Gerhard Buck-Sorlin

Age 55, Male
e-mail address: gerhard.buck-sorlin@agrocampus-ouest.fr
Tel : (33)2 4122 5548

Scientific Career

1997 PhD thesis, University of Wales, Bangor, Great Britain

1997 Postdoctoral Scientist, 3D modelling of morphology and genetics of barley, Dept. of Taxonomy, Institute of Plant Genetics and Crop Plant Research, Gatersleben, Germany

2002 Senior Scientist and Lecturer, development of modelling language and platform for Functional-Structural Plant Modelling, Dept. Graphical Systems and Practical Informatics, Brandenburg Technical University, Cottbus, Germany.

2007 Senior Scientist and Lecturer, Dept. Crop and Weed Ecology (Centre for Crop Systems Analysis), Wageningen UR

2010 Senior Scientist and Lecturer, Dept. Biometris, Wageningen UR, The Netherlands

2011 Professor of Fruit Tree Ecophysiology, Agrocampus Ouest, Angers, and researcher at IRHS, UMR (mixed research unit) INRA – Agrocampus Ouest – Université d'Angers, Angers

h-index: 22

i10-index: 36

Languages:

German (mother tongue), English (fluent), French (fluent), Dutch (proficiency), Chinese (beginner).

Research supervision activity:

I have supervised eight doctoral theses as well as numerous diploma and master theses. Three postdoctoral scientist have worked in my research projects. Furthermore, since 2011 I have been a member of the examination board of twenty-one doctoral theses and five habilitation theses.

Membership in scientific committees and reviewing activity

Member of the scientific committees of FSPM (the International Conference on Functional-Structural Plant Models), and PMA (International Symposium on Plant Growth Modeling, Simulation, Visualization and Applications).

Project reviewer for DFG (the German Funding Agency for Fundamental Research) and BMBF (the German Ministry of Education and Science).
Since 1999, I have been a regular reviewer for about twenty journals, amongst which are: Annals of Botany, New Phytologist, Annals of Applied Biology, Tree Physiology, Ecological Modelling, or Functional Plant Biology. Furthermore, since 2013 I am a Review Editor for Frontiers in Plant Science, and since 2019 an Academic Editor for PLOS ONE.

Publications
I have authored or co-authored 44 peer-reviewed articles and 57 other works (conference papers, book chapters, etc..).

Peer-reviewed articles
1998
Buck-Sorlin, G.H., Bell, A.D. 1998. A quantification of shoot shedding in pedunculate oak (*Quercus robur* L.) Botanical Journal of the Linnean Society, 127: 371-391.

2000
Wernecke, P., **Buck-Sorlin, G.H.**, Diepenbrock, W. 2000. Combining process- with architectural models: The simulation tool VICA. SAMS (Systems-Analysis-Modelling-Simulation), 39: 235-277.
Buck-Sorlin, G.H., Bell, A.D. 2000. Models of crown architecture in *Quercus petraea* and *Q.robur*: shoot lengths and bud numbers. Forestry, 73(1): 1-19.
Buck-Sorlin, G.H., Bell, A.D. 2000. Crown architecture in *Quercus petraea* and *Q.robur*: The fate of buds and shoots, its relation to age and environmental perturbation. – Forestry, 73(4): 331-349.
Buck-Sorlin, G.H., Bachmann, K. 2000. Simulating the morphology of barley spike phenotypes using genotype information. Agronomie: Plant Genetics and Breeding, 20: 691-702.

2001
Buck-Sorlin, G.H., Börner, A. 2001. Pleiotropic effects of the *ea7* photoperiod response gene on the morphology and agronomic traits in barley. Plant Breeding, 120: 489-495.

2002
Börner, A., **Buck-Sorlin, G.H.**, Hayes, P.M., Malyshev, S. and Korzun, V. 2002. Molecular mapping of major genes and quantitative trait loci determining flowering time in response to photoperiod in barley. Plant Breeding, 121: 129–132.
Buck-Sorlin, G.H. 2002. The search for QTL in barley (*Hordeum vulgare* L.) using a new mapping population. Cellular & Molecular Biology Letters, 7: 523–535.

2004
Kniemeyer, O., **Buck-Sorlin, G.H.,** Kurth, W. 2004. A graph grammar approach to Artificial Life. Artificial Life, 10(4): 413-431.

2005
Buck-Sorlin, G.H., Kniemeyer, O. and Kurth, W. 2005. Barley morphology, genetics and hormonal regulation of internode elongation modelled by a Relational Growth Grammar. New Phytologist, 166: 859-867.
Kurth, W., Kniemeyer, O., **Buck-Sorlin, G.H.** 2005. Relational Growth Grammars – A Graph Rewriting Approach to Dynamical Systems with a Dynamical Structure. Lecture Notes in Computer Science, 3566: 56-72. DOI: 10.1007/11527800_5.

