

**ROBERT PRESTON PATTERSON**  
**Alumni Distinguished Professor of Crop Science**  
**North Carolina State University**  
**Crop and Soil Sciences Department**  
**Raleigh, NC 27695-7620**  
**Phone: 919-513-3424, FAX: 919-515-7959**  
**e-mail: [bob\\_patterson@ncsu.edu](mailto:bob_patterson@ncsu.edu)**

### **Personal**

Born: Statesville, NC on July 13, 1939  
Home address: 802 Merwin Road, Raleigh, NC 27606  
Phones: (919) 851-0260 (home); (919) 218-8129 (cell)

### **Education**

B.S., Soil Science, N. C. State University, Raleigh, NC, 1961  
M.S., Soil Science, N. C. State University, Raleigh, NC, 1963  
Ph.D., Agronomy, Cornell University, Ithaca, NY, 1968

### **Professional Experience**

Instructor, Agronomy Department, Cornell University, 1963-1965  
Research Assistant, Agronomy Department, Cornell University, 1965-1968  
Assistant Professor, Crop Science Department, N. C. State University,  
1968-1973  
Associate Professor, Crop Science Department, N. C. State University,  
1973-1981  
Professor, Crop Science Department, N. C. State University, 1981-present  
Coordinator of Undergraduate Programs, Crop Science Department, NCSU,  
1994-2003

### **Professional Societies and Offices Held (\*Elected):**

Alpha Zeta\*(1960)  
American Association for the Advancement of Science (1968-present)  
American Society of Agronomy (ASA, 1968-present); \*Chair, Resident Education  
Subdivision (1978-79)  
Crop Science Society of America and Soil Science Society of America  
(1968-present)  
American Society of Plant Physiologists (1970-present)  
Gamma Sigma Delta (\*President, NCSU Chapter, 1993-94)  
National Association of Colleges and Teachers of Agriculture (1975-present)  
Phi Kappa Phi (\*President, NCSU Chapter, 1995-96)  
Sigma Iota Rho (\*President, NCSU Chapter, 2001-02)  
Sigma Xi\*(1971)

### **Courses Taught (credits, semester)**

Crop Production (4, S)—CS 011/111 (1968-2001; 2012-2017)  
Weed Management of Field Crops (3, F)—CS 052 (1968-1973)  
Cereal Grain Production (3, S)—CS 012 (1968-1994)  
Field Crops Seminar (1, S)—CS 090 (1979-1992)—CS 191 (S 2011-present)

World Population and Food Prospects (3, F,S)—MDS 323 (1970-present)  
 Crop Ecology (3, F)—CS 411 (Created, and taught from 1973-2006)  
 Global Sustainable Human Development (3)—MLS 501(1989-present,  
 Spring semesters)  
 Crop Physiology-Stress Relationships (3, S)—CS 713 (1990-1995)  
 The First-Year Experience (1, F/S)—MDS 102B (1994-95)  
 Crop Science/Soil Science Senior Seminar (1, S)—CS/SSC 490 (1994-2000)  
 Crop Science (4, F/S)—CS 213 (1990-2017)  
 Crop Science (3, F/S)—CS 213 (2017—present)  
 Crop Science Lab (1, F/S)—CS 214 (2017—present)  
 Biology Senior Seminar (1, S)—BIO 490 (1997-98)  
 Biology in the Modern World (3, F/S)—BIO 105 (2000-2010)  
 World Population and Food Prospects (3, F)—MDS 323Q, First Year Inquiry  
 (2003-present)  
 Global Sustainable Human Development course was taught in the ENCORE  
 program (Spring, 2009 semester; McKimmon Center)

### **Honors and Awards**

- Academy of Outstanding Teachers—1971, 1977, 1981, 1988
- Selected in the top 5% of Alumni responses to the question “Who contributed most to my education at NCSU?”—1973
- Agronomy Club Outstanding Instructor Award—1974, 1983, 1992, 1994, 1997, 2004, 2008
- Agricultural Institute Club Outstanding Faculty Award—1977, 1978, 1980, 1981
- Faculty Adviser (Elected) of the Student Activities Subdivision of the American Society of Agronomy (SAS-ASA)—1978-79
- The “I’m All Ears Award,” given by the American Society of Agronomy Student Activities Subdivision Officers, November, 1979
- Alumni Distinguished Undergraduate Professor, N. C. State University—1981
- Teaching Fellow Award: National Association of Colleges and Teachers of Agriculture (NACTA)—1981
- Southeastern Regional Teaching Fellow Award: NACTA—1981
- American Society of Agronomy National Resident Education Award—1983
- Distinguished Ensminger-Interstate National Teacher Award: NACTA—1983
- Fellow, American Society of Agronomy—1987
- Fellow, Crop Science Society of Agronomy—1988
- N. C. State University Faculty Senate—Elected (1991-93) and re-elected (1993-95)
- Master of Arts in Liberal Studies (MALS) Outstanding Teacher Award—1992, 2004
- NACTA Teaching Award of Merit—1993
- Southern Regional Award, USDA National Awards Program for Excellence in College and University Teaching in the Food and Agricultural Sciences—1993
- College of Agriculture and Life Sciences (CALS), NCSU, Outstanding Faculty Adviser Award (1993-94)
- Gamma Sigma Delta President, NCSU Chapter (1993-94)

