**Christian Marx**

Born 27th November 1980 (née Wöltjen)

**Doctoral degree**

Dr. rer. hort. (Dec 13th, 2013, Leibniz Universität Hannover / Germany)
*Investigations on the use of laser technology in plant production*
(translation from the German title)

**Lecturer expertise**

Soilless production systems: greenhouse, irrigation, and fertigation techniques

Technical measures of horticultural production systems

Lasers in biomedical engineering

Photonics in plant production

Basics on measuring and controlling of plant growth factors

**Current position**

Chalmers University of Technology, Building Technology
PostDoc within the Climate KIC projects

**Previous employment**

2008 - 2014: Leibniz Universität Hannover, Institute of Horticultural Production Systems, Biosystems Engineering Section

2008 - 2014: Laser Zentrum Hannover e.V., Materials and Processes Department, Safety Technology Group

**Awards**

2014: Green Photonics Award of the Fraunhofer society (category: PhD thesis)

2011: StartUp Impulse Award of hannoverImpuls (category: science)

2011: Poster Award of the German Society of Horticultural Science

2010: Grow Award (as supervisor of H. Hoja) of the Landgard Foundation

2010: Green Challenge Award of the German Society of Horticultural Science

**Supervisor of the following students**

Heiderose Hoja (2011), Christoph Bohlius (2012), Karolina Schymik (2013), Tobias Kiesow (2013), Nagihan Kaptan (2014), Roland Britz (2014)

**Publications**

Marx C., Hustedt M., Hoja H., Winkelmann T., Rath T. (2013)
Investigations on laser marking of plant and fruit. Biosystems Engineering 116(4), 436-446 (DOI:10.1016/j.biosystemseng.2013.10.005)

Marx C., Schultz M., Schymik K., Krüger A., Ripken T., Rath T. (2013)
Re-Identification of superficial and sub-epidermal laser markings on plants and fruits. Acta Horticulturae (ISHS) 1037:709-714 (www.actahort.org/books/1037/1037_91.htm)

Marx C., Kiesow T., Hustedt M., Kaierle S., Poehling H.M., Rath T. (2013)
Application of NIR-lasers for the control of aphids and whiteflies. DGG Proceedings 3 (12), 1-5 (DOI:10.5288/dgg-pr-03-12-cm-2013)

Kaierle S., Marx C., Rath T., Hustedt M. (2013)
Find and irradiate – Lasers used for weed control. Laser Technik Journal 10(3), 44-47 (DOI:10.1002/latj.201390038)

Marx C., Pastrana J., Hustedt M., Haferkamp H., Rath T. (2012)
Selective weed control by means of image analysis and laser application. Automation Technology for Off-Road Equipment, ISBN: 84-615-9654-4, p. 61-66

Marx C., Barcikowski S., Hustedt M., Haferkamp H., Rath T. (2012)
Design and application of a weed damage model for laser-based weed control. Biosystems Engineering 113(2), 148-157 (DOI:10.1016/j.biosystemseng.2012.07.002)

Marx C., Pastrana Prez J.C., Hustedt M., Barcikowski S., Haferkamp H., Rath T. (2012)
Investigations on the absorption and application of laser radiation for weed control. Landtechnik 67(2), 95-101

Marx C., Pastrana Perez J.C., Hustedt M., Barcikowski S., Haferkamp H., Rath T. (2012)
Selektive Unkrautbekämpfung mittels Lasertechnik. Julius-Kühn-Archiv 434(1), 215-222 (DOI: 10.5073/jka.2012.434.026)

Marx C., Rath T., Barcikowski S. (2010)
Methodik zur Untersuchung von Laserlichtwirkung auf der Basis von Bildanalysen auf juvenile Pflanzen zur Unkrautregulierung. Bornimer Agrartechnische Berichte 73, 21-31 (ISSN 0947-7314)

Wöltjen C., Rath T., Herzog D. (2008)
Investigations about the technical basics of laser beam use for plant manipulation. Acta Horticulturae 801(1), 587-594 (ISSN 0567-7572)

Wöltjen C., Haferkamp H., Rath T., Herzog D. (2008)
Plant growth depression by selective irradiation of the meristem with CO2 and diode lasers. Biosystems Engineering 101(3), 316-324 (DOI: 10.1016/j.biosystemeng.2008.08.006)