

CURRICULUM VITAE FOR DR. THOMAS E. LOYNACHAN

(November 2006)

Thomas E. Loynachan

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Degrees received:

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| B.S. | Iowa State University | 1968 |
| M.S. | Iowa State University | 1972 |
| Ph.D. | North Carolina State University | 1975 |

Professional positions held:

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| 1970-72 | Teaching Assistant - Iowa State University |
| 1972-75 | Teaching Assistant - North Carolina State University |
| 1975-78 | Assistant Professor - University of Alaska |
| 1978-81 | Assistant Professor - Iowa State University |
| 1978-83 | Associate Member of Graduate Faculty |
| 1981-85 | Associate Professor - Iowa State University |
| 1983-present | Full member of Graduate Faculty |
| 1985-present | Professor - Iowa State University |
| 1998-2001 | Interim Head - Department of Agronomy |
| 2001-present | Director of Graduate Education - Department of Agronomy |

Teaching responsibilities:

Budgeted 90% teaching and 10% research.

Currently teach four courses per year: Agronomy 354, *Soils and Plant Growth*, 3 cr. (teach 1 lecture section fall and 1 lecture section spring semesters), 90 students, Fall and Spring; Agronomy 485, *Soil Microbial Ecology*, 3 cr. (1 lecture-2 lab sections [teach both lecture and two lab sections]), 18 students, Fall; Agronomy 500, *International Orientation Seminar*, 1 cr. 7 students, Fall; Agronomy 512 *Soil-Plant Environment*, 3 cr. (distance education), 17 students; Agronomy 585, *Soil Microbiology and Biochemistry*, 3 cr. (crossed listed with Agron 485). Also have taught: Agronomy 110, 156, 311, 400, 401, 410, 490, 495, 496, 590, 593B, 599G, 699E, and 699G.

Serve as Director of Graduate Education for the majors agricultural meteorology, agronomy, crop production and physiology, plant breeding, and soil science.

Currently advise 24 undergraduate students and serve on 56 graduate program-of-study committees.

Research responsibilities:

Has served as major professor for ten students who received Masters degrees and nine

students who received Ph.D. degrees. Current research activities center around organismal ecology in soil, including establishment, persistence, and environmental interactions of organisms. Efforts are mainly directed at field ecology relationships. Earlier work involved *Bradyrhizobium* on soybean and more recent work the mycorrhizae of soybean.

Professional societies:

American Association for the Advancement of Science
American Society of Agronomy
American Society of Microbiology
Certified Professional Soil Scientist
Council for Agricultural Science and Technology
Iowa Academy of Science
National Association of Colleges and Teachers of Agriculture
Soil Ecology Society
Soil Science Society of America

Honorary societies:

Gamma Sigma Delta
Phi Beta Delta
Phi Kappa Phi
Sigma Xi

Honors and awards:

Raymond and Mary Baker Agronomic Excellence Award, 1982
Student Alumni Association Outstanding Academic Advising Award, 1982
Outstanding Academic Advisor, College of Agriculture, 1983
Louis Thompson Award for Scholarly Achievement in Teaching, 1985
National Association of Colleges and Teachers of Agriculture Teaching Fellow, 1989
National Association of Colleges and Teachers of Agriculture Tressler-AVI Award (teaching and research), 1989
Iowa State University Cardinal Key, 1989
Iowa State University Legislative Teaching Excellence Award, 1990
Teaching Award of Merit, ISU College of Agriculture, NACTA, 1991
Iowa State University Foundation Award for Mid-Career Achievement in Teaching, 1991
National Association of Colleges and Teachers of Agriculture Ensminger-Interstate Distinguished Teacher Award, 1991
Soil Science Education Award, Soil Science Society of America, 1992
VEISHEA Outstanding Professor, College of Agriculture, 1993
Certificate of Excellence, Development of Agronomic Educational Video (longer than 30 minutes), American Society of Agronomy, 1993
Fellow, American Society of Agronomy, 1993
Regents' Faculty Excellence Award, 1995
Iowa State University Alumni Association Faculty Citation, 1996
American Society of Agronomy Agronomic Resident Education Award, 1996
Honorary Professor, National Agricultural University of the Ukraine, 1998
Fellow, Soil Science Society of America, 2000
Soil Science Society of America Journal Editors' Citation for Excellence, 2001
Teaching Award of Merit, ISU Gamma Sigma Delta, 2004
College of Agriculture Outstanding Achievement in Teaching Award, 2005
Innovator's Award (Team Award to Distance MS in Agronomy program), Iowa Distance

Grants and contracts received:

Oil Spill Reclamation. W. W. Mitchell, T. E. Loynachan, and J. D. McKendrick. Alyeska Pipeline Service Company. 1975 (\$128,000), 1976 (\$143,000), 1977 (\$117,000).

