

## PUBLICATION LIST MARCEL VAN DER HEIJDEN

### PEER REVIEWED PUBLICATIONS

1. **van der Heijden, M.G.A.** (2016) Underground Networking: fungal networks transfer carbon between forest trees. *Science* 353: 290-291.
2. Walder, F., **van der Heijden, M.G.A.** (2016) Reply to ‘Misconceptions on the application of biological market theory. *Nature Plants* 16062 (doi:10.1038/NPLANTS.2016.62).
3. Moll, J., Gogos, A., Bucheli, T.D., Widmer, F., **van der Heijden, M.G.A.** (2016) Effect of nanoparticles on red clover and its symbiotic microorganisms. *Journal of Nanobiotechnology* 14:36 (DOI 10.1186/s12951-016-0188-7).
4. Moll, J., Okupnik, A., Gogos, A., Knauer, K.m Bucheli, T.D., **van der Heijden, M.G.A.**, Widmer, F. (2016) Effects of titanium dioxide nanoparticles on red Clover and its rhizobial symbiont. *PLOS One* 14:36 (DOI 10.1186/s12951-016-0188-7).
5. Schlaeppi, K., Bender, S., Mascher, F., Russo, G., Patrignani, A., Camenzind, T., Hempel, S., Rillig, M., **van der Heijden, M.G.A.** (2016) High-resolution community profiling of arbuscular mycorrhiza. *New Phytologist* (in press).
6. Argüello, A., O’Brien, M.J., **van der Heijden, M.G.A.**, Wiemken, A., Schmid, B., & Niklaus, P.A. (2016) Options of partners improve carbon for phosphorus trade in the arbuscular mycorrhizal mutualism. *Ecology Letters* 19: 648-656.
7. Bender, S.F., Wagg, C., **van der Heijden, M.G.A.** (2016) An underground revolution: Biodiversity and soil ecological engineering for agricultural sustainability. *Trends in Ecology and Evolution* 31: 440-444.
8. Cooper, J., Baranski, M., Stewart, G., Nobel-de Lange, M., Bärberi, P., Fließbach, A., Peigné, J., Berner, A., Brock, C., Casagrande, M., Crowley, O., David, C., De Vliegher, A., Döring, T.F., Duponti, A., Entz, M., Grosse, M., Haase, T., Halde, C., Hammerl, V., Huiting, H., Leithold, G., Messmer, M., Schloter, M., Sukkel, W., **van der Heijden, M.G.A.**, Willekens, K., Wittwer, R., Mäder, P., (2016) Shallow non-inversion tillage in organic farming maintains crop yields and increases soil C stocks: a meta-analysis. *Agronomy for sustainable development* (in press).
9. **van der Heijden, M.G.A.**, Hartman, M. (2016) Networking in the plant microbiome. *PLOS Biology* 14(2): e1002378 (12-Feb.2016).
10. Pellkofer, S., **van der Heijden, M.G.A.**, Schmid, B., Wagg, C. (2016) Soil communities promote species asynchrony and stability in experimental grassland communities. *PLOS ONE* 11(2): e0148015. doi:10.1371/journal.pone.0148015.
11. **van der Heijden, M.G.A.**, de Bruin, S., Luckerhoff, L., van Logtestijn, R.S.P., Schlaeppi, K. (2016) A widespread plant-fungal-bacterial symbiosis promotes plant biodiversity, plant nutrition and seedling recruitment. *ISME journal* 10: 389-399
12. Köhl, L., Lukasiewicz, C.E.; **van der Heijden, M.G.A.** (2016) Establishment and effectiveness of mycorrhizal inoculation in agricultural soils. *Plant, Cell & Environment* 39: 136-146.
13. Köhl, L., **van der Heijden, M.G.A.** (2016) Arbuscular mycorrhizal fungal species differ in their effect on nutrient leaching. *Soil Biology & Biochemistry* 94: 191-199.