- Alpha Zeta Faculty Alumni Award—1994
- Alpha Zeta Chancellors Award—1995
- Alpha Zeta Outstanding Faculty Award - 2004
- Kriz Study Leave Award (Humboldt University, Berlin)—1995
- Fulbright Scholar (Graduate lecturing—Crop Physiology course; Rresearch on crop-water relations) at Humboldt University, Berlin, Germany—1995-96
- Phi Kappa Phi President, NCSU Chapter (1995-96)
- Faculty Award—Outstanding Performance in Agriculture—Alpha Zeta—2000
- Crop Science National Teaching Award (Crop Science Society of America)—2000
- Sigma Iota Rho (International Studies Honor Society) President, NCSU Chapter (2001-02 and 2011-2012)
- Agricultural Institute Club Outstanding Friend Award—2002
- CALS Nominee for College Board of Governors' Award for Excellence in Teaching (2002-03 academic year)
- UNC Board of Governors' Award for Excellence in Teaching – 2004
- U. S. Professor of the Year Award – 2004 NCSU nominee
- Distinguished Achievement in Agriculture Award of Merit—Gamma Sigma Delta—2005
- Epsilon Sigma Phi (The Extension Professionals' Organization), Named "A State Friend of Extension" (Nov. 8, 2006)
- Teaching Award of Merit from North American Colleges and Teachers of Agriculture and North Carolina State University, in recognition of meritorious efforts in college teaching and teaching improvement (April 30, 2009)
- Faculty of the Month Award. "Commitment to building a strong community at NC State. National Residence Hall Honorary Council. (November, 2010)
- 2011 Earthwise Award (Campus Environmental Sustainability Team), April 25
- "Thank a teacher" recipient, NCSU Office of Faculty Development Teaching and Learning Symposium (Apr 8, 2011; Feb 16, 2012; Jan 14, 2013; Sept 15, 2013; Jan 20, 2014; Mar 2, 2015; Sep 12, 2016; Feb 13, 2017; Sep 25, 2017 Dec 5, 2018; Dec 8, 2019)
- Distinguished Professor Lecture Series—Selection by NCSU Student Government and the Student Body (March 14, 2012)
- Global Perspectives Certificate Faculty Award, Study Abroad (2011, 2012, 2013)
- Faculty Award (Founder's Day Banquet, May 3, 2013); Alpha Zeta Fraternity
- Advocate Award—Center for Student leadership, Ethics, and Public Policy- April 23, 2013
- Honorary Member Award—Collegiate FFA at NC State, Dec 5, 2013
- Golden Chain Society—Faculty Honorary Link (#1133) Induction (April 12, 2014)
- City of Raleigh Environmental Awareness Award (April 22, 2014)
- Student Government Outstanding Student Service Award in Memory of Jenny Chang; March 30, 2015
- NCSU Faculty Advisor Award (Jan 23, 2015)
- NCSU Faculty Green Brick Award for Campus Environmental Sustainability Achievement (Apr 15, 2016)

- NCSU Kappa Alpha Theta Spring 2016 Outstanding Faculty Member (Apr 19, 2016)
- A Community of Scholars Honoring Excellence; Food and Agricultural Sciences Excellence in College and University Award (2017)
- Jackson Rigney International Service Award (Office of Global Engagement; April 23, 2019)
- Bob Patterson College of Humanities and Social Studies Interdisciplinary Studies Fellow Award [Initiated at Commencement Ceremony; Dec 19, 2019]

## **Professional Service**

### University committees and related activities

- Teaching Technology (1974-75)
- Teaching Effectiveness and Evaluation (1975-76; 1979-80)
- Educational Media Advisory (1980)
- Coordinated a University Studies Symposium “Food for Our World – How might our University and Community respond to help break the poverty-hunger cycle?” (1983)
- Jefferson Scholars program evaluation and advisement (1985-present)
- Commission on Ethics in the Profession and Workplace (Dean’s Council on Ethics) (1990-91)
- Academic Policy (1991-92)
- Graduate School Review Committee Chairperson for the Master of Technology for International Development program (1992)
- University Cross-Functional Team on Improving Undergraduate Advising, charged with producing the initial academic quality effort under NCSU’s Continuous Quality Improvement Initiative (1992-93)
- Faculty Involvement Program (adult mentoring) for increasing student-faculty interaction outside the classroom (1992-94)
- University scholarships and student aid (1992-94)
- Master of Arts in Liberal Studies Advisory—courses and admissions (1992-99; 2003-present)
- University Planning and Development (1993)
- Graduate Program Review of Plant and Soil Sciences Dept., N. C. A&T State University (1993)
- Council on Undergraduate Education (1993-95)
- Planning for Capital Environmental Issues in NC (Consolidated Universities Institute for Environmental Studies) (1993-95)
- Merit Awards program—Student evaluation (1981 to present; Chair, 1995)
- Buchdahl lectureship speaker selection (1993-96)
- First-Year Experience program planning/teaching (1994-95)
- Hewlett Teaching Fellows program - Focusing on inquiry-guided instruction, and CS 411 Crop Ecology was transformed (1997-99)
- Alcoa Teaching Scholars Initiative - Focusing on the value of diversity in the classroom. Participated twice [Transformed one course each time:

- Alcoa I, 1999 (CS 213, Crop Science); Alcoa III, 2001 (MDS 323, World Population and Food Prospects)]
- Campus Writing and Speaking Program (CWSP) Faculty Seminar (Spring 2002)
  - College of Humanities and Social Sciences (CHASS) Task Force on Interdisciplinary Programs (Spring Semester 2003, alternate Tuesdays)
  - “Genetically modified foods—a solution for the global food crisis?” presentation to International Education Week Global Health Panel (Nov. 17, 2009)
  - Fall Commencement address to Interdisciplinary Studies Program (Dec. 19, 2009)
  - Provided support to the Green Germany and the Transatlantic Climate Bridge program, hosted by the Department of Foreign Languages & Literatures and the Deutschklub, and sponsored by the Embassy of the Federal Republic of Germany—Washington (Nov 2 & 3, 2010)
  - Undergraduate Research Symposium Faculty Judge, April 12, 2011
  - Feed the Pack Faculty Adviser (2012 to present)
  - Global Health Certification program panelist (Mar 8, 2013)
  - MALS (2<sup>nd</sup> annual) Alumni Homecoming panelist (Apr 27, 2013)
  - SATELLITE program presenter , May 13, 2013
  - Global Issues Seminar presentation—Global Health: Competing Global Resources-Food vs. Fuel (Nov 11, 2013)
  - Leader of the Pack Selection Committee—Interview Panelist (Oct 18, 2013)
  - Spring 2019 Dept. of Foreign Languages & Literatures Commencement Ceremony Address (May 11, 2019)

#### College committees and related activities

- Educational media (1979-81)
- Teaching improvement (1980-82)
- Phytotron advisory (1982-95)
- Agricultural meteorology research (1984-88)
- Agricultural Institute Alumni Awards Selection Committee (1998-Present)
- CALS Dean, Associate Dean, and Crop Science Department Head search committees - several committees in each category over several years

#### Departmental committees and related activities

- Seminar program - several years (chair, 1968-70 and 1973-75)
- Teaching and student affairs (1968-75)
- Established Crop Science Teaching Garden (1972)
- Courses and curricula (1975-88)
- Biochemistry and crop physiology liaison representative (1979-81)
- Academic advisory (1975-present; chair several years)
- Honors and awards - several years (chair, 1997-01)
- Open House - several years (chair, 1976, 1998-01)

### Organizational advising

- Agronomy Club (1978-80; 1987-89)
- Agricultural Institute Club (1971-73)
- Agri-Life Council (1976-78; 1986-88)
- Integrated Pest Management Club (1983-85)
- Jefferson Scholars (1985-94)
- Alpha Zeta (1989-92)
- Alpha Zeta Alumni Association Executive Committee (1993-95)
- Nourish International, NCSU Chapter Faculty Adviser (2008- 15)
- Alpha Phi Omega National Service Fraternity Faculty Adviser (2009-Present)
- Soul Garden NCSU student project (Centennial Campus) Faculty Adviser (2010-Present)

### Community activities

- Visits (ongoing) to elementary, middle, and high schools lecturing, promoting Science Fairs, and encouraging students to continue their education beyond the twelfth grade
- 4-H Science Project judge (evaluating public speaking and poster presentations) – several years to present
- Gardening project work at Fred A. Olds and A. B. Combs Elementary Schools – several years
- Public school children and their teachers, scout units, and YMCA Indian Guides and Princesses are encouraged annually to visit our Crop Science Teaching Garden

### National committees and related activities

- American Society of Agronomy (ASA)
  - Resident Education—Student Activities Subdivision chair (1978-79)
  - Teaching Improvement (1970-74), Educational Resources (chair, 1971-73), Student Essay Contest (chair, 1974-75), Student Awards (1975-77), Faculty Advisory (1977-80), Student Handbook Revision (1979-80), Placement (chair, 1980-81), Service to B.S. and M.S. Agronomy Professionals (1980-81), Quiz Bowl (1988), Manuscript (1991), Speech (1993), Teaching Improvement (1994), Symposium Planning (1997), Membership (1998), and Crop Science Teaching Award (1992-94)
- Environmental Protection Agency
  - Biomass Panel of the Energy Research Advisory Board, Policy advisement to the U.S. Department of Energy, Wash., D.C. (1982-84)
  - National Crop Loss Assessment Network—Evaluation of the national USDA/ARS program, involving examination of six national laboratories throughout the U.S. (1983-85)
  - Peer review panelist (chair of review team) for EPA-sponsored Photobiology Program (1984-86)
- National Acid Precipitation Assessment Program, involving evaluation of the national program (chair of evaluation team) for three (Argonne,