Alder For Mineland Restoration in Cold Dominated Climates. T. E. Loynachan. USDA Competitive Research Grant. 1977 (\$20,500).

Nitrification Inhibitors. T. E. Loynachan. Dow Chemical Company. 1979 (\$5,600), 1980 (\$8,000).

Alaskan Fertility Trials. T. E. Loynachan. University of Alaska. 1980 (\$5,800).

Inoculation of Groundnuts in Sudan. T. E. Loynachan. USAID Competitive Grant. 1980-1984 (\$69,000).

Evaluation of Volatile Organic Acids as Nitrification Inhibitors. T. E. Loynachan. Kemin Industries, Inc. 1982 (\$500).

Competitiveness of Rhizobium japonicum in Iowa soils. T. E. Loynachan. Allied Corporation. 1982-1986 (\$128,690).

Construction of Soil Monoliths for Classroom Instruction. D. Wysocki, T. E. Loynachan, and J. W. Schafer. ISU Council on Instruction. 1983-1984 (\$1,062).

Field and Genetic Analysis of Chinese Rhizobia. A. Atherly and T. E. Loynachan. Iowa Soybean Promotion Board. 1986-1989 (\$37,050).

Rhizobial Competition in the Soil. T. E. Loynachan. Iowa Biotechnology Council. 1986-1989 (\$33,394).

Optimizing Microbial Associations to Enhance N and P Soil Nutrient Availability. T. E. Loynachan and H. S. McNabb, Jr. The Leopold Center. 1989-1992 (\$19,850).

Development of a Computerized Soil Fertility Term Problem. F. R. Troeh and T. E. Loynachan. ISU Council on Instruction. 1989-1990 (\$1,480).

Video Development of Life in the Soil. T. E. Loynachan. ISU Council on Instruction. 1992-1993 (\$1,470).

Genetic Exchange Between Bacillus thuringiensis and Other Microbes in Soil. R. E. Andrews and T. E. Loynachan. United States Department of Agriculture, NRI Competitive Grant. 1993-1996 (\$160,000).

Endomycorrhizae in the Soybean Field--Beneficial or Harmful. T. E. Loynachan. Iowa Soybean Promotion Board. 1995-1998 (\$55,436)

Tn916 Mediated Genetic Exchange From Genetically Engineered Microbes to Soil Microbes. R. E. Andrews and T. E. Loynachan. United States Department of Agriculture, NRI Competitive Grant. 1997-2000 (\$150,000).

Integrated Soil and Weed Management Production Systems for Perennial Food Crops.

G. R. Nonnecke, C. Dilley, and T. E. Loynachan. The Leopold Center. 2006-2008 (\$39,310).

Department contributions:

Ad hoc Committee to Establish Criteria for Promotion and Tenure, 1988-1990, Chair
Ad hoc Committee to Revise Departmental Promotion and Tenure Document, 1990-1991, Chair; 1994-1995, Chair; 1995-1996, Chair; (Governance Document) 2002, Chair; 2003-2004, Chair
Ad hoc Committee to Review Teaching Activities of TAs/RAs, 1991, Chair
Ad hoc Committee to Review Preliminary Written Examination in Soil Science, 1993, Chair
Ad hoc Committee to Screen for New Soil Microbiologist, 1994-1995, Chair
Ad hoc Committee to Screen for New Soil Chemist, 1997-1998
Ad hoc Committee to Screen for New Crops Teacher, 1997-1998
Ad hoc Strategic Planning Committee, 1996-1997, Chair
Advisor to Agronomy Club, 1979-1980, 1989-1991, 2005-present
Advisor to Agronomy Club Banquet Committee, 1984-present
Agronomy Advisory Council, 1987-1989; 1998-2001, 2004-present
Director of Graduate Education, 1998-present
Executive Committee, Microbiology Interdepartmental Major, 2002-present
Graduate Program and Seminars Committee, 1991-1998
Graduate Program Committee (MIPM), 1992-1994
Interim Department Head, 1998-2001
Promotion and Tenure Committee (MIPM), 1994-1998
Promotion and Tenure Committee (Agronomy), 2002-present
Resident Teaching Panel and Curriculum Committee, 1978-present; Chair, 1987-1989
Scholarships and Recognition Committee, 1978-1987, 1990-1999
Subchair for Undergraduate and Graduate Students on Campus, 1982-1987
Soil Science Panel, 1983-present; Chair, 2004-present
Soil Science Diagnostic Examination Committee, 1981-present, Chair
Soil Science Uniform Preliminary Examination Committee, 1983-present
Student Activities and Placement, 1978-present

