

List of publications/Reimund P. Rötter (as of september 2024)

Classification is based on the recommendation of the Academy of Finland .

A) Peer-reviewed scientific articles

A1 Journal article (refereed), original research

2024

A 165

Yazdan Bakhsh, S., Ayisi, K., **Rötter, R. P.**, Twine, W., Feil, J. H. (2024). Typologies of South African small-scale farmers and their risk perceptions: an unsupervised machine learning approach. *China Agricultural Economic Review*.

<https://doi.org/10.1108/CAER-09-2022-0201>

A 164

Han, J., Luo, Y., Zhang, Z., Xu, J., Chen, Y., Asseng, S., Jägermeyr, J., Müller, C., Olesen, J. E., **Rötter, R. P.**, Tao, F. (2024). Planting area and production decreased for winter-triticeae crops but increased for rapeseed in Ukraine with climatic impacts dominating. *Geography and Sustainability*. Advance online publication.

<https://doi.org/10.1016/j.geosus.2024.08.006>

A 163

Appiah, M., Bracho-Mujica, G., Svane, S., Styczen, M., Kersebaum, K. C., **Rötter, R. P.** (2024). Insights from utilizing data of different quality levels for simulating barley performance under Nordic conditions: The Agricultural Production Systems SIMulator model evaluation. *In Silico Plants*, 6(2), Article diae010.

<https://doi.org/10.1093/insilicoplants/diae010>

A 162

Kahiluoto, H., Sakieh, Y., Kaseva, J., Kersebaum, K.-C., Minoli, S., Franke, J., **Rötter, R. P.**, Müller, C. (2024). Redistribution of nitrogen to feed the people on a safer planet. - PNAS Nexus (In press).

A 161

Pohanková, E., Hlavinka, P., Kersebaum, K. C., Nendel, C., Rodríguez, A., Balek, J., Dubrovský, M., Gobin, A., Hoogenboom, G., Moriondo, M., Olesen, E. J., **Rötter, R. P.**, Ruiz-Ramos, M., Shelia, V., Stella, T., Hoffmann, M. P., Takáč, J., Eitzinger, J., Dibari, C., Ferrise, R., Bohuslav, J., Bláhová, M., Trnka, M. (2024). Expected effects of climate change on the soil organic matter content related to contrasting agricultural management practices based on a crop model ensemble for locations in Czechia. *European Journal of Agronomy*, 156, 127165.

DOI:<https://doi.org/10.1016/j.eja.2024.127165>

A 160

Bracho-Mujica, G., **Rötter, R. P.**, Haakana, M., Palosuo, T., Fronzek, S., Asseng, S., Yi, C., Ewert, F., Gaiser, T., Kassie, B., Paff, K., Rezaei, E.E., Rodriguez, A., Ruiz-Ramos, Margarita, Srivastava, A.K., Statonovitch, P., Tao, F., Semenov, M. A. (2024): Effects of Changes in Climatic Means and Variability on Future Wheat and Maize Yields and the Role of Adaptive Agro-Technologies in Reducing Negative Impacts. *Agricultural and Forest Meteorology* Volume 346,2024,109887.

DOI:<https://doi.org/10.1016/j.agrformet.2024.109887>

2023

A 159

Dewi, E.S., Abdulai, I., Bracho-Mujica, G., Appiah, M., **Rötter, R.P.** (2023): Agronomic and Physiological Traits Response of Three Tropical Sorghum (*Sorghum bicolor* L.) Cultivars to Drought and Salinity.

Agronomy 13(11), 2788.

DOI: <https://doi.org/10.3390/agronomy13112788>

A 158

Appiah, M., Abdulai, I., Schulman, A.H., Moshelion, M., Dewi, E.S., Daszkowska-Golec, A., Bracho-Mujica, G., **Rötter, R.P.** (2023): Drought response of water-conserving and non-conserving spring barley cultivars. *Frontiers in Plant Science* 14, 1247853. <https://doi.org/10.3389/fpls.2023.1247853>

A 157

Guarin, J.R., Martre, P., Ewert, F., Webber, H., Dueri, S., Calderini, D., Reynolds, M., Molero, G., Miralles, D., Garcia, G., Slafer, G., Giunta, F., Pequeno, D., Stella, T., Ahmed, M., Alderman, P., Basso, B., Berger, A., Bindi, M., Bracho-Mujica, G., Cammarano, D., Chen, Y., Dumont, B., Rezaei, E. E., Fereres, E., Ferrise, R., Gaiser, T., Gao, Y., Garcia-Vila, M., Gayler, S., Hochman, Z., Hoogenboom, G., Hunt, F., Kersebaum, K.C., Nendel, C., Olesen, J., Palosuo, T., Priesack, E., Pullens, J., Rodriguez, A., **Rötter, R.P.**, Ramos, M.R., Semenov, M., Senapati, N., Siebert, S., Srivastava, A., Stockle, C., Supit, I., Tao, F., Thorburn, P., Wang, E., Weber, T., Xiao, L., Zhang, Z., Zhao, C., Zhao, J., Zhao, Z., Zhu, Y., Asseng, S. (2023): A high-yielding traits experiment for modeling potential production of wheat: field experiments and AgMIP-Wheat multi-model simulations. *Data Journal for Agricultural Research* 9, 26-33. DOI: <https://doi.org/10.18174/odjar.v9i0.18573>