Brookhaven, and Lawrence-Livermore) national research laboratories in the U.S. (1986)

- Food and Agricultural Sciences National Needs Graduate Fellowship Grants Program Peer Review Panelist—Plant Biotechnology Review (USDA/CSREES-sponsored), Wash., D.C. (1999)

#### International activities

- Evaluation of National Corn Program for the World Bank, and evaluation of United Nations/Food and Agriculture Organization-sponsored grain crop-fertilizer program, Kasai Oriental Province, Democratic Republic of Congo (formerly Zaire), (1982-84 and 1988-90)
- USDA Office of International Cooperation and Development, USDA/Chinese Ministry of Agricultural Scientific and Technical Cooperation Program, Soybean Production and Genetic Resources Evaluation team, focused on “*Development of Drought Tolerance in Soybeans*”, studying soybean germplasm and cropping systems development research in Beijing, Nanjing, Jilin, Harbin, and Heilong Jiang, China (Sept. – Oct., 1989)
- US/AID-sponsored evaluation of irrigation and cropping systems strategies in the older and newer valleys of Chimbote (Santa Valley region), Peru (1989)
- Technoserve and US/AID-sponsored pre-feasibility (1990) and feasibility (1991) evaluations of agricultural potential for enterprise development (in the context of privatization), Tarnobrzeg District, Poland. Successful privatization of a milk cooperative and a credit bank (each farmer-owned) followed implementation of the formal initiative in the mid-1990s.
- Technoserve International Development Teaching Case Program Advisory Council, developed and evaluated for higher education instructional purposes 12 Teaching Case Studies, which have been used in sustainable development courses both nationally (including my courses MDS 323, MDS 323Q, and MLS 501I) and internationally (including institutions in Latin America, Africa, Eastern Europe, and Southeast Asia), (1992-95)
- NCSU International Studies Program, Graduate Faculty (1996-Present)
- Provided leadership on course and curriculum reform during a North Carolina – Moldova Partnership-sponsored Academic and Outreach Workshop at the Moldovan State Agricultural University, Chisinau, Moldova (October, 2001). This work was continued during a return trip to Chisinau in May and June, 2003.
- During the past three decades, food production enterprises, educational resources, and outreach programs have been evaluated in a number of countries in Africa (Democratic Republic of Congo, Ethiopia, Ghana, Ivory Coast, Kenya, Morocco, Nigeria, Senegal, Tanzania, Zambia, and Zimbabwe), Asia (China, India, Nepal, and Turkey), Europe (Belgium, Czech Republic, France, Germany, Greece, Hungary, Italy, Moldova, Poland, Slovak Republic, and The

Netherlands), and Latin America (Brazil, Honduras, Mexico, Nicaragua, and Peru). These advisory missions have been undertaken in support of policy and program development by several organizations, including The World Bank, FAO/UN, Heifer Project International, Presbyterian Church (USA), Technoserve, US/AID, World Neighbors, and N. C. State University.

- Fulbright Scholar (lecturing and research) at Humboldt University, Berlin, Germany (1995-96). Return visits to Humboldt to continue research and teaching in 2001 and 2003.
- Presentation to European Congress of University Faculty on the theme “Strategic course and curriculum reform”, National Technical University, Chisinau, Moldova (2003)
- Republic of Congo (Congo-Brazzaville) agricultural assessment, on behalf of NCSU College of Agriculture & Life Science, and also Global Development Company (Mr. Thomas Mabilia, President); 10 days in-country (April 1-10, 2007)
- Visiting international scientists in my laboratory
  - Prof. G. H. Sarmadinia, College of Agriculture, University of Technology, Isfahan, Iran, collaborating on crop water stress-nutrient availability interactions research (1990-91)
  - Prof. Klaus-Peter Goetz, Institut für Landwirtschaftlichen Pflanzenbau, Humboldt University, Berlin, Germany, collaborating on research pertaining to soybean nitrogen metabolism under drought stress (1997 and 1998—One summer month each year)
  - Prof. Dr. Helmut Herzog, also from Humboldt University, conducting research and lecturing on crop physiology issues (2000).
- International guest lectures:
  - Polytechnic University of Nicaragua (UPOLI), Managua, lecture series (two weeks) to university faculty on U.S. farming systems, and opportunities for improving agricultural and marketing partnerships between Nicaragua and the U.S. (1992)
  - Lectures (Food Production and Research in the U.S.) at Debrecen University, Debrecen, Hungary. (November, 1995)
  - Lecture series (four lectures during one week) on crop science and plant physiology issues at Catholic University of Louvain, Louvain-la-Neuve, Belgium. (February, 1996)
  - Taught (in English) a 4-credit course (“*Crop-stress relationships*”) during the winter semester (October, 1995-February, 1996) at Humboldt University, Berlin.
  - Invited lectures (“*Plant growth in stressful environments*”) and course/curriculum reform evaluation (comparing U.S. and Moldovan instructional and course mix approaches) at the National Agricultural University, Chisinau, Moldova (2001 and 2003).



