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# Nick Christians

Curriculum Vitae

Department of Horticulture

Iowa State University

Ames, IA 50011

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## ***EDUCATION:***

Ph.D.	Ohio State University	Agronomy	6/79
M.S.	Ohio State University	Agronomy	3/77
B.S.	Colorado State University	Outdoor Recreation/Forestry	3/72
	Dordt College	Major: Biology; Minor: Chemistry	

## ***PROFESSIONAL EXPERIENCE:***

### **Iowa State University: 1979 to present**

University Professor of horticulture at Iowa State University, Ames, Iowa. My position is 54% teaching and 46% research. My area of specialization is turfgrass science.

Employment record at Iowa State University is as follows:

2000 to present	University Professor
1987 to 2000	Professor
1984 to 1987	Associate Professor
1979 to 1984	Assistant Professor

### **Ohio State University: 1975 to 1979, Graduate Research Assistant.**

**Pueblo West Golf and Tennis Club. Pueblo, Colorado 1973 to 1975, Golf Course Superintendent.**

**Gunbarrel Meadows Apartments. Boulder, Colorado. 1972-1973, Grounds Manager.**

**Flatirons Country Club. Boulder, Colorado. 1972, Assistant Golf Course Superintendent.**

**Greenlawn Sod Company. Ft. Collins, Colorado. 1970-1972, Hourly Worker.**

**Colorado Game Fish and Parks. Ft. Collins, Colorado. Summer 1971, Summer Intern**

**Colorado State Forest Service. Summer 1970, Summer Intern**

**Colorado State University, Horticulture Department. 1970 to 1971, Laboratory Assistant.**

***PERSONAL INFORMATION:***

Home Address: 62840 Sunset Dr. Phone (515)382-8189  
Nevada, Iowa 50014

Office Address: Iowa State University Phone (515)294-0036  
Department of Horticulture FAX (515)294-0730  
Ames, Iowa 50011

Married: August 21, 1970: wife, Marla

Children: Lance and Tim

Birth Date: March 14, 1949

Birth Place: Mason City, Iowa

Hobbies: Golf, bowling, camping.

***SOCIETY MEMBERSHIP***

- Sigma Xi
- National Association of Colleges and Teachers of Agriculture (NACTA)
- American Society for Horticultural Science (ASHS)
- Crop Science Society of America (CSSA)
- American Society of Agronomy (ASA)
- Soil Science Society of America (SSSA)
- Phi Kappa Phi
- Gamma Sigma Delta
- Pi Alpha Xi
- International Turfgrass Society
- Lawn Institute
- United States Golf Association
- Iowa Golf Course Superintendents Association
- Iowa Turfgrass Institute Advisory Council, July 1979 to Present
- Golf Course Superintendents Association of America
- National Parks and Recreation Association, November 1971 - 1973
- Rocky Mountain Golf Course Superintendents Association March 1973 - 1975
- Southern Colorado Turfgrass Association, March 1974 - 1975