A 156

Bringhenti, T., Joubert, E., Abdulai, I., Hoffmann, M. P., Moriondo, M., Taylor, P. J., **Rötter, R. P.** (2023). Effects of environmental drivers and irrigation on yields of macadamia orchards along an altitudinal gradient in South Africa. *Scientia Horticulturae* 321, 112326. DOI: <https://doi.org/10.1016/j.scienta.2023.112326>

A 155

Liu, B., Martre, P., Ewert, F., Webber, H., Waha, K., Thorburn, P.J., Ruane, A.C., Aggarwal, P.K., Ahmed, M., Balkovič, J., Basso, B., Biernath, C., Bindi, M., Cammarano, D., Cao, W., Challinor, A.J., Sanctis, G.D., Dumont, B., Espadafor, M., Rezaei, E., Fereres, E., Ferrise, R., Garcia-Vila, M., Gayler, S., Gao, Y., Horan, H., Hoogenboom, G., Izaurralde, R.C., Jabloun, M., Jones, C.D., Kassie, B.T., Kersebaum, K.C., Klein, C., Koehler, A.K., Maiorano, A., Minoli, S., San Martin, M.M., Müller, C.M., Kumar, S.N., Nendel, C., O'Leary, G.J., Olesen, J.E., Palosuo, T., Porter, J.R., Priesack, E., Ripoche, D., **Rötter, R.P.**, Semenov, M.A., Stöckle, C., Stratonovitch, P., Streck, T., Supit, I., Tao, F., Velde, M.V., Wang, E., Wolf, J., Xiao, L., Zhang, Z., Zhao, A., Zhu, Y., Asseng, S., (2023). AgMIP-Wheat multi-model simulations on climate change impact and adaptation for global wheat. *Open Data Journal for Agricultural Research* 9, 10-25.

DOI: <https://doi.org/10.18174/odjar.v9i0.18092>

A 154

Lam, Q.D., **Rötter, R.P.**, Rapholo, E., Ayisi, K., Nelson, W.C.D., Odhiambo, J., Foord, S. (2023). Modelling maize yield impacts of improved water and fertilizer management in southern Africa using cropping system model coupled to an agro-hydrological model at field and catchment scale. *The Journal of Agricultural Science* 1–17. DOI: <https://doi.org/10.1017/S0021859623000230>

A 153

Joseph, J.E., Akinseye, F.M., Worou, O.N., Faye, A., Konte, O., Whitebread, A.M., **Rötter R.P.** (2023). Assessment of the relations between crop yield variability and the onset and intensity of the West African Monsoon.

Agricultural and Forest Meteorology 333, 109431
DOI: 10.1016/j.agrformet.2023.109431

A 152

Kaseva, J., Hakala, K., Högnäsbacka, M., Jauhiainen, L., Himanen, S.J., **Rötter R.P.**, Balek, J., Trnka, M., Kahiluoto, H. (2023). Assessing climate resilience of barley cultivars in northern conditions during 1980–2020. *Field Crops Research* 293, 108856
DOI: 10.1016/j.fcr.2023.108856

A 151

Liu, K., Harrison, M.T., Yan, H., Liu, D.L., Meinke, H., Hoogenboom, G., Wang, B., Guan, K., Jaegermeyr, J., Wang, E., Zhang, F., Yin, X., Archontoulis, S., Nie, L., Badea, A., Man, J., Wallach, D., Zhao, J., Benjumeng, A.B., Fahad, S., Tian, X., Wand, W., Tao, F., Zhang, Z., **Rötter, R.P.**, Yuan, Y., Zhu, M., Dai, P., Nie, J., Yang, Y., Zhang, Y., Zhou, M. (2023). Silver lining to a climate crisis in multiple prospects for alleviating crop waterlogging under future climates. *Nat Commun* 14, 765
DOI: 10.1038/s41467-023-36129-4

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A 150

Ferreira, N. C.R., **Rötter, R. P.**, Bracho-Mujica, G., Nelson, W. C. D., Lam, Q. D., Recktenwald, C., Abdulai, I., Odhiambo, J., Foord, S. (2022). Drought patterns: their spatiotemporal variability and impacts on maize production in Limpopo province, South Africa. *Int J Biometeorol* 67, 133–148. DOI: 10.1007/s00484-02202392-1

A 149

Appiah, M., Bracho-Mujica, G., Ferreira, N. C.R., Schulman, A. H., **Rötter, R. P.** (2022). Projected impacts of sowing date and cultivar choice on the timing of heat and drought stress in spring barley grown along a European transect. *Field Crops Research* 291, 108768. DOI: 10.1016/j.fcr.2022.108768

A 148

Guarin, J. R., Martre, P., Ewert, F., Webber, H., Dueri, S., Calderini, D., Reynolds, M., Molero, G., Miralles, D., Garcia, G., Slafer, G., Giunta, F., Noleto Luz Pequeno, D., Stella, T., Ahmed, M., Alderman, P. D., Basso, B., Berger, A. G., Bindi, M., Bracho-Mujica, G., Cammarano, D., Chen, Y., Dumont, B., Rezaei, E. E., Fereres, E., Ferrise, R., Gaiser, T., Gao, Y., Garcia-Vila, S., Gayler, S., Hochman, Z., Hoogenboom, G., Hunt, L. A., Kersebaum, C., Nendel, C., Olesen, J., Palosuo, T., Priesack, E., Pullens, J., Rodriguez, A., **Rötter, R.**, Ruiz-Ramos, M., Semenov, M. A., Senapati, N., Siebert, S., Kumar Srivastava, A., Stöckle, C. O., Supit, I., Tao, F., Thorburn, P. J., Wang, E., Weber, T. K. D., Xiao, L., Zhang, Z., Zhao, C., Zhao, J., Zhao, Z., Zhu, Y and Asseng, S. (2022). Evidence for increasing global wheat yield potential. *Environ. Res. Lett.* 17, 124045. DOI: 10.1088/1748-9326/aca77c

