BIOGRAPHICAL SKETCH
RICHARD P. DICK
Professor and Ohio Eminent Scholar of Soil Microbial Ecology
School of Environment and Resources
061 Parker Food Science

Professional Preparation

Degree	Institution	Curriculum	Date
B.S.	University of MinnesotaPlant Science		1974
M.S.	Louisiana State University	Soil Science	1977
PhD	Iowa State University	Soil Science	1985

Appointments

Rank and Title	Institution	Dates
Professor and Ohio Eminent Scholar	Ohio State University	2004-present
Professor	Oregon State University	1996 to 2004
Associate Professor	Oregon State University	1991 to 1996
Visiting Scholar	Wageningen Agricultural University	1992
	Dept. of Soil Science and Geology, Netherlands	
Assistant Professor	Oregon State University	1986 to 1991
Research Agronomist	Mennonite Central Committee, Bangladesh	1978 to 1981

Biographical

Richard Dick is an Ohio Eminent Scholar and Professor of Soil Microbial Ecology in the School of Environment and Natural Resources at The Ohio State University. With his endowment at Ohio State University he has established a lab with the expertise and facilities to apply molecular and stable isotope probing methods for studying oil and aquatic microbial ecology. His research focuses on the role and manipulation of microbial communities in controlling biogeochemical processes and delivering ecosystem services for agricultural and environmental applications. Dr. Dick has authored or co-authored 158+ refereed journal articles, 15 invited book chapters, and 2 books as the editor in chief. He has been an invited speaker at conferences and workshops worldwide, including lectures at the Hong Kong Croucher Advanced Training in Environmental Microbiology, Root Biology Workshop, and the Latin America Society of Microbiology Conference. His research as PI has been supported by >$11.9 million in grants and contracts including, competitive grants from US Environmental Protection Agency, US National Science Foundation, and USDA. He served as Associate Editor (6 years) for the Soil Science Society of America (SSSA) Journal and is Editor-in-Chief of Applied Soil Ecology for 12 years. He has a long-standing research program in soil enzymology that has resulted in the development of enzyme activities as sensitive indicators of soil quality and a comprehensive soil enzyme methods book published in by the Soil Science Society of America. Professor Dick has extensive international experience, as an agronomist for 3 years in Bangladesh, and leading research and development projects in West Africa. As a professor he has supervised graduate students and post docs from the USA, Europe, Africa, Asia, and South America. For the past 20+ years in Senegal, he has been leading a team of African, French and US scientists on a multi-disciplinary project investigating hydrologic and microbial rhizosphere interactions of interplanted shrub-crop rhizospheres. This research has changed the paradigm of how arid environments can function and has major implications for Sahelian agriculture by utilizing inter-cropped shrubs as nutrient/water reservoirs for crops and to remediate degraded landscapes. He is a Gordon Lecturer, Fulbright Scholar, Fellow of the Agronomy Society of America, and a Fellow and former President of the Soil Science Society of America.

Refereed Journals

[gs] Supervised graduate student
[pd] Supervised post doctoral candidate
[vs] Collaborating visiting scientist

1. Dunigan, E. P. and R. P. Dick. 1980. Nutrient and coliform losses in runoff from fertilized and sewage sludge-treated soil. J. Environ. Qual. 9:243-250.
2. Busman, L. M., R. P. Dick and M. A. Tabatabai. 1983. Determination of total sulfur and chlorine in plant materials by ion chromatography. Soil Sci. Soc. Am. J. 46:1167-1170.

3. Dick, R. P. and M. A. Tabatabai. 1986. Hydrolysis of polyphosphates in soils. Soil Sci. 142:132-140.
4. Dick, R. P. and M. A. Tabatabai. 1986. Hydrolysis of polyphosphates by corn roots. Plant Soil 94:247-256.
5. Dick, R. P. and M. A. Tabatabai. 1987. Factors affecting hydrolysis of polyphosphates in soils. Soil Sci. 143:97-104.
6. Dick, R. P. and M. A. Tabatabai. 1987. Polyphosphates as sources of phosphorus for plants. Fert. Res. 12:107-118.
7. Dick, R. P., D. D. Myrold and E. A. Kerle. 1988. Microbial biomass and soil enzyme activities in compacted and rehabilitated skid trail soils. Soil Sci. Soc. Am. J. 52:512-515.
8. Dick, R. P., P. E. Rasmussen and E. A. Kerle. 1988. Influence of long-term residue management on soil enzyme activities in relation to soil chemical properties in a wheat-fallow system. Biol. Fert. Soils 6:159-164.
9. [gs]Castellano, S. D., and R. P. Dick. 1988. Distribution and forms of sulfur fractions as influenced by management of organic residues. Soil Sci. Soc. Am. J. 52:1403-1407.
10. [gs]Deng, S., and R. P. Dick. 1990. Sulfur oxidation and rhodanese activity in soils. Soil Sci. 190:552-560.
11. Dick, R. P., and [gs]S. Deng. 1991. Multivariate factor analysis of sulfur oxidation and rhodanese activity in soils. Biogeochemistry 12:87-101.
12. [pd]Comfort, S. D., R. P. Dick, and J. Baham. 1991. Drying and storage effects on soil sulfate sorption characteristics. Soil Sci. Soc. Am. J. 55:968-973.
13. Brophy, L., H. Murray, L. Lev, R. P. Dick, and L. M. Butler. 1991. In the face of change: A rapid reconnaissance survey of Northwest horticultural crop producers. Am. J. Altern. Ag. 6:23-28.
14. [gs]Castellano, S. D., and R. P. Dick. 1991. Influence of cropping and sulfur fertilization on transformations of sulfur in soils. Soil Sci. Soc. Am. J. 55:114-121.
15. [gs]Castellano, S. D., and R. P. Dick. 1991. A modified calibration procedure for measurement of microbial sulfur in soil. Soil Sci. Soc. Am. J. 55:283-285.
16. [gs]Castellano, S. D., and R. P. Dick. 1991. Modeling transformations of sulfur in soils. Soil Sci.152:448-454.
17. [pd]Comfort, S. D., R. P. Dick, and J. Baham. 1992. Modeling sulfate adsorption in soils. J. Environ. Qual. 21:426-432.
18. Dick, R. P. 1992. A review: Long-term effects of agricultural systems on soil microbial and biochemical parameters. Ag. Ecosyst. Environ. 40:25-36.
19. Cordray, S. M., L. S. Lev, R. P. Dick, and H. Murray. 1993. Characterization of Pacific Northwest horticultural producers using sustainability scales. J. Prod. Ag. 6:121-125.
20. [gs]Castellano, S. D., and R. P. Dick. 1993. Measurement of tritium activity in soils. Health Physics 65:539-540.
21. [gs]Islam, M. M. and R. P. Dick. 1993. Sulphur adsorption ability of some rice soils of Bangladesh. Bangladesh Rice J. 4:70-72.
22. [gs]Fauci, M. F., and R. P. Dick. 1994. Plant response to organic amendments and decreasing inorganic nitrogen rates in soil from a long-term experiment. Soil Sci. Soc. Am. J. 58:134-138.
23. [gs]Fauci, M., and R. P. Dick. 1994. Soil Microbial Dynamics: Short- and Long-Term Effects of Inorganic and Organic Nitrogen. Soil Sci. Soc. Am. J. 58:801-806.
24. Dick R. P., J. A. Sandor, and N. S. Eash. 1994. Soil Enzyme Activities after 1500 Years of Terrace Agriculture in the Colca Valley, Peru. Agr. Ecosys. Environ. 50:123-131.
25. [vs]Miller, M., and R. P. Dick. 1995. Dynamics of soil C and microbial biomass on whole soil and aggregates in two cropping systems. Applied Soil Ecology 2:253-261.
26. Dick, R. P., and R. A. [gs]Christ. 1995. Nitrogen availability and profile distribution in soils under long-term nitrogen fertilization and organic residue management. Soil Sci. 159:402-408.
27. [vs]Miller, M., and R. P. Dick. 1995. Thermal stability and activities of soil enzyme activities as influenced by crop rotation. Soil Biology and Biochem. 27:1161-1166.
28. Brandi-Dohrn, F. M., R. P. Dick, M. Hess and J. S. Selker. 1996. Field evaluation of passive capillary samplers. Soil Sci. Soc. Amer. J. 60:1705-1713.
29. [gs]Iyamuremye, F., R. P. Dick and J. Baham. 1996. Organic amendments and phosphorus dynamics: I. Phosphorus chemistry and sorption. Soil Science 161:426-435.
30. [gs]Iyamuremye, F., R. P. Dick and J. Baham. 1996. Organic amendments and phosphorus dynamics: II. Distribution of soil phosphorus fractions. Soil Science 161:436-443.
31. [gs]Iyamuremye, F., R. P. Dick and J. Baham. 1996. Organic amendments and phosphorus dynamics: III. Phosphorus speciation. Soil Science 161:444-451.
32. Brandi-Dohrn, F. M., R. P. Dick, M. Hess and J. S. Selker. 1996. Suction cup sampler bias in leaching characterization of an undisturbed field soil. Water Resources Research 32:1173-1182.
33. Brandi-Dohrn, F. M., R. P. Dick, D. D. Hemphil, Jr., [gs]S. Kaufmann, and J. S. Selker. 1997. Nitrate leaching under cereal rye cover crops. J. Environ. Qual. 26:181-188.
34. [gs]Burket, J. Z., D. D. Hemphill, and R. P. Dick. 1997. Winter cover crops and nitrogen management in sweet corn and broccoli rotations. HortScience 32:664-668.
35. [gs]Islam M. M., F. Iyamuremye, and R. P. Dick. 1998. Effect of organic residue amend-ment on mineralization of sulfur in flooded rice soils under laboratory conditions. Comm. Soil Sci. Plant Anal. 29:955-969.

