**VITAE**

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**EDUCATION and EMPLOYMENT:**

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| **Dates** | **Institution** | **Degree** | **Major** |
| 1984-1987 | University of Wyoming, Laramie | Ph.D. | Weed Ecology |
| 1978-1980 | University of California, Riverside | M.S. | Pest Management |
| 1972-1976 | Kansas State University, Manhattan | B.S. | Crop Protection |

2013-present Oregon State University, Corvallis, OR. Professor Emeritus of Weed Science,

Columbia Basin Agricultural Research Center, Pendleton, OR

2003-2013 Oregon State University, Corvallis, OR. Professor of Weed Science,

Columbia Basin Agricultural Research Center, Pendleton, OR

1996-2003 Oregon State University, Corvallis, OR. Associate Professor of Weed Science,

Columbia Basin Agricultural Research Center, Pendleton, OR.

1991 -1996 Oregon State University, Corvallis, OR. Assistant Professor of Weed Science,

Columbia Basin Agricultural Research Center, Pendleton, OR.

1988-1991 United States Department of Agriculture, Ft. Collins, CO. Research Agronomist,

Great Plains Systems Research.

1987-1988 University of Wyoming, Laramie, WY. Post-Doctoral Fellow, Department of

Plant, Soil and Insect Sciences.

1984-1987 University of Wyoming, Laramie, WY. Graduate Research Assistant, Department of Plant, Soil and Insect Sciences.

1981-1984 University of Nevada, Minden, NV. County Extension Agent, Cooperative Extension Service.

1980-1981 University of California, Riverside, CA. Staff Research Associate II, Department of Nematology.