14. Walder, F., **van der Heijden, M.G.A.** (2015) Regulation of resource exchange in the arbuscular mycorrhizal symbiosis. *Nature Plants*. doi:10.1038/nplants.2015.159.
15. Dorn, B., Jossi, W., **van der Heijden, M.G.A.**, (2015) Weed suppression by cover crops: comparative on-farm experiments under integrated and organic conservation tillage. *Weed Research* 55: 586-597.
16. Soudzilovskaia N.A., **van der Heijden, M.G.A.**, Cornelissen, J.H.C. Makarov, M.I., Onipchenko V.G., Maslov, M.N., Akhmetzhanova, A.A., van Bodegom, P.M. (2015) Quantitative assessment of the differential impacts of arbuscular and ectomycorrhiza on soil carbon cycling. *New Phytologist* 208: 280-293.
17. Wagg, C., Barendregt, C., Jansa, J., **van der Heijden, M.G.A.**, (2015) Complementarity in both plant and mycorrhizal fungal communities are not necessarily increased by diversity in the other. *Journal of Ecology* 103: 1233-1244.
18. Wagg, C., Boller, B., Schneider, S., Widmer, F., & **van der Heijden, M.G.A.**, (2015) Intraspecific and intergenerational differences in plant-soil feedbacks. *Oikos* 124: 994-1004.
19. Cavagnaro, T.R., Bender, F., Asghari, H.R., & **van der Heijden, M.G.A.**, (2015) The role of arbuscular mycorrhizas in reducing soil nutrient losses. *Trends in Plant Science* 20: 283-290.
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22. Dickie, I., Alexander, I., Lennon, S., Opik, M., Selosse, M.A., **van der Heijden, M.G.A.**, and Martin, F. (2015) Evolving insights to understanding mycorrhizas. *New Phytologist* 205: 1369–1374.
23. **van der Heijden, M.G.A.**, Martin, F., Selosse, M.A. & Sanders, I.R. (2015) Mycorrhizal Ecology and Evolution: The past, the present and the future. *Tansley Review, New Phytologist* 205: 1406–1423.
24. **van der Heijden, M.G.A.**, & Schlüppi, K. (2015) The root surface as a frontier for plant microbiome research. *Proceedings of the National Academy of Sciences USA* 112: 2299-230.
25. Bender, S.F, **van der Heijden, M.G.A.** (2015) Soil biota enhance agricultural sustainability by improving crop yield, nutrient uptake and reducing nitrogen leaching losses. *Journal of Applied Ecology* 52: 228–239.
26. Bender, S.F, Conen, F., **van der Heijden, M.G.A.** (2015) Mycorrhizal effects on nutrient cycling, nutrient leaching and N<sub>2</sub>O production in experimental grassland. *Soil Biology & Biochemistry* 80: 283 - 292.
27. Köhl, L., Oehl, F., **van der Heijden, M.G.A.** (2014) Agricultural practices indirectly influence plant productivity and ecosystem services through effects on soil biota. *Ecological Applications* 24: 1842–1853.