A 147

Rötter, R. P. and Köster, M. (2022). Klimawandel und Ernährungssicherheit: Inwieweit könnte eine angepasste Landwirtschaft in der Europäischen Union zur globalen Ernährungssicherheit beitragen? In: Ifo- Institut für Wirtschaftsforschung (Hrsg.), Ifo-Schnelldienst-Ifo-Institut für Wirtschaftsforschung. München. Jahrgang 75, 08.2022, S. 10-14. <https://doi.org/10.5194/bg-2022-61>

A 146

Pfeiffer, M., Hoffmann, M. P., Scheiter, S., Nelson, W., Isselstein, J., Ayisi, K. K., Odhiambo, J., and **Rötter, R. P.** (2022). Effects of alternative crop-livestock management scenarios on selected ecosystem services in smallholder farming – a landscape perspective, *Biogeosciences* 19, 3935–3958 <https://doi.org/10.5194/bg-193935-2022>

A 145

Senapati, N., Semenov, M.A., Halford, N.G., Hawkesford, M.J., Asseng, S., Cooper, M., Ewert, F., van Ittersum, M.K., Martre, P., Olesen, J.E., Reynolds, M., **Rötter, R.P.**, Webber, H. (2022). Global wheat production could benefit from closing the genetic yield gap. *Nature Food* 3, 532–541. <https://doi.org/10.1038/s43016-022-00540-9>

A 144

Nelson, W. C. D., Hoffmann, M. P., May, C., Mashao, F., Ayisi, K., Odhiambo, J., Bringhenti, T., Feil, J. H., Yazdan Bakhsh, S., Abdulai, I. & **Rötter, R. P.** (2022). Tackling climate risk to sustainably intensify smallholder maize farming systems in southern Africa. *Environmental Research Letters* 17, 75005. <https://doi.org/10.1088/1748-9326/ac77a3>

A 143

Meyer zu Drewer, J., Köster, M., Abdulai, I., **Rötter, R. P.**, Hagemann, N. & Schmidt, H. P. (2022): Impact of Different Methods of Root-Zone Application of Biochar-Based Fertilizers on Young Cocoa Plants: Insights from a Pot-Trial. *Horticulturae* 8, 328. <https://doi.org/10.3390/horticulturae8040328>

A 142

Dueri, S., Brown, H., Asseng, S., Ewert, F., Webber, H., George, M., Craigie, R., Guarin, J. R., Pequeno, D. N. L., Stella, T., Ahmed, M., Alderman, P. D., Basso, B., Berger, A. G., Mujica, G. B., Cammarano, D., Chen, Y., Dumont, B., Rezaei, E. E., Fereres, E., Ferrise, R., Gaiser, T., Gao, Y., Garcia-Vila, M., Gayler, S., Hochman, Z., Hoogenboom, G., Kersebaum, K. C., Nendel, C., Olesen, J. E., Padovan, G., Palosuo, T., Priesack, E., Pullens, J. W. M., Rodríguez, A., **Rötter, R. P.**, Ramos, M. R., Semenov, M. A., Senapati, N., Siebert, S., Srivastava, A. K., Stöckle, C., Supit, I., Tao, F., Thorburn, P., Wang, E., Weber, T. K. D., Xiao, L., Zhao, C., Zhao, J., Zhao, Z., Zhu, Y. & Martre, P. (2022). Simulation of winter wheat response to variable sowing dates and densities in a high-yielding environment. *Journal of experimental botany*. <https://doi.org/10.1093/jxb/erac221>

A 141

Savary S, Waddington, S., Akter, S., Almekinders, C., Harris, J., Korsten, L., **Rötter R.P.**, Van den Broeck, G. (2022). Revisiting food security in 2021: an overview of the past year. <https://doi.org/10.1007/s12571-022-01266-z>

A 140

Dewi, E.S., Abdulai, I., Bracho-Mujica, G., **Rötter, R.P.** (2022). Salinity constraints for small-scale agriculture and impact on adaptation in North Aceh, Indonesia. *Agronomy*

A 139

Pohanková, E., Hlavinka, P., Kersebaum, K.-C., Rodríguez, A., Balek, J., Bednařík, M., Dubrovský, M., Gobin, A., Hoogenboom, G., Moriondo, M., Nendel, C., Olesen, J. E., **Rötter, R. P.**, Ruiz-Ramos, M., Shelia, V., Stella, T., Hoffmann, M. P., Takáč, J., Eitzinger, J., Dibari, C., Ferrise, R., Bláhová, M. & Trmka, M. (2022). Expected effects of climate change on the production and water use of crop rotation management reproduced by crop model ensemble for Czech Republic sites. *European Journal of Agronomy* 134, 126446. <https://doi.org/10.1016/j.eja.2021.126446>

A 138

Sarmiento-Soler, A., **Rötter, R. P.**, Hoffmann, M. P., Jassogne, L., van Asten, P., Graefe, S., Vaast, P. (2022). Disentangling effects of altitude and shade cover on coffee fruit dynamics and vegetative growth in smallholder coffee systems *Agriculture, Ecosystems & Environment*, 326, 107786. <https://doi.org/10.1016/j.agee.2021.107786>

