

Prof. Dr. Mehmet Senbayram

Publications in refereed journals and refereed conference proceedings

2018

Jákli, B.; Hauer-Jákli, M.; Böttcher, F.; Meyer zur Müdehorst, J.; **Senbayram, M.** & Dittert, K. (2018): Leaf, canopy and agronomic water-use efficiency of field-grown sugar beet in response to potassium fertilization. *Journal of Agronomy and Crop Science* 204, 99-110.

Köbke, S.; **Senbayram, M.**; Pfeiffer, B.; Nacke, H. & Dittert, K. (2018) Post-harvest N₂O and CO₂ emissions related to plant residue incorporation of oilseed rape and barley straw depend on soil NO₃⁻ content. *Soil and Tillage Research* 179, 105-113.

Tavakol, E.; Jákli, B.; Cakmak, I.; Dittert, K.; Karlovsky, P.; Pfohl, K. & **Senbayram, M.** (2018) Optimized potassium nutrition improves plant-water-relations of barley under PEG-induced osmotic stress. *Plant Soil* 430, 23-35.

2017

Jákli, B.; Tavakol, E.; Tränkner, M.; **Senbayram, M.** & Dittert, K. (2017) Quantitative limitations to photosynthesis in K deficient sunflower and their implications on water-use efficiency. *Journal of Plant Physiology* 209, 20-30.

Wu, D.; **Senbayram, M.**; Well, R.; Brüggemann, N.; Pfeiffer, B.; Loick, N.; Stempfhuber, B.; Dittert, K. & Bol, R. (2017) Nitrification inhibitors mitigate N₂O emissions more effectively under straw-induced conditions favoring denitrification. *Soil Biology & Biochemistry* 104, 197-207.

2016

Jákli, B.; Tränkner, M.; **Senbayram, M.** & Dittert, K. (2016): Adequate supply of potassium improves plant water-use efficiency but not leaf water-use efficiency of spring wheat. *J. Plant Nutr. Soil Sci.* 179, 733-745.

Senbayram, M.; Wenthe, C.; Lingner, A.; Isselstein, J.; Steinmann, H.; Kaya, C. & Köbke, S. (2016): Legume-based mixed intercropping systems may lower agricultural born N₂O emissions. *Energy Sustain. Soc.* 6. <https://doi.org/10.1186/s13705-015-0067-3>.

Tränkner, M.; Jákli, B.; Tavakol, E.; Geilfus, C.M.; Cakmak, I.; Dittert, K. & **Senbayram, M.** (2016) Magnesium deficiency decreases biomass water-use efficiency and increases leaf water-use efficiency and oxidative stress in barley plants. *Plant Soil* 406, 409-423.

2015

Geilfus, C.M.; Niehaus, K.; Godde, V., Hasler, M.; Zörb, C.; Gorzolka, K.; Jezek, M., **Senbayram, M.**; Ludwig-Müller, J. & Mühling, K.H. (2015) Fast responses of metabolites in *Vicia faba* L. to moderate NaCl stress. *Plant Physiol. Bioch.* 92, 19-29.

Köster, J.R.; Cardenas, L.; Bol, R.; Lewicka-Szczebak, D.; **Senbayram, M.**; Well, R.; Giesemann, A. & Dittert, K. (2015) Anaerobic digestates lower N₂O emissions compared to cattle slurry by affecting rate and product stoichiometry of denitrification - an N₂O isotopomer case study. *Soil Biology & Biochemistry* 84, 65-74.

Senbayram, M.; Bol, R.; Dixon, L.; Fisher, A.; Stevens, C.; Quinton, J. & Fanguero, D. (2015) Potential use of rare earth oxides as tracers of organic matter in grassland. *J. Plant Nutr. Soil Sci.* 178, 288-296.

Senbayram, M.; Gransee, A.; Wahle, V. & Thiel, H. (2015) Role of magnesium fertilisers in agriculture: plant-soil continuum. *Crop Pasture Sci* 66, 1219-1229.

Senbayram, M.; Tränkner, M.; Dittert, K. & Brück, H. (2015) Daytime leaf water use efficiency does not explain the relationship between plant N status and biomass water-use efficiency of tobacco under non-limiting water supply. *J. Plant Nutr. Soil Sci.* 178, 682-692.

2014

Cabeza, R.A.; Lingner, A.; Liese, R.; Sulieman, S.; **Senbayram, M.**; Tränkner, M.; Dittert, K. & Schulze, J. (2014) The activity of nodules of the supernodulating mutant Mt(sunn) is not limited by photosynthesis under optimal growth conditions, 5. *International Journal of Molecular Sciences* 15, 6031-6045.

Chen, R.; **Senbayram, M.**; Blagodatsky, S.; Myachina, O.; Dittert, K.; Lin, X.; Blagodatskaya, E. & Kuzyakov, Y. (2014) Soil C and N availability determine the priming effect: microbial N mining and stoichiometric decomposition theories. *Glob. Change Biol.* 20, 2356–2367.