2006

Matros, A., Amme, S., Kettig, B., **Buck-Sorlin, G.H.**, Sonnewald, U., Mock, H.P. 2006. Growth at elevated CO2 concentrations leads to modified profiles of secondary metabolites in tobacco cv. SamsunNN and to increased resistance against infection with potato virus. Plant Cell And Environment 29 (1): 126-137.

Buck-Sorlin GH., Kniemeyer O., Kurth W. (2006). A functional-structural model of barley including genetic control and metabolic networks, Frontis International Workshop on Functional-Structural Plant Modelling in Crop Production, Wageningen, March 5-8, 2006.

2007

Kniemeyer, O., **Buck-Sorlin, G.H.**, Kurth, W. 2007. GroIMP as a platform for functional-structural modelling of plants. Frontis, 22, 43-52.

Fournier, C., Andrieu, B., **Buck-Sorlin, G.H.**, Evers, J. B., Drouet, J. L., Escobar-Gutierrez, A. J., & Vos, J. (2007). Functional-structural modelling of Gramineae. Frontis, 22, 175-186.

Buck-Sorlin, G.H., Kniemeyer, O., & Kurth, W. (2007). A grammar-based model of barley including virtual breeding, genetic control and a hormonal metabolic network. Frontis, 22, 243-252.

2008

Hemmerling, R., Kniemeyer, O., Lanwert, D., Kurth, W., **Buck-Sorlin, G.H.** 2008. The rule-based language XL and the modelling environment GroIMP illustrated with simulated tree competition. Functional Plant Biology 35(9-10): 739-750.

Buck-Sorlin, G.H., Hemmerling, R., Kniemeyer, O., Burema, B., Kurth, W. 2008. A Rule-based Model of Barley Morphogenesis, with Special Respect to Shading and Gibberellic Acid Signal Transduction. Annals of Botany 101(8): 1109-1123.

Buck-Sorlin, G.H., Kniemeyer, O., Kurth, W. (2008) A model of poplar (*Populus* sp.) physiology and morphology based on Relational Growth Grammars. In: Mathematical Modeling of Biological Systems, Vol. II. Proceedings of ECMTB05 (Dresden, 18.-22. 7. 2005), Eds.: A. Deutsch, R. Bravo de la Parra, R. J. de Boer, O. Diekmann, P. Jagers, E. Kisdi, M. Kretzschmar, P. Lansky, H. Metz. Birkhäuser, Boston / Basel / Berlin, 313-322.

Evers, J. B., Vos, J., Andrieu, B., Chelle, M., **Buck-Sorlin, G. H.** (2008). Functional-structional plant modelling, applied to tillering in wheat. Italian Journal of Agronomy, 3(3), 739-740.

2009

Nagel, M., Vogel, H., Landjeva, S., **Buck-Sorlin, G.H.,** Lohwasser, U., Scholz, U. and Börner, A. 2009. Seed conservation in ex situ genebanks—genetic studies on longevity in barley. Euphytica 170: 5 – 14.

2010

Witzel, K., Weidner, A., Surabhi, G.-K., Varshney, R., Kunze, G., **Buck-Sorlin, G.H.,** Börner, A. and Mock, H.-P. 2010. Comparative analysis of the grain proteome fraction in barley genotypes with contrasting salinity tolerance during germination. Plant, Cell & Environment 33: 211-222.

Vos, J., Evers, J.B., **Buck-Sorlin, G.H.,** Andrieu, B., Chelle, M. and de Visser, P.H.B. 2010. "Functional-structural plant modelling: a new versatile tool in crop science." Journal of Experimental Botany 61: 2102-2115. doi: 10.1093/jxb/erp345.

2011

Sarlikioti V, de Visser PHB, **Buck-Sorlin GH**, and Marcelis LFM. 2011. How plant architecture affects light absorption and photosynthesis in tomato: towards an ideotype for plant architecture using a functional-structural plant model, Annals of Botany, doi:10.1093/aob/mcr006.
Buck-Sorlin GH, de Visser PHB, Henke M, Sarlikioti V, van der Heijden GWAM, Marcelis LFM, and Vos J. 2011. Towards a functional-structural plant model of cut-rose - simulation of light environment, light absorption, photosynthesis and interferences with the plant structure, Annals of Botany, 108: 1121–1134; doi:10.1093/aob/mcr190.
Xu L, Henke M, Zhu J, Kurth W, and **Buck-Sorlin GH.** 2011. A functional–structural model of rice linking quantitative genetic information with morphological development and physiological processes. Annals of Botany doi: 10.1093/aob/mcq264.2012

2013
Hemmerling R, Evers JB, Smolenova K, **Buck-Sorlin GH**, and Kurth. 2013. Extension of the GroIMP modelling platform to allow easy specification of differential equations describing biological processes within plant models. Computers and Electronics in Agriculture 92, 1-8, DOI: 10.1016/j.compag.2012.12.007
Wubs AM, Heuvelink E, Marcelis LFM, Okello RCO, Shlyuykova A, **Buck-Sorlin GH**, and Vos J. 2013. Four Hypotheses to Explain Axillary Budbreak after Removal of Flower Shoots in a Cut-rose Crop. Journal of the American Society for Horticultural Science 138(4), 243-252
Buck-Sorlin GH, Delaire M. 2013. Meeting present and future challenges in sustainable horticulture using virtual plants. Frontiers in Plant Science 4, 443, DOI: 10.3389/fpls.2013.00443.