## ***HONORS AND AWARDS***

- 2014 Super Social Media Award from Golf Course Industry and Aquitrols Corp.
- Distinguished Alumni award, Ohio State University College of Agriculture-2012
- University Award for Achievement in Intellectual Property-2012
- Dean Lee Kolmer Award for Excellence in Applied Research-2012
- Membership in College of Agriculture and Life Sci. Advising Academy 2011
- Iowa State Horticultural Society “Honor Award” 2009
- Sigma Xi membership 2006
- Iowa State University Foundation Award for Excellence in Academic Advising 2004
- Appointed to Musser International Turfgrass Foundation Board of Directors, 2004
- Agriculture College Faculty Member of the year, Veisha 2002
- Named University Professor, 2000
- Fred Grau, Turfgrass Research Award from Crop Science Soc. of America, 1999
- Iowa Inventor of the Year Award, 1998
- Distinguished Service Award from the Iowa Golf Course Super. Assoc., 1997
- R & D 100 Award for development of new technology, 1996
- Fellow of the Crop Science Society of America, 1996
- Iowa Horticultural Society Certification of Merit Award, 1995
- Extension Education Aids Award from ASHS, 1995
- Fellow of the American Society of Agronomy, 1995
- Elected as board member of Crop Science Society of America and American Society of Agronomy, 1994-96
- Nebraska Turfgrass Foundation President’s Award, 1995
- Iowa Golf Course Superintendents Service Award, 1994
- American Society for Horticultural Science Outstanding Undergraduate Educator Award, 1991
- Pi Alpha Xi Horticulture Honor Society, 1990
- Louis Thompson Advisor Award, ISU, College of Agriculture, 1989
- Iowa Legislative Teaching Excellence Award, 1989
- Chosen as one of three editors for the International Turfgrass Society Journal published in 1993
- International Turfgrass Society, Exceptional Editorial Service Award, 1993
- Elected Chair, Crop Science Society of America, Div. C-5, 1989
- Meritorious Service Award, Iowa Turfgrass Institute, 1987
- Best Paper Award, C-5 Division, American Society of Agronomy, 1979
- Sigma Delta Agricultural Honor Society, 1979
- Phi Kappa Phi National Honor Society, 1976

## ***SERVICE ACTIVITIES***

### **Professional Societies**

- Sigma XI membership committee 2009-2011
- Appointed as Technical Editor for Applied Turfgrass Science Electronic Journal 2004-2005
- Fred V. Grau Award Chair for Crop Science Society 2001-2002
- Watson Fellowship Committee for Golf Course Supt. Assoc. of America 1999
- Environmental Steward Award Committee for Golf Course Supt. Assoc. of America 1998, 1999, 2000, 2001
- Associate Editor, Crop Science, 1996 to 1998
- Associate Editor, Agronomy Journal, 1988, 1989, 1990, 1991, 1992, 1993
- Elected ASA & Crop Science Society Board Member, 1993 - 1996
- Curriculum Development Committee of Golf Course Superintendents Association of America, 1993
- Publications Advisory Committee for the Golf Course Superintendents Association of America
- Member of the United States Golf Association Advisory Committee on the literature search service
- Presented Seminars, Golf Course Superintendents Association of America
- Historian, NCR-10
- Reviewed Grant Proposals
- Board Member, Iowa Turfgrass Institute
- Assisted in organizing, Iowa Turfgrass Conference and Field Day
- Advisor, Iowa Sodding Contractors and Growers Association

### **University, Departmental, and College Committees In Past 10 Years**

- Ag. College Promotion and Tenure Committee 2005-2007
- University Adviser of the Year Selection Committee
- University Professor Selection Committee
- Gamma Sigma Delta Awards Committee
- Strategic Planning Education Subcommittee
- Course & Curriculum Committee/Department of Horticulture
- Graduate Programs Committee/Department of Horticulture - Chair
- Promotion and Tenure Committee/Department of Horticulture

- College Promotion and Tenure Committee
- Horticulture Farm Committee/Department of Horticulture
- Ag College Placement Committee
- Ag College Curriculum Committee
- Phi Kappa Phi representative
- Horticulture Department Faculty Senate representative for five years
- Gamma Sigma Delta Departmental Representative
- Master of Agriculture Supervisory Committee
- Off-campus B.S. Planning Committee
- College Articulation Committee

### ***GRADUATE STUDENTS ADVISED***

#### Thomas E. Robeson

Completed Masters Degree in August, 1983

**Creative Component Title:** Four Studies on Sod Establishment and Maintenance

#### Sally Johnson

Completed Masters Degree in October, 1983

**Thesis Title:** Fertilizer Burn Comparisons of a Number of Liquid Fertilizers Applied to Kentucky Bluegrass (*Poa pratensis* L.).

Presently working in the lawn care industry in Michigan.