**Date of Birth:** May 22, 1954

**Marital Status:** Married

**TEACHING, ADVISING, AND OTHER ASSIGNMENTS:**

1. NON-CREDIT COURSES, WORKSHOPS, and EXTENSION PRESENTATIONS
2. Old field restoration on the Nature Conservancy Zumwalt Prairie Preserve. October 26, 2012. Enterprise, OR. 25 attendees.
3. PNW Weed workers meeting, Pendleton, OR. July 17-18, 2012. Organized and lead discussions among 20 regional weed science professionals and students.
4. Glimpses of local agriculture and people of India. Pendleton Kiwanis Club. July 10, 2012. 18 attendees.
5. Transitioning CRP to crop production. CBARC Sherman Station Field Day co-organizer and presenter. June 13, 2012. 80 attendees.
6. Grass weed control in wheat . Pendleton Station Field Day co-organizer and presenter. June 12, 2012. 130 attendees.
7. Transitioning CRP to crops. Sherman County crop tour. Moro, OR. May 23, 2012. 20 attendees.
8. Pesticide interactions with soils. Malheur county weed seminar. Ontario, OR. February 22, 2012. 140 attendees.
9. Glimpses of local agriculture and people of India. CBARC seminar series. February 15, 2012. 12 attendees.
10. Investigating herbicides for possible use in pulse crops. Blue Mountain Pea Growers meeting. Milton-Freewater, OR. February 8, 2012. 35 attendees.
11. Transitioning CRP to crop production. Wilbur-Ellis grower meeting. Walla Walla, WA. January 27, 2012. 80 attendees.
12. Eastern Oregon weed research update. Oregon Society of Weed Science. October 19, 2011. 75 participants.
13. Herbicide injury to crops. Rain & Hail Insurance workshop. Pendleton, OR. June 28, 2011. 25 attendees.
14. Broadleaf weed control research in spring wheat. Nichino Americas company tour. June 21, 2011. Pendleton, OR. 6 attendees.
15. Grass weed control in wheat . Pendleton Station Field Day co-organizer and presenter. June 14, 2011. 140 attendees.
16. Potential for Beyond herbicide to carryover and injure non-Clearfield wheat. CBARC Sherman Station Field Day co-organizer and presenter. June 15, 2011. 80 attendees.
17. Current weed management issues and research in PNW dryland wheat. CBARC Seminar Series. May 5, 2011. 15 attendees.
18. Herbicide options and considerations for winter wheat. Enterprise, OR. March 2, 2011. 40 attendees.
19. Weed control research update in grass grown for seed and wheat. LaGrande, OR February 16, 2011. 60 attendees.
20. Herbicide options and considerations for winter wheat. Ontario, OR. February 15, 2011. 250 attendees.
21. Herbicide options and considerations for winter wheat. Central Oregon Farm Fair. Madras, OR February 2, 2011. 70 attendees.
22. Use of precision application for weed management in wheat. Umatilla County cereals seminar. Pendleton, OR. December 14, 2010. 50 participants.
23. Herbicide resistance management, Russian thistle control in chemical fallow, and carryover potential for imazamox herbicide in wheat. Condon, OR growers meeting. December 9, 2010. 35 participants.
24. Weed control in tall fescue and perennial ryegrass grown for seed. Hermiston Farm Fair, December 2, 2010. 40 attendees.
25. Herbicide Resistance Management. Oregon Agriculture Chemicals & Fertilizers Assoc. Pendleton, OR. November 2, 2010. 150 attendees.
26. Eastern Oregon weed research update. Oregon Society of Weed Science. October 20, 2010. 85 participants.
27. Downy brome control in winter wheat. Pendleton Station Field Day co-organizer and presenter. June 15, 2010. 170 attendees.
28. Grass weed management in grass seed production. May 27, 2010. Hermiston Ag Research and Extension Center grass seed field day. Hermiston, OR 60 participants.
29. Weed management research update for cereals and grass seed production. Union County growers meeting. March 31, 2010. 45 participants.
30. Walla Walla Cereals Seminar. Grass weed management in wheat. January 12, 2010. 90 participants.
31. Grass weed management in grass seed production. January 4, 2010. Powell, WY. 40 participants.
32. Grass weed management in grass seed production. January 3, 2010. Westi Ag Days, Worland, WY. 30 participants.
33. Downy brome management in cereals. January 2, 2010. Westi Ag Days, Worland, WY. 60 participants
34. Weed control in tall fescue and perennial ryegrass grown for seed. Hermiston Farm Fair, December 3, 2009. 60 attendees.
35. Spray drift prevention. Oregon Agriculture Chemicals & Fertilizers Assoc. Pendleton, OR November 3, 2009. 159 attendees.
36. Weed control in chemical fallow. Pendleton Station Field Day co-organizer and presenter. June 9, 2009. 170 attendees.
37. Clearfield Wheat injury and carryover concerns to consider. Sherman Station Field Day co-organizer and presenter. June 10, 2009. 80 attendees.
38. Umatilla County weed and crop tour. Presented work on use of undercutter implement for use in summer fallow. May 21, 2009. Helix, OR 55 attendees.
39. Weed control research update. Walla Walla Farmers Coop grower meeting. February 10, 2009. Walla Walla, WA. 180 attendees.
40. Weed control research update. Wilbur-Ellis grower meeting. January 23, 2009. Walla Walla, WA. 120 attendees.
41. Developing chemical fallow systems for intermediate rainfall inland PNW Environments. PNW Direct-Seed Conference. Kennewick, WA. January 22, 2009.
42. Downy brome biology and management in winter wheat. Golden Triangle tri-county meetings. Choteau, Galata, and Fort Benton, MT. January 19-21, 2009. 60, 90, 110 attendees, respectively.
43. Grass weed control in wheat . Pendleton Station Field Day co-organizer and presenter. June 10, 2008. 180 attendees.
44. Feral rye control in Clearfield Wheat. Sherman Station Field Day co-organizer and presenter. June 11, 2008. 80 attendees.
45. Weed management in long-term, dryland crop rotations. Moro, OR field tour. May 13, 2008. 45 attendees.
46. Weed Control in Wheat. Union County, OR Wheat Growers Meeting. February 19, 2008. 40 attendees.
47. Grassy Weed Control in Wheat. Columbia County, WA Wheat Growers Meeting. January 30, 2008. 60 attendees.
48. Jointed Goatgrass Biology and Control. Umatilla County Weed Growers meeting. Pendleton, OR. 50 attendees. January 29, 2008
49. Weed Management in Direct-Seed Cropping Systems. PNW Direct-Seed Conference. Kennewick, WA. 60 attendees. January 24, 2008.
50. Oregon Wheat Commission Research Review. December 16, 2008. 20 attendees.
51. Grassy Weed Control in Wheat. Walla Walla County Wheat Growers Meeting. January 15, 2008. 75 attendees.
52. Optical Sensor Sprayer for Weed Management. Oregon Seed Growers League. Salem, OR. December 11, 2007. 150 attendees.
53. Weed Management In and Around Grape Vineyards. Oregon Vegetation Management Association. Seaside, OR. 250 attendees. November 15, 2007.
54. KTEL Radio Interview discussing weed management in Eastern Oregon and Washington. October 9, 2007.