2014
Wubs AM, Heuvelink E, Marcelis LFM, Okello RCO, Shlyuykova A, **Buck-Sorlin GH**, and Vos J. 2014. Axillary Budbreak in a Cut Rose Crop as Influenced by Light Intensity and Red:far-red Ratio at Bud Level. Journal of the American Society for Horticultural Science 139(2): 131-138.
de Visser PHB, **Buck-Sorlin GH**, van der Heijden GWAM. 2014. Optimizing illumination in the greenhouse using a 3D model of tomato and a ray tracer. Frontiers in Plant Science 5, 48, DOI: 10.3389/fpls.2014.00048
Chen TW, Henke M, De Visser PHB, **Buck-Sorlin GH**, Wiechers D, Kahlen K, Stützel H. 2014. What is the most prominent factor limiting photosynthesis in different layers of a greenhouse cucumber canopy? Annals of Botany, 114(4), 677-688.
Henke M, Sarlikioti V, Kurth W, **Buck-Sorlin GH** and Pagès L. 2014. Exploring root developmental plasticity to nitrogen with a three-dimensional architectural model. Plant and Soil, 385, 49-62. DOI: 10.1007/s11104-014-2221-7
Fanwoua J, Bairam E, Delaire M, **Buck-Sorlin GH.** 2014. The role of branch architecture in assimilate production and partitioning: the example of apple (*Malus domestica*). Frontiers in Plant Science 07/2014, 5:338. DOI: 10.3389/fpls.2014.00338

2016
Henke, M., Kurth, W. **Buck-Sorlin, G.H.** 2016. FSPM-P: towards a general functional-structural plant model for robust and comprehensive model development. Front. Comput. Sci. 10: 1103. doi:10.1007/s11704-015-4472-8

2017
Baïram, E., Delaire, M., Le Morvan, C., **Buck-Sorlin, G.H.** (2017). Models for Predicting the Architecture of Different Shoot Types in Apple. Frontiers in Plant Science, 8 : 1-16.

Tian T, Wu L, Henke M, Ali B, Zhou W, **Buck-Sorlin G.H.** (2017). Modeling allometric relationships in leaves of young rapeseed (*Brassica napus* L.) grown at different temperature treatments. Front. Plant Sci. 8:313. doi: 10.3389/fpls.2017.00313
Henke M, **Buck-Sorlin G.H.** (2017). Using a full spectral raytracer for the modelling of light microclimate in a functional-structural plant model, Computing and Informatics, 36(6).

2018
Poirier-Pocovi, M., Lothier, J., **Buck-Sorlin, G.H.** (2018). Modelling temporal variation of parameters used in two photosynthesis models: influence of fruit load and girdling on leaf photosynthesis in fruit-bearing branches of apple. Annals of Botany.

2019
J Fanwoua, G Vercambre, **GH Buck-Sorlin**, JA Dieleman, P de Visser. Supplemental LED lighting affects the dynamics of tomato fruit growth and composition. Scientia Horticulturae 256, 108571
E Baïram, C Le Morvan, M Delaire, **GH Buck-Sorlin**. Fruit and Leaf Response to different Source-Sink ratios in Apple, at the scale of the Fruit-bearing Branch. Frontiers in plant science 10, 1039

2020
L Xu, Z Yang, W Ding, **GH Buck-Sorlin**. Physics-based algorithm to simulate tree dynamics under wind load. International Journal of Agricultural and Biological Engineering, 13(2), 26-32.
M Langensiepen, MA Jansen, A Wingler, B Demmig-Adams, WW Adams III, IC Dodd, V Fotopoulos, R Snowdon, E Fenollosa, MC de Tullio, **GH Buck-Sorlin**, S Munné-Bosch. Linking integrative plant physiology with agronomy to sustain future plant production. Environmental and Experimental Botany, 104125.
W Wang, JM Celton, **GH Buck-Sorlin**, S Balzergue, E Bucher, F Laurens. Skin Color in Apple Fruit (*Malus× domestica*): Genetic and Epigenetic Insights. Epigenomes, 4(3), 13.

Publications without peer review (including conference proceedings or unpublished articles)
1993
Buck-Sorlin, G.H. 1993. Ausbreitung und Rückgang der Englischen Kratzdistel – *Cirsium dissectum* (L.) Hill – in Nordwestdeutschland. Tuexenia, 13:183-191.

