

Thomas G. Chastain, Ph.D.  
Abbreviated Curriculum Vitae

## Education

Ph.D.	Crop Science	Oregon State University	1987
M.S.	Crop Science	Oregon State University	1985
B.A.	Biological Sciences	California State University, Chico	1981

## Employment History

*2020-present*

*Department Head, Department of Crop and Soil Science, Oregon State University*

*2019-2020*

*Interim Department Head, Department of Crop and Soil Science, Oregon State University*

*2016-2019*

*Associate Department Head, Department of Crop and Soil Science, Oregon State University*

**Summary.** Assist or lead in administration of the department's academic, research, extension, and service programs. Conduct the business of the department including leading faculty meetings and provide leadership in faculty recruitment and curricular matters. Other duties include annual faculty performance reviews and evaluations, approve departmental purchases, processing courtesy faculty appointments, approve faculty travel requests and reimbursements, grant proposal approvals, employee timesheet approvals, resolving personnel matters including faculty retention and negotiations, assignment of faculty to instructional duties, engaging in sound financial stewardship of departmental funds, and other activities as needed. Serve as liaison for the department to other departments and programs, and to the college and university.

*2005-10*

*Head Advisor, Department of Crop and Soil Science, Oregon State University*

**Summary.** My department needed a head advisor after the previous one had retired and I volunteered to fill this role. Responsible for all departmental student advising duties including recruitment and retention, course registration and scheduling, curriculum development and oversight, career counseling and placement, and scholarships for all departmental students. Served as the department internship coordinator as part of my duties. In addition to my normal teaching load of three courses, I also taught Orientation and Career Planning (CSS 100), and Senior Seminar (CSS 407) annually. I supervised one assistant in the program.

*1989-present*

*Assistant Professor/Associate Professor/Professor of Seed Crop Physiology and Ecology,  
Department of Crop and Soil Science, Oregon State University*

**Summary.** Tenure track, state-wide research and teaching appointment in seed crop physiology and ecology. Conducted research on management, ecology, and physiology of grass seed, and other seed crops. Three years of the appointment were served at the Columbia Basin Agricultural Research Center in Pendleton. Results were published in journals including *Field Crops Research*, *Agronomy Journal*, etc. Taught CROP 200 Crop Morphology and Ecology and CROP 460/560 Seed Production courses annually, and CROP 670 Physiology of Crop Yield on an alternate year basis. Taught CROP/HORT 414 Precision Agriculture in 2020. Served as part of the team teaching CROP 330 World Food Crops. Developed and delivered Ecampus versions of the CROP 200 and CROP 460/560 courses. Supervised faculty research assistants, biological science technicians, graduate research/teaching assistants, and undergraduate students.

*1987-89*

*Assistant Professor of Seed Physiology (temporary position)/Acting Director Seed Testing  
Laboratory, Department of Agronomy and Soils, Washington State University*

**Summary.** Temporary non-tenure track research and teaching appointment in seed physiology. Conducted research on biochemical tests for important pathogens of wheat and Kentucky bluegrass seed. Results were published in *Crop Science* and *Phytopathology*. Responsible for teaching 36% of the crop science student credit hours in the department. Courses included Field Crop Science, Seed Production and Technology, and Vegetable Seed Production. As Acting Director, I was responsible for the administration of the official and commercial seed testing conducted at the seed laboratory while supervising 2 seed analysts and 4 lab technicians.

*1983-87*

*Graduate Research Assistant, Department of Crop Science, Oregon State University*

**Summary.** Graduate student appointment on grass seed production and physiology. Conducted research on physiology and ecology of grass seed crops, and seed moisture testing for determining harvest readiness. Results were published in *Crop Science* and *Agronomy Journal*. Assisted in teaching the seed production course.

1982-83

*Greenhouse and Lab Technician, Department of Botany and Plant Pathology, Oregon State University*

**Summary.** Assisted in research on seed-borne viruses of legume germplasm. Used serological techniques in the lab and conducted greenhouse research on plant viruses.

## **Research**

My research is directed at solving practical problems of Oregon's seed producers and developing new applications of previous research. A secondary goal is to increase our understanding of the underlying biological processes limiting greater economic and environmental efficiency of crop production. Oregon's seed production industry annually ranks among the state's top 5 agricultural enterprises so the work has a significant impact on the state's economy.