Lebender, U.; **Senbayram, M.**; Lammel, J. & Kuhlmann, H. (2014) Effect of mineral nitrogen fertilizer forms on N₂O emissions from arable soils in winter wheat production. *J. Plant Nutr. Soil Sci.* 177, 722–732.

Lebender, U.; **Senbayram, M.**; Lammel, J. & Kuhlmann, H. (2014) Impact of mineral N fertilizer application rates on N₂O emissions from arable soils under winter wheat. *Nutr. Cycl. Agroecosystems* 100, 111–120.

Lewicka-Szczebak, D.; Well, R.; Köster, J.R.; Fuss, R.; **Senbayram, M.**; Dittert, K. & Flessa, H. (2014) Experimental determinations of isotopic fractionation factors associated with N₂O production and reduction during denitrification in soils. *Geochim. Cosmochim. Acta* 134, 55–73.

Schmeer, M.; Loges, R.; Dittert, K.; **Senbayram, M.**; Horn R. & Taube, F. (2014) Legume-based forage production systems reduce nitrous oxide emissions. 1. Soil & Tillage Research 143, 17-25.

Senbayram, M.; Bol, R.; Dixon, L.; Fisher, A.; Stevens, C.; Quinton, J. & Fangueiro, D. (2014) Potential use of rare earth oxides as tracers of organic matter in grassland. J. Plant Nutr. Soil Sci. (in print)

Senbayram, M.; Chen, R.; Wienforth, B.; Herrmann, A.; Kage, H.; Mühling, K.H. & Dittert, K., (2014) Emission of N₂O from Biogas Crop Production Systems in Northern Germany. BioEnergy Res. 4, 1223-1236.

Zorb, C.; **Senbayram, M.** & Peiter, E. (2013): Potassium in agriculture - status and perspectives. J. Plant Physiol. 171, 656–669.

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Claus, S.; Taube, F.; Wienforth, B.; Svoboda, N.; Sieling, K.; Kage, H.; **Senbayram, M.**; Dittert, K.; Gericke, D.; Pacholski, A. & Herrmann, A. (2013): Life Cycle Assessment of biogas production under the environmental conditions of northern Germany: Greenhouse gas balance. J Agric Sci First View, 1-10.

Dittert, K.; **Senbayram, M.** & Köster, J.R. (2013) N-fertilizer related nitrous oxide emissions – what we know, what we can do. In XVII. International Plant Nutrition Colloquium and Boron Satellite Meeting Proceedings Book. pp. 87-88. Sabanci University, Istanbul.

Köster, J.R.; Well, R.; Dittert, K.; Giesemann, A.; Lewicka-Szczebak, D.; Mühling, K.H.; Herrmann, A.; Lammel, J. & **Senbayram, M.** (2013) Soil denitrification potential and its influence on N₂O reduction and N₂O isotopomer ratios. Rapid Comm. Mass Spectrom., 27, 2363-2373.

Köster, J.R.; Well, R.; Dittert, K.; Giesemann, A.; Lewicka-Szczebak, D.; Mühling, K.H.; Herrmann, A.; Lammel, J. & **Senbayram, M.** (2013): Soil denitrification potential and its influence on N₂O reduction and N₂O isotopomer ratios. Rapid Commun. Mass Spectrom. 2013, 27, 1–11 doi: 10.1002/rcm.6699.

Senbayram, M.; Tränkner, M.; Dittert, K. & Brück, H. (2013) Nitrogen supply enhances intrinsic but not biomass water use efficiency. In XVII. International Plant Nutrition Colloquium and Boron Satellite Meeting Proceedings Book. pp. 477-479. Sabanci University, Istanbul.

2012

Chen, R.R.; Blagodatskaya, E.; **Senbayram, M.**; Blagodatsky, S.; Myachina, O.; Dittert, K. & Kuzyakov, Y. (2012) Decomposition of biogas residues in soil and their effects on microbial growth kinetics and enzyme activities. Biomass Bioenerg., 45, 221-229.

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Chen, R.R.; **Senbayram, M.**; Lin, X.G. & Dittert, K. (2011) Origin of positive d¹³C of emitted CO₂ from soils after application of biogas residues. *Soil Biology & Biochemistry* 43, 2194-2199.

Köster, J.R.; Cardenas, L.; **Senbayram, M.**; Bol, R.; Well, R.; Butler, M.; Mühling, K.H. & Dittert K. (2011): Rapid shift from denitrification to nitrification in soil after biogas residue application as indicated by nitrous oxide isotopomers. *Soil Biology and Biochem.* 43: 1671-1677.

Köster, J.R.; Cárdenas, L.; **Senbayram, M.**; Bol, R.; Well, R.; Butler, M.; Mühling, K.H. & Dittert, K. (2011) Rapid shift from denitrification to nitrification in soil after biogas residue application as indicated by nitrous oxide isotopomers. *Soil Biology & Biochemistry* 43, 1671-1677.

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Herrmann, A.; **Senbayram, M.** & Dittert, K. (2010) Treibhausgasemissionen aus der Landwirtschaft. *Biogas Journal*, 3/2010, 90-94.