1996
Buck-Sorlin G.H., 1996. Cladoptosis (shoot shedding) in *Quercus robur* L. - In: L'ARBRE (Proceedings of a Conference, Sept. 1995). Naturalia Monspeliensia, no. h.s.

1999
Buck-Sorlin G.H., 1999. Simulating the development of barley (*Hordeum vulgare* L.. A realistic, menu-controlled inflorescence model based on parametric L-systems. Poster, presented at the 14th International Symposium of the German Botanical Society, section biodiversity and evolutionary biology, Jena, Germany, 5.-11.9.1999.
Wernecke, P., **Buck-Sorlin, G.H.**, & Diepenbrock, W. (1999). Virtual Canopies: Combining Ontogenesis-with Architectural Models. European Society of Agronomy, LLeida, Spain, 123-124.

2000

Buck-Sorlin, G.H., Weeda, E.J. 2000. Oecologie en plantensociologische positie van *Cirsium dissectum* (L.) Hill in Oostfriesland (Noordwest-Duitsland). Stratiotes, 21: 3-12.

2003

Freytag, U., **Buck-Sorlin, G.H.,** Schmidt, B. 2003. Evaluation of pod, seed, and phenological traits of standard genebank accessions of common bean (*Phaseolus vulgaris* L.) over a period of eight years. Schriften zu Genetischen Ressourcen 22: 257–265.

Kniemeyer, O., **Buck-Sorlin, G.H.**, Kurth, W. (2003). Representation of genotype and phenotype in a coherent framework based on extended L-systems. In European Conference on Artificial Life (pp. 625-634). Springer Berlin Heidelberg.

Buck-Sorlin, G.H., Kniemeyer, O., Kurth, W. (2003). Tutorial 5: A Unifying Grammar Formalism for ALife: Foundations, Aspects of Implementation, Applications. In European Conference on Artificial Life.

2004

Dadshani, S. A. W., Weidner, A., **Buck-Sorlin, G.H.**, Börner, A., Asch, F. (2004). QTL analysis for salt tolerance in barley. Humboldt University, Berlin.

Buck-Sorlin, G. H., Kniemeyer, O., & Kurth, W. (2004). Integrated grammar representation of genes, metabolites and morphology: The example of hordeomorphs. In 4th International Workshop on Functional-Structural Plant Models (pp. 366-89).

2005

Buck-Sorlin, G. H., Kniemeyer, O., & Kurth, W. (2005). Barley morphology, genetics and hormonal regulation of internode elongation modelled by a relational growth grammar, 2.5.2005, seminar held at University of East Anglia and John Innes Center, Norwich, U.K. (39 diapos).

Buck-Sorlin, G. H., Kniemeyer, O., & Kurth, W. (2005). Physiologie und Morphologie der Pappel (*Populus* sp.), modelliert mit Relationalen Wachstumsgrammatiken. SFB Freiburg,

2006

Buck-Sorlin, G.H., Hemmerling, R., Kniemeyer, O., Burema, B., & Kurth, W. (2006, November). New rule-based modelling methods for radiation and object avoidance in virtual plant canopies. In Plant Growth Modeling and Applications, 2006. PMA'06. Second International Symposium on (pp. 22-25). IEEE.

Buck-Sorlin, G.H., Hemmerling, R., Burema, B., Kniemeyer, O., & Kurth, W. (2006). Towards "Virtual Barley": Relational Growth Grammars as a universal framework for rule-based hierarchical modelling of morphogenesis, plant function, regulatory networks, and genetic processes. In Plant Growth Modeling and Applications, 2006. PMA'06. Second International Symposium on (pp. 32-33).

2007

Groer, C., Kniemeyer, O., Hemmerling, R., Kurth, W., Becker, H., **Buck-Sorlin, G.H.** (2007). A dynamic 3D model of rape (*Brassica napus* L.) computing yield components under variable nitrogen fertilisation regimes. Proceedings of FSPM, 2007.

Buck-Sorlin, G. H., Burema, B. S., Evers, J. B., Van der Heijden, G. W. A. M., Heuvelink, E., Marcelis, L. F. M., P.C. Struik, P.H.B. de Visser, T.H.J. Damen, Vos, J. (2007). Virtual rose: a new tool to optimize plant architecture in glasshouse rose production systems. In Proceedings of the 5th International Workshop on Functional-Structural Plant Models, Napier, New Zealand, 4-9 November, 2007 (pp. P48-1).

Weidner, A., Asch, F., **Buck-Sorlin, G. H.**, Börner, A. (2007). QTLs for Salt Resistance vary with Development Stage in Field-grown Barley. Utilisation of diversity in land use systems: Sustainable and organic approaches to meet human needs. Tropentag, 9-11.