Crop plants are biological solar energy collectors, the size and efficiency of this collector is manipulated through management of the crop. My interest is to better understand how crop partitioning to seed yield is affected by manipulation of the crop canopy, age of the stand, nutrients and other factors. One underlying theme for the research is the systematic investigation of seed yield components and their relative contribution to seed yield.

The field is the primary laboratory for my research and much of the work has been conducted in on-farm settings at various locations around Oregon. This approach requires developing good relationships with seed producers and coordinating research activities with the commercial agriculture taking place in the farmer's fields. On-farm research lends first-hand credibility to the work and provides a front-row view of the research activities for the farmer-participant.

## **Selected Publications**

*Refereed Journals (last 5 years)*

Klein, M.L., T.G. Chastain, C.J. Garbacik, Y.P. Qian, and R. Mc Donnell. 2020. Acute toxicity of essential oils to the pest slug *Deroceras reticulatum* in laboratory and greenhouse bioassays. *Journal of Pest Science* 93:415-425.

Morad, M.M., N.P. Anderson, and T.G. Chastain. 2019. Trinexapac-ethyl affects seed production in crimson clover (*Trifolium incarnatum* L.). *Agron. J.* 111:1333-1340.

Angsumalee, D., S.G. Elias, N.P. Anderson, T.G. Chastain, and C.J. Garbacik. 2019. Plant growth regulator and irrigation effects on physiological and harvest maturity of red clover in relation to seed quality. *Agron. J.* 111:572-580.

Chastain, T.G., C.J. Garbacik, and W.C. Young III. 2017. Tillage and establishment system effects on annual ryegrass seed crops. *Field Crops Res.* 209:144-150.

- DuVal, A.S., T.G. Chastain, C.J. Garbacik, and D.J. Wysocki. 2017. Nitrogen affects seed production characteristics in yellow mustard (*Sinapis alba* L.). *Agron. J.* 109:995-1004.
- Hampton, J.G., A.J. Conner, B. Boelt, T.G. Chastain, and M.P. Rolston. 2016. Climate change: Seed production and options for adaptation. *Agriculture* 6(3), 33 Published online July 26, 2016; doi: 10.3390/agriculture6030033
- Anderson, N.P., T.G. Chastain, and C.J. Garbacik. 2016. Irrigation and trinexapac-ethyl effects on seed yield in first- and second-year red clover stands. *Agron. J.* 108: 1116–1123.
- Ferguson, B.T., T.G. Chastain, C.J. Garbacik, B.T. Chastain, and D.J. Wysocki. 2016. Spring nitrogen and cultivar affect seed production in winter canola (*Brassica napus* L.). *Agron. J.* 108:1124–1131.
- Chastain, T.G., C.M. King, W.C. Young III, C.J. Garbacik, and D.J. Wysocki. 2015. Irrigation frequency and seasonal timing effects on perennial ryegrass (*Lolium perenne*) seed production. *Field Crops Res.* 180:126-134.
- Anderson, N.P., D.P. Monks, T.G. Chastain, M.P. Rolston, C.J. Garbacik, Chun-hui Ma, and C.W. Bell. 2015. Trinexapac-ethyl effects on red clover seed crops in diverse production environments. *Agron. J.* 107:951-956.
- Chastain, T.G., W.C. Young III, C.J. Garbacik, and T.B. Silberstein. 2015. Trinexapac-ethyl rate and application timing effects on seed yield and yield components in tall fescue. *Field Crops Res.* 173:8-13.
- Zapiola, M.L., T.G. Chastain, C.J. Garbacik, and W.C. Young III. 2014. Trinexapac-ethyl and burning effects on seed yield components in strong creeping red fescue. *Agron J.* 106:1371-1378.
- Anderson, N.P., T.G. Chastain, and C.J. Garbacik. 2014. Effect of a strobilurin containing fungicide applied at two timings on seed yield in tall fescue. *Crop Management* 13 Published online April 14, 2014, doi:10.2134/CM-2013-0011-RS
- Chastain, T.G., C.J. Garbacik, and W.C. Young III. 2014. Spring-applied nitrogen and trinexapac-ethyl effects on seed yield in perennial ryegrass and tall fescue. *Agron J.* 106:628-633.
- Chastain, T.G., W.C. Young III, T.B. Silberstein, and C.J. Garbacik. 2014. Performance of trinexapac-ethyl on seed yield of *Lolium perenne* in diverse lodging environments. *Field Crops Res.* 157:65-70.
- Guy, S.O., D.J. Wysocki, W.F. Schillinger, T.G. Chastain, R.S. Karow, K. Garland-Campbell, and I.C. Burke. 2014. Camelina: adaptation and performance of genotypes. *Field Crops Res.* 155:224-232.