College contributions:

Academic Advising Committee, 1987-1988
Ad hoc Associate Dean Search Committees (both National and State Assoc. Deans), 1995
Ad hoc Committee to Draft College Promotion and Tenure Document, 1989-1990, Chair
Ad hoc Committee to Draft College of Agriculture Governance Documents, 1993-1994, co-Chair subcommittee for Revision of College Promotion and Tenure Document
Ad hoc Committee to Review Opportunities of Students for International Travel, 1996-1998
Agriculture Council Advisor, 1988-1991
Agricultural Faculty Council, 1994-1996
College Awards Committee, 2004-present
B.S. Off-Campus Supervisory Committee, 1991-1994; Chair, 1992-1994
Coordination Committee for Use of Computers in Instruction in the College of Agriculture, 1982-1983
Council on Instruction, 1981-1985
Subchair for Teaching Seminar, 1983-1984
Curriculum Committee, 1987-1988
Gamma Sigma Delta, 1978-present

Department Liaison, 1983-1985
Vice President, 1985-1986
Banquet Chair, 1986
President, 1986-1987
Executive Committee, 1985-1988
Chair, Nominating Committee, 1988-1989
Chair, Program Committee, 1990 Conclave, 1988-1990
Honorary Recognition Coordination, 1987-1988
Honors Program Committee, 1978-1989; Chair, 1984-1989
Long-Range Strategic Planning Committee, 1987-1990
NACTA Planning Committee for 1997 National Conference at ISU, 1995-1997,
Transportation Chair
MIAC Ag Travel Planning Committee, 1990-2000
ISU MIAC College Representative, 1990-2000
Outstanding Advisor Selection, 1986-1988; Chair, 1987-1988
Search Committee Chair, College of Agriculture Placement Officer 1998
Search Committee Chair, Horticulture Department Chair, 2001
Science in Agriculture, 1987-1988; Banquet Master of Ceremonies, 1987
Transfer/Articulation Committee, 1988-1991; Chair, 1990-1991

University contributions:

Academic Honoraries Council, 1986-1987
Ad hoc Committee on Conflict of Interest and Commitment Implementation, 1993-1994,
Chair
Ad hoc Committee on Diversity and Internationalization of the Curriculum, 1993-1994
Ad hoc Committee on Internationalization, 1989-1990
Subcommittee on Economic Development, 1989-90, Chair
Ad hoc Committee of Provost to Review Teaching Awards, 1994
Ad hoc Committee to Review the Office of the President, 1996-1998
All University Judiciary Committee, 2002-present, Co-Chair, 2002-present
Executive Committee, Sigma Xi, 2004-present
Program Chair, 2006-2007
Experience Iowa State faculty speaker, 1987-1997
Faculty Council, 1980-1983
Chair, Academic Affairs Standing Committee, 1982-1983
Faculty Review Hearing Board, Chair, 2004
Faculty Senate, 1991-1997 (at-large College of Agriculture representative)
Faculty Senate Academic Affairs Council, 1991-1994, 1996-1997
Secretary, 1991-1992
Chair, 1996-1997
Faculty Senate Strategic Planning Committee, 1999-2000
Faculty Senate Governance Document Review Committee, 2005-present
Graduate Council, 2004-present
Chair, Postdoctoral Policies 2005, 2006
Phi Kappa Phi, 1978-present
Departmental Liaison, 1984-1986
Vice Chair, Graduate Student Selection, 1986-1987
Chair, Graduate Student Selection, 1987-1988
Sigma Xi, 1978-present
Executive Committee, 2003-present
Program Chair, 2006-2007
Summer Orientation Faculty/Administrator Panel, 1987-2003
Undergraduate Admissions Policy Advisory Committee, 1981-1982, Chair