2008

Evers, J. B., Vos, J., **Buck-Sorlin, G. H.** (2008). Considering plant structure in models of plant growth and development. 40 Years Theory and Model at Wageningen UR, 15.

2009

Buck-Sorlin, G.H., Hemmerling, R., Vos, J., & de Visser, P. H. (2009). Modelling of spatial light distribution in the greenhouse: description of the model. In Plant Growth Modeling, Simulation, Visualization and Applications (PMA), 2009 Third International Symposium on (pp. 79-86). IEEE.

Xu, L., Henke, M., Zhu, J., Kurth, W., **Buck-Sorlin, G.H.** (2009). A rule-based functional-structural model of rice considering source and sink functions. In Plant Growth Modeling, Simulation, Visualization and Applications (PMA), 2009 Third International Symposium on (pp. 245-252). IEEE.

Buck-Sorlin, G.H., Burema, B., Vos, J., Lieth, J. H., Heuvelink, E., de Visser, P. H. B., Marcelis, L. F. M. (2009). A Functional-Structural Plant Model for Cut Roses-New Techniques for Modelling Manipulation of Plant Structure. In International Symposium on High Technology for Greenhouse Systems: GreenSys2009 893 (pp. 705-711).

Damen, T., Burema, B. S., **Buck-Sorlin, G. H.,** Vos, J., Heuvelink, E., & Marcelis, L. F. M. (2009, May). Cut-rose production in response to planting density in two contrasting cultivars. In V International Symposium on Rose Research and Cultivation 870 (pp. 47-54).

Vos, J., Evers, J. B., **Buck-Sorlin, G. H.,** Bruno, A., Michael, C., & De Visser, P. H. (2009). Functional–structural plant modelling: A new paradigm in crop science. Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology, 153(2), S223.

2010

Buck-Sorlin, G. H., Burema, B. S., van der Heijden, G. W. A. M., Heuvelink, E., Sarlikioti, V., de Visser, P. H. B., Marcelis, L. F. M. (2010). Functional-structural plant model for greenhouse grown crops-New techniques for modelling light distribution in canopies and manipulation of plant structure. In ISHS 28th Int. Horticultural Congress-Science and Horticulture for People-Abstracts Volume II (Symposia) (pp. 196-196).

Buck-Sorlin, G. H., Sarlikioti, V., Hemmerling, R., & de Visser, P. H. (2010). Comparison of two different light models using a virtual tomato crop. In Proceedings of the 6th International Workshop on Functional-Structural Plant Models, Davis, California, USA, 12-17 September 2010 (pp. 245-245).

Buck-Sorlin, G.H., de Visser, P. H., Sarlikioti, V., Burema, B. S., Heuvelink, E., Marcelis, L. F., van der Heijden, G., Vos, J. (2010). SIMPLER: An FSPM coupling Shoot production, human Interaction with the structure, Morphogenesis, Photosynthesis and Light Environment in cut-Rose. In Proceedings of the 6th International Workshop on Functional-Structural Plant Models, Davis, CA, USA, 12-17 September 2010 (pp. 222-224).

Henke, M., Kurth, W., **Buck-Sorlin, G.H.** (2010). A general FSPM for prototyping, intercropping and education. In Proceedings 6th International Workshop on Functional-Structural Plant Models, Davis, California, USA, 12-17 September 2010 (pp. 264-264).

van der Heijden, G. W. A. M., Gao, M., Vos, J., **Buck-Sorlin, G. H.,** Marcelis, L. F. M. (2010). Leaf area estimation: a first step towards virtual rose breeding. In Proceedings of the 6th Int. Workshop on Functional-Structural Plant Models, Davis, California, USA, 12-17 September, 2010 (pp. 188-190).

Smolenova, K., **Buck-Sorlin, G. H.,** Hemmerling, R., & Kurth, W. (2010). Extension of a functional-structural model of barley for modelling of carbon and nitrogen partitioning. In Proceedings 6th International Workshop on Functional-Structural Plant Models, 12-17 September 2010, Davis, CA, USA (pp. 27-29).
Xu, L., Zhu, J., Kurth, W., **Buck-Sorlin, G.H.** (2010). Integrating a mixed linear model approach for QTL analysis with functional-structural modeling of rice. In 6th International Workshop on Functional-Structural Plant Models (Vol. 35, No. 9&10, p. 258).

2011
Ma, Y., Wang, C., Zheng, B., He, M., Zhu, J., **Buck-Sorlin, G. H.,** Wang, Z. et al. (2011). Assessment of light capture and carbon gain of two wheat canopies with 3-D modelling. In Information Science and Technology (ICIST), 2011 International Conference on (pp. 1312-1317). IEEE.
van Antwerpen, D., van der Heijden, G. W. A. M., Marcelis, L. F. M., de Visser, P. B., **Buck-Sorlin, G. H.**, & Jansen, E. (2011). High performance spectral light transport model for agricultural applications. In Proceedings of the ACM SIGGRAPH/EUROGRAPHICS Conference on High Performance Graphics 2011. Vancouver: Eurographics Association).
De Visser, P. H. B., **Buck-Sorlin, G. H.** (2011). Modellering ruimtelijke lichtverdeling in gewassen. GTB report, 1104.

