budget 173,815 \$US. **Personal budget 56,808 \$US**

Selected Publications in Refereed Journals

- Musacchi S., Gagliardi F. and Serra S., 2015. *New Training Systems for High Density Planting of Sweet Cherry*. HORTSCIENCE 50(1):59–67. 2015.
- Jajo A., Rahim Mda., Serra S., Gagliardi F., Jajo N.K., Musacchi S., Costa G., Bonghi C. And Trainotti L., 2014. *Impact of tree training system, branch type and position in the canopy on the ripening homogeneity of 'Abbé Fétel' pear fruit*. Tree Genetics & Genomes, 10:1477–1488. DOI 10.1007/s11295-014-0777-2.
- Civolani, S., Grandi, G., Chicca, M., Pasqualini, E., Fano, E.A., Musacchi, S. 2013. Probing behaviour of *Cacopsylla pyri* on a resistant pear selection. Journal of Applied Entomology: 137(365-375).
- Civolani, S., Leis, M., Grandi, G., Garzo, E., Pasqualini, E., Musacchi, S., Chicca, M., Castaldelli G., Rossi R., W. Freddy Tjallingii, 2011. Stylet penetration of *Cacopsylla pyri*; an electrical penetration graph (EPG) study. Journal of Insect Physiology 57 (10), pp. 1407-1419.
- Pierantoni L., Dondini L., De Franceschi P., Musacchi S., Winkel-Shirley B.J., Sansavini S., 2010. Mapping of an anthocyanin-regulating MYB transcription factor and its expression in red and green pear, *Pyrus communis*, Plant Physiology and Biochemistry, 2010, 48, pp. 1020 - 1026.
- Nocito F., Espen L., Fedeli, Lancilli C., Musacchi S., Serra S., Sansavini S., Cocucci M., Sacchi G.A., 2010. Oxidative stress and senescence-like status in pear calli co-cultured on quince microcalli suspensions in an in vitro graft model system. Tree Physiology, 2010, 30: 450-458 (doi:10.1093/treephys/tpq006), Tree Physiology, 2010, 30, pp. 450 - 458.
- Lugli S., Musacchi S., 2010. Ultra high-density sweet cherry plantings, Compact Fruit Tree, 2010, 43, pp. 15 - 19.
- Costa F., Peace C. P., Stella S., Serra S., Musacchi S., Bazzani M., Sansavini S., Van de Weg W.E., 2010. QTL dynamics for fruit firmness and softening around and ethylene-dependent polygalacturonase gene in apple (*Malus x domestica* Borkh.), Journal of Experimental Botany, 2010, 130, pp. 1 - 11.
- Costa F, Alba R, Schouten H, Soglio V, Gianfranceschi L, Serra S, Musacchi S, Sansavini S, Costa G, Fei Z, Giovannoni J., 2010. Use of homologous and heterologous gene expression profiling tools to characterize transcription dynamics during apple fruit maturation and ripening. BMC Plant Biol. 2010 Oct 25;10(1):229.
- Musacchi S., 2009. Training systems and orchard management for southern European Pear orchard, Compact Fruit Tree, 2009, 42, pp. 16-19.

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- Lakatos L., S. Musacchi, T. Szabó, M.G.Kocsisné, J. Racskó, Z.Szabó, M.Soltész, J. Nyéki, 2009. Relationship between the phenological features of pear cultivars and the main meteorological parameters in a 555 number pear gene bank, *International Journal of Horticultural Science*, 2009, 15, pp. 59 - 64.
- Dondini L., Pierantoni L., Ancarani V., D'Angelo M., Cho K.H., Shin I.S. , Musacchi S., Kang S.J., Sansavini S., 2008. The inheritance of the red colour character in European pear (*Pyrus communis* L.) and its map position in the mutated cultivar 'Max Red Bartlett'", *Plant Breeding*, 2008, 127, pp. 524 - 526.
- Costa F., Van de Weg W.E., Stella S., Dondini L., Pratesi D., Musacchi S. , Sansavini S., 2008. Map position and functional allelic diversity of Md-Exp7, a new putative expansin gene associated with fruit softening in apple (*Malus x domestica* Borkh.) and pear (*Pyrus communis*), *Tree Genetics & Genomes*, 2008, 4, pp. 575-586.
- Musacchi S., M. Quartieri, M. Tagliavini, 2006. Pear (*Pyrus communis*) but not quince (*Cydonia oblonga*) roots are able prevent excessive uptake of Cl⁻ and Na⁺ in saline soils, *European Journal of Agronomy*, 2006, 24, pp. 268 - 275.
- Pasqualini E., Civolani S., Musacchi S., Ancarani V., Dondini L., Robert P., Baronio P., *Cacopsylla pyri* behaviour on new pear selections for host resistance programs, *Bulletin of Insectology*, 2006, 59, pp. 27-37.
- Musacchi S. Pagliuca G, Kindt M., Piretti M.V. e Sansavini S., 2000. Flavonoids as markers for pear-quince graft incompatibility. *Journal of Applied Botany - Angewandte Botanik*, 74 2000: 206-211.

Other Research Products:

Variety Release Patents:

- ❖ PE1UNIBO* DCABO44. Application n°A201301566 Privativa UE April 8, 2014. Pear Breeders: Musacchi, S., Ancarani, V., & Sansavini, S.
- ❖ PE2UNIBO* DCABO50. Application n°A201301570 Privativa UE April 8, 2014. Pear Breeders: Musacchi, S., Ancarani, V., & Sansavini, S.
- ❖ PE3UNIBO* DCABO76. Application n°A201301575 Privativa UE April 8, 2014. Pear Breeders: Musacchi, S., Ancarani, V., & Sansavini, S.
- ❖ PE4UNIBO* DCABO27244. Application n°A201301574 Privativa UE April 8, 2014. Pear Breeders: Musacchi, S., Ancarani, V., & Sansavini, S.

Other Patent:

- **Machine for automatic grafting.** Patent UNIBO December 10, 2003. Prot. 45746 III/10