University Calendar Committee, 1983-2002; Chair, 1992-2002
University Honors Program Committee, 1984-1989
University Instructional Development Grants Committee, 1993, Chair; 1997, Chair

Professional contributions:

Associate Editor, Agronomy Journal - Soils, 1992-1998
American Society of Agronomy Ad hoc Committee to Evaluate and Make Recommendations Concerning the Journal of Agronomic Education (A335.4), 1986-1987
American Society of Agronomy Ad hoc Committee to Study and Report on the Needs, Feasibility, Format, and Name for a Journal to Report Research and Interpretative and Scholarly Reports on Plant Biotechnology (ACS398), 1984
American Society of Agronomy Ad hoc Committee to Determine Feasibility of Book on Rhizosphere Interactions (ACS394.34), 1993-1994, Chair
American Society of Agronomy Board of Directors, 2002-2005
American Society of Agronomy Division A-1a, 1992-1993, Chair-elect; 1993-1994, Chair
American Society of Agronomy Membership Committee (ACS233), 1981-1994
American Society of Agronomy National Outstanding Student Recognition Program Committee, 1993-1994, Chair
American Society of Agronomy National Student Awards Committee, 1980-1983; 1993-1995; Chair, 1994-1995
American Society of Agronomy Nomination Committee for Subdivision A-1a (A111.01A), 1994-1996; Chair, 1994-1995
American Society of Agronomy Program Planning Committee (ACS711), 1998-1999
American Society of Agronomy Student Photography Contest Committee, 1980-1983; Chair, 1982-1983
American Society of Agronomy Student Essay Contest Committee, 1979-1982; Chair, 1981-1982
American Society of Agronomy Student Research Symposium Contest Committee, 1997-2000
American Society of Agronomy Agronomic Education Award Committee, 1997-1999; Chair, 1998-1999
American Society of Agronomy General Awards Committee (A431), 1998-2000
Francis Clark Lectureship Committee (S711.11), 1998-2000; Chair 1999-2000
Iowa Chapter of American Society of Agronomy, 1978-1994
Vice President, 1980-1981
President, 1987-1988
NACTA Iowa State University Campus Representative, 1990-1997
Review Panel Member, Plant Production and Protection (Biology), USDA SBIR Competitive Grant Program, Washington, D.C., February 1994
12th North American Symbiotic Nitrogen Fixation Conference Organizing Committee, 1989
Soil Science Society of America Board of Directors, 2002-2005
Soil Science Society of America Distinguished Service Award Committee (S477), 2002-2005
Soil Science Society of America Division S-3 Officer (Soil Biology), 1997-98 Chair-elect, 1998-99 Chair
Soil Science Society of America Francis and Evelyn Clark Soil Biology Scholarship Committee (S490), 2002-2005
Soil Science Society of America Honorary Membership Committee (S402), 2002-2005
Soil Science Society of America K-12 Committee (S591), 2006-present
Soil Science Society of America Nominations Committee (S101), 1999
Soil Science Society of America Soil Science Education Award Committee (S480), 1992-

1995

Soil Science Society of America Soil Ad hoc Book Feasibility Committee on "Soil Physical, Chemical, and Biology Ecology" (S392.07), 1992-1993, Chair
Soil Science Society of America Soil Writing Committee for book "Soils and the Environment" (S373.09), 1995-1998, Chair
Soil Science Society of America Special Awards Committee (S491.2), 1999-2001
US Environmental Protection Agency, Biotechnology Science Advisory Committee (TS-788), 1988-1995
World Soybean Research Conference III Program Committee, 1984

International activity:

Sudan, summers of 1980, 1981, and 1982, USDA Competitive Grant to evaluate nitrogen fixation rhizobia of peanut
Columbia, fall of 1982, CIAT Nitrogen Fixation Conference
China, Japan, Taiwan, Hong Kong, summer of 1987, co-lead ISU Ag Travel Course with 15 students
Ukraine, spring of 1991, participate in Scholars Conference; fall of 1994 and fall of 1995, assist National Agricultural University of the Ukraine to modernize undergraduate teaching curriculum; spring of 1998 and of fall 1998, review and modernize M.S. degree program
Costa Rica, spring of 1995, Scholars Abroad Program
Argentina, summer of 1995, taught 3-wk soil biology shortcourse
Ecuador, winter of 1996/97, co-lead Ag Travel Course with 21 students
India, spring of 2000, invited presentation at international conference on managing mycorrhizae as a natural resource
Peru, spring of 2001, participated in joint planning activity on sustainable agriculture with personnel from La Molina University, Lima