36.[gs]Islam, M. M., F. Iyamuremye, and R. P. Dick. 1998. Effect of organic residue amendments on mineralization of nitrogen in flooded rice soils under laboratory conditions. Comm. Soil Sci. Plant Anal. 29:971-981.

37.[gs]Islam, M. M., and R. P. Dick. 1998. Effect of wheat straw carbon:sulfur ratio on min-eralization of sulfur in soils under simulated laboratory aerobic-flooding cycles. Comm. Soil Sci. Plant Anal. 29:983-995.

38.[gs]Burket, J. Z., and R. P. Dick. 1998. Microbial and soil parameters in relation to N min-eralization in soils of diverse genesis under differing management systems. Biol. Fert. Soils. 27:430-438.

39.[gs]Bandick, A., and R. P. Dick. 1999. Field management effects on soil enzyme activities. Soil Biol. and Bioch. 31:1471-1479.

40.Bottomley, P. J., T. E. Sawyer, L. Boersma, R. P. Dick, and D. D. Hemphill. 1999. Winter cover crops enhances 2, 4-D mineralization potential of surface and subsurface soil. Soil Biol. Biochem. 31:849-847.

41.Mendes, I., [gs]A. Bandick, R. P. Dick, and P. J. Bottomley. 1999. Microbial biomass and activity in soil aggregates affected by winter cover crops. Soil Sci. Soc. Am. J. 63:873-881.

42.[gs]Ndiaye, E. L., J. M. Sandeno, D. McGrath, and R. P. Dick. 2000. Integrative biological indicators for detecting change in soil quality. Am. J. Altern. Ag. 15:26-36.

43.Ndiaye, M., [pd] C. F. Yamoah, and R. P. Dick. 2000. Processed fish by-product as a soil amendment for millet and peanut cropping systems in Senegal. Biol. Ag. & Hort. 17:329-333.

44.[pd] Diack, M., M. Sene, A. N. Badiane, M. Diatta, and R. P. Dick. 2000. Decomposition of a native shrub (*Piliostigma reticulatum*) litter in soils of Semiarid Senegal. J. of Arid Soil Research and Rehabilitation 14(3):205-218.

45.[pd] Iyamuremye, F., V. Gewin, R.P. Dick, [pd] M.Diack, M.Sene, A.N. Badiane, and M. Diatta. 2000. Carbon, nitrogen, and phosphorus mineralization of agroforestry plant residues in soils of Senegal. J. of Arid Soil Research and Rehabilitation 14:359-371.

46.Dick, R. P., [gs]R. A. Christ, J. D. Istok, and [pd] F. Iyamuremye. 2000. Nitrogen fractions and transformations in vadose zone sediments under intensive agriculture in Oregon. Soil Sci. 165:505-515.

47.Ritchie, N.J., [gs]M.E. Schutter, R.P. Dick, and D.D. Myrold. 2000. Use of length heterogeniety-PCR and FAME to characterize microbial communities in soil. Environmental and Applied Microbiology 66:1668-1675.

48.Hashem, A., R.P. Dick, and S. Radosevich. 2000. Competition effects on yield performance, tissue nitrogen, and germination of winter wheat (*Triticum aestivum*) and Italian ryegrass (*Lolium multiflorum*). Weed Tech. 14:718-725.

49.[gs]Schutter, M.E., and R.P. Dick. 2000. Extraction methods of fatty acids for microbial community structure analysis. Soil Sci. Soc. Am. J. 64:1659-1668.