2012
Buck-Sorlin GH, Guillermin P, Delaire M, Sané F, and le-Morvan C. 2012.Towards a multi-scaled functional-structural model of apple, linking ecophysiology at the fruit and branch scales. In: Kang, M; Dumont, Y; Guo, Y (eds.): 2012 IEEE Fourth International Symposium On Plant Growth Modeling, Simulation, Visualization And Applications (PMA), pp. 66-69, Shanghai (Chine), 31 October – 3 November, 2012.
Buck-Sorlin, G.H., Delaire, M., Sané, F., Guillermin, P. (2012). From Molecular Processes to Plant Population Functioning: towards Integrative Biology in Horticulture. In II International Symposium on Horticulture in Europe 1099 (pp. 785-792).
de Visser PHB, **Buck-Sorlin GH**, Marcelis LFM, van Antwerpen D, van der Heijden GWAM. A multi-spectral 3D model of illumination, light distribution and crop photosynthesis to simulate lighting strategies in greenhouses. Oral presentation in: HORTIMODEL 2012, 4 – 8 november, 2012, Nanjing, Chine.
de Visser PHB, **Buck-Sorlin GH**, van der Heijden GWAM, Marcelis LFM. A 3D Model of Illumination, Light Distribution and Crop Photosynthesis to Simulate Lighting Strategies in Greenhouses. In: Hemming S, Heuvelink E (eds.): VII INTERNATIONAL SYMPOSIUM ON LIGHT IN HORTICULTURAL SYSTEMS, Acta Horticulturae 956: 195-200.
de Visser, P. H. B., **Buck-Sorlin, G. H.,** van der Heijden, G. W. A. M., Marcelis, L. F. M. (2012). The Effect of Irradiating Adaxial or Abaxial Side on Photosynthesis of Rose Leaves. In Proceedings of the 7th International Symposium on Light in Horticultural Systems (Book of Abstracts) (pp. 45-45).
Xu LF, Ding WL, Zhu J, Henke M, Kurth W, **Buck-Sorlin GH**. 2012. Simulating Superior Genotypes for Plant Height based on QTLs: Towards Virtual Breeding of Rice. In: Kang, M; Dumont, Y; Guo, Y (eds.): 2012 IEEE Fourth International Symposium On Plant Growth Modeling, Simulation, Visualization And Applications (PMA), pp. 447-454, Shanghai (Chine), 31 October – 3 November, 2012.

2013
Chelle, M., Godin, C., Sievänen, R., Vos, J., Javaux, M., **Buck-Sorlin, G. H.,** Tarquis, A. M. et al. (2013). CyberPlantS: a European initiative towards collaborative plant modeling. In:

Proceedings of the 7th International Conference on Functional-Structural Plant Models (FSPM2013), Saariselkä, Finland, 9-14 June 2013. Eds. Risto Sievänen, Eero Nikinmaa, Christophe Godin, Anna Lintunen, Pekka Nygren. Vantaa, : Finnish Society of Forest Science, 362. ISBN 978-951-651-408-9

Chen TW, Henke M, Kahlen K, de Visser PHB, **Buck-Sorlin GH**, and Stützel H. 2013. Revealing the relative importance of photosynthetic limitations in cucumber canopy; Proceedings of the 7th International Conference on Functional-Structural Plant Models, Saariselkä, Finland, 9-14 June 2013. Eds. R. Sievänen, E. Nikinmaa, C. Godin, A. Lintunen & P. Nygren. http://www.metla.fi/fspm2013/proceedings. ISBN 978-951-651-408-9, 124-126.

Marcelis, L. F. M., Heuvelink, E., Wubs-Timmermans, A. M., **Buck-Sorlin, G. H.,** van der Heijden, G. W. A. M., Eveleens, B. A., & Vos, J. (2013). Virtuele roos: experimenteel en modelmatig onderzoek naar gewasopbouw roos (No. 1234). Wageningen UR Glastuinbouw.

Xu, L. F., Wei, Y., Ding, W. L., **Buck-Sorlin, G.H.,** & Cheng, Z. J. (2013). Study and Implementation of Functional-Structural Model of Rice GroIMP. Journal of System Simulation, 25(7), 1476-89.

2016

Bayol B, Cournède P-H, Sainte-Marie J, Viaud G, Chi F, Kurth W, Long Q, Merklein J, Streit K, Costes E, Migault V, Pallas B, **Buck-Sorlin G.H.**, Poirier-Pocovi M, Pradal C. 2017. Multiscale functional-structural plant modelling at the example of apple trees: Project description. In: 2016 IEEE International Conference on Functional-Structural Plant Growth Modeling, Simulation, Visualization and Applications (FSPMA). IEEE, FSPMA. Qingdao: IEEE, 1-5. ISBN 978-1-5090-1659-4.