### **Campus guest lectures**

“Evolution of US-Based Food Systems”; Guest lecture in ARE 495 Food Law course (Jan 9, 2019)

“The Challenges of Feeding the World”; Osher Lifelong Learning Institute presentation (McKimmon Center, Sept 17, 2019)

### **International teaching**

- During the summers of 2008, 2009, 2010, 2011, 2012, 2013, 2014, and 2015 (from mid-May through the end of June), the World Population and Food Prospects (STS 323) course has been taught at the Prague Institute (Czech Republic) as part of our University’s Study Abroad program
- During May and June of 2016, 2017, 2018, and 2019 guest lectures have been given at Humboldt University/Dahlem to graduate students in a course entitled “Physiological and environmental aspects of crop production, and my focus has been on the approach United States’ universities are taking to address this overarching subject. Plans are to return to teach the same class during Summer, 2020.

### **Publications**

#### **Refereed Publications**

#### **Academic (2)**

1. Patterson, R.P. and M.G. Cook. 1974. Basic laboratory studies in plant and soil sciences. J. Agron. Educ. 3:119-147.
2. Patterson, R.P. and R.S. Jones. 1978. The crops garden - an effective teaching laboratory. J. Agron. Educ. 7:67-71.

#### **Book Chapters (3)**

1. Sneed, R.E. and R.P. Patterson. 1982. The future role of irrigation in a humid climate. pp. 187-199. In C.D. Raper, Jr. and P.J. Kramer (eds.). Crop reaction to water and temperature stresses in humid, temperate climates. Westview Press, Boulder CO.
2. Patterson, R.P. and C.D. Raper, Jr. 1985. Influence of duration and rate of seed fill on soybean growth and development. pp. 875-883. In Richard Shibles (ed.) World Soybean Conference III: Proceedings. Westview Press, Boulder, CO.
3. Patterson, Robert P. 1998. “A Call for Just and Sustainable Human Development”, pp. 161-176. In Ecology and Religion: Scientists Speak. J. E. Carroll and K. Warner (eds) Franciscan Press, Quincy, IL.

#### **Research (41 Total)**

1. Younts, S. E. and R. P. Patterson. 1964. Copper-lime interactions in field experiments with wheat: Yield and chemical composition data. *Agron. J.* 56:229-232. (MS Thesis).
2. Patterson, R. P., D. L. Grunes, and D. J. Lathwell. 1972. Influence of root-zone temperature and phosphorus supply on total and inorganic phosphorus, free sugar, aconitate, and soluble amino nitrogen in corn. *Crop Sci.* 12:227-230. (PhD Thesis).
3. Prior, R. L., D. L. Grunes, R. P. Patterson, F. W. Smith., H. F. Mayland, and W. J. Visek. 1973. Partition column chromatography for quantitating effects of fertilization on plant acids. *J. Agric. Food Chem.* 21:73-77.
4. Crompton, C., J. C. Wynne, and R. P. Patterson. 1978. Calcium content, adenylate energy level, and seed vigor in peanuts. *Crop Sci.* 18:736-739.
5. Patterson, R. P., C. D. Raper, Jr., and H. D. Gross. 1979. Growth and specific nodule activity of soybean during applications and recovery of a leaf moisture stress. *Plant Physiol.* 64:551-556.
6. Raper, C. D. Jr., and R. P. Patterson. 1980. Environmental sensitivity of acetylene reduction activity in prediction of nitrogen fixation in soybeans. *Agron. J.* 72:717-719.
7. Jones, R. S., R. P. Patterson, C. D. Raper, Jr. 1981. The influence of temperature and nitrate on vegetative growth and nitrogen accumulation by nodulated soybeans. *Plant Soil.* 63:333-344.
8. Cure, J. D., R. P. Patterson, C. D. Raper, Jr., and W. A. Jackson. 1982. Assimilate distribution in soybeans as affected by photoperiod during seed development. *Crop Sci.* 22:1245-1250.
9. Cure, J. D., C. D. Raper, Jr., R. P. Patterson and W. A. Jackson. 1983. Water stress recovery in soybeans as affected by photoperiod during seed development. *Crop Sci.* 23:110-115.
10. Pimentel, D. I., L. Bennett, C. Cooney, O. Doering, R. L. Hinman, W. Hudson, A. Moslemi, D. Patterson, R. P. Patterson, J. Spurlock, and P. Weisz. 1983. Biomass Energy. The Biomass Panel of the Energy Research Advisory Board (Dept. of Energy, Washington, DC.). *Solar Energy* 30:1-31.
11. Barker, M. A., L. Thompson, Jr., and R. P. Patterson. 1984. Effect of 2,4-DB on soybeans [*Glycine max* (L.) Merr.] *Weed Sci.* 32:299-303.
12. Raper, C. D. Jr., R. P. Patterson, M. L. List, R. L. Obendorf, and R. J. Downs. 1984. Photoperiod effects on growth rate of *in vitro*-cultured soybean embryos. *Bot. Gaz.* 145(2):157-162.