#### Brian Maloy

Completed Masters Degree in May, 1984

**Thesis Title:** Selective Control of Perennial Grasses in Kentucky Bluegrass (*Poa pratensis*) Turf with Chlorsulfuron

Presently Southwest Director of the United States Golf Association Greens Section.

#### David Brahm - (Co-Advisor with Richard Gladon)

Completed Masters Degree in June, 1986.

**Thesis Title:** Absorption and Release of Carbon Monoxide by C<sub>3</sub> and C<sub>4</sub> Turfgrasses in Light and Dark

Presently grounds manager for a college at San Antonio, TX.

#### Mike Gaul

Completed Masters Degree in May, 1986

**Thesis Title:** The Use of Fenarimol and Chlorsulfuron for Selective Control of Annual Bluegrass in Cool-Season Turfs

Presently Director of Career Services for ISU College of Agriculture

Ken Diesburg

Completed Ph.D. in Oct, 1987

Worked on Postdoctoral through February 1988

**Dissertation Title:** Regulation of Kentucky bluegrass (*Poa pratensis* L.) morphogenesis by growth retardants and exogenous ethylene.

Presently an assistant professor at Southern Illinois University. He is building a successful turfgrass science program.

Young Joo

Completed Ph.D. in June, 1987

Worked on Postdoctoral through February 1988

**Dissertation Title:** Effect of urease inhibitors and cationic materials on growth response and ammonia volatilization following fertilization of Kentucky bluegrass (*Poa pratensis* L.) with urea.

Became an assistant and associate professor at Yonsei University in Korea and later became Department Head.

Zachary Reicher

Completed M.S. in June, 1988

**Thesis Title:** The effect of herbicides on rooting of Kentucky bluegrass (*Poa pratensis* L.).

Presently an assistant professor of turfgrass extension at Purdue University.

Michael Burt

Completed M.S. in June, 1989

**Thesis Title:** Growth and morphological characteristics of low- and high-maintenance Kentucky bluegrass (*Poa pratensis* L.) cultivars.

Presently facilities manager at Grinnell College, Grinnell, IA.

Roger Roe - (Co-advised with Ag Education Department)

Completed M.S. in December, 1990

**Thesis Title:** A needs assessment of extension horticulture clients related to educational delivery methods and based on ornamental grass experimental studies.

Presently consultant to turf industry in Budapest, Hungary.

Grant Spear

Completed M.S. in August, 1990

**Thesis Title:** Creeping bentgrass response to increasing DTPA-extractable zinc levels in modified soil.

Presently teaching at Iowa Lakes Community College.

Steve Starrett (Co-Advisor)

Completed M.S. in May 1992

**Thesis Title:** Movement of nutrient elements through soil profiles under turfgrass areas.

Presently an assistant professor at Kansas State University working on the environmental fate of pesticides.

Harlene Hatterman-Valenti (Co-Advisor)

Completed Ph.D. in August, 1993

**Dissertation Title:** Spray deposit and drift during postemergence herbicide applications to turfgrass and annual flowers.

Presently working in the agricultural chemical industry.

Jeff Iles (Co-Advisor)

Completed Ph.D. April, 1993

**Dissertation Title:** Investigating low temperature tolerance and winter protection systems for herbaceous perennials.

Dianna Liu

Completed Ph.D. August, 1993

**Dissertation Title:** Isolation and identification of root-inhibiting compounds from corn gluten meal.

Roger Roe (Co-Advisor)

Completed Ph.D. September, 1993

**Dissertation Title:** An assessment of Iowa Agriculture Instructors' needs for technical inservice educational and curriculum materials.

Presently consultant to turf industry in Budapest, Hungary.

Richard Moore (Co-advisor) - Deceased 1999.

Completed M.S. March, 1994

**Thesis Title:** The response of high and low maintenance Kentucky bluegrass cultivars to four nitrogen sources.

Served as superintendent of the Horticulture Research Station at Iowa State University.

Steven Starrett - (Co-advisor)

Completed Ph.D. June, 1994

**Dissertation Title:** The fate of fertilizers and pesticides when applied to turfgrass maintained under golf course conditions.