50.[gs]Schutter, M.E., and R.P. Dick. 2001 Shifts in substrate utilization potential and microbial community structure in response to carbon substrates. Soil Biol. Biochem. 33:1481-1491.

51.Seybold, C.A., Dick, R.P. ; Pierce, F.J. 2001. USDA soil quality test kit: approaches for comparative assessments**.** Soil Survey Horizons 42:43-52.

52.Badiane, A.N., A. Faye, [pd] C.F. Yamoah, and R.P. Dick. 2002. Compost and mineral fertilizers for millet production by farmers in semi-arid Senegal. Biol. Ag. Hort. 19:219-230.

53.[gs]Schutter, M.E., and R.P. Dick. 2002. Microbial community profiles and activities among aggregates of winter fallow and cover-cropped. Soil Sci. Soc. Am. J. 66:142-153.

54.[gs]Schutter, M., Sandeno, J., and R.P. Dick. 2001. Seasonal, soil type, and alternative management influences on microbial communities of vegetable cropping systems. Biol. Fert. Soils 34: 397-410.

55.[gs]Minshew, H., J. Selker, D. Hemphill, and R.P. Dick. 2002. NLEAP computer model and multiple linear regression predicting of nitrate leaching in vegetable systems. HortTech. 12:2590-256.

56.[vs]Balota, E.L., Andrade, D.S., Colozzi Filho, A., Dick, R.P. 2003. Microbial biomass in soils under different tillage and crop rotation systems. Biology & Fertility of Soils 38:15-20.

57.[vs]Balota, E.L., Colozzi Filho, A., Andrade, D.S., and Dick, R.P. 2004. Long-term tillage and crop rotation effects on microbial biomass and C and N mineralization in a Brazilian Oxisol. Soil & Tillage Research 77:137–145

58.Diangar, S., A. Fofana, M. Diagne, [pd] C.F. Yamoah, and R. P. Dick. 2004. Pearl millet-based intercropping systems in the semiarid areas of Senegal. African Crop Science J. 12:133-139.

59.Montero, F.A., M.A. Sagardoy, and R.P. Dick. 2004. Temporal variability of microbial populations and enzyme activities in no-tillage soils of Argentina. Arid Land Research and Management 18:201-215.

60.[gs]Hinojosa M.B, J.A. Carreira, R. García-Ruíz, and R.P. Dick. 2004. Soil moisture pre-treatment effects on enzyme activities as indicators of heavy metal-contaminated and reclaimed soils. Soil Biol. Biochem. 36-1559-1568.

61.[gs]Knight, T., and R.P. Dick. 2004. Differentiating microbial and stabilized ß-glucosidase activity in soils. Soil Biol. Bioch. 36:2089-2096.

62.[v]Balota, E.L. M. Kanashiro1, A. Colozzi Filho1, D. Souza Andrade1; R. P. Dick. 2004. Soil Enzyme Activities Under Long-Term Tillage and Crop Rotation Systems in Subtropical Agro-Ecosystems. Brazilian Journal of Microbiology 35:300-306

63.[gs]Hinojosa M. Belen, José A. Carreira, Roberto García-Ruíz, Richard P. Dick. 2005. Microbial response to heavy metal polluted soils: Community analysis from PLFA and EL-FA extracts. J Env. Qual. 34:1789-1800.

64. Nourbakhsh, F. and R. P. Dick. 2005. Net Nitrogen Mineralization/Immobilization Potential in a Residue-Amended Calcareous Soil. J. of Arid Soil Research and Rehabilitation 19:299-306.
65. [gs]Cespedes Leon, C.M., A. Stone, and R. P. Dick. 2006. Organic soil amendments: impacts on snap bean common root rot and soil quality. Appl. Soil Ecol 31:199-210.
66. Medeiros, P.M., M.F. [gs]Fernandes, R.P. Dick, and B.R.T. Simoneit, B.R.T 2006. Seasonal variations in sugar contents and microbial community in a ryegrass soil. Chemosphere 65:832-839.
67. Darby, H.M., A.G. Stone, and R.P. Dick 2006. Compost and manure mediated impacts on soilborne pathogens and soil quality. Soil Sci. Soc. Am. J. 70:347–358.
68. Arancon, n.q.,Edwards, C.A., Dick, R.P.., and Dick, L. 2007. Vermicompost tea production and plant growth impacts. BioCycle 48:51 - 52
69. Kizito, F., M. Senè, M. I. Dragila, A. Lufafa, I. Diedhiou, E. Dossa, R. Cuenca, J. Selker, R. P. Dick. 2007. Soil water balance of annual crop-native shrub systems in Senegal's Peanut Basin. Ag. Water Management 90:137 – 148.
70. Kizito, F.; Dragila, M.; Sene, M.; Lufafa, A.; Diedhiou, I.; Dick, R.P.; Selker, J.S., [gs]E. Dossa, E. 2006. Seasonal soil water variation and root patterns between two semi-arid shrubs co-existing with Pearl millet in Senegal, West Africa. Journal of Arid Environments. 67:436-455.
71. [gs]Ochiai, N., M. L. Powelson, R. P. Dick, and F. J. Crowe 2007. Effects of Green Manure Type and Amendment Rate on Verticillium Wilt Severity and Yield of Russet Burbank Potato. Plant Disease 91:400-406.
72. [pd] Lee Y.B., N. Lorenz, L. Kincaid Dick, and R. P. Dick. 2007. Cold storage and pretreatment incubation: Effects on soil microbial properties. Soil Sci. Soc. J. 71:1299–1305.
73. [gs]Ochiai, N,, M. L. Powelson, F. J. Crowe and R.P. Dick. 2008. Green Manure Effects on Soil Quality in Relation to Suppression of Verticillium Wilt of Potatoes Biology and Fertility of Soils 91:400-406.
74. [gs]Moore-Kucera, J.,and R. P. Dick . 2008. A pulse-chase method to ^{13}Carbon-label Douglas-fir seedlings for decomposition studies. Soil Science. 173:46-53.
75. Lufafa, A., I. Diédhiou, S. Ndiaye, M. Séné, M. Khouma, F. Kizito, R.P. Dick, and J.S. Noller. 2008. Carbon stocks and patterns in native shrub communities of Sénégal's Peanut Basin. Geoderma 146: 75-82
76. Lufafa, A., Wright, D., Bolte, J., Diédhiou, I., Khouma, M., Kizito, F., Dick, R.P., Noller, J.S., 2008. Regional carbon stocks and dynamics in native woody shrub communities of Senegal's Peanut Basin. Agriculture, Ecosystems and Environment 128:1–11.
77. [gs]Moore-Kucera, J., and R. P. Dick . 2008. PLFA Profiling of Microbial Community Structure and Seasonal Shifts in Soils of a Douglas-Fir Chronosequence. Microbial Ecology 55:500–511.
78. [gs]Moore-Kucera, J., and R. P. Dick . 2008. Application of ^{13}C-labeled litter and root materials for ***in situ*** decomposition studies using phospholipid fatty acids. Soil Biol. Biochem. 40:2485–2493
79. Gupta, V.V.S.R., R.P. Dick. and D.C. Colman. 2008. Functional microbial ecology: Molecular Approaches to microbial ecology and microbial habitats. Soil Biol.. Biochem. 40**:**1269 – 1271
80. [gs]Dossa, E.L. M. Khouma, I. Diedhiou, M. Sene, F. Kizito, A.N. Badiane, S.A.N. Samba, and R.P. Dick. 2009. Carbon, nitrogen and phosphorus mineralization potential of semiarid Sahelian soils amended with native shrub residues Geoderma 148:251–260.
81. [gs]Dossa .E. L., J. Baham, M. Khouma, M. Sene, F. Kizito, R.P. Dick. 2009. Phosphorus Sorption and Desorption in Semiarid Soils of Senegal Amended with Native Shrub Residues Soil Science 173:669-682.
82. Lufafa, A.; Diedhiou, I.; Ndiaye, N.A.S.; Sene, M.; Kizito, F.; Dick, R.P.; Noller, J**.**S. 2009. Allometric relationships and peak-season community biomass stocks of native shrubs in Senegal's Peanut Basin*.* Journal of Arid Environments. 73:260-266
83. [gs]Diedhiou, S., A.N. Badiane, I. Diedhiou, M. Khoum, A.N.S Samba, M. Sène and R.P. Dick. 2009. Succession of Soil Microbial Communities during Decomposition of Native Shrub Litter of Semi-Arid Senegal. Pedobiologia 52:273—286.
84. Giovani Stefani Faé, R. Mark Sulc, David J. Barker, Richard P. Dick, Maurice L. Eastridge, and Nicola Lorenz. 2009. Integrating Winter Annual Forages into a No-Till Corn Silage System Agron J. 101:1286-1296.
85. [gs]Vallejo, F.E., Fabio Roldan and Richard P Dick. 2009. Soil enzymatic activities and microbial biomass in an integrated agroforestry chronosequence compared to monoculture and a native forest of Colombia. 2009. Biol. Fert. Soils. 46:577-587.
86. [gs]Yousef, LF, Ahmed F. Yousef, Joseph S. Mymryk, Warren A. Dick and Richard P. Dick. 2009. Stigmasterol and Cholesterol Regulate the Expression of Elicitin Genes in *Phytophthora sojae.* J. Chemical Ecology 35:824-832.
87. Feaga, J., R. P. Dick, and J.S. Selker. 2010. Eleven year study of nitrate leaching under vegetable production with cover crops. Soil Sci. Soc. Am. J. 74: 186-195.
88. [gs]Dossa, E.L., S. Diedhiou, J. E. Compton, K. B. Assigbetse and R. P. Dick. 2010. Spatial patterns of P fractions and chemical properties in soils of two native shrub communities in Senegal. Plant Soil. 327:185-198.
89. [pd]Lorenz, N., K., Verdell, C. Ramsier, and R. P. Dick. 2010. A rapid assay to estimate soil microbial biomass potassium in agricultural soils . Soil Sci. Soc. Am. J. 74:512–516.

