

R. T. Koide publications (July 2009)

Regular Research Papers

1. **Koide RT** (1985) The nature of growth depressions in sunflower caused by vesicular-arbuscular mycorrhizal infection. *New Phytologist* 99:449-462.
2. **Koide RT** (1985) The effect of VA mycorrhizal infection and phosphorus status on sunflower hydraulic and stomatal properties. *Journal of Experimental Botany* 36:1087-1098.
3. **Koide RT** (1985) The nature and location of variable hydraulic resistance in *Helianthus annuus* L. (Sunflower). *Journal of Experimental Botany* 36:1430-1440.
4. **Koide RT** and Mooney HA (1987) Revegetation of serpentine substrates: response to phosphate application. *Environmental Management* 11:563-567.
5. **Koide RT**, Huenneke LF and Mooney HA (1987) Gopher mound soil reduces growth and affects ion uptake of two annual grassland species. *Oecologia* 72:284-290.
6. **Koide RT** and Mooney HA (1987) Spatial variation in inoculum potential of vesicular-arbuscular mycorrhizal fungi caused by formation of gopher mounds. *New Phytologist* 107:173-182.
7. **Koide RT**, Huenneke LF, Hamburg S and Mooney HA (1988) Effects of fungicide, phosphorus and nitrogen applications on annual serpentine grassland communities. *Functional Ecology* 2:335-344.
8. **Koide RT**, Li M, Lewis J, and Irby C (1988) Role of mycorrhizal infection on growth and reproduction of wild vs. cultivated plants. I. Wild vs. cultivated oats. *Oecologia* 77:537-542.
9. **Koide RT** and Elliott G (1989) Cost, benefit and efficiency of the vesicular-arbuscular mycorrhizal symbiosis. *Functional Ecology* 3:252-255.
10. **Koide RT** and Li M (1989) Appropriate controls for vesicular-arbuscular mycorrhiza research. *New Phytologist* 111:35-46.
11. **Koide RT** and Li M (1990) On host regulation of the vesicular-arbuscular mycorrhizal symbiosis. *New Phytologist* 114:59-64.
12. Huenneke LF, Hamburg SP, **Koide RT**, Mooney HA and Vitousek PM (1990). Effects of soil resources on plant invasion and community structure in Californian serpentine grassland. *Ecology* 71:478-491.
13. Lewis J and **Koide RT** (1990) Phosphorus supply, mycorrhizal infection and offspring vigor in two annual plant species. *Functional Ecology* 4:695-702.
14. Bryla D and **Koide RT** (1990) Regulation of reproduction in wild and cultivated *Lycopersicon esculentum* Mill. by vesicular-arbuscular mycorrhizal infection. *Oecologia* 84:74-81.
15. Bryla D and **Koide RT** (1990) The role of mycorrhizal infection in the growth and reproduction of wild vs. cultivated plants. II. Eight wild accessions and two cultivars of *Lycopersicon esculentum* Mill. *Oecologia* 84:82-92.
16. **Koide RT** (1991) Density-dependent response to mycorrhizal infection in *Abutilon theophrasti* Medic. *Oecologia* 85:389-395.
17. **Koide RT** and Li M (1991) Mycorrhizal fungi and the nutrient ecology of three oldfield annual plant species. *Oecologia* 85:403-412.
18. Lu X and **Koide RT** (1991) *Avena fatua* L. seed and seedling nutrient dynamics as influenced by mycorrhizal infection of the maternal generation. *Plant, Cell and Environment* 14:931-939.
19. Haynes B, **Koide RT** and Elliott G (1991) Phosphorus uptake and utilization in wild and cultivated oats (*Avena spp*). *Journal of Plant Nutrition* 14:1105-1118.
20. **Koide RT** and Lu X. (1992) Mycorrhizal infection of wild oats: maternal effects on offspring growth and reproduction. *Oecologia* 90:218-226.
21. Schreiner R and **Koide RT** (1993) Antifungal compounds from roots of mycotrophic and nonmycotrophic plant species. *New Phytologist* 123:99-105.