2021

A 137

Nelson, W.C.D., Hoffmann, M.P., Vadez, V., **Rötter, R.P.**, Koch, M., Whitbread, A.M. (2021). Can intercropping be an adaption to drought? A model-based analysis for pearl millet-cowpea. *Journal of Agronomy and Crop Science*. DOI: 10.1111/jac.12552

A 136

Mouratiadou, I., Latka, C., van der Hilst, F., Müller, C., Berges, R., Bodirsky, B. L., Ewert, F., Faye, B., Heckelei, T., Hoffmann, M., Lehtonen, H., Lorite, I.J., Nendel, C., Paluoso, T., Rodríguez, A., **Rötter, R.P.**, Ruiz-Ramos, M., Stella, T., Webber, H., B. Wicke (2021). Quantifying sustainable intensification of agriculture: The contribution of metrics and modelling. *Ecological Indicators*, 129, 107870. DOI: 10.1016/j.ecolind.2021.107870

A 135

Kostková, M., Hlavinka, P., Pohanková, E., Kersebaum, K. C., Nendel, C., Gobin, A., Olesen J. E., Ferrise, R., Dibari, C., Takáč, J., Topaj, A., Medvedev, S., Hoffmann, M.P., Stella, T., Balek, J., Ruiz-Ramos, M., Rodríguez, A., Hoogenboom, G., Shelia, V., Ventrella, D., Giglio, L., Sharif, B., Oztürk, I., **Rötter, R.P.**, Balkovič, J., R. Skalský, R., Moriondo, M., Thaler, S., Žalud Z., M. Trnka (2021). Performance of 13 crop simulation models and their ensemble for simulating four field crops in Central Europe. *The Journal of Agricultural Science*, 109, 141–157. DOI: 10.1017/S0021859621000216

A 134

Nelson, W.C.D., Siebrecht-Schöll, D.J., Hoffmann, M.P., **Rötter, R.P.**, Whitbread, A.M., Link, W. (2021). What determines a productive winter bean-wheat genotype combination for intercropping in central Germany? *European Journal of Agronomy*, 127. 126294. DOI: 10.1016/j.eja.2021.126294

A 133

Rötter, R.P., Scheiter, S., Hoffman, M.P., Pfeiffer, M., Nelson, W.C.D., Ayisi, K., Taylor, P., Feil, J-H, Bakhsh, S.Y., Isselstein, J., Linstaedter, A., Behn, K., Westphal, C., Odhiambo, J., Twine, W., Grass, I., Merante, P., Bracho-Mujica, G., Bringham, T., Lamega, S., Abdulai, I, Lam, Q.D., Anders, M., Linden, V., Weier, S., Foord, S., Erasmus, B. (2021). Modeling the multi-functionality of African savanna landscapes under global change. *Land Degradation & Development*, 32, 2077-2081 DOI: 10.1002/ldr.3925

A 132

Palosuo, T., Hoffmann, M.P., **Rötter, R.P.**, Lehtonen, H.S. (2021). Sustainable intensification of crop production under alternative future changes in climate and technology: The case of the North Savo region. *Agricultural Systems*, 190, 103135. DOI: 10.1016/j.agsy.2021.103135

A 131

Laux, P., **Rötter, R.P.**, Webber, H., Dieng, D., Rahimi, J., Wie, J., Faye, B., Srivastava, A.K., Bliefernicht, J., Adeyeri, O., Arnault, J., Kunstmann, H. (2021). To bias correct or not to bias correct? An agricultural impact modelers' perspective on regional climate model data. *Agricultural and Forest Meteorology* 304-305, 108406. DOI: 10.1016/j.agrformet.2021.108406

2020

A 130

Savary, S., Akter, S., Almekinders, C., Harris, J., Korsten, L., **Rötter, R.P.**, Waddington, S., Watson, D. (2020). Mapping disruption and resilience mechanisms in food systems. *Food Security* 12, 695–717. DOI: 10.1007/s12571-020-01093-0

A 129

Hoffmann, M.P., Swanepoel, C.M., Nelson, W.C.D., Beukes, D.J., van der Laan, M., Hargreaves, J.N.G., **Rötter, R.P.** (2020). Simulating medium-term effects of cropping system diversification on soil fertility and crop productivity in southern Africa. *European Journal of Agronomy* 119, 126089. DOI: 10.1016/j.eja.2020.126089

A 128

Sarmiento-Soler, A., Vaast, P., Hoffmann, M.P., Jassongne, L., van Asten, P., Graefe, S., **Rötter, R.P.** (2020). Effect of cropping system, shade cover and altitudinal gradient on coffee yield components at Mt. Elgon, Uganda. *Agriculture, Ecosystems & Environment* 295, 106887. DOI: 10.1016/j.agee.2020.106887

A 127

Abdulai, I., Hoffmann, M.P., Jassogne, L., Asare, R., Graefe, S., Tao, H.H., Muilerman, S., Vaast, P., Van Asten, P., Läderach, P. **Rötter, R.P.** (2020). Variations in yield gaps of smallholder cocoa systems and the main determining factors along a climate gradient in Ghana. *Agricultural Systems*. *Agricultural Systems* 181, 102812. DOI: 10.1016/j.agsy.2020.102812

A 126

Hoffmann, M., Cock, J., Samson, M., Janetski, N., Janetski, K., **Rötter, R.P.**, Fisher, M., Oberthür, T. (2020). Fertilizer management in smallholder cocoa farms of Indonesia under variable climate and market prices. *Agricultural Systems* 178, 102759. DOI: 10.1016/j.agsy.2019.102759.