2009

Brueck, H. & **Senbayram, M.** (2009): Low nitrogen supply decreases water-use efficiency of Oriental Tobacco. *Journal of Plant Nutrition and Soil Science.* 172: 216-223.

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2008

Fangueiro, D.; **Senbayram, M.**; Trindade, H. & Chadwick, D. (2008): Cattle slurry treatment by screw-press separation and chemically enhanced settling: Effect on greenhouse gas emission after land spreading and grass yield. *Bioresource Technology*. 99:7132-7142.

Senbayram, M.; Dixon, L.; Goulding, K.W.T. & Bol, R. (2008): Long-term influence of manure and mineral nitrogen applications on plant and soil ¹⁵N and ¹³C values from the Broadbalk Wheat Experiment. *Rapid Communication in Mass Spectrometry*. 22: 1735-1740.

Conference talks

Lingner, A.; Dittert, K. & **Senbayram, M.** (2016): Water use efficiency and drone-based spectral screening of productivity in mixed cropping systems. Second International Legume Society Conference (ILS), October 11th - 14th, Tróia, Portugal.

Jákli, B.; **Senbayram, M.**; Tränkner, M.; Tavakol, E. & Dittert, K. (2015) Der Einfluss von Kalium auf die Wassernutzungseffizienz von Weizen – vom einzelnen Blatt zur gesamten Pflanze. International Conference of the German Society of Plant Nutrition (DGP), September 17th – 18th, Göttingen, Germany.

Jákli, B.; **Senbayram, M.**; Tränkner, M.; Tavakol, E. & Dittert, K. (2015) The role of potassium in optimizing water-use efficiency and drought adaptation - from single leaves to whole plants. 45th Annual Meeting of the Ecological Society of Germany, Austria and Switzerland (GfÖ), August 31st – September 04th, Göttingen, Germany.

Tränkner, M.; Jákli, B.; Tavakol, E.; Dittert, K. & **Senbayram, M.** (2014) Magnesium deficient barley plants have lower biomass water-use efficiency and increased sensitivity to excess light energy. 2nd Magnesium Symposium, November 4th – 6th, São Paulo, Brazil.

Conference poster

Tränkner, M.; **Senbayram, M.**; Jákli, B.; Halicki, S.; Dittert, K. & Zörb, C. (2017) Comparative Study on Proteome Changes in Response to Potassium Deficiency and Drought in *Triticum aestivum* Roots. *Frontiers of Potassium Science Conference*, January 25th – 27th, Rome, Italy.

Jákli, B., **Senbayram, M.**; Meyer zur Müdehorst, J.; Fuchs, M.; Böttcher, F.; Hertwig, F.; Lingner, A. & Dittert, K. (2016) Drone-based remote screening of water-use efficiency. 75th Congress of the International Institute for Beet Research (IIRB), February 16th – 17th, Brussels, Belgium.

- Lingner, A.; Dittert, K. & **Senbayram, M.** (2016): Traits for water use in mixed cropping systems. PLANT 2030 Status Seminar, March 14th - 16th, Potsdam, Germany.
- Lingner, A.; Siebrecht, D.; **Senbayram, M.**; Link, W. & Dittert, K. (2016): Productivity of legume-based mixed cropping systems as estimated by NDVI imaging. International Conference of the German Society of Plant Nutrition (DGP), September 28th - 30th, Hohenheim, Germany.
- Lingner, A.; Dittert, K.; Steinmann, H.; Isselstein, J.; Link, W. & **Senbayram, M.** (2015): Traits for water and nutrient use in mixed cropping systems. International Conference of the German Society of Plant Nutrition (DGP), September 17th - 18th, Göttingen, Germany.
- Tränkner, M.; Tavakol, E.; Dittert, K. & **Senbayram, M.** (2015) Photoprotective reactions of Mg deficient barley plants. International Conference of the German Society of Plant Nutrition (DGP), September 17th – 18th, Göttingen, Germany.
- Jákli, B.; Tränkner, M. & **Senbayram, M.** (2014) Effects of potassium deficiency on water use efficiency of *Triticum aestivum*. International Conference of the German Society of Plant Nutrition (DGP), September 10th – 12th, Halle (Saale), Germany.
- Tavakol, E.; Tränkner, M.; Jákli, B.; Dittert, K. & **Senbayram, M.** (2014) Adequate K supply enhances tolerance to drought situations via optimized NPQ and antioxidant activity in spring wheat. International Conference of the German Society of Plant Nutrition (DGP), September 10th – 12th, Halle (Saale), Germany.
- Tränkner, M.; Tavakol, E.; Dittert, K. & **Senbayram, M.** (2014) Adequate magnesium supply increases biomass water-use efficiency and mitigates effects of excess light energy in barley. International Conference of the German Society of Plant Nutrition (DGP), September 10th – 12th, Halle (Saale), Germany.
- Senbayram, M.**; Tränkner, M.; Dittert, K. & Brueck, H. (2013) Nitrogen supply enhances intrinsic but not biomass water use efficiency. XVII. International Plant Nutrition Colloquium (IPNC), August 19th – 22nd, Istanbul, Turkey.