*Peer-reviewed Extension Technical Bulletins (last 5 years)*

- Moore, A.D., D.J. Wysocki, T.G. Chastain, T. Wilson, and A.S. DuVal. 2019. Camelina: nutrient management guide. Pacific Northwest Extension Publication, PNW 718 (5 pages).

- Anderson, N.P., T.G. Chastain, J.M Hart., W.C. Young III, and N.W. Christensen. 2014. Tall fescue grown for seed: a nutrient management guide for western Oregon. Nutrient Management Guide. Oregon State University, EM 9099. (42 pages)
- Schillinger, W.F., D.J. Wysocki, T.G. Chastain, S.O. Guy, and R.S. Karow. 2014. Camelina: effects of planting date and method on stand establishment and seed yield. Pacific Northwest Extension Publication, PNW 661. (10 pages)

*Reviewed University Research and Extension Publications (last 5 years)*

- Anderson, N.P., T.G. Chastain, and C.J. Garbacik. 2019. Are Higher Yields Possible in Annual Ryegrass Seed Crops? (Year 1). In N. Anderson, A. Hulting, and D. Walenta (ed.) Seed Production Research. Crop Sci. Ext. Rep. 160:14-16.
- Anderson, N.P., T.G. Chastain, A.D. Moore, and C.J. Garbacik. 2019. Spring-applied Nitrogen and Plant Growth Regulator Effects on Seed Yield of Second-year Orchardgrass. In N. Anderson, A. Hulting, and D. Walenta (ed.) Seed Production Research. Crop Sci. Ext. Rep. 160:22-23.
- Hudgins, T., N.P. Anderson, T.G. Chastain, and C.J. Garbacik. 2019. Plant Growth Regulator Combination Effects on Turf-type and Forage-type Tall Fescue Seed Crops. In N. Anderson, A. Hulting, and D. Walenta (ed.) Seed Production Research. Crop Sci. Ext. Rep. 160:24-26.
- Chastain, T.G., and N.P. Anderson. 2019. Can Portable NIR Be Used for Seed Moisture Testing in Grass Seed Crops? In N. Anderson, A. Hulting, and D. Walenta (ed.) Seed Production Research. Crop Sci. Ext. Rep. 160:27-28.
- Klein, M.L., T.G. Chastain, C.J. Garbacik, and R. Mc Donnell. 2019. Can Essential Oils Be Used to Control the Gray Field Slug? In N. Anderson, A. Hulting, and D. Walenta (ed.) Seed Production Research. Crop Sci. Ext. Rep. 160:29-32.
- Hudgins, T., N.P. Anderson, T.G. Chastain, and C.J. Garbacik. 2018. Effects of plant growth regulator mixtures on turf-type and forage-type tall fescue seed crops. In N. Anderson, A. Hulting, and D. Walenta (ed.) Seed Production Research. Crop Sci. Ext. Rep. 154:15-18.
- Anderson, N.P., T.G. Chastain, A.D. Moore, and C.J. Garbacik. 2018. Spring-applied nitrogen and plant growth regulator effects on orchardgrass seed yield. In N. Anderson, A. Hulting, and D. Walenta (ed.) Seed Production Research. Crop Sci. Ext. Rep. 154:12-14.
- Anderson, N.P., T.G. Chastain and C.J. Garbacik. 2017. Plant growth regulator and irrigation effects on white clover seed crops. In N. Anderson, A. Hulting, D. Walenta, and M. Flowers (ed.) Seed Production Research. Crop Sci. Ext. Rep. 153:46-48.
- Morad, M., T.G. Chastain, N.P. Anderson, and C.J. Garbacik. 2016. Trinexapac-ethyl timing and rate effects on crimson clover seed yield. In N. Anderson, A. Hulting, D. Walenta, M. Flowers, and C. Sullivan (ed.) Seed Production Research. Crop Sci. Ext. Rep. 152:3-5.
- Anderson, N.P., T.G. Chastain and C.J. Garbacik. 2016. Enhancing fertilizer efficiency in perennial ryegrass seed crops with urease inhibitors. In N. Anderson, A. Hulting, D.