2019

A 125

Tao, F., Palosuo, T., **Rötter, R.P.**, Hernández Díaz-Ambrona, C.G., Mínguez, M.I., Semenov, M.A., Kersebaum, K.C., Cammarano, D., Specka, X., Nendel, C., Srivastava, A.K., Ewert, F., Padovan, G., Ferrise, R., Martre, P., Rodríguez, L., Ruiz-Ramos, M., Gaiser, T., Höhn, J.G., Salo, T., Dibari, C., Schulman, A.H. (2019). Why do crop models diverge substantially in climate impact projections? A comprehensive analysis based on eight barley crop models. *Agricultural Systems* 173, 393–402. DOI: 10.1016/j.agrformet.2019.107851

A 124

Trnka, M., Feng, S., Semenov, M.A., Olesen, J.E., Kersebaum, K.C., **Rötter, R.P.**, Semerádová, D., Klem, K., Huang, W., Ruiz-Ramos, M., Hlavinka, P., Meitner, J., Balek, J., Havlik, P., Büntgen, U. (2019). Mitigation efforts will not fully alleviate the increase in water scarcity occurrence probability in wheatproducing areas. *Science Advances* 5, eaau2406. DOI: 10.1126/sciadv.aau2406

A 123

Rapholo, E., Odhiambo, J.J.O., Nelson, W.C.D., **Rötter, R.P.**, Ayisi, K., Koch, M., Hoffmann, M.P. (2019). Maize–lablab intercropping is promising in supporting the sustainable intensification of smallholder cropping systems under high climate risk in southern Africa. *Experimental Agriculture* 56(1), 104–117. DOI: 10.1017/S0014479719000206

A 122

Sarmiento-Soler, A., Vaast, P., Hoffmann, M. P., **Rötter, R. P.**, Jassogne, L., van Asten, P. J. A., Graefe, S. (2019). Water use of *Coffea arabica* in open versus shaded systems under smallholder’s farm conditions in Eastern Uganda. *Agricultural and Forest Meteorology* 266–267, 231–242 DOI: 10.1016/j.agrformet.2018.12.006

2018

A 121

Rodríguez, A., Ruiz-Ramos, M., Palosuo, T., Carter, T. R., Fronzek, S., Lorite, I.J., Ferrise, R., Pirttioja, N., Bindi, M., Baranowski, P., Buis, S., Cammarano, D., Chen, Y., Dumont, B., Ewert, F., Gaiser, T., Hlavinka, P., Hoffmann, H., Höhn, J.G., Jurecka, F., Kersebaum, K.C., Krzyszczak, J., Lana, M., Mechiche-Alami, A., Minet, J., Montesino, M., Nendel, C., Porter, J.R., Ruget, F., Semenov, M.A., Steinmetz, Z., Stratonovitch, P., Supit, I., Tao, F., Trnka, M., de Wit, A., **Rötter, R.P.** (2018). Implications of crop model ensemble size and composition for estimates of adaptation effects and agreement of recommendations. *Agricultural and Forest Meteorology* 264, 351-362. DOI: 10.1016/j.agrformet.2018.09.018

A 120

Pirttioja, N., Palosuo, T., Fronzek, S., Räisänen, J., **Rötter, R. P.**, Carter, T. R. (2018). Using impact response surfaces to analyse the likelihood of impacts on crop yield under probabilistic climate change. *Agricultural and Forest Meteorology* 264, 213-224. DOI: 10.1016/j.agrformet.2018.10.006

A 119

Liu, B., Martre, P., Ewert, F., Porter, J. R., Challinor, A. J., Müller, C., [...], **Rötter, R.P.**, [...], Asseng, S. (2018). Global wheat production with 1.5 and 2.0°C above pre-industrial warming. *Global Change Biology* 25 (4), 1428-1444. DOI: 10.1111/gcb.14542

A 118

Asseng, S., Martre, P., Maiorano, A., **Rötter, R. P.**, O'Leary, G. J., Fitzgerald, G. J., Girousse, C., Motzo, R., Giunta, F., Babar, M. A., Reynolds, M. P., Kheir, A. M. S., Thorburn, P. J., Waha, K., Ruane, A. C., Aggarwal, P. K., Ahmed, M., Balkovič, J., Basso, B., Biernath, C., [...] Ewert, F. (2018). Climate change impact and adaptation for wheat protein. *Global Change Biology* 00, 1-19. DOI: 10.1111/gcb.14481

A 117

Swanepoel, C.M., **Rötter, R.P.**, van der Laan, M., Annandale, J.G., Beukes, D.J., du Preez, C.C. Swanepoel, L.H., van der Merwe, A., Hoffmann, M.P. (2018). The benefits of conservation agriculture on soil organic carbon and yield in southern Africa are site-specific. *Soil and Tillage Research* 183, 72-82. DOI: 10.1016/j.still.2018.05.016

A 116

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B1 Non-refereed journal articles

B1-5

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B1-4

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B1-2

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B2 Book sections

B2-4

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B3-36

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B3-24

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B3-23

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B3-22

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B3-21

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B3-20

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B3-19

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B3-18

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B3-17

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B3-16

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B3-15

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B3-14

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B3-13

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B3-12

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B3-11

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B3-10

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B3-9

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B3-8

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B3-7

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B3-6

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B3-5

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B3-4

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B3-3

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B3-2

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C Scientific Books (monograph)

C1 Edited book, conference proceedings or special issue of a journal

C1-8

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C1-7

Rötter, R.P., Koch, M. (2019) Der Klimawandel als Herausforderung für Ugandas wichtigsten Exportwirtschaftszweig In: Jahreis, M., Marquart, S., Möllers, N. (Eds.) *Kosmos Kaffee*. Verlag Deutsches Museum, München, Germany.