Community service:

Kelley Bethany Church
Member, 1978-present
Board of Trustees, 1983-1987
Church Council, 1983-1987, 1989-91
Congregational President, 1989-91
Constitutional Revision Committee, 1992-1994
Board of Deacons, 2002-2003

Published articles in refereed scientific journals:

Loynachan, T. E., W. V. Bartholomew, and A. G. Wollum. 1976. Nitrogen transformations during aeration of swine-manure slurries. *J. Environ. Qual.* 5:293-297.

Loynachan, T. E. 1978. Low-temperature mineralization of crude oil in soil. *J. Environ. Qual.* 7:494-500.

Mitchell, W. W., T. E. Loynachan, and J. D. McKendrick. 1979. Effects of tillage and fertilization on persistence of crude oil contamination in an Alaskan soil. *J. Environ. Qual.* 8:525-532.

Loynachan, T. E. 1981. Lime requirement methods for cold-region soils. *Soil Sci. Soc. Am. J.* 45:75-80.

- Michaelson, G. J., T. E. Loynachan, F. J. Wooding, and G. A. Mitchell. 1982. Effects of N, P, and K fertilization on barley grown on a newly cleared subarctic soil. *Agron. J.* 74:694-699.
- Al-Rashidi, R. K., T. E. Loynachan, and L. R. Frederick. 1982. Desiccation tolerance of four strains of Rhizobium japonicum. *Soil Biol. and Biochem.* 14:489-493.
- Gomes, S. L., and T. E. Loynachan. 1984. Nitrification of anhydrous ammonia related to nitrapyrin and time-temperature interactions. *Agron. J.* 76:9-13.
- Michaelson, G. J., T. E. Loynachan, and F. J. Wooding. 1984. Establishment, dry matter yield, and crude protein of fertilized smooth bromegrass on a cleared Alaskan soil. *Agron. J.* 76:569-572.
- Hadad, M. A., and T. E. Loynachan. 1985. Abundance and characterization of cowpea miscellany Rhizobium from Sudanese soils. *Soil Biol. and Biochem.* 17:717-721.
- Hadad, M. A., T. E. Loynachan, M. M. Musa, and N. O. Mukhtar. 1986. Inoculation of groundnut (peanuts) in Sudan. *Soil Sci.* 141:155-162.
- Hadad, M. A., and T. E. Loynachan. 1986. Groundnut nitrogen fixation by three serologically and morphologically distinct rhizobia. *Soil Biol. and Biochem.* 18:161-166.
- Loynachan, T. E. 1986. Use of vericolor 5072 film for reversed-text transparencies. *J. of Agron. Ed.* 15:43-46.
- Bowman, R. A., T. E. Loynachan, and J. W. Schafer. 1986. Attitudes of agronomy teachers on preparation for teaching. *J. of Agron. Ed.* 15:96-100.
- Hickey, W. J., T. E. Loynachan, A. Ayanaba, and R. M. Zablutowicz. 1987. Diversity within Iowa Bradyrhizobium japonicum serogroup 123. *Soil Sci. Soc. Amer. J.* 51:941-946.
- Hicks, P. M., and T. E. Loynachan. 1987. Phosphorus fertilization reduces vesicular-arbuscular mycorrhizal infection and changes nodule occupancy of field-grown soybean. *Agron. J.* 79: 841-844.
- Berg, R. K. Jr., T. E. Loynachan, R. M. Zablutowicz, and M. T. Lieberman. 1988. Nodule occupancy by introduced Bradyrhizobium japonicum in Iowa soils. *Agron. J.* 80:876-881.
- Loynachan, T. E. 1988. Diagnostic examination for students entering graduate study in soil science. *J. of Agron. Ed.* 17:109-112.
- Barbarick, K. A., W. A. Anderson, D. R. Hicks, N. W. Hopper, G. Joliff, T. E. Loynachan, and D. F. Post. 1988. Survey results evaluating the Journal of Agronomic Education. *J. of Agron. Ed.* 17:63-68.
- Hicks, P. M., and T. E. Loynachan. 1989. Bacteria of the soybean rhizosphere and their effect on the growth of Bradyrhizobium japonicum. *Soil Biol. and Biochem.* 21:561-566.
- Ali, F. S., and T. E. Loynachan. 1990. Inhibition of Bradyrhizobium japonicum by diffusates from soybean seed. *Soil Biol. and Biochem.* 22:973-976.

