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Flooding tolerance in Salicaceae (poplars and willows)

The main area for poplar and willows plantations in Argentina is the Paraná River Delta, where flooding episodes are frequent, and their occurrence will increase with climate change. In my group, we try to understand the mechanisms that enhance poplar and willow tolerance to flooding, at morphological, physiological, biochemical and molecular levels.

We work in close collaboration with the Poplar and Willows Breeding Group from the National Institute for Agricultural Technology (INTA). In our work, we use several of the new genotypes obtained by this group at the INTA Delta Research Station.



Use of Salicaceae to produce biomass for energy

In Argentina, the use of biomass for energy is scarce. There is little information about yield and management practices for Short Rotation Coppice (SRC) plantations with poplars and willows that are well developed in other countries. Because of their rapid growth and high demand for resources, SRC systems are more similar to annual crops than to traditional forest plantations. Our aim is to learn about the factors that determine the productivity and sustainability of SRC systems under local conditions.



Recent Publications

1. Rodríguez ME, Mozo I, Cortizo S, Cappa E, Luquez VMC (2020) Early rooting and flooding tolerance in cuttings from a *Populus deltoides* full-sib family under greenhouse conditions. Accepted, **Canadian Journal of Forest Research**. <https://doi.org/10.1139/cjfr-2020-0137>.
2. Rodríguez ME, Lauff D, Cortizo S, Luquez VMC (2020) Variability in flooding tolerance, growth and leaf traits in a *Populus deltoides* intraspecific progeny. **Tree Physiology** 40 (1) 19-29. <https://doi.org/10.1093/treephys/tpz128>
3. Doffo G, Rodríguez ME, Olgún F, Cerrillo T, Luquez VMC (2018) Resilience of willows (*Salix* spp.) differs between families during and after flooding according to floodwater depth. **Trees** 32:1779-1788. <https://doi.org/10.1007/s00468-018-1751-7>
4. Luquez V, Cerrillo T, Rodríguez ME (2018) Flooding tolerance in willows planted in Argentina: current knowledge and perspectives. **Revista de la Facultad de Agronomía La Plata** 117 (1): 89-98. <https://revistas.unlp.edu.ar/revagro/article/view/7331>
5. Achinelli F, Doffo G, Barotto AJ, Luquez V, Monteoliva S (2018) Effects of irrigation, plantation density and genotype on woody biomass quality for bioenergy in a short rotation culture system with willows (*Salix* spp.). **Revista Árvore** 42(2):e420210. <http://dx.doi.org/10.1590/1806-90882018000200010>
6. Rodríguez ME, Doffo G, Cerrillo T, Luquez VMC (2018) Acclimation of cuttings from different willow genotypes to flooding depth level. **New Forest** 49: 415 - 427. <https://doi.org/10.1007/s11056-018-9627-7>
7. Doffo G, Achinelli F, Rodríguez ME, Luquez VMC (2017) Yield of a short rotation coppice plantation of *Salix* spp. in Buenos Aires, Argentina. **Bosque**, 38 (3) 587-592. DOI: 10.4067/S0717-92002017000300016
8. Doffo G, Monteoliva S, Rodríguez M E, Luquez V (2017) Physiological responses to alternative flooding and drought stress episodes in two willow (*Salix* spp.) clones. **Canadian Journal of Forest Research**, 47:174-182. <https://doi.org/10.1139/cjfr-2016-0202>
9. Rodríguez M E, Luquez V (2016) Poplars and willows responses to flooding stress. **Book chapter**. In: *Poplars and Willows: Cultivation, Applications and Environmental Benefits*. ISBN 978-1-63484-038-5. Editor: Madeline V. Desmond. Editorial: Nova Science Publishers, Inc, Hauppauge, New York, USA.
10. Rodríguez ME, Achinelli F, Luquez V (2015) Leaf traits related to productivity in *Populus deltoides* during the post-flooding period. **Trees** 29: 953-960. <https://doi.org/10.1007/s00468-015-1189-0>

For a complete list of publications, go to my Google Scholar profile (<https://scholar.google.com>).
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