90.[gs]Yousef, LF, Warren A. Dick[1], Richard P. Dick. 2011. Use of a ^{15}N-tracer method as a tool to indicate the assimialtion of Elicitin-Sterol Complexes by *Phytophthora sojae.* International Journal of Biology. 3:119-127.

91.[vs]Chaudhary, D.R., R.P. Dick and N. Lorenz. 2011. FAME profiling of microbial community structure during *Jatropha curcas* L. residue decomposition. Soil Science 76:625-633.

92.[gs]Fernandes, M.F., Antonio Carlos Barretoa, Iêda C. Mendes, Richard P. Dick. 2011. Short-term response of physical and chemical aspects of soil quality of a kaolinitic Kandiudalf to agricultural practices and its association with microbiological variables. Agriculture, Ecosystems and Environment 142:419– 427.

93.[gs]Vallejo, V.E., Z. Arbelia, Wi. Terán, N. Lorenz, R. P. Dick, and F. Roldan. 2012. Effect of land management and *Prosopis juliflora* (Sw.) DC trees on soil microbial community and enzymatic activities in intensive silvopastoral systems of Colombia. Agriculture, Ecosystems and Environment 150 :139– 148.

94.Kizito, F., M. I. Dragila, M. Senè, R. J. Brooks, F. C. Meinzer, I. Diedhiou, M. Diouf,, A. Lufafa, R.P. Dick, J. Selker, R. H Cuenca. 2012. Hydraulic Redistribution by Two Semi-arid Shrub Species: Implications for Sahelian Agro-ecosystems. J. Aird Environments. 83:69-77.

95.[gs]Yousef LF, M. Wojno, W. A. Dick, R. P. Dick., 2012. Lipid profiling of the soybean pathogen *Phytophthora sojae* using Fatty Acid Methyl Esters (FAMEs), Fungal Biology 116:613-619.

96. [gs]Lane L., N. Lorenz, J. Saxena, C. Ramsier, and R. P. Dick. 2012. Microbial activity community structure and potassium dynamics in rhizosphere soil of soybean plants treated with glyphosate. Pedobiologia 55:153– 159

97.[gs]Roy Chowdhury, T., and R.P. Dick. 2012. Standardization of the Methylation Transesterification Procedure during Phospholipid Fatty Acid Analysis to Profile Soil Microbial Communities. J. Microbiological Methods. 88:285–291.

98.[vs]Chaudhary, D.R., Jyotisna Saxena, Nicola Lorenz, Linda K. Dick, and Richard P. Dick. 2012. Microbial Profiles of Rhizosphere and Bulk Soil Microbial Communities of Biofuel Crops Switchgrass (Panicum virgatum L.) and Jatropha (Jatropha curcas L.). Applied & Environ Soil Science. Volume 2012, Article ID 906864. doi:10.1155/2012/906864.

99.[gs]Dossa, E.L., I. Diedhiou, M. Khouma, M. Sene, A. Lufafa, F. Kizito, S. A. N. Samba, A. N. Badiane, S. Diedhiou, and R. P. Dick. 2012. Crop Productivity and Nutrient Dynamics in a Shrub (*Guiera senegalensis*)–Based Farming System of the Sahel. Agron. J 104:1255–1264.

100. [gs]Lane L., N. Lorenz, J. Saxena, C. Ramsier, and R. P. Dick. 2012. The effect of glyphosate on soil microbial activity, microbial community structure, and soil potassium. Pedobiologia 55:335– 342.