- Manjanatha, M. G., T. E. Loynachan, and A. G. Atherly. 1992. Tn₅ mutagenesis of Chinese *Rhizobium fredii* for siderophore overproduction. *Soil Biol. and Biochem.* 24:151-155.
- Manjanatha, M. G., T. E. Loynachan, and A. G. Atherly. 1992. Efficiency, competitiveness, and persistency of Chinese *Rhizobium fredii* in Iowa soils. *Agron. J.* 84:676-681.
- Khalil, S., T. E. Loynachan, and H. S. McNabb, Jr. 1992. VAM fungal colonization of soybean and spore populations in Iowa soils. *Agron. J.* 84:832-836.
- Khalil, S., and T. E. Loynachan. 1994. Soil drainage and distribution of VAM fungi in two toposequences. *Soil Biol. and Biochem.* 26:929-934.
- Khalil, S., T. E. Loynachan, and M. A. Tabatabai. 1994. Mycorrhizal dependency and nutrient uptake by improved and unimproved corn and soybean cultivars. *Agron. J.* 86:949-958.
- Khalil, S., L. Carpenter-Boggs, and T. E. Loynachan. 1994. Procedure for rapid recovery of VAM spores from soil. *Soil Biol. and Biochem.* 26:1587-1588.
- Carpenter-Boggs, L., T. E. Loynachan, and P. D. Stahl. 1995. Spore germination of *Gigaspora margarita* stimulated by volatiles of soil-isolated actinomycetes. *Soil Biol. and Biochem.* 27:1445-1451.
- Haack, B. J., R. E. Andrews, and T. E. Loynachan. 1996. Tn916-mediated genetic exchange in soil. *Soil Biol. and Biochem.* 28:765-771.
- Ali, F. S., T. E. Loynachan, A. M. M. Hammad, and Y. Aharchi. 1998. Polyvirulent rhizobiophage from a soybean rhizosphere soil. *Soil Biol. and Biochem.* 30:2171-2175.
- Loynachan, T. E. 1998. Soil life by digitized video for the Internet. *J. Nat. Res Life Sci. Ed.* 27:107-109.
- Khalil, S., T. E. Loynachan, and M. A. Tabatabai. 1999. Plant determinants of mycorrhizal dependency in soybean. *Agron. J.* 91:135-141.
- Troeh, Z. I., and T. E. Loynachan. 2003. Endomycorrhizal fungal survival in continuous corn, soybean, and fallow. *Agron. J.* 95:224-230.
- Ishii, S., and T. E. Loynachan. 2004. Rapid and reliable DNA extraction techniques from trypan-blue-stained mycorrhizal roots: comparison of two methods. *Mycorrhiza* 14:271-275.
- Loynachan, T. E. 2006. Quick, easy method to show living soil organisms to high school or beginning-level college students. *J. Nat. Res Life Sci. Ed.* 35:202-208.

Published popular articles:

- Loynachan, T. E. 1976. Soil fertility for home garden and greenhouse. Univ. of Alaska Coop. Ext. Ser. Publ. No. P-33, 7 pp.

- Loynachan, T. E. 1977. Evaluating Alaskan soils. *Agroborealis* 9(l): 10-11.
- Loynachan, T. E., W. M. Laughlin, and F. J. Wooding. 1979. Field crop fertilizer recommendations for Alaska. Univ. of Alaska Coop. Ext. Ser. Publ. TP-142, 9 pp.
- Loynachan, T. E. 1979. Lime requirement indices of Alaskan soils. *Alaska Agr. Exp. Sta. Tech. Bull. No. 52*, 29 pp.
- Loynachan, T. E. 1981. Progress with nitrification inhibitors. *Agrichem. Age* 25(9): 16-17.
- Gomes, S. L., and T. E. Loynachan. 1985. Early fall application of anhydrous ammonia with N-Serve nitrogen stabilizer. *Down To Earth* 41(2): 25-28.
- Loynachan, T. E. 1992. Beneficial microorganisms in low-input agriculture. pp. 123-129. In: *Proceedings of Changes in Soybean Production Practices*. Iowa State University Extension, Ames, IA.