C1-6

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Aggarwal P.K., **Rötter, R.P.**, Kalra, N., Van Keulen, H., Hoanh, C.T., Van Laar, H.H. (eds.) (2001). *Land use analysis and planning for sustainable food security: with an illustration for the state of Haryana, India*. New Dehli: Indian Agricultural Research Institute; Los Baños: International Rice Research Institute; Wageningen: Wageningen University and Research Centre. 167 pages.

C1-4

Rötter, R.P., Van Keulen, H. & Van Laar, H.H. (eds.) (2000). *Synthesis of methodology development and case studies*. SysNet Research Paper Series No. 3. Los Baños: IRRI. 94 pages.

C1-3

Rötter, R.P., Van Keulen, H., Laborte, A.G., Hoanh, C.T., Van Laar, H.H. (eds.). (2000). Systems research for optimizing future land use in South and Southeast Asia. SysNet Research Paper Series No. 2. Los Baños: IRRI. 266 pages.

C1-2

Rötter, R.P., Hoanh, C.T. & Teng, P.S. (eds.) (1998): A systems approach to analyzing land use options for sustainable rural development in South and Southeast Asia. IRRI Discussion Paper Series No. 28. SysNet Special Project Report. Manila: International Rice Research Institute. 110 pages.

C1-1

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D) Publications intended for professional communities (a selection)

D1 Article in a professional manual or guide or professional information system, textbook material.

D1-20

Rötter, R.P. (1988). Methodology for agro-climatic description and monitoring. In H. Stroebel (ed.) Methodology. Fertilizer Use Recommendation Project. Main Report, GTZ/KARI, Nairobi, Kenya, 80- 131.

D1-19

Smaling E.M.A. & **Rötter, R.P.** (1988g). Kwale District. Climate and soil description. In H. Stroebel (ed.) Fertilizer Use Recommendation Project. Description of the various trial sites. Vol. 31, GTZ/KARI, Nairobi, Kenya.

D1-18

Smaling, E.M.A., & **Rötter, R.P.** (1988f). Kilifi District. Climate and soil description. In: Stroebel, ed., Fertilizer Use Recommendation Project. Description of the various trial sites. Vol. 29, GTZ/KARI, Nairobi, Kenya.

D1-17

Smaling, E.M.A. & **Rötter, R.P.** (1988e). Lamu District. Climate and soil description. In H. Stroebel (ed.) Fertilizer Use Recommendation Project. Description of the various trial sites. Vol. 28, GTZ/KARI, Nairobi, Kenya.

D1-16

Smaling, E.M.A. & **Rötter, R.P.** (1988d). Kitui District. Climate and soil description. In H. Stroebel (ed.) Fertilizer Use Recommendation Project. Description of the various trial sites. Vol. 27, GTZ/KARI, Nairobi, Kenya.

D1-15

Smaling, E.M.A. & **Rötter, R.P.** (1988c). Machakos District. Climate and soil description. In H. Stroebel (ed.) Fertilizer Use Recommendation Project. Description of the various trial sites. Vol. 26, GTZ/KARI, Nairobi, Kenya.

D1-14

Smaling, E.M.A. & **Rötter, R.P.** (1988b). Meru District. Climate and soil description. In H. Stroebel (ed.) Fertilizer Use Recommendation Project. Description of the various trial sites. Vol. 25, GTZ/KARI, Nairobi, Kenya.

D1-13

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D1-12

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D1-11

Smaling, E.M.A. & **Rötter, R.P.** (1987k). West Pokot District. Climate and soil description. In H. Stroebel (ed.) Fertilizer Use Recommendation Project. Description of the various trial sites. Vol. 12, GTZ/KARI, Nairobi, Kenya.

D1-10

Smaling, E.M.A. & **Rötter, R.P.** (1987j). Trans Nzoia District. Climate and soil description. In H. Stroebel (ed.) Fertilizer Use Recommendation Project. Description of the various trial sites. Vol. 10, GTZ/KARI, Nairobi, Kenya.

D1-9

Smaling, E.M.A. & **Rötter, R.P.** (1987i). Kericho District. Climate and soil description. In H. Stroebel (ed.) Fertilizer Use Recommendation Project. Description of the various trial sites. Vol. 9, GTZ/KARI, Nairobi, Kenya.

D1-8

Smaling, E.M.A. & **Rötter, R.P.** (1987h). Nandi District. Climate and soil description. In H. Stroebel (ed.) Fertilizer Use Recommendation Project. Description of the various trial sites. Vol. 8, GTZ/KARI, Nairobi, Kenya.

D1-7

Smaling, E.M.A. & **Rötter, R.P.** (1987g). Kakamega District. Climate and soil description. In H. Stroebel (ed.) Fertilizer Use Recommendation Project. Description of the various trial sites. Vol. 7, GTZ/KARI, Nairobi, Kenya.

D1-6

Smaling, E.M.A. & **Rötter, R.P.** (1987f). Bungoma District. Climate and soil description. In H. Stroebel (ed.) Fertilizer Use Recommendation Project. Description of the various trial sites. Vol. 6, GTZ/KARI, Nairobi, Kenya.

D1-5

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D1-4

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D1-3

Smaling, E.M.A. & **Rötter, R.P.** (1987c). Kisumu District. Climate and soil description. In H. Stroebel (ed.) Fertilizer Use Recommendation Project. Description of the various trial sites. Vol. 3, GTZ/KARI, Nairobi, Kenya.