101. [gs]Roy Chowdhury, T., and R. P. Dick. 2012. A Review: Ecology of Aerobic Methanotrophs in Controlling Methane Fluxes from Wetlands. Applied Soil Ecology 65: 8– 22.

102. [gs]Fernandes, M..F., J. Saxena, and R. P. Dick. 2013. Comparison of whole-cell fatty acid (MIDI) or phospholipid fatty acid (PLFA) extractants as biomarkers to profile soil microbial communities. Microbial Ecology 66:145–157.

103. Deng, Shiping, Inna Popova, Linda Dick, and Richard Dick. 2013. Bench scale and microplate format assay of soil enzyme activities using spectroscopic and fluorometric approaches. Applied Soil Ecology. 64:84– 90.

104. [gs]Diedhiou-Sall, S. , E.L. Dossa, A.N. Badiane, K.B. Assigbetsee, I. Diedhiou, N.A.S. Ndiaye, M. Khouma, M. Sène and R.P. Dick. 2013. Microbiology and macrofaunal activity in soil beneath shrub canopies during residue decomposition in agroecosystems of the Sahel. Soil Science Soc. Am. J. 77:501-511.

105. [gs]Dossa Ekwe L., I. Diedhiou, M. Khouma, M. Sene, A. N. Badiane, N.A.S. Ndiaye, K. B. Assigbetse, S. Sall, A. Lufafa, F. Kizito, R.P. Dick, and J. Saxena. 2013. Crop Productivity and Nutrient Dynamics in a Shrub (*Piliostigma reticulatum*)-Based Farming System of the Sahel. Agron. J. 105:1237-1246.

106. Helgason, B.L., E.G. Gregorich, H.H. Janzen, B.H. Ellert, N. Lorenz, and R.P. Dick. 2013. Long-term microbial retention of residue C is site-specific and depends on residue placement. Soil Biol. Biochem. 68: 231–240.

107. Dick, L.K., Guimei Jia, Shiping Deng and Richard P. Dick. 2013. Evaluation of microplate and bench-scale β-glucosidase assays for reproducibility, comparability, kinetics, and homogenization methods in two soils. Biol Fertil Soils 49:1227–1236.

108. [gs]Nye, Mark, Nigel Hoilett, Cliff Ramsier, Peter Renz1, and Richard P. Dick. 2014 Microbial Community Structure in Soils Amended With Glyphosate-tolerant Soybean Residue. Applied Ecology and Environmental Sciences. 2:74-81.

109. [gs]Roy Chowdhury, Taniya, William Mitsch, Richard Dick. 2014. Seasonal methanotrophy across a hydrological gradient in a freshwater wetland. Ecological Engineering. 72:116–124.

110. Balota, Elcio, Ines F. Yada, Higo Amaral, Andre S. Nakatani Richard P. Dick and Mark S. Coyne. 2014. Long-Term land use influences soil microbial biomass p and s, phosphatase and arylsulfatase activities, and s mineralization in a brazilian oxisol. Land Degrad. Develop. 25: 397–406.

111. [gs]Carlson, Jennifer, Jyotisna Saxena, Nicholas Basta, Lakhwinder Hundal, Dawn Busalacchi, Richard P. Dick. 2015. Application of organic amendments to restore degraded soil: effects on soil microbial properties. Environmental Monitoring and Assessment. 187:109-126.

112. [gs]Debenport S, Assigbetse K, Bayala R, Chapuis-Lardy L, Dick RP, McSpadden Gardener BB. 2015. Shifting populations in the root-zone microbiome of millet associated with enhanced crop productivity in the Sahel. Applied and Environmental Microbiology. Applied Environ. Microbiol. 81:2841-2851.