55. Weed management experiments in chemical fallow. Invited presentation on a Morrow County crops tour. June 15, 2007. 40 attendees.
56. Comparing conventional winter canola with Roundup-Ready winter canola for weed control and production costs. Pendleton Station Field Day co-organizer and presenter. June 12, 2007. 185 attendees.
57. Feral rye control in Clearfield Wheat. Sherman Station Field Day co-organizer and presenter. June 13, 2007. 80 attendees.
58. Grass seed weed management research update. Tour organizer and presenter at a grass seed growers field day. Hermiston Ag. Research and Extension Center, May 31, 2007. 100 participants.
59. Management of downy brome. Invited presentation for Morrow County wheat growers. February 12, 2007. 40 attendees.
60. Management of prickly lettuce in PNW dryland crops. Invited presentation for Wilbur-Ellis grower meeting. Walla Walla, WA. January 26, 2007. 130 participants.
61. Grass seed weed management. Invited presentation for Cenex Harvest States grower meeting. Worley, ID. January 17, 2007. 140 participants.
62. Management of persistent and perennial weeds in direct seeded wheat. Invited presentation for Sherman County Extension Service. Moro, OR. December 5, 2006. 30 participants.
63. Management of persistent and perennial weeds in direct seeded wheat. Invited presentation for Wasco County Extension Service. The Dalles, OR. December 5, 2006. 20 participants.
64. Grass seed weed management in the Columbia Basin. Invited presention at the Hermiston Farm Fair. November 29, 2006. 50 attendees.
65. Eastern Oregon weed research update. Presented at Oregon Society of Weed Science. Hood River, OR October 18, 2006. 85 participants
66. Downy brome management considerations in dryland wheat. Ritzville, WA. October 12, 2006. 90 participants.
67. Grass seed weed management research update. Presented to Washington State Turfgrass Seed Commission meeting, Kennewick, WA. June 2, 2006. 24 participants.
68. Minimizing potential problems with herbicide drift to grapes. Presented Dufur, OR. May 17, 2006. 20 participants.
69. Weed population trends in long-term crop rotations. Sherman Station Field Day co-organizer and presenter. June 14, 2006. 80 attendees.
70. Crop injury and weed control in CLEARFIELD wheat as influenced by N fertility. Pendleton Station Field Day co-organizer and presenter. June 13, 2006. 185 attendees.
71. Impression on dryland agriculture in Argentina, Invited presentation for Pendleton, April 25, 2006.
72. Herbicide resistance issues and Clearfield wheat. Topics for invited seminar presentation for a graduate level weed bioecology class at the Universidad Nacional del Sur, Bahia Blanca, Argentina. November 16, 2005. 10 participants.
73. Luncheon and discussion of wheat weed management in Pigue, Argentina as part of an AAPRESID (direct-seed organization) regional meeting. November 9, 2005. 20 participants.
74. Herbicide resistance issues and Clearfield wheat. Topics for invited seminar presentation at the INTA Agricultural Experiment Station. Bordenave, Argentina. October 20, 2005. 20 participants.
75. Presentation on wheat production in United States. Crop production class presentation at the Universidad Nacional del Sur, Bahia Blanca, Argentina. August 12, 2005. 40 participants.
76. Field tour of Bayer sponsored research trials. Pendleton, OR. June 29, 2005. 10 participants.
77. Comparison of grass weed control herbicides in Clearfield wheat. Sherman Station Field Day tour co-organizer and presenter. June 8, 2005. 80 attendees.
78. Control of rattail fescue in chemical fallow. Pendleton Station Field Day tour co-organizer and presenter. June 7, 2005. 185 attendees.
79. Grass seed weed management research update. Tour organizer and presenter at a grass seed growers field day. Hermiston Ag. Research and Extension Center, May 25, 2005. 110 participants.
80. Arvesta Chemical Company technical meeting to discuss Everest herbicide uses in Pacific Northwest. Portland, OR. Feb. 22-24. 20 participants.
81. Chemical fallow symposium. Symposium organizer and participant. CBARC-Pendleton, OR. February 15, 2005. 20 participants.
82. Weed control in chemical fallow. Extension presentation. Ione, OR. February 11, 2005. 55 participants.
83. Weed control updates to a Walla Walla Farmers Coop. growers meeting. Walla Walla, WA. February 8, 2005. 105 participants.
84. Prickly lettuce biology and control presentation to a Wilbur-Ellis growers meeting. Walla Walla, WA. January 26, 2005. 90 participants.
85. Weed management in organic wheat production. Extension meeting in Condon, OR. January 12, 2005. 35 participants.
86. Biology and management of jointed goatgrass in winter wheat. Invited speaker for Western Ag Chemical Association. Coeur d’Alene, ID. November 10, 2004. 50 attendees.
87. Dryland crops weed management research review. CBARC-Pendleton, OR. September 9, 2004. 15 attendees.
88. Tour and discussion of field study evaluating the impact of imazethapyr herbicide on wine grapes. CBARC – Pendleton, OR. August 23, 2004. 6 attendees.
89. Field tour of Bayer sponsored research trials. Pendleton, OR. June 16, 2004. 20 attendees.
90. Stewardship of Clearfield wheat technology. Clearfield wheat seed associate meeting. Pendleton, OR. June 15, 2004. 30 attendees.
91. Consideration for use of Clearfield herbicide-resistant wheat. Sherman Station Field Day tour co-organizer and presenter. June 9, 2004. 80 attendees.
92. Control of rattail fescue in chemical fallow. Pendleton Station Field Day tour co-organizer and presenter. June 8, 2003. 185 attendees.
93. Grass seed weed management research update. Tour organizer and presenter at a grass seed growers field day. Hermiston Ag. Research and Extension Center, May 20, 2004. 100 participants.
94. Influence of burning on weeds in dryland crops. Rufus, OR. March 4, 2004. 25 attendees.
95. Weed management in Clearfield wheat systems. Condon, OR. March 3, 2004. 20 attendees.
96. Oregon Wheat Commission research review presentation. Boardman, OR. February 20, 2004. 20 attendees.
97. Weed control issues in dryland wheat. Walla Walla Farmers Coop meeting. Walla Walla, WA. February 3, 2004. 75 attendees.
98. Herbicide mode of action, Wilbur-Ellis Co. growers meeting. Walla Walla, WA. January 30, 2004. 60 attendees.
99. Weed management in Clearfield wheat systems, Umatilla County Extension presentation. Pendleton, OR. January 27, 2004. 25 attendees.
100. Control of rattail fescue in chemical fallow. Pendleton Station Field Day tour co-organizer and presenter. June 8, 2003. 185 attendees.
101. Grass seed weed management research update. Tour organizer and presenter at a grass seed growers field day. Hermiston Ag. Research and Extension Center, May 20, 2004. 100 participants.
102. Influence of burning on weeds in dryland crops. Rufus, OR. March 4, 2004. 25 attendees.