Presently an assistant professor at Kansas State University working on the environmental fate of pesticides.

David Anderson - (Co-advisor)

Completed M.S. August, 1994

**Thesis Title:** The effects of soil compaction on tall fescue (*Festuca arundinacea* Schreb.)

Presently in fertilizer research and sales for Ringer Corporation in Minneapolis, MN.

J. Bryan Unruh

Completed Ph.D. December, 1995

**Dissertation Title:** Cellular effects in perennial ryegrass (*Lolium perenne* L.) associated with the root inhibiting compound, alaninyl-alanine.

Presently an assistant professor of Horticulture at the University of Florida in Pensacola. In the process of building a successful turfgrass science program.

Mike Daly

Completed M.S. in August 1997

**Creative Component Title:** Evaluation of fungicides for control of metalaxyl-resistant *Pythium* blight on creeping bentgrass.

Presently, regional sales manager for Novartis Inc.

David Gardner

Completed M.S. in May, 1997.

**Thesis Title:** Reduced preemergence herbicide application rates on turfgrass treated with corn gluten meal.

Mike Faust

Completed M.S. in Dec. 1998

**Thesis Title:** 'Penncross' Creeping bentgrass response to DTPA-TEA, AB-DTPA, and Mehlich III extractable copper levels in two sand media>

Melissa McDade

Completed M.S. in Dec. 1999

**Thesis Title:** Corn gluten and corn gluten hydrolysate for weed control.

Jason Habeck

Completed M.S. in Dec. 1999.



**Creative component Title:** Changes in physical parameters of golf course greens following construction.

Deying Li (Co-advisor)

Completed Ph.D. in August 2001

**Dissertation Title:** Physical properties of golf and sports turf root-zones as affected by amendments, construction methods, and management practices.

Mark Howieson

Completed M.S. in August 2001

**Thesis Title:** Effects of Ethephon on Perennial Grass Morphology

Rodney St. John

Completed M.S. in August 2001

**Thesis Title:** Supplemental Calcium Applications to Turfgrass Established on Calcareous Soils

Granger II, Charles F.

Completed Masters of Ag. in Oct. 2002

**Creative Component:** Developing a Turfgrass Management Course for a Two-year program.

Troy Oster

Completed Masters of Ag.. in Dec. 2002

**Creative Component Title:** Beginning Certification for Cold Water Golf Lynx in the Audobon Sanctuary Program

*S.K. Lee*

Completed M.S. in Dec. 2003

**Thesis Title:** Nitrogen movement through sand-based soil profiles.

Jason Kruse

Completed Ph.D. in May, 2005

**Dissertation Title:** Remote sensing of moisture and nutrient stress in turfgrass systems.

Luke Dant

Completed M.S. in August, 2005

**Thesis Title:** Rapid conversion of golf course turf to glyphosate-resistant creeping bentgrass.

Shan Rajaseka (Co-advised with Fei)

Completed M.S. in May 2005.

**Thesis Title:** "Analysis of genetic diversity in colonial bentgrass (*Agrostis capillaris* L.) and rough bluegrass (*Poa trivialis* L.) by using RAPD markers"

Marcus Jones

Completed MS in Dec. 2005

Completed Ph.D. in May 2011

**Thesis Title:** Selective Removal of Creeping Bentgrass from Kentucky Bluegrass

Rod St. John

Completed Ph.D. in Dec. 2005

**Dissertation Title:** Cation Ratios and Soil Testing Methods for Sand-Based Golf Course Greens

Mark Howieson

Completed Ph.D. in Dec. 2005

**Dissertation Title:** Influence of mowing frequency and mower sharpness on antioxidant and carbohydrate metabolism, and photosynthetic yield of creeping bentgrass

Chris Blume

**Thesis Title:** Field evaluation of reduced-growth, Roundup® Ready Kentucky bluegrass in competitive and noncompetitive settings

Neric Smith completed MS in 2005

Creative component: Turfgrass irrigation programming.