113. Hernandez, R.R , S.J. Debenport, M.C. Leewis, F. Ndoye, I.E. Nkenmogne, A. Soumare, M. Thuita, M. Gueye, E. Miambi , L. Chapuis-Lardy, I. Diedhiou, R.P. Dick. 2015. The native shrub, *Piliostigma reticulatum*, as an ecological "resource island" for mango trees in the Sahel. Ag Ecosys & Environ 204:51–61.
114. Diallo, M., A. Gudsse, Saïdou N. Sall, R. P. Dick, K.B. Assigbetse, A. L. Dieng and J.-L. Chotte. 2015. Influence of tropical leaf litter on nitrogen mineralization and community structure of ammonia-oxidizing bacteria. *Biotechnol. Agron. Soc. Environ.* 2015 19:145-155.
115. [vs]Sall S.N., Ndour N.D.Y., Diedhiou-Sall S., Dick R., and Chotte J.L. 2015. Microbial response to salinity stress in a tropical sandy soil amended with native shrub residues or inorganic fertilizer. Journal of Environmental Management, 161 : 30–37.
116. Chapuis-Lardy, L, S. Diakhaté,, D. Djigal, A.O. Ba, R. P. Dick, P. M. Sembe´Ne, And D. Masse, 2015. Potential of Sahelian Native Shrub Materials to Suppress the Spiral Nematode *Helicotylenchus dihystera*. Journal of Nematology 47:214–217.
117. Balota, Elcio, Ines Fumiko Ubukata Yada, Higo Furlan Amaral, Andre Shigueyoshi Nakatani, Mariangela Hungria, Richard Peter Dick and Mark Steven Coyne. 2015. Soil quality in relation to forest conversion to perennial or annual cropping in southern Brazil. R. Bras. Ci. Solo, 39:1003-1014.
118. Cubillos, Ana María, Victoria E. Vallejo, Ziv Arbeli, Wilson Teran , Richard P. Dick, Carlos H. Molina, Enrique Molina, and Fabio Roldan. 2016. Effect of the conversion of conventional pasture to intensive silvopastoral systems on edaphic bacterial and ammonia oxidizer communities in Colombia. Euro. J. Soil Biol. 72:42:50
119. [pd]Diakhate, S., Mariama Gueye; Tiphaine Chevallier; Ndeye-Hélène Diallo; Komi Assigbetse; Josiane Abadie; Mahecor Diouf; Dominique Masse; Pape Mbacké Sembène; Ndeye-Yacine B Ndour; Richard P Dick; Lydie Chapuis-Lardy. 2016. Soil microbial functional capacity and diversity in a millet-shrub intercropping system of semi-arid Senegal. J. Arid Environments 129:71-79.
120. Ascher, J., S. Deng, R. Dick, H. Insam and K. van Gestel. 2016. Editorial: Tirpmarks Project. Applied Soil Ecology. 100: iv.
121. [vs]Chaudhary, D.R. and Richard P. Dick. 2016. Linking Microbial Community Dynamics Associated with Rhizosphere Carbon Flow in a Biofuel Crop (Jatropha Curcas L.), Communications in Soil Science and Plant Analysis. http://dx.doi.org/10.1080/00103624.2016.1166243
122. Wang X., Y. Teng, Y. Luo, and R. P. Dick. 2015. Biodegradation of 3,3',4,4'-tetrachlorobiphenyl by *Sinorhizobium meliloti* NM. Bioresource Tech 201:261–268.
123. Chen, Jung, Richard Dick, Jih-Gaw Lin and Ji-Dong Gu. 2016. Current Advances in Molecular Methods for Detection of Nitrite-dependent Anaerobic Methane Oxidizing Bacteria in Natural Environments. Applied Microbiology and Biotechnology. 100:9845-9860.
124. [pd]Diakhaté, Sidy, Ndeye-Yacine Badiane-Ndour, Hassna Founoune-Mboup, Sally Diatta, Abdoulaye Fofana Fall, Rebacca Hernandez, Laurent Cournac, Richard Dick, Lydie Chapuis-Lardy. 2016. Impact of Simulated Drought Stress on Soil Microbiology, and Nematofauna in a Native Shrub + Millet Intercropping System in Senegal. Journal of Soil Science 6:189-203.
125. Newman, M.M., N. Lorenz, [pd]N. Hoilett, N.R. Lee, R. P. Dick, M. R. Liles, C. Ramsier and J.W. Kloepper. 2016. Glyphosate effects on soil rhizosphere-associated bacterial communities. Science of the Total Environment 543:155–160.
126. Newman, M.M., N. Lorenz, [pd]N. Hoilett, N.R. Lee, R. P. Dick, M. R. Liles, C. Ramsier and J.W. Kloepper. 2016. Changes in rhizosphere bacterial gene expression following glyphosate treatment. Sci. Total Environ. 553:32–41.
127. [gs]Bright, Mathew, Ibrahima Diedhiou, Roger Bayala, Komi Assigbetse, Lydie Chapuis-Lardy, Yacine Ndour, Richard P. Dick 2017. Long-term Piliostigma reticulatum intercropping in the Sahel: Crop productivity, carbon sequestration, nutrient cycling, and soil quality. Agriculture, Ecosystems and Environment 242:9–22.
128. Swab, R.M, N. Lorenz, S. Byrd,, R. Dick.. 2017. Native vegetation in reclamation: Improving habitat and ecosystem function through using prairie species in mine land reclamation. Ecol. Engineering. 108:525-536.
129. [vs]Diallo, M.D, T. Goalbaye, M. Mahamat-Saleh, P. S. Sarr, D. Masse, S. A. Wood, L. Diop, R. P. Dick, A. Diop, A. Guisse. 2017. Effects of major woody species of the Senegalese Great Green Wall on N mineralization and microbial biomass in soils. Bois et Forêts D es Tropiques.333 (3):43.
130. Waldrop, M. P., J. M. Holloway, D. B. Smith, M. B. Goldhaber,2 R. E. Drenovsky, K. M. Scow, R. Dick,5 D. Howard, B. Wylie, And J. B. Grace. 2017. The interacting roles of climate, soils, and plant production on soil microbial communities at a continental scale. Ecology, 98(7):1957–1967.
131. Deng, S., R. Dick, C. Freeman, E. Kandeler, M. N.Weintraub. 2017. Comparison and standardization of soil enzyme assay for meaningful data interpretation. J. Microbiol. Meth. 133:32–34.
132. [pd]Diack, Mateugue, Richard P. Dick, Modou Sène and Abdel K. Ndiaye. 2018 Spatial Distribution of Some Soil Chemical and Biological Properties Beneath Native Shrubs **(***Guiera senegalensis*) in Southern Semiarid Zone of Senegal. Int J Plant & Soil Sci 21:1-6.