D1-2

Smaling, E.M.A. & **Rötter, R.P.** (1987b). South Nyanza District. Climate and soil description. In H. Stroebel (ed.) Fertilizer Use Recommendation Project. Description of the various trial sites. Vol. 2, GTZ/KARI, Nairobi, Kenya.

D1-1

Smaling, E.M.A. & **Rötter, R.P.** (1987a). Kisii District. Climate and soil description. In H. Stroebel (ed.) Fertilizer Use Recommendation Project. Description of the various trial sites. Vol. 1, GTZ/KARI, Nairobi, Kenya.

D2 Professional conference proceedings

D2-1

Rötter, R.P. & Lenga, F.K. (1990). Yield response of Katumani composite B maize as influenced by soil, climate and fertilizer rates. Chapter 11 GTZ/FURP Report 1990, Proceedings, KARI National Soil Fertility workshop, Nairobi NARL on 28th August 1990, Nairobi and Eschborn.

D3 Published development or research report or study

D3-13

Joseph, J.E., Rao, K.P.C., Ngwira, A.R., Swai, E., **Rötter, R.P.**, Whitbread, A.M., (2021) Analysis of rainfall variability and trends for better climate risk management in the major agro-ecological zones in Tanzania. CCAFS Working Paper no. 363. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).
DOI:<https://hdl.handle.net/10568/114910>

D3-12

Hakala, K., Himanen, S., **Rötter, R.P.**, Höhn, J., Jauhiainen, L., Kaseva, J., Ketoja, E., Salo, T., Kahiluoto, H. (2012). Satoa joka säällä - siemeniä erilaisiin tulevaisuuksiin. In H. Kahiluoto & S. Himanen (eds.) MTT Raportti 43, Monimuotoisuudesta sopeutumiskykyä Ruokaketju uusille raiteille? 2. korjattu versio, Jokioinen: MTT, 15-43.

D3-11

Kahiluoto, H., Hakala, K., Miettinen, A., Niemi, J., **Rötter, R.P.**, Salo, T., Himanen, S. (2012). Pääviestit toimijoille. In H. Kahiluoto & S. Himanen (eds.) MTT Raportti 43, Monimuotoisuudesta sopeutumiskykyä Ruokaketju uusille raiteille? 2. korjattu versio, Jokioinen: MTT, 52-58.

D3-10

Wolf, J., Reidsma, P., Schaap, B., Mandryk, M., Kanellopoulos, A., Ewert, F., van Oort, P., Angulo, C., Rumbaur, C., Lock, R., Enders, A., Adenauer, M., Heckelei, T., **Rötter, R.P.**, Fronzek, S., Carter, T.R., Verhagen, A., van Ittersum, M.K. (2012). Assessing the adaptive capacity of agriculture in the Netherlands to the impacts of climate change under different market and policy scenarios. Agri Adapt project, Synthesis report, Wageningen UR, University of Bonn, MTT, Finnish Environment Institute, KvR report nr. 059/12.

D3-9

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D3-8

De Jager, A. & **Rötter, R.P.** (2007). Rural Economic Development. In P.S. Bindraban & S. Vellema (eds.) Linking Policy, practice and research in international development. Report 127, Wageningen UR, The Netherlands, 39-42.

D3-7

Van Ierland, E. Bruin, K. de, Dellink, R.B., Ruijs, A., **Rötter R.P.** et al., (2007). Climate change. Routeplanner subprojects 4 & 5, A qualitative assessment of climate adaptation strategies. MNP Report.

D3-6

Van Ierland, E.C., De Bruin, K., Dellink, R.B., Ruijs, A., Bolwidt, L., van Buuren, A., Graveland, J., de Groot, R.S., Kuikman, P., Nillesen, E.E.M., Platteeuw, M., Reinhard, S., Tassone, V.C., Verhagen, A., **Rötter, R.P.**, Verzandvoort-van Dijck, S. (2006). A qualitative assessment of climate Adaptation options and some estimates of adaptation costs. Netherlands Policy Programme ARK, The Netherlands. 181 pages.

D3-5

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D3-4

Overbeek, G.B.J., Beusen. Boers, P.C.M., Van den Born, G.J., Groenendijk, P., Van Grinsven, J.J.M., Kroon, T., Van der Meer, H.G., Oosterom, H.P., Van Puijenbroek, P.J.T.M., Roelsma, J., Roest, C.W.J., **Rötter, R.P.**, Tiktak, A., Van Tol, S.M. (2002). Plausibiliteitsdocument STONE 2.0. Globale verkenning van de plausibiliteit van het model STONE versie 2.0 voor de modellering van uit- en afspoeling van N en P. RIVM rapport 718501001, RIVM, Bilthoven, The Netherlands [in Dutch].

D3-3

Rötter, R.P., Van Grinsven, J.J.M., Boers, P., Beusen, A.H.W., Oenema, O. (2001). De status van het rekeninstrumentarium STONE versie 2.0. Alterra Report 378, Alterra, Wageningen, The Netherlands [in Dutch].

D3-2

Rötter, R.P. & van Diepen, C.A. (1994). Rhine Basin Study. Vol.2, Climate Change Impact on Crop Yield Potentials and Water Use. Wageningen and Lelystad, the Netherlands, SC-DLO Report, 85.2. 145 pages.

D3-1

Rötter, R.P. (1994). Rhine basin Study: Land Use Projections based on biophysical and socio- economic analyses. Vol.1, Biophysical classification as a general framework.- SC-DLO Report 85.1, Wageningen and Lelystad. 105 pages.