Walenta, M. Flowers, and C. Sullivan (ed.) Seed Production Research. Crop Sci. Ext. Rep. 152:12-14.

Anderson, N.P., C.J. Garbacik, T.G. Chastain and S. Elias. 2015. Boron effects on red clover seed production and quality. In N. Anderson, A. Hulting, D. Walenta, and M. Flowers (ed.) Seed Production Research. Crop Sci. Ext. Rep. 150:9-11.

Angsumalee, D., S.G. Elias, T.G. Chastain, N.P. Anderson, C.J. Garbacik. 2015. Effect of irrigation and plant growth regulators on physiological maturity and seed quality of red clover. In N. Anderson, A. Hulting, D. Walenta, and M. Flowers (ed.) Seed Production Research. Crop Sci. Ext. Rep. 150:4-8.

### *Other Publications*

Books and Book Chapters (2 total)

Proceedings and Symposia (28 total)

Abstracts (43 total)

Non-technical publications (6 total)

### **Professional Meetings, Symposia, and Conferences**

I have served as presenter, organizer, session chair, plenary speaker, and keynote speaker at domestic and international venues. Invited speaker at domestic (112 events) and international (14 events) venues, speaker at field days and farm tours (49 events)

### **Grants**

Awarded \$3,189,442 in grant funds from the following sources: federal agency (37.7%), state and local governments (36.3%), commodity commissions (14.3%), foundations (9.3%), and corporate (2.5%).

#### *Selected grant funding sources:*

US Dept. of Transportation

Agricultural Research Foundation

Oregon Seed Council

Oregon Dept. of Agriculture

Syngenta

Murdock Charitable Trust

City of Portland Biofuels Investment Fund

### **Teaching**

I strive to provide a transformative educational experience for students and other learners in on-campus and Ecampus venues. One of my goals in teaching is for my students to learn to be discriminating consumers of information, a skill that they will need in their careers.

For example, information is widely available from a vast array of sources but the challenge for students is to ascertain what is solid and reliable and to differentiate that from opinion and speculation. Maintaining an unbridled enthusiasm for teaching and the subject matter is important. For me, lecturing is an extended conversation with students over the course of a term. I work hard to create an environment conducive for learning both inside and outside of the classroom setting. I believe that student engagement is not a static process but it should be active and fluid, and able to adapt to the student and situation. I view teaching as a strategic investment that assists me in connecting students to my research activities, and ultimately to the needs of my clientele.

Current teaching assignments:

*CROP 200 Crop Ecology and Morphology (On campus and Ecampus)*

An introduction to the concepts and principles of crop ecology and morphology. Examines the dynamics and function of crop communities, and the biotic and environmental interactions that influences productivity. Fundamentals of the developmental morphology of crop seeds, seedlings, and plants. Morphological features of seeds and plants in relation to the identification of crop families and species of economic importance.

*CROP 460/560 Seed Production (On campus and Ecampus)*

An introduction to principles and practices of seed-based genetic delivery systems. Fundamentals of seed crop biology, cultivar maintenance, and production methods are stressed. Concepts are illustrated using Pacific Northwest seed crops.

*CROP 670 Physiology of Crop Yield (On campus only)*

Concepts of crop growth and production in relation to environmental and physiological factors and their interactions; current literature.

## **Curriculum Development**

CROP 670 Physiology of Crop Yield – 1998. I created this course to fill the need of a stand-alone graduate level course in crop physiology at OSU. This is the only graduate level course in crop physiology at OSU and one of only 3 stand-alone (no undergrads or undergraduate credit offered) graduate courses currently offered in Crop Science at OSU.

CROP 200 Crop Ecology and Morphology – 2002. I created this course to improve student understanding in the areas of ecological relationships of crop plants with their environment and management, and a need for more instruction in the area of crop morphology. The course has grown from a small course serving the needs of departmental students into one that now is taken widely by students across OSU's agricultural disciplines and beyond.