Poirier-Pocovi M, **Buck-Sorlin G.H.** (2016). Modelling temporal variation of parameters used in two photosynthesis models: Influence of fruit load and girdling in fruit bearing branches of apple trees. In Functional-Structural Plant Growth Modeling, Simulation, Visualization and Applications (FSPMA), International Conference on (pp. 167-174). IEEE.

Book chapters

2000

Buck-Sorlin G.H., 2000. A Computergraphical Model of the Barley (*Hordeum vulgare* L.) Inflorescence Based on Morphological Growth Rules and Genetic Parameters. In: Spatz, H.-Chr., and Speck, Th. Eds. Plant Biomechanics 2000, Proceedings of the 3rd Plant Biomechanics Conference Freiburg-Badenweiler August 27th to September 2nd 2000, pp. 599-605. Thieme-Verlag, Stuttgart - New York.

2002

Buck-Sorlin, G.H. (2002). L-system model of the vegetative growth of winter barley. In Fifth German workshop on artificial life (pp. 53-64). Lübeck: Akademische Verlagsgesellschaft Aka GmbH.

Buck-Sorlin, G.H., 2002. Vom Genotyp zum virtuellen Phänotyp: Simulation von Gerstenähren mit parametrischen L-Systemen im vlab. In: Hölker, F. ed. Scales, hierarchies and emergent properties in ecological models. Peter Lang, Frankfurt/M., 83-94. Theorie in der Ökologie no. 6.

2006

Buck-Sorlin, G.H., Kniemeyer, O., & Kurth, W. (2006). Physiologie und Morphologie der Pappel (*Populus sp*.) modelliert mit Relationalen Wachstumsgrammatiken. DVFFA Sektion Forstliche Biometrie und Informatik, 17, 1-11.

2008
Buck-Sorlin, G.H., Kniemeyer, O., & Kurth, W. (2008). A model of poplar (*Populus sp*.) physiology and morphology based on relational growth grammars. In Mathematical Modeling of Biological Systems, Volume II (pp. 313-322). Birkhäuser Boston.

2013
Buck-Sorlin GH. 2013. Process-Based Model. In: W. Dubitzky, O. Wolkenhauer, K. Cho & H. Yokota (eds.), Encyclopedia of Systems Biology, DOI 10.1007/978-1-4419-9863-7.
Buck-Sorlin GH. 2013. Relational Growth Grammar. In: W. Dubitzky, O. Wolkenhauer, K. Cho & H. Yokota (eds.), Encyclopedia of Systems Biology, DOI 10.1007/978-1-4419-9863-7.
Buck-Sorlin GH. 2013. Photosynthesis. In: W. Dubitzky, O. Wolkenhauer, K. Cho & H. Yokota (eds.), Encyclopedia of Systems Biology, DOI 10.1007/978-1-4419-9863-7.
Buck-Sorlin GH. 2013. Lindenmayer System. In: W. Dubitzky, O. Wolkenhauer, K. Cho & H. Yokota (eds.), Encyclopedia of Systems Biology, DOI 10.1007/978-1-4419-9863-7.
Buck-Sorlin GH. 2013. Functional-Structural Plant Modeling. In: W. Dubitzky, O. Wolkenhauer, K. Cho & H. Yokota (eds.), Encyclopedia of Systems Biology, DOI 10.1007/978-1-4419-9863-7.

2014
Dixon, G. R., Warrington, I. J., Drew, R., **Buck-Sorlin, G.H.** (2014). Science drives horticulture's progress and profit. In Horticulture: Plants for People and Places, Volume 1 (pp. 27-73). Springer Netherlands.

2016
Xu L, **Buck-Sorlin GH.** 2016. Simulating Genotype-Phenotype Interaction Using Extended Functional-Structural Plant Models: Approaches, Applications and Potential Pitfalls. In: Yin X, Struik P (eds.), Crop Systems Biology, DOI 10.1007/978-3-319-20562-5.

Invited speaker
2002
Buck-Sorlin GH. (2002). Modelling QTL and morphology of barley, Workshop on QTLs, Risø Research Centre, Roskilde, Denmark, 31.1.-2.2.2002.
Buck-Sorlin GH. (2002). Incorporating QTLs into a computergraphical morphological model of barley: one step towards the 'virtual crop', John Innes Centre New Science Conference, 30.9.2002.

2004
Buck-Sorlin GH. (2004). Linking genetic, physiological and morphological information, using integrative plant modelling approaches, 17.05.2004, Graduate School PERC student seminar, Wageningen UR, Dept. Crop and Weed Ecology.