22. Schreiner R and **Koide RT** (1993) Mustards, mustard oils and mycorrhizas. *New Phytologist* 123:107-113.

23. Schreiner R and **Koide RT** (1993) Streptomycin reduces plant response to mycorrhizal infection. *Soil Biology and Biochemistry* 25:1131-1133.
24. Stanley MR, **Koide RT** and Shumway DL (1993) Mycorrhizal symbiosis increases growth, reproduction and recruitment of *Abutilon theophrasti* Medic. in the field. *Oecologia* 94:30-35.
25. **Koide RT** and Schreiner RP (1994) Alteration of nyctinastic leaf movement of *Abutilon theophrasti* Medic. (Malvaceae) by mycorrhizal infection. *Functional Ecology* 8:384-388.
26. Sanders I and **Koide RT** (1993) Nutrient acquisition and community structure in co-occurring mycotrophic and nonmycotrophic old field annuals. *Functional Ecology* 8:77-84.
27. Schreiner RP and **Koide RT** (1993) Stimulation of vesicular-arbuscular mycorrhizal fungi by mycotrophic and nonmycotrophic plant root systems. *Applied and Environmental Microbiology* 59:2750-2752.
28. Sanders I, **Koide RT** and Shumway DL (1993) Mycorrhizal stimulation of plant parasitism. *Canadian Journal of Botany* 71:1143-1146.
29. **Koide RT**, Shumway DL and Mabon SA (1994) Mycorrhizal fungi and reproduction of field populations of *Abutilon theophrasti* Medic. (Malvaceae). *New Phytologist* 126:123-130.
30. Shumway DL and **Koide RT** (1994) Within season variability in mycorrhizal benefit to reproduction in *Abutilon theophrasti* Medic. *Plant Cell and Environment* 17:821-827.
31. Shumway DL and **Koide RT** (1994) Seed preferences of *Lumbricus terrestris* L. *Applied Soil Ecology* 1:11-15.
32. Lu X and **Koide RT** (1994) The effects of mycorrhizal infection on components of plant growth and reproduction. *New Phytologist* 128:211-218.
33. Shumway DL and **Koide RT** (1994) Reproductive responses to mycorrhizal colonization of *Abutilon theophrasti* Medic. plants grown for two generations in the field. *New Phytologist* 128:219-224.
34. Smith SE, Gianninazzi-Pearson V, **Koide RT** and Cairney JWG (1994) Nutrient transport in mycorrhizas: structure, physiology and consequences for efficiency of the symbiosis. *Plant and Soil* 159:103-114.
35. Shumway DL and **Koide RT** (1995) Size and reproductive inequality in mycorrhizal and non-mycorrhizal populations of *Abutilon theophrasti*. *Journal of Ecology* 83:613-620.
36. Lau T-C, Lu X, **Koide RT** and Stephenson AG (1995) Effects of soil fertility and mycorrhizal infection on pollen production and pollen grain size of *Cucurbita pepo* (Cucurbitaceae). *Plant Cell and Environment* 18:169-177.
37. Snapp S, **Koide RT** and Lynch J (1995) Exploitation of localized phosphorus-patches by common bean roots. *Plant and Soil* 177:211-218.
38. **Koide RT** and Lu X (1995) On the cause of offspring superiority conferred by maternal mycorrhizal infection. *New Phytologist* 131:435-441.
39. Heppell KB, Shumway DL and **Koide RT** (1998) The effect of mycorrhizal infection of *Abutilon theophrasti* on competitiveness of offspring. *Functional Ecology* 12:171-175.
40. Boswell EP, **Koide RT**, Shumway DL and Addy HD (1998). Winter wheat cover cropping, VA mycorrhizal fungi and maize growth and yield. *Agriculture Ecosystems and Environment* 67:55-65.
41. Addy HD, Boswell EP and **Koide RT** (1998) Low temperature acclimation and freezing resistance of extraradical VA mycorrhizal hyphae. *Mycological Research* 102:582-586.