13. Cure, J. D., Jr., R. P. Patterson and W. P. Robarge. 1985. Dinitrogen fixation in soybean in response to leaf water stress and seed growth rate. *Crop Sci.* 25:52-58.
14. Grunes, D. L., S. R. Wilkinson, P. K. Joo, W. A. Jackson, and R. P. Patterson. 1986. Effect of fertilization on the grass tetany potential and organic acid composition of tall fescue. Proc. XV. Int. Grassland Congress, Kyoto, Japan. pp. 509-510.
15. Raper, C. D. Jr., and R. P. Patterson. 1986. Temperature and photoperiod responses of soybean embryos cultured in vitro. *Can. J. Bot.* 64(12):2411-2413.
16. Fellows, R. J. R. P. Patterson, C. D. Raper, Jr., and D. Harris. 1987. Ozone and soil moisture deficit effects on nitrogen metabolism of soybean. *Crop Sci.* 27:1177-1184.
17. Flagler, R. B., R. P. Patterson, C. D. Raper, Jr., and D. Harris. 1987. Nodule activity and allocation of photosynthate of soybean during recovery from water stress. *Plant Physiol.* 84:456-460.
18. Heagle, A. S., J. E. Miller, W. W. Heck, and R. P. Patterson. 1988. Injury and yield response of cotton to chronic doses of ozone and soil moisture deficit. *J. Environ. Qual.* 17:627-635.
19. Miller, J. E., R. P. Patterson, A. S. Heagle, W. A. Pursley, and W. W. Heck. 1988. Growth of cotton under chronic ozone stress at two levels of soil moisture. *J. Environ. Qual.* 17:635-643.
20. Ellsworth, P.C., R.P. Patterson, J.R. Bradley, Jr., G.G. Kennedy, and R.E. Stinner. 1989. Developmental consequences of water and temperature in the European corn borer-maize interaction. *Entomol. Exp. Appl.* 53:287-296.
21. Goldman, I.L, T.E. Carter, Jr., and R.P. Patterson. 1989. Differential genotypic response to drought stress and subsoil aluminum in soybean. *Crop Sci.* 29:330-334.
22. Goldman, I.L, T.E. Carter, Jr., and R.P. Patterson. 1989. A detrimental interaction of subsoil aluminum and drought stress on the leaf water status of soybean. *Agron. J.* 81:461-463.
23. Miller, J.E., R.P. Patterson, W.A. Pursley, A.S. Heagle, and W.W. Heck. 1989. Response of soluble sugars and starch in field-grown cotton to ozone, water stress, and their combination. *Env. Exp. Bot.* 29:1-10.
24. Sloane, R.J., R.P. Patterson, and T.E. Carter, Jr. 1990. Field drought tolerance of a soybean plant introduction. *Crop Sci.* 30:118-123.
25. Prior, Stephen A., H. H. Rogers, N. Sionit, and R. P. Patterson. 1991. Effects of elevated atmospheric CO<sub>2</sub> on water relations of soya bean. *Agriculture, Ecosystems and Environment*, 35 (1991) 13-25.

26. Schell, L.P., D.A. Danehower, J.R. Anderson, Jr., and R.P. Patterson. 1991. Rapid isolation and measurement of adenosine triphosphate levels in corn embryos germinated at suboptimal temperatures. *Crop Sci.* 31:425-430.
27. Masyhudi, M.F. and R.P. Patterson. 1991. The effect of water stress on nitrogen absorption of soybean. *Indonesian J. of Crop. Sci.* 6:43-63.
28. Ellsworth, P.C., J.R. Bradley, Jr., G.G. Kennedy, R.P. Patterson and R.E. Stinner. 1992. Irrigation effects on European corn borer-maize water relations. *Entomol. Exp. Appl.* 64:11-21.
29. McMurtry, M.R., D.C. Sanders, R.P. Patterson, and A. Nash. 1993. Yield of tomato irrigated with recirculating aquacultural water. *J. Prod. Agric.* 6:428-432.
30. Hudak, C. M. and R.P. Patterson. 1995. Vegetative growth analysis of a drought-avoidant soybean plant introduction. *Crop Sci.* 35:464-471.
31. Hudak, C.M. and R.P. Patterson. 1996. Root distribution and soil moisture depletion pattern of a drought-resistant soybean plant introduction. *Agronomy Journal.* 88:478-485.
32. Patterson, R.P. and C.M. Hudak. 1996. Drought-avoidant soybean germplasm maintains nitrogen-fixation capacity under water stress. *Plant and Soil.* 186:39-43.
33. Patterson, Robert P. and C. M. Hudak. 1997. Drought-avoidant soybean germplasm maintains nitrogen-fixation capacity under water stress. pp. 39-43. *In* G. H. Elkan and R.G. Upchurch (eds.) *Current Issues in Symbiotic Nitrogen Fixation, (Developments in Plant Soil Sciences)*. Kluwer Academic Publishers., Dordrecht, The Netherlands.
34. Patterson, R.P., C.M. Hudak, and Xingzhong Min. 1998. Value of drought-adapted exotic germplasm in soybean productivity. pp. 19-20. *In* I.P.S. Ahlawat and S. Singh (eds.) *Agronomy, Environment, and Food Security for 21<sup>st</sup> century*, Indian Agricultural Research Institute. New Delhi.
35. K.-P. Gotz, H. Herzog, R. P. Patterson and C. D. Raper, Jr. 2000. Influence of irrigation on distribution and utilization of <sup>15</sup>N in soybeans. 3<sup>rd</sup> International Crop Science Congress 2000. Proceedings. 17-22 August 2000, Hamburg, Germany.
36. R. P. Patterson, K.-P. Gotz, H. Herzog, and C. D. Raper, Jr. 2000. Influence of irrigation on dry matter production and distribution in soybean. 3<sup>rd</sup> International Crop Science Congress 2000. Proceedings. 17-22 August 2000, Hamburg, Germany.
37. Gotz, K.-P. H. Herzog, R. P. Patterson, and C. D. Raper, Jr. 2000. Influence of irrigation on distribution and utilization of <sup>15</sup>N in soybeans. p. 47. 3<sup>rd</sup> International Crop Science Congress 2000. ICSC. Hamburg, Germany.
38. Patterson, R. P., K.-P. Gotz, H. Herzog, and C. D. Raper, Jr. 2000. Influence of irrigation on dry matter production and distribution in soybean. p. 50. 3<sup>rd</sup>