2005
Buck-Sorlin GH. (2005). Relational Growth Grammars: A new tool for genotype-phenotype and ecophysiological modelling at the example of poplar, University of Göttingen, Department of Forest Physiology, 14.3.2005.
Buck-Sorlin GH. (2005). Barley morphology, genetics and hormonal regulation of internode elongation modelled by a relational growth grammar, Norwich Symposium on Systems Modelling in Plants and Microbes, Computational Biology Laboratory, University of East Anglia, 5.5.2005.

Buck-Sorlin GH. (2005). A new extension of the L-System formalism, Relational Growth Grammars (RGG), and their implementation into the Java-based modelling language XL, illustrated at the example of barley, China-UK Systems Biology Workshop, 2005, June 20-21, Hangzhou, China.

2006

Buck-Sorlin GH. (2006). Barley morphology, genetics and hormonal regulation of internode elongation modelled by a relational growth grammar, 5.2.2006, Research Seminar, Göttingen University, Germany, Department of Plant Breeding.

2007

Buck-Sorlin GH. (2007). Genericness, modularity, and mutual embedding of programming paradigms for improved Functional-Structural Plant Modelling, In "Systems Biology and the Biology of Systems: how, if at all are they related?", 17th New Phytologist Symposium, Buxton, Derbyshire, UK, 13-14 September 2007.

Buck-Sorlin GH. (2007). Genericness, modularity, and mutual embedding of programming paradigms for improved functional-structural plant modelling, Waterman Seminar, IPK Gatersleben, Germany, 26.10.2007.

2008

Buck-Sorlin GH. (2008). Virtual Rose – A Functional-Structural Plant Model to predict crop quality and quantity of cut roses, In "When modelers meet biologists: a series of case studies illustrating why modeling should become instrumental in plant biology. Not a "How to?" but a "What for?"", September 8-9, Université catholique de Louvain, Louvain-la-Neuve, Belgique.

2009

Buck-Sorlin GH. (2009). Potential application of FSPM methods to intercropping using eXtended L-systems within the GroIMP software environment, International Seminar on Intercropping, Chinese Agricultural University, Beijing, 20.4.2009.

2011

Buck-Sorlin GH. 2011. "Functional-Structural Plant Modelling: A new tool for decision-support in horticulture, agriculture, and plant breeding". 6th International Symposium on Intelligent Information Technology in Agriculture, Beijing, October 28 – 30, 2011

Buck-Sorlin GH. 2011. "Towards virtual breeding using Functional-Structural Plant Modelling". International Symposium on Crop Germplasm Innovation and Molecular Design Breeding, Zhejiang University, College of Agriculture and Breeding Science (CABS), Prof. Shu Qingyao, 7.11.11.

Buck-Sorlin GH. 2011. "Towards virtual breeding using Functional-Structural Plant Modelling". Zhejiang University of Science and Technology, 11.11.11.

Buck-Sorlin GH. 2011. "Towards virtual breeding using Functional-Structural Plant Modelling". Zhejiang Agriculture and Forestry University, 14.11.11.

2012

Buck-Sorlin GH. 2012. Towards a multi-scaled functional-structural model of apple linking ecophysiological processes at the fruit and branch scales, Workshop 28.2.2012

Buck-Sorlin GH. 2012. Biologie intégrative en horticulture: des processus moléculaires au fonctionnement de la plante, In : « Analyse de données multi-variées et multi-échelles pour une meilleure compréhension du fonctionnement intégré du système plante/organe » – Séminaire, 31 mai et 1 juin 2012 – INRA PACA, Avignon.

Buck-Sorlin GH. 2012. Functional-Structural Plant Modelling in Horticulture. Crop Modelling Workshop, BASF CropDesign, Gand, Belgique, 14 et 15.6.2012.
Buck-Sorlin GH. 2012. Fruit Quality Research at Angers. Shandong Agricultural University, Tai'an, Chine, 29.10.2012.

2013
Fanwoua J, Villard F, le Morvan C, **Buck-Sorlin GH.** 2012. Modelling transport processes between sources and sinks in the apple branch: an application of GroIMP's ODE solver. International Summer School "Modelling of Ecosystems by Tools from Computer Science", 16 - 20 September 2013, Czech University of Life Sciences Prague (CULS / ČZU).

2016
Buck-Sorlin GH. 2016. "Fruit Quality Research at Angers" – "GroIMP: A modelling platform for graphical simulation, 3D-visualisation, and data analysis" – "Functional-Structural Plant Modelling of Apple Tree: ecophysiological factors contributing to fruit quality build-up". Research seminar, 4.11.2016, Shanghai University, Chine, (3 oral presentations, 174 slides).

Doctoral thesis
Buck-Sorlin GH., 1997. « Crown architecture and modelling of Oak (*Quercus robur* L., *Q.petraea* (Matt.) Liebl.) and Sycamore (*Acer pseudo-platanus* L.). », Ph.D. thesis, University of Wales, 298 pages.