133. [vs]Lia, Ue, Yinghui Liua,, Shanmei Wu, Cheng Nie, Nicola Lorenz, Nathan R. Lee, Richard P. Dick.. 2018. Composition and carbon utilization of soil microbial communities subjected to long-term nitrogen fertilization in a temperate grassland in northern China. Applied Soil Ecology. 124:252-261.
134. Nannipieri1, Paolo , Carmen Trasar-Cepeda2 & Richard P. Dick3 2018. Soil enzyme activity: a brief history and biochemistry as a basis for appropriate interpretations and meta-analysis. Biol Fertil Soils 54:11–19.
135. Dick,, Richard P, Linda K. Dick, Shiping Deng, Xiufen Li, Ellen Kandeler, Christian Poll, Christopher Freeman, Timothy Graham Jones, Michael N. Weintraub, and Kawthar A. Esseili, Jyotisna Saxena. 2018. Cross-laboratory comparison of fluorimetric microplate and colorimetric bench-scale soil enzyme assays. Soil Biol. Bioch. 121:240-248.
136. [GS]Bogie Nathaniel A., Bayala Roger, Diedhiou Ibrahima, Conklin Martha H., Fogel Marilyn L., Dick Richard P., Ghezzehei Teamrat A. 2018. Hydraulic Redistribution by Native Sahelian Shrubs: Bioirrigation to Resist In-Season Drought. Front Env. Sci. Vol 6, 18Sep18. https://www.frontiersin.org/article/10.3389/fenvs.2018.00098.
137. Zhao Ma , Juan Liu, Richard P. Dick, Hui Li, Di Shen, Yanzheng Gao. Michael Gatheru Waigi, Wanting Ling. 2018. Rhamnolipid influences biosorption and biodegradation of phenanthrene by phenanthrene-degrading strain *Pseudomonas* sp. Ph6. Environ. Pollution. 240:359-367.
138. Pengyan Zhang, Chengzhe Qinc, Xin Hong, Guohua Kang, Mingzhou Qin, Dan Yang, Bo Pang, Yanyan Li, Jianjian He, Richard P. Dick. 2018. Risk assessment and source analysis of soil heavy metal pollution from lower reaches of Yellow River irrigation in China. Sci. Total Environ. Environment 63:1136–1147.
139. [VS]Li, Yue, Yinghui Liua, Shanmei Wua, Cheng Nie, Nicola Lorenz, Nathan R. Lee, Richard P. Dick. 2018. Composition and carbon utilization of soil microbial communities subjected to long-term nitrogen fertilization in a temperate grassland in northern. China. Applied Soil Ecology 124:252–261.
140. [GS]Bogie, Nathan, Roger Bayala, Ibrahima Diedhiou, Richard P. Dick, Teamrat A. Ghezzehei. 2018. Alteration of soil physical properties and processes after ten years of intercropping with native shrubs in the Sahel. Soil & Tillage Research 182:153-163.
141. [GS]Bogie, N.A., R. Bayala, I. Diedhiou, R.P. Dick, and T.A. Ghezzehei. 2019. Intercropping with two native woody shrubs improves water status and development of interplanted groundnut and pearl millet in the Sahel. Plant Soil. 435:143–159 https://doi.org/10.1007/s11104-018-3882-4
142. [VS]Wang, Yong-Feng, Richard P. Dick, Nicola Lorenza, and Nathan Lee. 2019. Interactions and responses of n-damo archaea, n-damo bacteria and anammox bacteria to various electron acceptors in natural and constructed wetland sediments. Int. Biodeterioration & Biodegrad. 144:1047-49.
143. Diatta, Sally, [PD]Sidy Diakhaté, Hassna Founoune-Mboup, Charlotte J. Alster, Diégane Diouf, Richard P. Dick, Lydie Chapuis-Lardy, Laurent Cournac, Ndeye Yacine Badiane-Ndour. 2019. Temporal Microbial Response to Wetting-Drying Cycles in Soils within and Outside the Influence of a Shrub in the Sahel. Open J. Soil Sci. 9:284-297.
144. Swab, R.M., Lorenz, N., Lee, N.R., Culman, S.W., and Dick, R.P. 2020. From the Ground Up: Prairies on Reclaimed Mine Land—Impacts on Soil and Vegetation. Land 9:455.
145. [GS]Pérez-Guzmán, L., B. H. Lower and R. P. Dick. 2020. Corn and hardwood biochars affected soil microbial community and enzyme activities. Agrosyst Geosci Environ.(in press).
146. [GS]Diedhiou, Sire, Komi B. Assigbetsee, Arfang O. K. Goudiaby, Ibrahima Diedhiou, Aminata N. Badiane, Modou Sène, Mamadou Khouma, Arona N. S. Samba, Richard P. Dick. 2020.. Arid Agroecosystem Shrubs Enhance Enzyme Activities during the Dry Season. Am. J. Plant Sci.11:180-188.
147. [PD]Lorenz, Nicola, Brian B. McSpadden Gardener, Nathan R. Lee, Cliff Ramsier, Richard P. Dick. 2020. Soil Enzyme Activities Associated with Differential Outcomes of Contrasting Approaches to Soil Fertility Management in Corn and Soybean Fields. Appl Ecol & Envion Sci. 8:517-525.
148. Pulleman, M., S. Wills, R. Creamer[1], R.P. Dick, R. Ferguson, D. Hooper, C. Williams and A. J. Margenot. 2021. Soil mass and mesh size used for sample preparation strongly affect permanganate-oxidizable carbon (POXC) values, with implications for its use as a national soil health indicator. Geoderma 383:114742.
149. [VS]Wang. Wong-fen, Ji-Dong Gu, Richard P. Dick, Wei Han, Hui-Xiao Yang, Huan-Qin Liao, Yi Zhou, and Han Meng. 2021. Distribution of ammonia-oxidizing archaea and bacteria along an engineered coastal ecosystem in subtropical China. Springer Nature Ecotoxicology. https://doi.org/10.1007/s10646-020-02327-9
150. [GS]Diedhiou, Sire, Komi B. Assigbetsee, Aminata Badiane, Ibrahima Diedhiou, Aminata N. Badiane, Mamadou Khouma, and Richard P. Dick. 2021. Spatial and termporal distribution of soil microbial properties in two shrub intercrop systems of the Sahel. Frontiers in Sust. Food Syst. 12 Mar 2021. http://doi : 10.3389/fsufs.2021.621689
151. [GS]Matthew, Bright, Ibrahima Diedhiou, Roger Bayala, Nathaniel Bogie, Lydie Chapuis-Lardy, Teamrat A. Ghezzehei, Christophe Jourdan, Donatien Moucty Sambou, Yacine Badiane Ndour, Laurent Cournac, Richard P. Dick. 2021. An overlooked local resource: Shrub-intercropping for food production, drought resistance and ecosystem restoration in the Sahel. Agriculture, Ecosystems and Environment 319 (2021) https://doi.org/10.1016/j.agee.2021.107523

152. Traoré, Salifou Pauline Ouédraogo, Philippe Bayen, Babou André Bationo, Nathan Lee, Nicola Lorenz, Richard P. Dick. 2021.Effect of livestock manure on soil microbial and nutrient dynamics in *zaï* cropping systems of the Sahel. Land Degradation & Development, 32: 3248-3258.
153. Dawar, Khadim, Saif-ur-Rahman, Shah Fahad, Syed Sartaj Alam, Shah Alam Khan, Atif Dawar, Uzma Younis, Subhan Danish, Rahul Datta, and Richard P. Dick. 2021. Influence of variable biochar concentration on yield-scaled nitrous oxide emissions, Wheat yield and nitrogen use efficiency. Nature Scientific Reports, 11:16774 | https://doi.org/10.1038/s41598-021-96309-4.
154. Barq, Mohsin Gulzar, M. M. Hassan, H. Yasmin, A. Shahzad, N. H. Malik, N. Lorenz, A. A. Alsahli, R. P. Dick, and N. Ali. 2021. Variation in archaeal and bacterial community profiles and their functional metabolic predictions under the influence of pure and mixed
fertilizers in paddy soil. Saudi J. Biol. Sci. 28:6077–6085
155. Roger Bayala, R., I. Diedhiou, N.A. Bogie, M.B.H. Bright, Y. Ndour Badiane, T.A. Ghezzehei, and R.P. Dick. 2021. Intercropping with *Guiera senegalensis* in a semi-arid area to mitigate early-season abiotic stress in *A. hypogea* and *P. glaucum. J Agron. Crop Sci.,* 2021;00:1–10.
156. Scott D.A. , Kathryn D. Eckhoff , Nicola Lorenz, Richard Dick and Rebecca M. Swab. 2021. Diversity Is Not Everything. Land 10:1091. https://doi.org/10.3390/land10101091
157. Traor'e, Salifou, Daouda Guebr, Edmond Hien, Mamoudou Traor, Nathan Lee , Nicola Lorenz,and Richard P. Dick 2022. Nutrient cycling and microbial responses to termite and earthworm activity in soils amended with woody residues in the Sudano-Sahel. European Journal of Soil Biology 109 (2022) 103381
158. Mason, Laura, Spencer Debenport, Chelsea L. DeLay, Brian B. McSpadden-Gardener, Ibrahima Diedhiou, Virginia I. Rich, and Richard P. Dick. 2022 Millet Microbial Community Shifts with *Guiera senegalensis* Intercropping Along a Rainfall and Soil Type Gradient in the Sahel". *Soil Sci. Soc. Am. J* https://doi.org/10.1002/saj2.20494

Books

Bane, G., H. Murray, and R. P. Dick. 1993. A Sustainable Agriculture Resource Guide for Oregon and Washington. Oregon State University Extension Service, Corvallis, OR, EM 8531. 236 pages.