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29. Bender S.F., Plantenga F., Neftel A., Jocher, M., Oberholzer H.R., Köhl, L., Giles, M., Daniell, T.J. & **van der Heijden, M.G.A.** (2014) Symbiotic relationships between soil fungi and plants reduce N2O emissions from soil. *The ISME Journal* 8: 1336–1345.
30. Wagg C., Bender S.F., Widmer F., **van der Heijden, M.G.A.** (2014) Soil biodiversity and soil community composition determine ecosystem multifunctionality. *Proceedings of the National Academy of Sciences USA* 111 (14): 5266–5270.
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32. Dorn B., Stadler M., **van der Heijden M.G.A.** & Streit, B. (2013) Regulation of cover crops and weeds using a roll-chopper for herbicide reduction in no-tillage winter wheat. *Soil & Tillage Research* 134: 121-132.
33. Veiga, R.S.L., Faccio, A., Genre, A., Pieterse, C.M.J., Bonfante, P., **van der Heijden, M.G.A.** (2013) Arbuscular mycorrhizal fungi reduce growth and infect roots of the non-host plant *Arabidopsis thaliana*. *Plant, Cell & Environment* 36: 1926–1937.
34. Tomimatsu, T., Sasaki, T. Kurokawa H., Bridle JR, Fontaine C, Kitano J, Stouffer DB, Vellend M, Bezemer TB, Fukami T, Hadly EA, **van der Heijden M.G.A.**, Kawata M, Efi SK, Kraft NJB, McCann KS, Mumby PJ, Nakashizuka T, Petchey OL, Romanuk TN, Suding KN, Takimoto G, Urabe J & Yachi S. (2013) Sustaining ecosystem functions in a changing world: a call for an integrated approach. *Journal of Applied Ecology* 50: 1124–1130.
35. Kuramae E.E, Verbruggen E., Hillekens R., De Hollander M., Röling W. F. M., **van der Heijden M. G. A.**, Kowalchuk G.A. (2013) Tracking fungal community responses to maize plants by DNA- and RNA-based pyrosequencing. *PLOS One* 8: e69973.
36. Kuramae, E.E.; Hillekens, R.H.E., de Hollander, M.; **van der Heijden, M.G.A.**; van den Berg, M., van Straalen, N.M.; Kowalchuk, G.A., (2013) Structural and functional variation in soil fungal communities associated with litter bags containing maize leaf. *FEMS Microbiology ecology* 84: 519-531.
37. Verbruggen, E., **van der Heijden, M.G.A.**, Rillig, M.C, Kiers, E.T. (2013) Mycorrhizal fungal establishment in agricultural soils: factors determining inoculation successs. *New Phytologist* 197: 1104-1109.
38. **Van der Heijden, M.G.A.** & Wagg, C. (2013) Soil microbial diversity and agro-ecosystem functioning. Commentary. *Plant and Soil* 363:1–5.
39. Pérez-Harguindeguy, N., Díaz, S., Garnier, E., Lavorel, S., Poorter, H. , Jaureguiberry, P.A., Bret-Harte, M.S., Cornwell, W. K., Craine, J.M., Gurvich, D.E., Urcelay, C., Veneklaas, E.J., Reich, P.B., Poorter, J.L., Wright, J.K., Ray, P., Enrico, L., Pausas, J.G., de Vos, A., Buchmann, N., Funes, G., Quétier, F., Hodgson, J.G., Thompson, K., Morgan, H.D., ter Steege, H., **van der Heijden M.G.A.**, Sack, L., Blonder, B., Poschlod, P., Vaieretti, V., Conti, G., Staver, A.C., Aquino, S., Cornelissen, J.H.C. (2013) New handbook for standardised measurement of plant functional traits worldwide. *Australian Journal of Botany* 61: 167-234.