Ecampus Courses – 2016 Two courses were developed for Ecampus delivery in 2016. These courses were CROP 200 (offered winter and spring terms) and CROP 460/560 (offered fall terms). We use discussion boards, animation, extensive use of field videos, and other methodologies to maintain a high level of engagement in these courses. My co-developer (Alyssa DuVal) and I won an Ecampus award for development of high quality delivery systems for these courses. Students enrolled in the courses are from locales all over the US and world.

## **Advising**

Served as thesis advisor or committee member for 49 graduate students and served as an advisor or committee member for 5 undergraduate student theses. As Head Advisor, I advised 102 undergraduate students majoring in the department and an additional 54 students working toward a minor. Directed experiential learning opportunities for 59 students in domestic and international internships in research or commercial endeavors and have directed another 9 in study abroad programs.

I met with every student (majors and minors) in the department at least once per term for program planning, to assess academic progress, refine career goals, and to determine graduation status. I used a variety of measurement tools and procedures for assessing student academic progress and advised them accordingly. I approved all changes in students grading status, course registrations and over-rides and I informed students about academic rules and policies, and curricular changes. Assisted students with employment, scholarship, study abroad, and graduate school searches. Wrote letters of recommendation for students in support of these searches. I coordinated all department internships and provided grading. Performed all departmental graduation audits each term for both the Corvallis campus students and for students at the Eastern Oregon University program in La Grande. Four of my student advisees won national awards during my time as head advisor. None of the department's students have won these awards before or since this period. I also mentored underrepresented students in our field, especially females and many are practicing farmers and agronomists today.

## **Outreach**

Disseminated results of investigative discovery and interpretation to scientists, extension personnel, agricultural industry and grower practitioners, local, state and federal government agencies, professional societies, international clientele, and the general public. Developed blog/web platforms for rapid and widespread sharing of program activities. Presented findings of research in over 200 non-classroom presentations in both domestic and foreign locations. Interviewed for over 100 newspaper, magazine, radio, and television stories on various seed production topics.



## **Leadership and Service (selected examples)**

### *American Society of Agronomy*

Associate Editor and Member Editorial Board, *Agronomy Journal*, 1993–1998  
National Membership Committee, 1986-89

### *Association of Official Seed Certification Agencies/Crop Science Society of America*

National Grass Variety Review Board, 1994-1996

### *Crop Science Society of America*

Member of Board of Directors, 1995-1998, 2016-present  
Seed Science Award Committee, 2018-present  
Budget and Finance Committee, 2017-present; Chair, 2020-present  
Chair, Division C-4 (Seed Physiology, Technology, and Production), 1997  
Chair, Symposium on Turfgrass Seed Production, 1997

### *Future Farmers of America*

State Career Development Event Coordinator, 2006-2009

### *International Herbage Seed Group*

President, 2017 - 2019  
President Elect (Vice President), 2013 – 2017  
Member Board of Directors, 1999–present  
Program Moderator; Perugia Italy, 1999; Lanzhou China, 2015  
Co-Chair, Organizing Committee, 2019 IHSG Conference, 2018-2019

### *Oregon State University*

Faculty Senate, Academic Requirements Committee, 2016-2017  
Faculty Senate, Academic Standing Committee, 2013-2016  
Office of the Registrar, Program Review Committee, 2015  
Commencement  
College of Ag Sciences and Column Marshall, 2006-present  
Faculty Representative, 2001-2005  
Faculty Advisor, OSU Track and Cross Country Club, 2000 – 2001  
Gamma Sigma Delta Scholarship Committee, 1999-2001

### *Oregon State University - College of Agricultural Sciences*

Seed Certification, Foundation Seed and Plant Materials Board, 1993-2018  
Plant Science Undergraduate Program Planning Committee, 2009-2011  
Scholarship and Awards Committee, 2003-2007; Chair 2005-2006  
Mentor, Ag Ambassadors, 2007-2008  
Student Recruitment and Retention Committee, 2004-2005

*Oregon State University - Department of Crop and Soil Science*

Program Director, Crop and Soil Science Undergraduate Program Review, 2016  
Scholarship Committee, 1995-2014; Chair 1999 – 2014  
Curriculum Committee, 1999-2011, 2014 - 2016; Chair 2005-2009, 2014-2016  
Awards Committee, 1995-1998  
Graduate Faculty Committee, 1992-99  
Crop Science Graduate Admission Review Committee, 1994-2004  
Certification Variety Review Committee, 1993 - 2005  
Peer Teaching Evaluation Committee, 2001, Chair 2015-2016  
Promotion and Tenure Committee, 2016  
Faculty Search Committees (15), 1996-2019  
Hyslop Professorship Committee Chair, 2018