David Devetter Completed MS 2006

Summer induced Iron Chlorosis in Turf

Nick Boersma Completed MS in 2007

The use of natural products for weed control in turf

Nick Kray Completed MS in 2007

Use of Growth Regulators to reduce *Poa annua* in creeping bentgrass fairways.

Matt Klingenberg Completed MS in 2009

Turfgrass response to aerification

Derek York Completed MS in 2011

Ball mark recovery on golf greens

Daniel Rinehart Completed MS in 2011

The effect of seed coating on Kentucky bluegrass germination.

Zach Simons 2013. Remote sensing on sports fields

Nick Dunlap 2013. Enhanced activity of corn gluten meal treated with acids.

Anthony Cavender 2012. The effect on corn grain on corn seed germination

### **Activities of former students:**

Dr. Jason Kruse is a faculty member at the University of Florida, Gainesville

Dr. Rod St John is a faculty member at Kansas State University.

Dr. Mark Howieson is a research and development specialist for Becker Underwood, Ames, IA.

Dr. Aaron Patton began his graduate work at Iowa State and finished at Purdue. He is presently on the faculty at the University of Arkansas.

Dr. Deying Li was hired as an associate professor at North Dakota State Univ. in Aug. 2002.

Dr. Young Joo was my first Ph.D. student. He became a full professor at Yonsei University in Korea and later became Department Head.

Dr. Steve Starrett is an associate professor at Kansas State Univ. working on the environmental fate of pesticides.

Dr. Byran Unruh is an associate Professor of Horticulture at the University of Florida in Pensacola, Florida.

Dr. Ken Diesburg is an associate professor at Southern Illinois University. He is also building a successful turfgrass science program.

Dr. David Gardener completed his MS at Iowa State and Ph.D. at Illinois. He is presently a faculty member at Ohio State.

Dr. Zac Reicher completed his MS here and is presently an associate professor of Agronomy at Purdue.

Dr. Harlene Hatterman-Valenti is an associate professor at South Dakota State University.

Mike Faust received his MS in 1998 and is presently working in research at the O.M. Scotts Co.

Luke Dant finished his M.S. in 2005 and is currently in sales with Syngenta.

Mike Gaul received his MS and is currently Placement Director for the College of Agriculture.

Mike Daly finished MS in 1997. Currently regional sales manager for Bayer.

Grant Spear completed his MS here and is a research associate at Utah State University.

Scott Harvey worked on an MS and is teaching at Hawkeye Community College.

## ***CURRENTLY ADVISING OR CO-ADVISING STUDENTS***

Dan Strey

Began M.S. in 2012

Isaac Mertz

Began M.S. in 2013

Matt Hollan

Began M.S. in 2012

Kevin Hansen

Began M.S. in 2013

## ***PROJECTS AND GRANTS***

### **RESEARCH PROJECTS**

Funding is generally in the \$50,000/yr or more.

This includes a number of competitive grants from the Golf Course Superintendents Association (GCSAA) of America and United States Golf Association (USGA).

## ***PUBLICATIONS***

The Turfgrass Information Service at <http://turf.lib.msu.edu/foundstu.html> currently lists 1164 published works by Nick Christians. This includes refereed papers, popular publications, abstracts, and published research reports.

There have been 29 refereed papers in the last 5 years, since 2008.

I have also initiated a blog that includes another 40+ articles that are not included in the 1164 publications.

### **REFEREED**

Christians, N. E., D. P. Martin, and J. F. Wilkinson. 1979. Nitrogen, Phosphorus and Potassium Effects on Quality and Growth of Kentucky Bluegrass and Creeping Bentgrass. *Agron. J.* 71:504-567.