D4 Textbook, professional manual or guide, dictionary

D4-2

Laborte, A.G., Nuñez, B., Dreiser, C., **Rötter, R.P.** (2001). SysNet Tools II: the MGLP user interface for interactive land use scenario analysis. IRRI Technical Bulletin No. 8. Manila (Philippines): International Rice Research Institute, 31 pages (+ CD-ROM SysNet Tools, version 1.1).

D4-1

Boogaard, H.L., Van Diepen, C.A., **Rötter, R.P.**, Cabrera, J.M., Van Laar, H.H. (1998). WOFOST 7.1. User's guide for the WOFOST 7.1 crop growth simulation model. DLO Winand Staring Centre and International Rice Research Institute. (Technical Document 52), Wageningen, The Netherlands, 140 pages.

E) Research-related publications directed to the general public (a selection)

E1 Popularised article

E1-3

Rötter, R. P., Köster, M. (2022). Klimawandel und Ernährungssicherheit: Inwieweit könnte eine angepasste Landwirtschaft in der Europäischen Union zur globalen Ernährungssicherheit beitragen?. *Ifo Schnelldienst*, 75(8), 10-13.

E1-2

Van den Berg, M., Hengsdijk, H., Wang Guanghuo, Wolf, J., van Ittersum, M., **Rötter, R.P.** (2005). The future of rural income and rice production in China, IIAS Newsletter September edition, 38, 34. (also available online at: <http://www.iias.nl/iias/show/id=52078>)

E1-1

Rötter, R.P. (2004). Securing Asia's rice harvest. In ISNAR, Method in our madness. The Hague, The Netherlands, 16-29.

E2 Popularised monograph

E2-7

Rötter, R.P. & Palosuo, T. (2013). "Projections of climate change impacts on wheat production uncertain: A call for model improvement." Phys.org. 28 Jun 2013. <http://phys.org/news/2013-06-climate-impacts-wheathttp://phys.org/news/2013-06-climate-impacts-wheat-production-uncertain.htmlproduction-uncertain.html>

E2-6

Rötter, R.P. & Carter, T.R. (2011) Crop-climate models need an urgent update (online at: https://portal.mtt.fi/portal/page/portal/mtt_en/mtt/news/pressreleases/2011/Crop-climate%20models%20need%20an%20urgent%20update)

E2-5

Rötter, R.P., van Keulen, H., Kuiper, M., Verhagen, A., Meijerink, G. (2006). Science for sustainable agriculture and rural development in the South. International Cooperation Programme, Wageningen University & Research centre, Wageningen, The Netherlands. 21 pages. (also online available at www.wi.wur.nl/news/)

E2-4

Rötter, R.P. et al., (2000). Breaking new ground. Contribution of SysNet project to the international cooperation programme, IRRI annual report 1999/2000. (online available: www.irri.cgiar.org Media Hotline May, 2000).

E2-3

Rötter, R.P. (2000). A Systems Research Network for Ecoregional Land Use Planning in support of Natural Resource Management in Asia (SYSNET). Annual Report. 1999. IRRI, , Manila, Philippines. 125 pages.

E2-2

Rötter, R.P. (1999). A Systems Research Network for Ecoregional Land Use Planning in support of Natural Resource Management in Asia (SYSNET). Annual Report. 1998. IRRI, , Manila, Philippines. 95 pages.

E2-1

Rötter, R.P. (1998). A Systems Research Network for Ecoregional Land Use Planning in support of Natural Resource Management in Asia (SYSNET). Annual Report 1997. IRRI, , Manila, Philippines. 67 pages.

F) Theses

F1 Doctoral dissertation (monograph)

F1-1

Rötter, R.P. (1993). Simulation of the biophysical limitations to maize production under rainfed conditions in Kenya. Evaluation and application of the model WOFOST. PhD Thesis, Universität Trier, Germany (= Materialien zur Ostafrika-Forschung, Heft 12), 297 pages.

G) Other pieces of work (audiovisual material, ICT software -a selection)

G1 Audiovisual material

G1-1

Websites (and associated CD-ROMS)

- IRMLA project (EU-INCO) documentation website: [or via www.splu.nl](http://www.splu.nl)
- RMO Beijing (LNV-DLO-IC) documentation website: www.rmo-beijing.alterra.nl
- SUMAPOL 2005 website: www.sumapol2005.org (proceedings also available on CD-ROM)
- SysNet 99 Conference website: www.irri.sysnet99.org (proceedings also available on CD-ROM)
- SysNet (Systems Research Network documentation) website: www.irri.sysnet.org
- MODAGS (2012-1015) (Multi-level integrated modelling and analysis of agrifood systems) website: www.mtt.fi/modags

G2 ICT software

G2-1

CD-ROMS containing software (models, expert systems) developed

- WOFOST 7.1 crop growth simulation model; www.wofost.wur.nl (Alterra, 2002)
- SysNet Tools for interactive land use scenario analysis (IRRI and Wageningen UR, 1999)
- SysNet MGLP user interface (IRRI and Wageningen UR, 2001)*
- TechnoGIN3: Technical coefficient generator for South-east Asia (PPS and Alterra, 2004)**
- IRMLA tools for land use systems analysis (Wageningen UR, 2005)*** - Nordic AgriCLIM calculation of agro-climatic indicators for Finnish crops****

[* see, Laborte et al., 2001. SysNet Tools II; ** see, Ponsioen et al., 2006, Agricultural Systems 87, 80-100 (=A.34) and Ponsioen et al., 2004. QASA Report 26 *** see, www.irmla.alterra.nl **** outputs shown on www.mtt.fi/modags/]