103. Weed management in Clearfield wheat systems. Condon, OR. March 3, 2004. 20 attendees.
104. Oregon Wheat Commission research review presentation. Boardman, OR. February 20, 2004. 20 attendees.
105. Weed control issues in dryland wheat. Walla Walla Farmers Coop meeting. Walla Walla, WA. February 3, 2004. 75 attendees.
106. Herbicide mode of action, Wilbur-Ellis Co. growers meeting. Walla Walla, WA. January 30, 2004. 60 attendees.
107. Weed management in Clearfield wheat systems, Umatilla County Extension presentation. Pendleton, OR. January 27, 2004. 25 attendees.
108. Grass seed weed management in the Columbia Basin. Invited speaker, Washington State Turfgrass Seed Commission annual meeting. Spokane, WA. December 5, 2003. 15 attendees.
109. Grass seed weed management in the Columbia Basin. Invited seminar presenter at the Hermiston Farm Fair. December 4, 2003. 90 attendees.
110. Biology and control of rattail fescue. Umatilla County Soil and Water Conservation District meeting. November 20, 2003. Weston, OR. 15 attendees.
111. Consideration for use of Clearfield herbicide-resistant wheat. Sherman Station Field Day tour co-organizer and presenter. June 11, 2003. 90 attendees.
112. Control of downy brome in winter malting barley. Pendleton Station Field Day tour co-organizer and presenter. June 10, 2003. 225 attendees.
113. Morrow County crops tours discussed chemical fallow techniques. Lexington, OR. May 14, 2003. 20 attendees.
114. Grass weed control in Clearfield wheat. Columbia County wheat growers meeting. Dayton, WA. January 30, 2003. 60 attendees.
115. Grass seed weed management in the Columbia Basin. Invited seminar presenter at the Hermiston Farm Fair. December 6, 2002. 95 attendees.
116. Invited Panelist at Oregon Wheat Growers League annual conference discussing Herbicide Drift Injury to Grapes. Tigard, OR. November 25, 2002. 30 attendees.
117. Discussion on Clearfield wheat. Walla Walla County Wheat Growers. Walla Walla, WA. November 18, 2002. 25 attendees.
118. Weed management research update. Port of Morrow. September 4, 2002. 18 attendees.
119. Considerations for effective chemical fallow. Sherman Station Field Day tour co-organizer and presenter. June 12, 2002. 120 attendees.
120. Control of downy brome in Clearfield wheat. Pendleton Station Field Day tour co-organizer and presenter. June 11, 2002. 255 attendees.
121. Grass seed weed management research update. Tour organizer and presenter at a grass seed growers field day. Hermiston Ag. Research and Extension Center, May 31, 2002. 80 participants.
122. Herbicide resistance management. Invited seminar presenter at the Columbia Basin cereal seminar series. LaGrande, Pendleton, Condon, and Moro, OR. January 28-31, 2002. 25,88,35,30 attendees, respectively.
123. Grass seed weed management in the Columbia Basin. Invited seminar presenter at the Hermiston Farm Fair. November 29, 2001. 60 attendees.
124. Weed management research update. Invited presenter at a cereal research review meeting. Boardman, OR. September 6, 2001. 35 attendees.
125. Integrated management of jointed goatgrass. Sherman Station Field Day tour co-organizer and presenter. June 13, 2001. 80 attendees.
126. Control of volunteer wheat in chemical fallow. Pendleton Station Field Day tour co-organizer and presenter. June 12, 2001. 225 attendees.
127. Grass seed weed management research. Tour organizer and presenter at a grass seed growers field day. Hermiston Ag. Research and Extension Center, May 31, 2001. 95 participants.
128. Weed management research update. Invited presenter at an Oregon Wheat Commission research review. The Dalles, OR. February 27, 2001. 35 attendees.
129. Grass seed weed management research update. Invited seminar presenter at the Union County Grass Seed Growers Association annual meeting. LaGrande, OR. February 22, 2001. 40 attendees.
130. Herbicide resistance management. Invited seminar presenter at a Walla Walla Farmers Coop grower meeting, Walla Walla, WA February 13, 2001. 150 attendees.
131. Herbicide resistance management. Invited seminar presenter at a United Agri-Products grower meeting, Walla Walla, WA January 25, 2001. 45 attendees.
132. Grass seed weed management in the Columbia Basin. Invited seminar presenter at the Hermiston Farm Fair. December 1, 2000. 60 attendees.
133. Oregon Society of Weed Science, weed science research update. Invited seminar presenter. October 25, 2000. 75 attendees.
134. Hermiston Ag. Research and Extension Center Community Appreciation Day, presentation and review of grass seed research. June 28, 2000. 110 attendees.
135. Lupin weed management research. Sherman Station Field Day tour co-organizer and presenter. June 14, 2000. 90 attendees.
136. Control of feral rye in Clearfield wheat. Pendleton Station Field Day tour co-organizer and presenter. June 13, 2000. 250 attendees.
137. Dryland weed research update. Invited presenter at an Oregon Wheat Commission research review. Hermiston, OR February 24, 2000.
138. Weed control in wheat research update. Invited presenter at a Columbia County, WA grower’s meeting. Dayton, WA. January 27, 2000. 60 participants.
139. Controlling herbicide drift. Invited seminar presenter at a Umatilla County, OR grower meeting. Pendleton, OR. January 25, 2000. 35 participants.
140. Controlling herbicide drift. Invited seminar presenter at a Huntington-Price Co., grower meeting. Walla Walla, WA. January 27, 2000. 110 participants.
141. Controlling herbicide drift. Invited seminar presenter at a Western Farm Service grower meeting. Walla Walla, WA. January 20, 2000. 110 participants.
142. Grape growers herbicide awareness workshop. Invited discussant, Milton-Freewater, OR. December 9, 1999. 30 participants.
143. Weed Control for Columbia Basin grass seed production. Invited seminar presenter, Hermiston Farm Fair. December 3, 1999. 40 participants.
144. Grape growers herbicide awareness workshop. Invited discussant, Milton-Freewater, OR. November 9, 1999. 40 participants.
145. CBARC research review. Invited presentation of current weed research progress. August 26, 1999.
146. Sherman Station Field Day, tour co-organizer and presenter of lupin weed management research. June 13, 1999. 90 attendees.
147. Pendleton Station Field Day, June 12, 1999. Tour co-organizer and facilitator of graduate student presentations of field research trials. 250 attendees.
148. Bayer Corp. U.S. development group tour. Tour organizer and discussant of field research trials. June 2, 1999.
149. Grass Seed Growers Field Day. Tour organizer and presenter at a grass seed growers field day. Hermiston Ag. Res. and Ext. Center, May 14, 1999. 85 participants.
150. Morrow County Weed and Crops Tour. Invited to discuss effective methods of fallow management. May 13, 1999. 25 participants.
151. Oregon Ryegrass Commission. Presented research proposal. April 20, 1999