International Crop Science Congress 2000. International Crop Science Congress 2000. ICSC. Hamburg, Germany.

39. Patterson, Robert P., Xingzhong Min, E. James Dunphy, T. E. Carter, Jr., and C. David Raper, Jr. 2000. Drought-adapted soybean exotic germplasm maintains stress tolerance over a range of row widths. Edited by P. Singh, Rajendra Prasad, and I. P. S. Ahlawat. pp. 150-154. First International Agronomy Conference, IARI, New Delhi, 110012, India.
40. Gotz, K.-P., H. Herzog, Robert P. Patterson, and C. David Raper, Jr. 2001. Comparison of <sup>15</sup>N translocation of soybeans under water deficit in field and growth chamber conditions. 4th. European Conference on Grain Legumes. Cracow, Poland.
41. Chipman, R. B., C. David Raper, Jr. and Robert P. Patterson. 2001. Allocation of nitrogen and dry matter for two soybean genotypes in response to water stress during reproductive growth. J. Plant Nutr. 24 (6), 873-884.

### **DIRECTION OF GRADUATE STUDENT RESEARCH**

Graduate-level Crop Science Department advising activities include supervisory chair of 13 MS, one MA, one MCS, and eight Ph.D. students to completion of their degrees, and graduate committee service for 41 MS recipients and 30 Ph.D. recipients to completion of their degrees. In the Master of Arts in Liberal Studies (MALS) program, I have chaired 32 committees to program completion, and serve on six committees supporting programs in progress. In the Master of International Studies (MIS) program, I have chaired four graduate committees to program completion, and presently serve on five committees supporting programs in progress.

### **DISSERTATIONS DIRECTED**

#### **Master of Science (13)**

1. Crum, S.D. 1977. Effects of water stress on the interaction of carbohydrate and nitrogen in burley tobacco.
2. Tambi, Abu Bakar bin. 1979. The effect of water deficit on vegetative and reproductive growth on nitrogen assimilation of field-grown soybeans.
3. Jones, R.S. 1979. Nitrogen-temperature interactions in soybeans [Glycine max (L.) Merr.].
4. Yusof, O.B. 1981. Growth, development, and nitrogen accumulation response of field-grown soybeans to water deficit.
5. Wilson, J.C. 1982. Irrigated corn (Zea mays L.) nitrogen management.

6. Nixon, W.T. 1983. Straw and nitrogen management of double-cropped soybeans [Glycine max (L.) Merr.]
7. Monk, R.S. 1984. Peanut development in response to water deficit during reproductive growth.
8. Sloane, Richard J. 1987. Effect of drought on nonstructural/carbohydrate levels in field-grown soybeans.
9. Chisambiro, L. 1990. Effect of cultivar and gypsum on peanut vegetative dry matter production, pegging, podding, pod dry matter production, pod yield, and seed quality.
10. Simwanza, P.C. 1992. Soybean [Glycine max (L.) Merr.] growth and yield in response to blending cultivars and soil-water adjustment.
11. Marlow, W.S. 1993. Canopy-apparent photosynthesis and biological nitrogen fixation of a drought-tolerant soybean genotype.
12. Chipman, Robert Bomont. 1996. The effects of source-sink manipulations on the yield and nitrogen composition of water-stressed soybeans.
13. DiMilia, Gabriele. 1998. Protein synthesis in two genotypes of soybean [Glycine max (L.) Merr.] differing in drought tolerance.

### **Master of Agriculture (1)**

1. Waddill, T.A. 1987. Response of corn and soybeans to phosphorus and potassium fertilization

### **Master of Crop Science (1)**

1. Chevallier-Boutell, Santiago. 2000. Management-economic considerations relating to crop-stress relations.

### **Doctorate in Crop Science (8)**

1. Cure, Jennifer. 1981. Effects of water stress and photoperiod on assimilate partitioning and seed development in soybeans.
2. Flagler, Richard B. 1986. Effects of ozone and water deficit on growth, yield, and nitrogen metabolism of soybeans.
3. Masyhudi, M.F. 1986. Nitrogen utilization by soybeans as influenced by water deficit.
4. Koroma, Barba Maulana. 1992. Analysis of tolerance mechanisms to hyperthermic stress during germination in selected genotypes of Nicotiana tabacum L.