- Christians, N. E., J. F. Wilkinson, and D. P. Martin. 1979. Variations in the Number of Seeds per Unit Weight Among Turfgrass Cultivars. *Agron. J.* 71:415-419.
- Christians, N. E., D. P. Martin, and K. J. Karnok. 1981. The Interactions Among Nitrogen, Phosphorus, and Potassium on the Establishment, Quality and Growth of Kentucky Bluegrass. In R. W. Sheard (ed.). *Proc. 4th Int. Turfgrass Res. Conf.* Guelph, Ontario. July 1981. Ontario Ag. College, Guelph, Ont. Canada.
- Christians, N. E., D. P. Martin, and K. J. Karnok. 1981. The Interrelationship Among Nutrient Elements Applied to Calcareous Sand Greens. *Agron. J.* 73:929-932.
- Christians, N. E., K. J. Karnok, and J. O. Wolk. 1981. Performance of Five Makes of Turfgrass Fertilizer Spreaders: In R. W. Sheard (ed.). *Proc. 4th Int. Turfgrass Res. Conf.* Guelph, Ontario. July 1981. Ontario Ag. College, Guelph, Ont. Canada.
- Christians, N. E., K. J. Karnok, and T. J. Logan. 1981. Root Activity In Creeping Bentgrass Thatch. *Comm. in Soil Sci. Plant Anal.* 12(8):765-774.
- Christians, N. E. 1982. The Effects of Preemergence Herbicides on Four Cultivars of Kentucky Bluegrass. *HortSci.* 17(6):911-912.
- Christians, N. E., and J. Nau. 1984. Growth Retardant Effects on Three Turfgrass Species. *J. Amer. Soc. Hort. Sci.* 109(1):45-47.
- Johnson, S. J., and N. E. Christians. 1984. Fertilizer Burn Comparisons of Concentrated Liquid Fertilizers Applied to Kentucky Bluegrass Turf. *J. Amer. Soc. Hort. Sci.* 109(6):890-893.
- Larocque, D. J., and N. E. Christians. 1985. Selective Control of Tall Fescue in Kentucky Bluegrass with Chlorsulfuron. *Agron. J.* 77:608-609.
- Johnson, S. J., and N. E. Christians. 1985. Osmotically-Induced Water Stress on Fertilizer Burn of 'Glade' Kentucky Bluegrass. *HortSci.* 20(4):772-733.
- Christians, N. E. 1985. Response of Kentucky Bluegrass to Four Growth Retardants. *J. Amer. Soc. Hort. Sci.* 110(6):765-769.
- Christians, N. E., K.L. Diesburg, and J. L. Nus, 1985. Effects of Nitrogen Fertilization and Fall Topdressing on the Spring Recovery of *Agrostis palustris* Huds. ('Penncross' Creeping Bentgrass) Greens. In F. Lemair (ed.). *Proc of the 5th Int. Turfgrass Res. Conf.* July 1985. Avignon, France. pp 459-468.
- Joo, Y. K. and N. E. Christians. 1986. The Response of Kentucky Bluegrass Turf to Penylphosphorodiamidate (PPD) and Magnesium (Mg++) Applied in Combination with Urea. *J. of Fertilizer Issues.* March, 1986. 3(1):30-33.