152. Oregon Wheat Commission research review. Invited presentation to review current, funded research projects. The Dalles, OR March 1, 1999. 12 attendees.
153. Wilbur-Ellis agronomy meeting. Invited presenter discussing weed control research update. Adams, OR Feb 17, 1999. 60 attendees.
154. Union County grass growers meeting. Invited speaker on grass seed weed control research. Island City, OR Feb 9, 1999. 75 attendees.
155. Hermiston area grass seed growers meeting. Invited speaker on weed control research. Hermiston, OR. January 25, 1999. 80 attendees.
156. NRCS research review. Invited presenter to provide a review of herbicide-resistant crops and weeds. Pendleton, OR. January 20, 1999. 20 attendees.
157. Gilliam county wheat growers meeting. Invited speaker on weed management in direct seeding. Condon, OR. January 15, 1999. 15 attendees.
158. OSU Weed science course lecture. Invited lecturer on weed control in dryland cropping systems. Corvallis, OR. November 20, 1998. 60 attendees.
159. WA commission on minor use pesticides. Volunteered presenter of a grass weed management research proposal. Ellensburg, WA. November 19, 1998. 30 attendees.
160. American Cyanamid Imi-wheat symposium. Invited discussant on the management of jointed goatgrass in herbicide-resistant wheat. Colorado Springs, CO. November 3, 1998. 60 attendees.
161. Oregon Vegetation Management Society. Invited seminar presenter on weed seed longevity in the soil. Lincoln City, OR. October 22, 1998. 175 attendees.
162. Extension cereal research review. Invited presenter of weed control research. Pendleton, OR. September 3, 1998. 15 attendees.
163. Bayer technical update. Invited speaker to present research results related to MKH 6561 herbicide effectiveness in wheat. Spokane, WA. September 1, 1998. 45 attendees.
164. Union County crops tour, Organized and conducted a field weed ID contest. June 23, 1998 120 attendees.
165. Sherman Station Field Day. Tour co-organizer and presenter of downy brome field research. June 10, 1998. 90 attendees.
166. Pendleton Station Field Day. Tour co-organizer and presenter of results of herbicide-resistant wheat field studies. June 9, 1997. 230 attendees.
167. Huntington-Price field tour. Invited discussant about weed control in wheat. May 27, 1998. 35 attendees.
168. Hermiston grass growers field tour. Tour organizer and presenter of field grass seed research. Hermiston, OR. May 22, 1998. 65 attendees.
169. Pilot Rock area growers field tour. Review of Pilot Rock cropping systems study site. Pilot Rock, OR. May 5, 1998. 20 attendees.
170. Wilbur-Ellis agronomy meeting. Invited speaker on current weed control research in wheat. Walla Walla, WA. Feb 12, 1998. 230 attendees.
171. Union County grass growers meeting. Presenter of grass seed weed control research update. Island City, OR. Feb 12, 1998. 45 attendees.
172. Oregon Wheat Commission research review. Invited speaker on current weed control research in wheat. The Dalles, OR February 10, 1998 25 attendees
173. Morrow County wheat growers meeting. Invited seminar presenter on herbicide resistance management. Ione, OR. Jan. 29, 1998. 30 attendees.
174. Hermiston farm fair invited speaker on grass seed weed control. Dec. 3, 1997. 35 attendees.
175. WA commission on minor use pesticides. Volunteered presenter of a proposal for grass weed management research. Nov 25, 1997. 20 attendees.
176. Mustard growers meeting, Pendleton. Invited speaker on mustard weed control. Nov. 19.,1997 70 attendees.
177. American Cyanamid Co. field tour. Tour organizer and presenter of field research results in wheat. June 30. 8 attendees.
178. Union County crops tour, Organized and conducted a field weed ID contest. June 18, 1997 120 attendees.
179. Sherman Station Field Day. Tour co-organizer and presenter of downy brome field research. June 11, 1997. 90 attendees.
180. Pendleton Station Field Day. Tour co-organizer and presenter of herbicide persistence field studies. June 10, 1997. 230 attendees.
181. Wasco County cherry herbicide drift ‘task force’ meeting. Invited discussant of herbicide use patterns in winter wheat. March 6, 1997. 95 attendees.
182. Walla Walla cereals seminar. Presented an invited update on current weed management research. Walla Walla, WA. January 22, 1997. 70 attendees.
183. Wasco County cherry herbicide drift ‘task force’ meeting. Invited discussant of herbicide use patterns in winter wheat. December 18, 1996. 15 attendees.
184. Herbicide tolerant wheat research discussion. Invited speaker to the Oregon Wheat Growers League meeting, Pendleton, OR. November 22, 1996. 45 attendees.
185. Wasco County cherry herbicide drift ‘task force’ meeting. Invited discussant on herbicide use patterns in winter wheat. September 25-26, 1996. 70 attendees.
186. Wasco County cherry herbicide drift ‘task force’ meeting. Invited discussant on herbicide use patterns in winter wheat. September 10, 1996. 25 attendees.
187. Extension agent research review. Invited discussant on current weed program research. Pendleton, OR. September 10, 1996. 20 attendees.
188. Wasco County cherry herbicide drift ‘task force’ meeting. Invited discussant on herbicide use patterns in winter wheat. August 20, 1996. 12 attendees.
189. Pendleton Kiwanis Club. Invited discussant on “Weed Research at CBARC” Pendleton, OR. August 13, 1996. 40 attendees.
190. Washington area chemical drift working group, invited presenter of a seminar on “Sulfonylurea herbicide injury symptoms”. Walla Walla, WA June 20, 1996. 15 attendees.
191. Lind Station Field Day, field tour presentation on a research study on white lupin weed control. June 13, 1996. 100 attendees.
192. Sherman Station Field Day. Tour co-organizer and presenter of downy brome field research. June 12, 1996. 80 attendees.
193. Pendleton Station Field Day. Tour co-organizer and presenter of downy brome seed development field studies. June 11, 1996. 270 attendees.
194. Area wheat growers meeting, invited presentation on “Jointed Goatgrass Biology and Control”. The Dalles, OR. June 5, 1996. 30 attendees.
195. Oregon Wheat Commission research review, presented “Weed Science Research Update”. Boardman, OR. February 26, 1996. 55 attendees.
196. Area grass seed growers meeting, presentation on “Grass Seed Weed Control Update”. LaGrande, OR. February 13, 1996. 20 attendees.
197. Regional Symposium on Jointed Goatgrass, presentation on “Biology of Jointed Goatgrass”. Pasco, WA. 175 attendees.
198. Area wheat growers meetings, presentation on “Mustard Weed Control”. Walla Walla, Pendleton, The Dalles. February 5-7, 1996. 47 attendees.
199. Columbia Basin Wheat Seminars, presented “Weed Control Considerations for Alternate Crops”. LaGrande, Pendleton, Ione, The Dalles. January 22-25, 1996. 170 attendees.