Published books and manuals:

- Booran, C. V., T. E. Loynachan, and J. K. Koelliker. 1974. Effects of sprinkler application of lagoon effluent on corn and grain sorghum. pp. 283-289. In: *Processing and Management of Agricultural Wastes*, Cornell University, Ithaca, N.Y.
- McKendrick, J. D., J. D. LaPerriere, and T. E. Loynachan. 1981. Cold climate oil spills: A terrestrial and freshwater research review. pp. 84. Environmental Protection Agency, Office of Research and Development, Municipal Environmental Research Laboratory, Cincinnati, Ohio. EPA-600/2-81-030.
- Peterson, H., and T. E. Loynachan. 1981. The significance and application of Rhizobium in agriculture. pp. 311-331. In: *The Biology of the Rhizobiaceae*. Academic Press, New York.
- Hadad, M. A., T. E. Loynachan, and M. M. Musa. 1982. Inoculation trials on groundnuts (Archis hypogaea) in Sudan. pp. 249-256. In: *Biological Nitrogen Fixation Technology for Tropical Agriculture*. CIAT, Cali, Columbia.
- Carter, R. I., and T. E. Loynachan. 1988. Making quality technical presentations: an instructional manual. pp. 90. Iowa State University Bookstore, Ames.
- Carter, R. I., and T. E. Loynachan. 1992. Making quality technical presentations: an instructional manual. pp. 94. Iowa State University Bookstore, Ames.
- Haack, B. J., R. E. Andrews, and T. E. Loynachan. 1994. Conjugal transfer of TN916 in model soil systems. pp. 45-59. In: *Biotechnology Risk Assessment*, USEPA/USDA Environmental Canada. University of Maryland Biotechnology Institute, College Park, MD.
- Troeh, F. R., and T. E. Loynachan. 1997. Soil fertility laboratory exercises. pp. 81. Iowa State University Bookstore, Ames.
- Loynachan, T. E., and F. R. Troeh. 1997. Soil fertility laboratory supplement. pp. 189.

Iowa State University Bookstore, Ames.

Loynachan, T. E., K. W. Brown, T. H. Cooper, and M. H. Milford. 1999. Sustaining our soils and society (ISBN 0-922152-50-0). American Geological Institute, Washington, D.C.

Loynachan, T. E., K. W. Brown, T. H. Cooper, J. M. Kimble, M. H. Milford, and D. B. Smith. 2005. Soils, society, and the environment (ISBN 0-922152-74-8). American Geological Institute, Washington, D.C.

Loynachan, T. E. 2006. Soil biology. pp. 78. Iowa State University Bookstore, Ames.

Published abstracts:

Loynachan, T. E., and W. V. Bartholomew. 1974. Nitrogen transformations in swine-manure slurries during aeration. p. 134. Agron. Abstracts, Madison.

Loynachan, T. E. 1977. Lime requirement of Alaskan soils by several methods. p. 161. Agron. Abstracts, Madison.

Loynachan, T. E. 1978. Low-temperature mineralization of crude oil in soil. p. 142. Agron. Abstracts, Madison.

Gomes, S. L., and T. E. Loynachan. 1981. Nitrification rates with and without N-serve. p. 177. Agron. Abstracts, Madison.

Loynachan, T. E., R. I. Carter, and R. B. Pearce. 1982. Course in planning and producing visual materials for scientific presentations. p. 3. Agron. Abstracts, Madison.

Michaelson, G. J., T. E. Loynachan, and F. J. Wooding. 1982. Response of barley to N, P, and K fertilization on a newly cleared subarctic soil. p. 215. Agron. Abstracts, Madison.

Bowman, R. A., T. E. Loynachan, and J. W. Schafer. 1983. Formal educational training for Agronomy teachers, is there a need? p. 1. Agron. Abstracts, Madison.

Michaelson, G. J., T. E. Loynachan, and F. J. Wooding. 1983. The effects of N, P, and K fertilization of bromegrass grown on a newly cleared subarctic soil. p. 176. Agron. Abstracts, Madison.

Hadad, M. A., and T. E. Loynachan. 1984. Indigenous peanut-nodulating rhizobia of Sudan. p. 186. Agron. Abstracts, Madison.

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