- Maloy, B. M. and N. E. Christians. 1986. Chlorsulfuron Activity on Seven Cool-Season Turfgrass Species. *HortSci* 21:1012-1014.
- Maloy, B. M. and N. E. Christians. 1986. Tolerance of Tall Fescue and Kentucky Bluegrass to Chlorsulfuron Under Field Conditions. *Weed Sci.* 34:431-434.
- Joo, Y. K., N. E. Christians, and J. M. Bremner. 1987. Effect of N-(n-Butyl) Thiophosphoric Triamide (NBPT) on Growth Response and Ammonia Volatilization Following Fertilization of Kentucky Bluegrass (*Poa pratensis* L.) with Urea. *J. of Fert. Issues* 4(3):98-102.
- Gaul, M. C. and N. E. Christians. 1988. Selective Control of Annual Bluegrass in Cool-Season Turfs with Chlorsulfuron and Fenarimol. *Agron J.* 80:120-124.
- Diesburg, K. L., N. E. Christians, and R. J. Gladon. 1989. A Continuous Air-exchange Roomette and Gas-meting System. *Crop Sci.* 29:344-348
- Diesburg, K. L. and N. E. Christians. 1989. Seasonal Application of Ethephon, Flurprimidol, Mefluidide, Paclobutrazol, and Amidochlor as They Affect Kentucky Bluegrass Shoot Morphogenesis. *Crop Sci.* 29:841-847.
- Reicher, Z. J. and N. E. Christians. 1989. Establishment of Kentucky Bluegrass Sod Following Application of Herbicides. *HortSci.* 24:799-801.
- Reicher, Z. J. and N. E. Christians. 1989. Effect of Herbicides on Rooting of Kentucky Bluegrass. *HortSci.* 24:976-978.
- Joo, Y. K., N. E. Christians, and J. M. Bremner. 1989. Effectiveness of Urease Inhibitors and Cationic Materials for Reduction of Ammonia Volatilization from Turfgrasses Treated with Urea. *Proceedings of the 6th Inter. Turfgrass Res. Conf., Tokyo.* pp. 209-211.
- Agnew, M. L. and N. E. Christians. 1989. Influence of Application Dates on the Effectiveness of Four Preemergence Herbicides for Crabgrass Control. *Proceedings of the 6th Inter. Turfgrass Res. Conf., Tokyo.* pp. 299-301.
- Burt, M. G. and N. E. Christians. 1990. Morphological and Growth Characteristics of Low-and High-maintenance Kentucky Bluegrass Cultivars. *Crop Sci.* 30:1239-1243.
- Spear, G. T. and N. E. Christians. 1991. Creeping Bentgrass Response to Increasing Amounts of DTPA-extractable Zinc in Modified Soil. *Communications in Plant and Soil Sci.* 22:2005-2016.
- Agnew, M. and N. E. Christians. 1991. Sod Establishment of Five Kentucky Bluegrass Cultivars. *J. of Prod. Ag.* 5:50-52.

- Joo, Y. K., N. E. Christians and J. M. Bremner. 1991. Turf Response to Urease Inhibitors and Cationic Material Applied in Combination with Urea. *HortScience* 26(5):537-539.
- Joo, Y. K., N. E. Christians, and J. M. Blackmer. 1991. Recovery by Kentucky Bluegrass Turf of Urea-derived N-15 Amended With N-(*n-Butyl*) Thiophosphoric Triamide (NBPT). *Soil Sci. Soc. of Am. J.* 55:538-530.
- Joo, Y. K., N. E. Christians, G. T. Spear, and J. M. Bremner. 1992. Evaluation of Urease Inhibitors as Urea Amendments for use on Kentucky Bluegrass. *Crop Sci.* 33:1397-1401.
- Agnew, M.L. and N.E. Christians. 1992. Sod re-establishment of five Kentucky bluegrass cultivars. *J. Prod. Agric.* 5:50-52.
- Roe, R.G., N.H. Agnew, L. Naeve, and N.E. Christians. 1992. Ornamental grasses for the midwest. NCR bulletin 461.
- Christians, N.E. 1993. The use of corn gluten meal as a natural preemergence control in turf. *Inter. Turfgrass Soc. Res. J.* 7, R. N. Carrow, N. E. Christians, R. C. Shearman (Eds.) Intertec Publishing Corp., Overland Park, KS. p. 284-290.
- Diesburg, K.L. and N.E. Christians. 1993. Independent and interactive effects of ethephon and ethylene on Kentucky bluegrass (*Poa pratensis* L.) morphogenesis. *Inter. Turfgrass Soc. Res. J.* 7, R. N. Carrow, N. E. Christians, R. C. Shearman (Eds.) Intertec Publishing Corp., Overland Park, KS. p. 695-707.
- Nus, J.L., N.E.Christians, and K.L. Diesburg. 1993. High phosphorus applications influence soil-available potassium and tissue copper content of Kentucky bluegrass. *HortScience* 28(6):639-641.
- Nonnecke, G.R., and N.E. Christians. 1993. Evaluation of corn gluten meal as a natural, weed control product in strawberry. *Inter. Acta Horticulturae* 348:315-320.
- Nutter, F.W., M.L. Gleason, J.H. Jenco, and N.E. Christians. 1993. Accuracy, intra-rater repeatability and inter-rater reliability of disease assessment systems in dollar spot-bentgrass pathosystem. *Phytopathology* 83:806-812.
- Gamon, J.A., R.G. Roe, and N.E. Christians. 1993. Assessing clientele needs: designing and extension ornamental grass bulletin. *J. of Nat. Res. and Life Sci. Edu.* 22:155-157.
- Hodges, C.F., D.Campbell, and N.E. Christians. 1993. Potential biocontrol of *Bipolaris sorokiniana* and *Sclerotinia homoeocarpa* on the Phylloplane of *Poa pratensis* with isolates of *Streptomyces*. *J. of Plant Pathology* 43:500-506.
- Hodges, C.F., D. Campbell, and N.E. Christians. 1993. Evaluation of *Streptomyces* for biocontrol of *Bipolaris sorokiniana* and *Sclerotinia homeocarpa* on the Phylloplane of *Poa pratensis*. *J. of Plant Pathology* 139:103-109.