200. Umatilla County Wheat Growers League presentation on “Lentil Production”, Pendleton, OR. September 24, 1995. 20 attendees.
201. Area wheat growers meeting, presentation on “Jointed Goatgrass Biology and Control”. Moro, OR. September 13, 1995. 35 attendees.
202. O.S.U. Extension Service Cereal Research Review, presentation on “An Overview of eastern Oregon Weed Research Program”. August 31, 1995. 15 attendees.
203. Wallowa County Crop Tour, presentation on “Catchweed Bedstraw Control”. Enterprise, OR. July, 25, 1995. 65 attendees.
204. Moro Station Field Day, review and tour of downy brome field research. June 14, 1995. 80 attendees.
205. Pendleton Station Field Day, review and of downy brome seed development field studies. June 13, 1995. 290 attendees.
206. Morrow County Crop and Weed Tour, review and tour of broadleaf weed control field research trials in winter wheat. Ione, OR. June 9, 1995. 20 attendees.
207. Gilliam County Crop and Weed Tour, review and tour of broadleaf weed control field research trials in winter wheat. Arlington, OR. June 1, 1995. 15 attendees.
208. Canola growers field tour, review and tour of field research, and presentation of “Grass Control and Chemical Drift”. Pendleton, OR. May 23, 1995. 40 attendees.
209. Umatilla County Crop and Weed Tour, presentation on “Crop Rotation Options for Weed Control in wheat”. Pilot Rock, OR. May 18. 1995. 65 attendees.
210. Area Kentucky bluegrass industry field tour, and presentation of field results from bluegrass weed control research. LaGrande, OR. April 12, 1995. 25 attendees.
211. Blue Mtn. Pea Growers meeting, presentation on “Weed Control in Green Peas, and herbicide drift issues”. Milton-Freewater, OR. February 16, 1995. 60 attendees.
212. Area wheat growers meeting, presentation on “Jointed Goatgrass Biology and Control, and herbicide drift issues”. Klickatat Co. WA. February 14, 1995. 50 attendees.
213. Eastern Oregon Weed Control Research Report Panel, Oregon Wheat Growers League annual meeting, Portland, OR. November 29, 1994.
214. Regional Soil Conservation Service Forum, presentation on “Downy Brome Biology and Control”. Pendleton, OR. August 11, 1994. 45 attendees.
215. Branch Station Superintendents Field Tour, review and tour of weed science field research. Pendleton,OR. June 18, 1994. 25 attendees.
216. Moro Station Field Day, review and tour of field research on nighttime tillage research. June 15, 1994. 80 attendees.
217. Pendleton Station Field Day, review and tour of downy brome seed development research. June 14, 1994. 275 attendees.
218. Umatilla County Crop and Weed Tour, review and tour of red lentil production research. Helix, OR. May 26, 1994. 45 attendees.
219. Area green pea growers, meeting organizer and presentation on “Chemical Drift Issues”. Pendleton, OR. May 25, 1994. 35 attendees.
220. Canola growers field tour, review of research and presentation on grass control and chemical drift issues in canola. Pendleton, OR. May 19, 1994. 40 attendees.
221. Area green pea growers, organizer of a chemical drift field tour. Pendleton, OR. May 18, 1994. 60 attendees.
222. Area chemical dealers field tour, organized and toured chemical drift symptomology demonstration trials. Pendleton, OR. April 27, 1994. 12 attendees.
223. Blue Mtn. Pea Growers meeting, presented “Weed Control in Green Peas”. Milton-Freewater, OR. March 3, 1994. 60 attendees.
224. Eastern Oregon Weed Control Research Program Overview. Oregon Wheat Commission Research Review, The Dalles, OR. February 23, 1994.
225. Area green pea growers, organized a weed control advisory meeting. Pendleton, OR. February 15, 1994. 8 attendees.
226. Area wheat growers meeting, presented “Herbicide Resistance Management”. Walla Walla, WA. Feb. 10, 1994. 250 attendees.
227. Area wheat growers meeting, review of winter wheat weed control research. Walla Walla, WA. Jan. 26, 1994. 25 attendees.
228. USDA-SCS research review, presented “Downy Brome Biology”. Pendleton, OR. January 19, 1994. 18 attendees.
229. Eastern Oregon Weed Control Research Report Panel, Oregon Wheat Growers League annual meeting, Portland, OR. November 29, 1993.
230. Area wheat growers meeting, presented “Winter Wheat Weed Control”. Walla Walla, WA. September 2, 1993. 22 attendees.
231. O.S.U. Extension Service Cereal Research Review, presented an overview of eastern Oregon weed research program. Pendleton, OR. September 1, 1993. 25 attendees.
232. Moro Experiment Station Field Day, review and tour of field research on downy brome control in winter wheat. June 16, 1993. 110 attendees.
233. Pendleton Experiment Station Field Day, review and tour of field research on downy brome control in winter wheat. June 15, 1993. 290 attendees.
234. Eastern Oregon Weed Control Research Program Overview. Oregon Wheat Commission Research Review, Pendleton, OR. April 30, 1993.
235. Area wheat growers meeting, presented “Downy Brome Control”. Condon, OR. February 25, 1993. 35 attendees.
236. Area wheat growers meeting, presented “Downy Brome Control”. Ione, OR. February 25, 1993. 26 attendees.
237. Blue Mtn. Pea Growers Association, presented “Red-Lentil Weed Control”. Walla Walla, WA. February 23, 1993.
238. Eastern Oregon Weed Control Research Report Panel, Oregon Wheat Growers League annual meeting, Portland, OR. November 30, 1992.
239. Area wheat growers meeting, presented “Jointed Goatgrass Biology and Control”. LaGrande,OR. November 16, 1992. 24 attendees.
240. O.S.U. Extension Service Cereal Research Review, presented “An Overview of eastern Oregon Weed Research”. August 25, 1992. 32 attendees.
241. Moro Experiment Station Field Day, field tour and presentation of “Downy Brome Disasters: Evaluating the Options”. June 11, 1992. 80 attendees.
242. Pendleton Experiment Station Field Day, field tour and review of alternate methods for downy brome control. June 10, 1992. 260 attendees.
243. Pendleton area pea weed control tour organizer, and presenter. May 21, 1992. 6 attendees.
244. Hermiston area pea weed control tour organizer and presenter. May 18, 1992. 15 attendees.
245. Gilliam County Weed Tour, tour of downy brome control research. May 12, 1992. 35 attendees.
246. Umatilla County Weed Tour, presented “Downy Brome Control”. May 11, 1992. 65 attendees. Review, Pendleton, OR. February 10, 1992.
247. Columbia Basin Wheat Seminars, presented “Economic Decisions Related to Weed Control in Wheat”. LaGrande, Pendleton, Ione, Condon, The Dalles. January 27-31, 1992. 170 attendees.
248. SCS Meeting, presented “Biology of Downy Brome and Kochia”. Pendleton, OR. January 21, 1992. 30 attendees.
249. Blue Mountain Pea Growers Assoc, presented “Green Pea Weed Control”. Weston, OR. January, 9,1992. 20 attendees.
250. Eastern Oregon Weed Control Research Report Panel, Oregon Wheat Growers League annual meeting, Portland, OR. December 3, 1991.