5. Hudak, Colleen M. 1993. An evaluation of a soybean plant introduction for drought avoidance under field conditions.
6. Min, Xingzhong. 1998. Effects of planting pattern on water use efficiency of a soybean plant introduction.
7. Chen, Shuquan. 2000. Seed growth and nitrogen partitioning of soybean under water stress.
8. Rincon, Amalia. 2001. Physiological aspects of soybean response to drought.

**Master of Arts in Liberal Studies—Programs Directed (15)**

1. Donahue, Catherine S. 1992. Feasibility study of barriers to resource sharing between industry and North Carolina public high schools.
2. Bingham, Annette P. 1993. An analysis of participatory development programs that could lead to empowerment of people.
3. Abramson, Paul. 1994. A hypothesis concerning multilingualism from a computer science perspective.
4. Walker, Patricia M. 1994. Holding the fort—Upper-middle class women and World War II in Raleigh, North Carolina.
5. Taylor, Delphine G. 1999. The Black Church and The Civil Rights Movement, Durham, North Carolina.
6. Beckwith, Freda P. 2001. Childcare education program.
7. Gray, Tangela DeVonne. 2002. The role of graphic design elements in sports marketing and advertising.
8. Requena, Jose Carlos. 2003. How the U.S. portrays Latin America.
9. Thompson, Gretchen H. 2003. International Community Development and Technical Assistance: TechnoServe's Ghana Initiative and the Role of NGOs.
10. Hall, Aaron. 2005. Coastal Environment Workbook: A guide to Human and Natural Interaction within a Coastal Environment for Students, Educators, and Extension Agents.
11. Wilson, Valerie. 2005. The Patriot Plan: A researched essay of American values and a framework for expanded individual tax incentives.
12. Peres, Patricia. 2005. The outdoors as a teaching-learning environment.

13. Cox, Thomas. 2006. Educational Leadership, Sports Management, and Becoming a Role Model for Young Athletes.
14. Hamdorf, Leslie Kyle. 2007. Internal Community Development: Engaging the Core to Facilitate Change.
15. Nevid, Norbert. 2007. Community-Centered Development.
16. Dunstan, R. Michaela Miller. 2008. Student Development and Personal Finance
17. Fabiano, Melissa Anne. 2008. Environmental Communication: Communicating Scientific Information Through the Media.
18. Masho, Heran Mehreteab. 2008. African Culture in the World of Politics.
19. Griffin, Sharon Katherine. 2008. The Importance of Nutrition in Reference to Development during the Antenatal and Postnatal Periods.
20. Schmidt, William Hilton. 2008 Emerging International Issues of the Twenty-First Century.
21. Wangoo, Edward Maina. 2008. Women: The Key to Development and Poverty Reduction in Africa.
22. Weaver, Ashley Christina. 2008. Funding for Higher Education through the Public Sector.
23. Craver, Diane H. 2009. Applying Counseling and Adult Learning Systems to Leadership and Career Coaching
24. Dodson, Jermisha. 2009. Society and Community Influence on Education and Advancement for Adolescence.
25. Hampton, Natalie E. 2009. Global Food and Agriculture Systems.
26. Pendergrass, James F. 2009. National and International Policy
27. Dalton, Jeffrey W. 2010. How Energy Policies are Administered in Public Organizations.
28. Martin-Hannibal, Jeryl Rhea. 2011. Organizational Management.
29. Mongan, Timothy. 2011. American History and Contemporary Society.
30. Phelps, Lisa Clapp. 2011. Sustainable Agriculture.
31. Cohen, Robert Michael. 2011. Nutrition, Technology, and Teachers: Elements Affecting Education.



32. Dobbins, Nicole Lisa. 2011. People and the Environment.

**Master of International Studies (MIS)—Programs Directed (2)**

1. Weinberg, Joe. 2002. International agriculture trade and the process of stabilization.
2. Deal, Lisa. 2004. Sustainable environmental resource strategies for the Marsh Arabs of Iraq.

**Community Activities**

- Boy Scout Master (1964-66, 1969-74); Assistant Scoutmaster (1992-2000)
- Member (1981-89) and Chair (1988-89) of National Presbyterian Hunger Program of Presbyterian Church (USA)
- Raleigh Youth Baseball Coach (1978-85)
- Capital Area Youth Soccer League Assistant Coach (1986-91)
- Adviser to Campbell University Teaching Garden Project (1990-94)
- Food Bank of North Carolina Gleaning Project (1990-93)
- Rural Crisis Committee of The Duke Endowment (1994-99)
- West Raleigh Presbyterian Church Elder (1975 – present)
- Board of Directors, NCSU Branch, State Employees Credit Union (2003 - present)