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41. Verbruggen, E., Kuramae, E., Hillekens, R., De Hollander, M., Kiers, E.T., Röling, W.F.M., Kowalchuk, G.A., and **van der Heijden, M.G.A.** (2012) Testing potential effects of maize expressing the *Bacillus thuringiensis* Cry1AB Endotoxin (Bt Maize) on mycorrhizal fungal communities via DNA- and RNA- based pyrosequencing and molecular fingerprinting. *Applied and Environmental Microbiology* 78: 7384-7392.
42. Verbruggen, E., **van der Heijden, M.G.A.**, Weedon, J.T., Kowalchuk, G.A., Röling, W.F.M. (2012) Community assembly, species richness and nestedness of arbuscular mycorrhizal fungi in agricultural soils. *Molecular Ecology* 21: 2341-2353.
43. Kipfer T., Wohlgemuth T., **van der Heijden M.G.A.**, Ghazoul J and Egli S (2012) Growth Response of *Pinus sylvestris* to Single- and Multi-Species Inoculation with Ectomycorrhizal Fungi. *PLOS One* 7: e35275.
44. Verbruggen, E., Kiers, E.T., Bakelaar, P.N.C., Röling, W.F.M., **van der Heijden, M.G.A.** (2012) Provision of contrasting ecosystem services by soil communities from different agricultural fields. *Plant and Soil* 350: 43-55 (with editorial).
45. Veiga R., Jansa, J.J., Frossard, E., **van der Heijden, M.G.A.** (2011) Can arbuscular mycorrhizal fungi suppress agricultural weeds. *PLOS One* 6: e27825.
46. Wagg, C., Jansa, J., Stadler, M., Schmid, B., **van der Heijden, M.G.A.** (2011) Below ground fungal diversity drives above ground productivity. *Ecology Letters* 14: 1001-1009.
47. Wagg, C., Jansa, J., Stadler, M., Schmid, B., **van der Heijden, M.G.A.** (2011) Mycorrhizal fungal identity and diversity relaxes plant-plant competition. *Ecology* 92: 1303-1313.
48. Zuppinger-Dingley, D., Schmid, B., Chen, Y., Brandl, H., **van der Heijden, M.G.A.**, Joshi, J. (2011) In Their Native Range, Invasive Plants Are Held In Check By Negative Soil-Feedbacks. *Ecosphere* 2:54.
49. Mulder, C., Boit, A., Bonkowski, M., De Ruiter, P.C., Mancinelli, G., **van der Heijden, M.G.A.** Van Wijnen, H.J. Vonk, A., and Rutgers, M. (2011) A Belowground Perspective on Dutch Agroecosystems: How Soil Organisms Interact to Support Ecosystem Services. *Advances in Ecological Research* 44: 277-357.
50. Compant, S., **van der Heijden, M.G.A.**, Sessitsch, A. (2010) Climate change effects on beneficial plant-microorganism interactions. *FEMS microbiology ecology* 73: 197-214.
51. Rinaudo, V., Bärberi, P., Giovannetti, M., **van der Heijden, M.G.A.** (2010) Mycorrhizal fungi suppress aggressive agricultural weeds. *Plant & Soil* 333: 7-20 (with editorial and front cover).
52. Oehl, F., Laczko, E., Bogenrieder, A., Stahr, K., Bösch, R., **van der Heijden, M.**, Sieverding, E. (2010) Soil type and land use intensity affect the composition of arbuscular mycorrhizal fungal communities. *Soil Biology & Biochemistry* 47: 724-738.
53. **van der Heijden, M.G.A.** (2010) Mycorrhizal fungi reduce nutrient loss from model grassland ecosystems. *Ecology* 91: 1163-1171.
54. Kiers, E.T., Adler, L.S., Grman, E.L., **van der Heijden, M.G.A.** (2010) The role of jasmonates in mediating aboveground and belowground mutualisms. *Functional Ecology* 24: 434-443.