**GRADUATE STUDENT ADVISING**

Graduate committee member for Nevin Lawrence, Ph.D. Student in Department of Crop and Soil Science. Washington State University. Graduation July 2015.

Graduate committee member for Shawn Wetterau, Ph.D. Student in Department of Crop and Soil Science. Washington State University. Expected graduation 2014.

Graduate committee member for Amir Attarian, M.S. Student in Oregon State University Crop and Soil Science Department. Graduation 2013.

Graduate committee member for Dilpreet Singh Riar, Ph.D. Student in Department of Crop and Soil Science. Washington State University. Graduation winter 2009.

Graduate committee member for Jonquil Rood, M.S. Student in Plant Soil and Entomological Sci. University of Idaho. Graduated spring 2009.

Graduate committee member for Alejandro Perez-Jones, Ph.D., O.S.U. Crop and Soil Science Department. Graduated spring 2007.

Major professor for Catherine Tarasoff, Ph.D. O.S.U. Crop and Soil Science Department. Graduated Fall 2006.

Graduate committee member for Eric Jemmett, M.S, Plant Soil and Entomological Sci. University of Idaho. Graduated fall 2006.

Graduate committee member for Lynn Fandrich, Ph.D., O.S.U. Crop and Soil Science Department. Graduated winter 2004.

Graduate committee member for Ed Peachey, Ph.D., O.S.U. Horticulture Department. Graduated, fall 2004.

Graduate committee member for Thomas Ireland, M.S. Plant Soil and Entomological Sci. University of Idaho. Graduated 2003.

Graduate committee member for Kee-Woong Park, Ph.D. O.S.U. Crop and Soil Science Department. Graduated 2003.

Graduate committee member for Curtis Rainbolt, M.S., Plant Soil and Entomological Sci. University of Idaho. Graduated 2001.

Graduate committee member for Khalid Al-Sayagh, Ph.D., O.S.U. Crop and Soil Science Department. Graduated 1999.

Graduate committee member for Farid Sardar, M.S., O.S.U. Crop and Soil Sciences Department. Graduated 1997.

Graduate committee member for Paul Hendrickson, M.S., O.S.U. Crop and Soil Sciences Department. Graduated 1996.

SCHOLARSHIP AND CREATIVE ACTIVITY

A. REFEREED PUBLICATIONS

**Dissertation:**

Ball, D. A. 1987. Influence of Tillage and Herbicides on Row Crop Weed Species Composition. Ph.D. Dissertation. University of Wyoming. Laramie, WY. pp. 157.

Book Chapters:

1. Weeds of the West, Revised 10th edition. 2009. Western Soc. of Weed Sci. Contributing author with a team of western regional members that reviewed and updated this weed identification guide.
2. Ball, D. A. and C. J. Peterson. 2007. Herbicide Tolerance in Imidazolinone-Resistant Wheat for Weed Management in the Pacific Northwest U.S.A. pg. 243-250 in: H. T. Buck et al. (eds.). Wheat Production in Stressed Environments, Springer.
3. Weeds of the West, Revised 9th edition. 2000. Western Soc. of Weed Sci. Contributing author with a team of western regional members that reviewed and updated this weed identification guide.