- Agnew, M.L. and N.E. Christians. 1993. Influence of fertilizer source and core cultivation on the growth of Kentucky bluegrass. Inter. Turfgrass Soc. Res. J. 7, R. N. Carrow, N. E. Christians, R. C. Shearman (Eds.) Intertec Publishing Corp., Overland Park, KS. p. 458-463.
- Christians, N.E. 1993. Advances in plant nutrition and soil fertility. Inter. Turfgrass Soc. Res. J. 7, R. N. Carrow, N. E. Christians, R. C. Shearman (Eds.) Intertec Publishing Corp., Overland Park, KS. p. 50-57.
- Christians, N.E. and M.C. Engelke. 1994. Choosing the right grass to fit the environment. Book Chapter in "Handbook of Integrated Pest Management for Turfgrass and Ornamentals. EPA publication Cat. #L350, Lewis Publishers. Chapter 11. p. 99-112.
- Dernoeden, P.H., N.E. Christians, J.M. Krouse, R.G. Roe, 1993. Creeping bentgrass rooting as influenced by dithiopyr. Agron. J. 85:560-563.
- Gladon, R.J., D.J. Bhroh, N.E. Christians, 1993. Carbon monoxide absorption and release by C-3 and C-4 turfgrasses in light and dark. Inter. Turfgrass Soc. Res. J. 7, R. N. Carrow, N. E. Christians, R. C. Shearman (Eds.) Intertec Publishing Corp., Overland Park, KS. p. 649-656.
- Iles, J.K., N.H., Agnew, H.G. Taber, N.E. Christians. 1993. Evaluation of 5 structureless overwintering systems for protection of 18 species of container-grown herbaceous perennials. J. Environ. Hort. 11:48-55.
- Hodges, C.F., D. Campbell, and N.E. Christians. 1994. Potential biocontrol of *Biopolaris sorokiniana* and *Sclerotinia homoeocarpa* on the Phylloplane of *Poa pratensis* with isolates of *Streptomyces*. Plant Pathology 43:500-506.
- Liu, D.L. and N.E. Christians. 1994. Herbicidal activity of hydrolysed corn gluten meal on three grass species in controlled environments. Journal of Plant Growth Regulation 12:221-226.
- Liu, D. L. and N.E. Christians. 1994. Isolation and identification of root-inhibiting compounds from corn gluten hydrolysate. Journal of Plant Growth Regulation 13:227-230.
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## **VIDEO TAPES**

Ornamental grasses, 1993

The development of alternative pesticides, for satellite uplink. (November, 1993)

## **PROFESSIONAL SOCIETY ABSTRACTS**

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