42. Dickie IA, **Koide RT** and Stevens CM (1998) Tissue density and growth response of ectomycorrhizal fungi to nitrogen source and concentration. *Mycorrhiza* 8:145-148.
43. **Koide RT**, Suomi L, Stevens CM and McCormick L (1998) Interactions between needles of *Pinus resinosa* (Ait.) and ectomycorrhizal fungi. *New Phytologist* 140:539-547.
44. Bryla DR and **Koide RT** (1998) Mycorrhizal response of two tomato genotypes relates to their ability to acquire and utilize phosphorus. *Annals of Botany* 82:849-857.
45. **Koide RT**, Dickie IA, Goff MD (1999) Phosphorus deficiency, plant growth and the phosphorus efficiency index. *Functional Ecology* 13: 733-736.

46. **Koide RT**, Landherr LL, Besmer YL, Detweiler JM and Holcomb EJ (1999) Strategies for mycorrhizal inoculation of six annual bedding plant species. *HortScience* 37: 1217-1220.
47. Besmer YL and **Koide RT** (1999) Effect of mycorrhizal colonization and phosphorus on ethylene production of snapdragon flowers. *Mycorrhiza* 9: 161-166.
48. Kabir Z and **Koide RT** (1999) The effect of dandelion or a cover crop on mycorrhiza inoculum potential, soil aggregation and yield of maize. *Agriculture, Ecosystems and Environment* 78: 167-174.
49. **Koide RT** and Shumway DL (2000) On variation in forest floor thickness across four red pine plantations in Pennsylvania, USA. *Plant and Soil* 219:57-69.
50. **Koide RT**, Shumway DL and Stevens CM (2000) Soluble carbohydrates of red pine (*Pinus resinosa* Ait.) mycorrhizas and mycorrhizal fungi. *Mycological Research* 104:834-840.
51. **Koide RT**, Goff MD, Dickie IA (2000) Component growth efficiencies of mycorrhizal and nonmycorrhizal plants. *New Phytologist* 148:163-168.
52. **Koide RT** and Kabir Z. (2000) Extraradical hyphae of the mycorrhizal fungus *Glomus intraradices* can hydrolyze organic phosphate. *New Phytologist* 148:511-517.
53. Nakano A, Takahashi K, **Koide RT**, Kimura M (2001) Determination of the nitrogen source for arbuscular mycorrhizal fungi by ¹⁵N application to soil and plants. *Mycorrhiza* 10:267-273.
54. **Koide RT** and Kabir Z (2001) Nutrient economy of red pine is affected by interactions between *Pisolithus tinctorius* and other forest floor microbes. *New Phytologist* 150:179-188.
55. Dickie IA, **Koide RT**, Fayish AC (2001) Vesicular-arbuscular mycorrhizal infection of *Quercus rubra* seedlings. *New Phytologist* 151:257-264.
56. Poulton JL, **Koide RT**, Stephenson AG. (2001) Effects of mycorrhizal infection and soil phosphorus availability on *in vitro* and *in vivo* pollen performance in *Lycopersicon esculentum* (Solanaceae). *American J Botany* 88:1786-1793.
57. Poulton JL, **Koide RT**, Stephenson AG. (2001) Effects of mycorrhizal infection, soil phosphorus availability and fruit production on the male function in two cultivars of *Lycopersicon esculentum* Mill. *Plant Cell and Environment* 24:841-849.
58. Dickie IA, **Koide RT**, Steiner K. (2002) Influences of established trees on mycorrhizas, nutrition, and growth of *Quercus rubra* seedlings. *Ecological Monographs* 72:505-521.
59. Kabir Z, **Koide RT**. (2002) Effect of autumn and winter mycorrhizal cover crops on soil properties, nutrient uptake and yield of maize in Pennsylvania, USA. *Plant and Soil* 238:205-215.