55. Berg, M.P., Kiers, T.R., Driessen, G., **van der Heijden, M.**, Kooi, B., Kuennen, F., Liefting, M., Verhoef, H.A., Ellers, J. (2010) Adapt or disperse: understanding species persistence in a changing environment. *Global Change Biology* 16: 587-598.
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60. **van der Heijden, M.G.A.**, Verkade, S., de Bruin, S. (2008) Mycorrhizal fungi reduce the negative effects of nitrogen enrichment on plant community structure in dune grassland. *Global Change Biology* 14: 2626-2635.
61. **van der Heijden M.G.A.**, Bardgett R.D. & van Straalen N.M (2008) The unseen majority: soil microbes as drivers of plant diversity and productivity in terrestrial ecosystems. *Ecology Letters* 11, 296-310.
62. Scheublin, T.R., van Logtestijn, R., **van der Heijden, M.G.A.** (2007) Presence and identity of arbuscular mycorrhizal fungi influence competitive interactions between plant species. *Journal of Ecology* 95: 631-638.
63. **van der Heijden, M.G.A.**, Scheublin, T.R. (2007) Functional traits in mycorrhizal ecology: their use for predicting the impact of arbuscular mycorrhizal fungal communities on plant growth and ecosystem functioning. *New Phytologist* 174: 244-250 (including Front Cover).
64. Kiers, T.R., **van der Heijden, M.G.A.** (2006) Mutualistic stability in the arbuscular mycorrhizal symbiosis: exploring hypothesis of evolutionary cooperation. *Ecology* 87: 1627-1636.
65. **van der Heijden, M.G.A.**, Bakker, R., Verwaal, J., Scheublin, T.R., Rutten, M., van Logtestijn, R., Staehelin, C. (2006) Symbiotic bacteria as a determinant of plant community structure and plant productivity in dune grassland. *FEMS Microbiology Ecology* 56: 178-187.
66. Scheublin, T.R., **van der Heijden, M.G.A.** (2006) Arbuscular mycorrhizal fungi colonize non-fixing root nodules of several legume species. *New Phytologist* 172: 732-738.
67. **van der Heijden, M.G.A.**, Streitwolf-Engel, R., Riedl, R., Siegrist, S., Neudecker, A., Ineichen, K., Boller, T., Wiemken, A., Sanders, I.R. (2006) The mycorrhizal contribution to plant productivity, plant nutrition and soil structure in experimental grassland. *New Phytologist* 172: 739-752.
68. **van der Heijden, M.G.A.**, Scheublin, T.R. & Brader, A. (2004) Taxonomic and functional diversity in arbuscular mycorrhizal fungi – is there any relationship? *New Phytologist* 164: 201-204.
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72. Cornelissen J.H.C., Lavorel S., Garnier E., Díaz S., Buchmann N., Gurvich D.E., Reich P.B., ter Steege H., Morgan H.D., **van der Heijden M.G.A.**, Pausas J.G., & Poorter H., (2003) Handbook of protocols for standardised and easy measurement of plant functional traits worldwide. *Australian Journal of Botany* 51: 335-380.
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75. Goverde M., **van der Heijden M.G.A.**, Sanders I.R., Wiemken A., & Erhard A. (2000) Arbuscular mycorrhizal fungi influence life history traits of a lepidopteran herbivore. *Oecologia* 125: 362-369. (the first and second author contributed equally to this work).
76. **van der Heijden M.G.A.**, Klironomos J.N., Ursic M., Moutoglis P., Streitwolf-Engel R., Boller T., Wiemken A. & Sanders I.R. (1999) "Sampling effect" a problem in biodiversity manipulation? A reply to David A. Wardle. *Oikos* 87: 408-410.
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78. **van der Heijden M.G.A.**, Klironomos J.N., Ursic M., Moutoglis P., Streitwolf-Engel R., Boller T., Wiemken A. & Sanders I.R. (1998) Mycorrhizal fungal diversity determines plant biodiversity, ecosystem variability and productivity. *Nature* 396: 72-75. (including front cover & News and Views; the first and second author contributed equally to this work).
79. **van der Heijden M.G.A.**, Boller T., Wiemken A., & Sanders I.R. (1998) Different arbuscular mycorrhizal fungal species are potential determinants of plant community structure. *Ecology* 79: 2082-2091.

#### *BOOK CHAPTERS*

1. Wagg, C., Veiga, R., **van der Heijden, M.G.A.** (2015) Facilitation and antagonism in mycorrhizal networks. In: Mycorrhizal Networks (Ed. T.R. Horton, Springer, Berlin. pp. 203-226).
2. Compant, S., **van der Heijden, M.**, Sessitsch, A. (2013) Soil Warming Effects on Beneficial Plant-Microbe Interactions. In: Molecular Microbial Ecology of the Rhizosphere: Volume 1 & 2 (ed F. J. de Bruijn), John Wiley & Sons, Inc., Hoboken, NJ, USA. pp. 1045-1054
3. Bell, T., Gessner, M.O., Griffiths, R.I., McLaren, J., Morin, P.J., **van der Heijden, M.G.A.**, van der Putten, W.H. (2009). Microbial biodiversity and ecosystem functioning under controlled conditions and in the wild. In: Naeem S., Bunker D., Hector A., Loreau M., & Perrins C. (Eds.) Biodiversity and Human Impacts. Oxford University Press, pp. 121-133.