*State of Oregon*

Member Seed Certification and Foundation Seed Board, 1993 – 2019  
Field Burning Administrative Rules Committee – 1997

*US Department of Agriculture*

W-168 Regional Technical Committee, Seed Biology and Technology Investigations  
OSU Representative, 1992-2003  
Secretary, 1994; Vice Chair, 1995; Chair, 1996  
Symposium Publication Chair 1996-1998  
W3168 Environmental and Genetic Determinants of Seed Quality and Performance  
OSU Representative, 2018  
Technical Advisory Committee, Grass Seed Research Program  
Member, 1993 - 2005, Chair, 2001- 2005

**International**

Seed production is an international enterprise and trade in seed among nations is commonplace. There is also an open sharing of ideas and research among various countries involved in the production of seed, and I've been involved in that by hosting foreign visitors and in making visits to other seed production areas. One organization in particular has done much to facilitate this international exchange of information and technology among scientists and practitioners alike for the past four plus decades – the International Herbage Seed Group. Visitors and visits, have been to and from, nations such as Zambia, China, Australia, Canada, Lithuania, Estonia, Latvia, South Africa, New Zealand, Denmark, Norway, Italy, Argentina, Britain, and Mexico.

Collaborative studies have been conducted with colleagues from CIMMYT in Mexico, Lincoln University and Ag Research in New Zealand, Aarhus University in Denmark,

University of Saskatchewan in Canada, and others. I participated in international research teams that investigated effects of elevated CO<sub>2</sub> and temperature on seed quality and seed production (New Zealand, Denmark, USA; 2011-2014 and trinexapac-ethyl effects on red clover seed production (USA, New Zealand, Australia, China.

Invited to CIMMYT-Mexico in 1989 to develop techniques to determine the viability of *Tilletia indica* teliospores and for killing these spores on wheat seed. This led to the acceptance of my sodium hypochlorite method for killing *T. indica* spores by USDA-APHIS, thereby making it possible to continue shipment of wheat germplasm to the USA and to other international CIMMYT cooperators.

Directed the study abroad/learning exchange programs for 8 departmental students from 2006-present in the following countries – Mongolia, New Zealand, Ghana, and Canada. Assisted in acquiring travel funds for students, including the 2007 American Society of Agronomy Cross Cultural Exchange Award for Julia Pedersen's exchange in Mongolia.

Directed the senior thesis of Austin Fricker in Nicaragua from 2010-2013 on the culture and the agricultural practices of the Miskito people indigenous the eastern coastal region of that country. Austin lived in Nicaragua among the Miskito for one year and wrote about his experiences in his senior thesis and made posts to a blog that he created for the topic.

I compared and contrasted the Oregon and New Zealand seed production systems in 2013 as part of a working visit to New Zealand hosted by the Foundation for Arable Research, Lincoln University, and AgResearch.

I served as President of the International Herbage Seed Group and I was involved in planning the organization's meetings Lanzhou China in June 2015 and in Pergamino Argentina in 2017, and in Corvallis in 2019. I was invited as a plenary speaker at the IHSG meetings in China. I have built and I maintain the current IHSG web site:

<https://ihsg.org/>

I was the keynote speaker for a seed conference and extended visit to Tasmania, Australia in November 2014. The organizers (government/private consortium) have solicited my assistance in helping them to assess their potential for a seed production industry modeled after Oregon. The results of my work continues to be shared with Tasmanian seed producers through the Tasmanian Institute of Agriculture's list serve and web site.

### **Selected Awards and Honors**

- Linn Soil and Water Conservation District, Educator of the Year, 2018
- American Society of Agronomy, Extension Education Community Materials Award of Excellence, 2015
- College of Agricultural Sciences, Ag Executive Council Distinguished Professor, 2015
- George Hyslop Endowed Professorship for Oregon Grass Seed Research and Education, 2008-2013
- Outstanding Teacher Award, 2004, 2006, 2008, 2010, Department of Crop and Soil Science