60. **Koide RT**, Dickie IA. (2002) Kit-based, low-toxicity method for extracting and purifying fungal DNA from ectomycorrhizal roots. *BioTechniques* 32:52-56.
61. Poulton JL, Bryla D, **Koide RT**, Stephenson AG. (2002) Mycorrhizal infection and high soil phosphorus improve vegetative growth and the female and male functions in tomato. *New Phytologist* 154:255-264.
62. Dickie IA, Xu B, **Koide RT** (2002). Vertical niche differentiation of ectomycorrhizal hyphae in soil as shown by T-RFLP analysis. *New Phytologist* 156:527-535.
63. **Koide RT**, Dickie IA (2002) Effects of mycorrhizal fungi on plant populations. *Plant and Soil* 244:307-317.
64. Dickie IA, **Koide RT**, Steiner KC (2002) Influences of established trees on mycorrhizas, nutrition, and growth of *Quercus rubra* seedlings. *Ecological Monographs* 72:505-521.
65. **Koide RT**, Wu T (2003) Ectomycorrhizas and retarded decomposition in a *Pinus resinosa* plantation. *New Phytologist* 158:401-407.
66. Wu T, Sharda JN, **Koide RT** (2003) Exploring interactions between saprotrophic microbes and ectomycorrhizal fungi using a protein-tannin complex as an N source by red pine (*Pinus resinosa*). *New Phytologist* 159:131-139.
67. **Koide RT**, Xu B, Sharda J, Lekberg Y, Ostiguy N (2005) Evidence of species interactions within an ectomycorrhizal fungal community. *New Phytologist* 165: 305-316.

68. Wu T, Kabir Z, **Koide RT** (2005) A possible role for saprotrophic microfungi in the N nutrition of ectomycorrhizal *Pinus resinosa*. *Soil Biology and Biochemistry* 37:965-975.
69. **Koide RT**, Xu B, Sharda J (2005) Contrasting belowground views of an ectomycorrhizal fungal community. *New Phytologist* 166: 251-262.
70. Lekberg Y, **Koide RT** (2005) Arbuscular mycorrhizal fungi, rhizobia, available soil P and nodulation of groundnut (*Arachis hypogaea*) in Zimbabwe. *Agriculture, Ecosystems and Environment* 100:143-148.
71. Jonsson LM, Dighton J, Lussenhop J, **Koide RT** (2005) The effect of mixing ground leaf litters to soil on the development of pitch pine ectomycorrhizal and soil arthropod communities in natural soil microcosm systems. *Soil Biology and Biochemistry* 38:134-144.
72. Lekberg Y, **Koide RT** (2005) Is plant performance limited by abundance of arbuscular mycorrhizal fungi? A meta-analysis of studies published between 1988 and 2003. *New Phytologist* 168: 189-204.
73. Johnson NC et al. (2006) From lilliput to brobdingnag: extending models of mycorrhizal function across scales. *BioScience* 56:889-900.
74. Lekberg Y, **Koide RT**, Rohr JR, Aldrich-Wolfe L, Morton JB (2007) Role of niche restrictions and dispersal in the composition of arbuscular mycorrhizal fungal communities. *Journal of Ecology* 95:95-105.
75. **Koide RT**, Shumway DL, Xu B, Sharda JN. (2007) On temporal partitioning of a community of ectomycorrhizal fungi. *New Phytologist* 174:420-429.
76. Malcolm GM, López-Gutiérrez JC, **Koide RT**, Eissenstat DM (2008) Acclimation to temperature and temperature sensitivity of metabolism by ectomycorrhizal fungi. *Global Change Biology* 14:1169-1180.
77. Lekberg Y, **Koide RT**, Twomlow SJ (2008) Effect of agricultural management practices on arbuscular mycorrhizal fungal abundance in low-input cropping systems of southern Africa: A case study from Zimbabwe. *Biology and Fertility of Soils* 44:917-923.
78. **Koide RT**, Sharda JN, Herr JR, Malcolm GM (2008) Ectomycorrhizal fungi and the biotrophy-saprotrophy continuum. *New Phytologist* 178:230-233.