Dick, R. P. et al. (editorial board). 1998. Managing Cover Crops Profitably. Handbook Series 3, 2nd Edition. Sustainable Agriculture Network/SARE/CSREES/U.S. Dept. of Agriculture, Beltsville, MD. 212 pages.

Burns, R. G., and R. P. Dick (eds). 2002. Enzymes in the Environment: Activity, Ecology, and Applications. Marcel Dekker, Inc., New York, NY. Pp. 614.

Dick, R. P. (ed). 1999. Proceedings for International Conference "Enzymes in the Environment: Activity, Ecology, and Applications," Granada, Spain, July 12-15; Oregon State University.

Dick, R.P. (ed). 2003. Proceedings for International Conference "Enzymes in the Environment: Activity, Ecology and Applications," Praha, Czech Republic, July 14-17; Oregon State University.

Dick, R.P. (ed). 2007. Proceedings for International Conference "Enzymes in the Environment: Activity, Ecology and Applications," Viterbo, Italy, July 15-18; Ohio State University.

Dick, R.P. (ed). 2011. Proceedings for International Conference "Enzymes in the Environment: Activity, Ecology and Applications," Bad Nauheim, Germany, July 17-21; Ohio State University.

Dick, R.P. (ed). 2016. Proceedings for International Conference "Enzymes in the Environment: Activity, Ecology and Applications," Bangor, Wales, July 14-28; Ohio State University.

Dick, R.P. (ed). 2012. Methods of Soil Enzymology. Soil Science Society of America, Madison Wisconsin.

Invited Book Chapters

1. Dick, R. P. 1994. Soil enzyme activities as indicators of soil quality. *In* Doran et al. (eds.) Defining Soil Quality for a Sustainable Environment. Soil Sci. Soc. Am. Special Publication, Madison, WI. pp. 107-124.

2. [gs]Fauci, M. F., and R. P. Dick. 1994. Microbial biomass as an indicator of soil quality. *In* Doran et al. (eds.) Defining Soil Quality for a Sustainable Environment. Soil Sci. Soc. Am. Special Publication, Madison, WI. pp. 229-234.

3. [pd]Iyamuremye, F., and R. P. Dick. 1996. Organic amendments and phosphorus sorption in soils. Adv. Agron. 56:139-186.

4. Dick, R. P. (author and co-editor), and D. Thomas. 1996. Standardized methods; sampling and sample pretreatment. *In* Doran et al. (eds.) Handbook of Methods for Assessment of Soil Quality. SSSA Special Pub. 49. Soil Sci. Soc. Am. Spec. Publ., Madison WI. pp. 107-122.

5. Dick, R. P. (author and co-editor), D. Breakwill, and R. Turco. 1996. Soil enzyme activities and biodiversity measurements as integrating biological indicators. *In* Doran et al. (eds.) Handbook of Methods for Assessment of Soil Quality. SSSA Special Pub. 49. Soil Sci. Soc. Am. Spec. Publ., Madison WI. pp. 247-272.

6. [gs]Burket, J. Z., and R. P. Dick. 1996. Long-term vegetation management in relation to nitrogen accumulation and mineralization of plant residues in soils. *In* G. Cadisch and K. E. Giller (eds.) Driven by Nature: Plant Litter Quality and Decomposition, CAB Int., Oxon, UK. pp. 283-296.

7. Dick, R. P. 1997. Enzyme activities as integrative indicators of soil health. *In* C. E. Parkhurst et al. (eds.) Bioindicators of Soil Health. CAB International, Oxon, United Kingdom pp. 121-156.

8. Dick, R. P., C. Yamaoh, M. Diack, and A. Badiane. 2001. In G. Tian (ed) The role of microorganisms in nutrient cycling and soil quality. Managing Soils for Soil Fertility in West Africa. Soil Sci. Soc. Am. Spec. Publ., Madison WI.

9. Dick, R.P., and E. Kandeler. 2005. Enzymes In Soils. In Daniel Hillel (ed.) Encyclopedia of Soils in the Environment. Elsevier Ltd., Oxford, U.K. pp. 448-455.

10. Kandeler, E., and R.P.Dick. 2007. Ch. 15, Soil Enzymes: Spatial distribution and Function in Agroecosystems. *In* G. Benckiser and S. Schnell (eds) Biodiversity in Agricultural Production Systems. CRC Taylor Francis 2007. p. 263-287.

11. Dick, R.P. 2008. Engineering Soil Microbial-Rhizosphere Systems for Agroecosystems of Sub-Saharan Africa and South Asia. Emerging Technologies for South Asia and Sub-Saharan Africa. National Academy of Science. 2008.

12. Dick, R.P, and R.G. Burns. 2011. A Brief History of Soil Enzymology Research. *In* Dick, R.P. (ed). Methods of Soil Enzymology. Soil Science Society of America, Madison Wisconsin.

13. Lorenz, N., and R. P. Dick. 2011. Sampling and Pretreatment of Soil before Enzyme Analysis. *In* Dick, R.P. (ed). Methods of Soil Enzymology. Soil Science Society of America, Madison Wisconsin.

14. Dick,. R.P. 2013. Manipulation of Beneficial Microorganisms in Crop Rhizospheres (Chapter 2). *In* T.Cheeke,D. Wall, D. Coleman (eds), Microbial Ecology in Sustainable Agroecosystems. Taylor & Francis, New York, NY. pp. 23-48.

15. Dick, R.P., Qin Wu, Nicholas T. Basta. 2013. Biomethylation of Arsenic in Contaminated Soils. *In* M. Wong (ed.). Environmental Contamination: Health Risks and Ecological Restoration, CRC Press, Taylor Francis Group, Boca Raton. pp. 231-262.

16. Acosta-Martinez, Veronica , Lumarie Perez-Guzman, Kristen S. Veum, Marcio R. Nunes, and Richard P. Dick. 2021. Ch. 11, Metabolic Activity– Enzymes. In: Douglas Karlen, Diane Stott, Maysoon Mikha (eds.). *Laboratory Methods for Soil Health Analysis*, Vol.2. 2021 Soil Science Society of America, Inc., Book Series: ASA, CSSA, and SSSA Books. pp. 194-250.

17. Lorenz, Nicola, Klaus E. Lorenz, and Richard P. Dick. 2021. Soil Organic Matter and Microorganisms in Management Systems Growing Biomass for Food and Feed. In: Lal, R. (ed.) *Soil Organic Matter and Feeding the Future: Crop Yield and Nutritional Quality*. CRC Press, Taylor and Francis Group, ISBN 9780367609702