4. Kothamasi, D., Kiers, E.T., **van der Heijden, M.G.A.** (2010). The Role of Mutualisms in community Organization. In Verhoef, H.A., Morin, P. (Eds.). *Community Ecology*, Oxford University Press, pp. 179-192.
5. Horton, T.R., **van der Heijden, M.G.A.** (2008). The role of symbiosis in seedling establishment and survival. In: Leck, M.A., Parker, V.T., Simpson, R.L. (Eds.). *Seedling Ecology and Evolution*. Cambridge University Press, pp. 189-213.
6. **van der Heijden M.G.A.** & Cornelissen J.H.C. (2002). The critical role of plant-microbe interactions on biodiversity and ecosystem functioning: arbuscular mycorrhizal associations as an example. In: Loreau M., Naeem S., & Inchausti P. (2002) *Biodiversity and ecosystem functioning: synthesis and perspectives*. Oxford University Press, Oxford, UK, pp.181-192.
7. Raffaelli D., van der Putten W.H., Persson L., Wardle D.A., Petchey O., Koricheva J., **van der Heijden M.G.A.**, Mikola J. & Kennedy T. (2002). Multi-trophic dynamics and ecosystem processes. In: Loreau M., Naeem S. & Inchausti P. (2002) *Biodiversity and ecosystem functioning: synthesis and perspectives*. Oxford University Press, Oxford, UK, pp. 147-154.
8. **van der Heijden M.G.A.** & Sanders I.R. (2002) *Mycorrhizal Ecology: Perspectives and Synthesis*. In: **van der Heijden M.G.A.** & Sanders I.R., (2002) *Mycorrhizal Ecology*. Ecological Studies 157. Springer Verlag, Heidelberg, Germany, pp. 441-456.
9. **van der Heijden, M.G.A.** (2002) Arbuscular mycorrhizal fungi as a determinant of plant diversity: in search for underlying mechanisms and general principles. In: **van der Heijden M.G.A.** & Sanders I.R. (2002) *Mycorrhizal Ecology*. Ecological Studies 157. Springer Verlag, Heidelberg, Germany, pp. 243-265.
10. **van der Heijden M.G.A.** & Sanders I.R. (editors) (2002) *Mycorrhizal Ecology*. Ecological Studies 157; Springer Verlag, Heidelberg, Germany. This book gives a comprehensive overview of developments, breakthroughs and advances made in the field of mycorrhizal ecology. Exciting reviews are presented by leading scientists about the importance of mycorrhizal fungi for plant ecology, ecosystem functioning, biological interactions, co-evolution, plant evolution and biodiversity. This book is widely used by PhD students and Postdocs in the field of mycorrhizal ecology.

## OTHER PUBLICATIONS

1. Köhl L, **van der Heijden M.** 2016. Bauer such Pilz: eine fruchtbare Beziehung. Agridea Merkblatt (leaflet for farmers on mycorrhizal fungi).
2. Wittwer R, Köhl L, **van der Heijden M.** 2016. Das Ertragspotential ausschöpfen. UFA Revue. März.
3. Wittwer R, Köhl L, **van der Heijden M.** 2015. MAIS: Mit Gründüngungen kann man Stickstoffdünger sparen. Schweizer Bauer 24.12.2015
4. **van der Heijden M** (Interview). 2015. Die Erforschung der Bodenbiodiversität ist mein Beitrag zu einer nachhaltigen Landwirtschaft. Hotspot 32: 14-15
5. **van der Heijden M**, (Interview in Dutch). Bodemleven beter benutten. Akkerbouw 11 (6): 10-11
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