79. Lekberg Y, **Koide RT** (2008) Effect of soil moisture and temperature during fallow on survival of contrasting isolates of arbuscular mycorrhizal fungi. *Botany* 86: 1117-1124.
80. López-Gutiérrez JC, Malcolm GM, **Koide RT**, Eissenstat DM (2008) Ectomycorrhizal fungi from Alaska and Pennsylvania: adaptation of mycelial respiratory response to temperature? *New Phytologist* 180:741-744.
81. Sharda JN, **Koide RT** (2008) Can hypodermal passage cell distribution limit root penetration by mycorrhizal fungi? *New Phytologist* 180:696-701.
82. Malcolm GM, López-Gutiérrez JC, **Koide RT** (2009) Little evidence for respiratory acclimation by microbial communities to short-term shifts in temperature in red pine (*Pinus resinosa*) litter. *Global Change Biology*, in press.
83. Malcolm ,GM, Lopez-Guttierrez JC, **Koide RT** (2009) Temperature sensitivity of respiraton differs among forest floor in a *Pinus resinosa* plantation. *Soil Biology and Biochemistry* 41:1075-1079.
84. **Koide RT**, Malcolm GM. N concentration controls decomposition rates of different strains of ectomycorrhizal fungi. *Fungal Ecology*, in press.

Invited Chapters and Articles

1. **Koide RT**, Robichaux R, Morse S and Smith C (1989) Plant water status, hydraulic resistance and capacitance. In: RW Percy, JR Ehleringer, HA Mooney and P Rundel (eds), *Physiological Plant Ecology: Field Methods and Instrumentation*, pp 161-184. Chapman and Hall.
2. **Koide RT** (1991) Nutrient supply, nutrient demand and plant response to mycorrhizal infection (Sir Arthur Tansley Review). *New Phytologist* 117:365-386.

3. **Koide RT** and Schreiner RP (1992) The regulation of the vesicular-arbuscular mycorrhizal symbiosis. *Annual Review of Plant Physiology and Plant Molecular Biology* 43:557-581.
4. **Koide RT** and Lu X. (1992) Mycorrhizal infection of wild oats: parental effects on offspring nutrient dynamics, growth and reproduction. In: IJ Alexander, AH Fitter, DH Lewis, DJ Read (eds), *Mycorrhizas in Ecosystems*, pp 55-58. Commonwealth Agricultural Bureau, International.
5. **Koide RT** (1993) The physiology of the mycorrhizal plant. In: IC Tommerup (ed), *Advances in Plant Pathology*, Vol. 9, *Mycorrhiza: A Synthesis*, pp 33-54. Academic Press.
6. Smith SE, Gianinazzi-Pearson V, **Koide RT** and Cairney JWG (1994) Nutrient transport in mycorrhizas: structure, physiology and consequences for efficiency of the symbiosis. In: AD Robson, LK Abbott, N Malajczuk (eds), *Management of Mycorrhizas in Agriculture, Horticulture and Forestry*, pp 103-113. Kluwer, Dordrecht.
7. Sanders I, **Koide RT** and Shumway DL (1995) Community level interactions between plants and vesicular-arbuscular mycorrhizal fungi. In: A Varma, B Hock (eds), *Mycorrhiza: Structure, Function, Molecular Biology and Biotechnology*, pp 607-626. Springer-Verlag, Heidelberg.
8. Boswell EP, **Koide RT** and Shumway DL (1997) The effects of winter wheat cover crop on vesicular-arbuscular mycorrhizal inoculum potential. In: H Flores, D Eissenstat, J Lynch (eds), *Radical Biology: Advances in Perspectives on the Function of Plant Roots*, pp 509-512. American Society of Plant Physiologists, Rockville, MD.
9. **Koide RT** and Boswell, EP (1997) Ecophysiology of mycorrhizal roots. In: H Flores, D Eissenstat, J Lynch (eds), *Radical Biology: Advances in Perspectives on the Function of Plant Roots*, pp 178-186. American Society of Plant Physiologists, Rockville, MD.
10. **Koide RT** and Shumway DL (1998) Characterizing effects of mycorrhizal fungi on plant population structure. In: A Varma (ed), *Mycorrhiza Manual*, pp. 65-75. Springer-Verlag, Berlin.
11. **Koide RT**, Suomi L and Berghage R (1998) Tree-fungus interactions in ectomycorrhizal symbiosis. In: JT Romeo, KR Downum, R Verpoorte (eds), *Phytochemical Signals and Plant-Microbe Interactions, Recent Advances in Phytochemistry* vol 32, pp 57-70. Plenum Press, New York.
12. **Koide RT** (1998) Ecological considerations of mycorrhizal symbioses. In: JP Lynch, J Deikman (eds), *Phosphorus in plant biology: regulatory roles in molecular, cellular, organismic, and ecosystem processes*, pp 17-25. American Society of Plant Physiologists, Rockville, MD.
13. Stephenson AG, Poulton JL, Lau T-C and **Koide RT** (1998) Effects of soil phosphorus level and mycorrhizal infection on the male function of plants, pp 52-70. American Society of Plant Physiologists, Rockville, MD.
14. Sanders I, **Koide RT** and Shumway DL (1999) Diversity and structure in natural communities: the role of the mycorrhizal symbiosis. In: A Varma, B Hock (eds), *Mycorrhiza: Structure, Function, Molecular Biology and Biotechnology*, second edition. Springer-Verlag, Heidelberg.
15. **Koide RT** (2000) Mycorrhizal symbiosis and plant reproduction, pp 19-46. In: Y Kapulnik & DD Douds (eds) *Arbuscular mycorrhizas: physiology and function*. Kluwer, Dordrecht.
16. **Koide RT** (2000) Functional complementarity in the arbuscular mycorrhizal symbiosis. *New Phytologist* 147:233-235.
17. **Koide RT** and Dickie IA (2002) Mycorrhizal fungi and plant populations. In: Smith SE and Smith A (Eds.), *Diversity and integration in mycorrhizal symbioses*. Kluwer, Dordrecht.
18. Besmer YL, **Koide RT**, Twomlow SJ (2003). Role of phosphorus and arbuscular mycorrhizal fungi on nodulation and shoot nitrogen content in groundnut and lablab bean. In: Waddington SR (ed), *Grain legumes and green manures for soil fertility in southern Africa: Taking stock of progress. Proceedings of a conference held 8-11 October 2002 at the Leopard Rock Hotel, Vumba, Zimbabwe. Soil Fert Net and CIMMYT-Zimbabwe, Harare, Zimbabwe. Pp 43-46.*
19. **Koide RT** (2004) Mycorrhizal symbioses. In: RM Goodman, *Encyclopedia of Plant and Crop Science*, pp 770-772, Marcel Dekker.
21. **Koide RT**, Mosse B (2004) A history of research on arbuscular mycorrhiza. *Mycorrhiza* 14: 145-163.

21. Besmer Y, **Koide RT**, Twomlow SJ (2004) Role of phosphorus and arbuscular mycorrhizal fungi on nodulation and shoot nitrogen content in groundnut and lablab bean. In: *Grain legumes and green manures for soil fertility in Southern Africa: Taking stock of progress*, edited by Waddington SR. Soil Fertility Management and Policy Network for Maize-Based Cropping Systems in Southern Africa. Harare, Zimbabwe, pp 43-46.
22. **Koide RT** (2005) Nucleic acid isolation from ecological samples-fungal associations, mycorrhizae. In: Zimmer E, Roalson E, eds. *Methods in enzymology, volume 395, Molecular evolution: producing the biochemical data, Part B*, pp.58-72.
23. **Koide RT**, Courty P-E, Garbaye J (2007) Research perspectives on functional diversity in ectomycorrhizal fungi. *New Phytologist* 174: 240-243.