Journal Articles:

1. Ball, D.A. 2014. Effects of Aminocyclopyrachlor Herbicide on Downy Brome (*Bromus tectorum*) Seed Production under Field Conditions. Invasive Plant Science and Mgmt. 7(4): 561-564.
2. Rood, Jonquil, J. Campbell, D. Thill, D. Ball, L. Bennett, J. Yenish, J. Nelson, R. Rood, B. Shafii, and W. Price. 2012. Tillage Affects Imazamox Carryover in Yellow Mustard. Weed Technology. Vol 26(2): 308-315.
3. Riar, D. S., D. A. Ball, J. P. Yenish, and I. C. Burke. 2011. Light-Activated, Sensor-Controlled Sprayer Provides Effective Postemergence Control of Broadleaf Weeds in Fallow. Weed Technology. Vol. 25(3): 447-453.
4. Young, F. L., D. A. Ball, D. C. Thill, J. R. Alldredge, A. G. Ogg Jr., and S. S. Seefeldt. 2010. Integrated Weed Management Systems Identified for Jointed Goatgrass (*Aegilops cylindrica*) in the Pacific Northwest. Weed Technology. Vol. 24(4): 430-439.
5. Riar, D. S., D. A. Ball, J. P. Yenish, S. B. Wuest, and M. K. Corp. 2010. Comparison of Fallow Tillage Methods in the Intermediate Rainfall Inland Pacific Northwest. Agronomy Journal, Vol. 102(6): 1664-1673.
6. Tarasoff, C. S., D. A. Ball, C. Mallory-Smith, T. G. Pypker, and K. M. Irvine. 2010. Site characteristics associated with Nuttall’s and Weeping alkaligrass in northeastern Oregon. Northwest Science, Vol. 84 (4): 351-360.
7. Tarasoff, C. S., C. Mallory-Smith, and D. A. Ball. 2009. Competitive Effects of Nuttall’s and Weeping Alkaligrass in Kentucky bluegrass. Northwest Science, Vol. 83 (4): 325-333.
8. Jemmett, E. D., D. C. Thill, T. A. Rauch, D. A. Ball, S. M. Frost, L. H. Bennett, J. P. Yenish, and R. J. Rood. 2008. Rattail fescue (*Vulpia myuros*) control in chemical-fallow cropping systems. Weed Technology 22:435-441.
9. Ball, D. A., S. M. Frost, L. Fandrich, C. Tarasoff, and C. Mallory-Smith. 2008. Biological attributes of rattail fescue (*Vulpia myuros*). Weed Science 56:26-31.

1. Ball, D. A., S. M. Frost, L. H. Bennett, D. C. Thill, T. Rauch, E. Jemmett, C. Mallory-Smith, C. Cole, J. P. Yenish, and R. Rood. 2007. Control of rattail fescue (*Vulpia myuros*) in winter wheat. Weed Technology 21(3):583-590.
2. Ball, D. A., S. M. Frost, and L. H. Bennett. 2007. ACCase-inhibitor herbicide resistance in downy brome (*Bromus tectorum*) in Oregon. Weed Science 55:91-94.
3. Tarasoff, C. S., D. A. Ball, and C. Mallory-Smith. 2007. Extreme ionic and temperature effects on germination of weeping alkaligrass, Nuttall’s alkaligrass and Kentucky bluegrass. Weed Science 55:305–310.
4. Tarasoff, C. S., D. A. Ball, and C. Mallory-Smith. 2007. Comparative plant responses of *Puccinellia nuttalliana* and *Puccinellia distans* to sodic versus normal soil types. Journal of Arid Environments 70:403-417.
5. Tarasoff, C. S, D. A. Ball, and C. A. Mallory-Smith. 2007. Afterripening requirements and optimal germination temperatures for Nuttall’s alkaligrass and weeping alkaligrass. Weed Sci. 55(1): 36-40.
6. Tarasoff, C.S., M. Louhaichi, C.A. Mallory-Smith, and D.A. Ball. 2005. Using Geographic Information Systems to Present Non Geographical Data – An Example using a Two-way Thermogradient Plate. Rangeland Ecology and Management 58(2): 315-318.
7. Rainbolt, C. R., D. C. Thill, J. Yenish, and D. A. Ball. 2004. Herbicide-resistant grass weed development in imidazolinone-resistant wheat: Weed biology and herbicide rotation. Weed Technology 18 (3): 860-868.
8. Payne, W. A., C. Chen, and D. A. Ball. 2004. Agronomic Potential of Narrow-Leafed and White Lupins in the Inland Pacific Northwest. Agron. Journal. 96: 1501-1508.
9. Park, Kee Woong, C. A. Mallory-Smith, D. A. Ball, and G. W. Mueller-Warrant. 2004. Ecological fitness of acetolactate synthase inhibitor-resistant and susceptible downy brome (*Bromus tectorum*) biotypes. Weed Science. 52:768-773.

# Rainbolt, Curtis R., Donald C. Thill, Joseph P. Yenish, and Daniel A. Ball. 2004. Herbicide-resistant grass weed development in imidazolinone-resistant wheat: Weed biology and herbicide rotation. Weed Technology. 18:860-868.

1. Ball, D. A., S. M. Frost, and A. I. Gitelman. 2004. Predicting timing of downy brome (Bromus *tectorum*) seed production using growing degree-days. Weed Science 52:518-524.
2. Al Mutlaq, K. F., C. Mallory-Smith, and D. A. Ball.  2003.  Procarbazone-sodium effect on rotational crops and its dissipation in soils.  Research Bulletin No. 120, Agric. Res. Center, King Saud Univ., pp. (5-29). ISBN: 9960-37-583-8.
3. Ball, D. A., J. P. Yenish, and T. Alby III. 2003. Effect of Imazamox Soil Persistence on Dryland Rotational Crops. Weed Technology. 17:161-165.
4. Young, F. L., Yenish, J. P., Walenta, D. L., Ball, D. A., Alldrege, J. R. 2003. Spring-germinating jointed goatgrass produces viable spikelets in spring seeded wheat. Weed Sci. 51:379-385.
5. Walenta, D. L., J. P. Yenish, F. L. Young, and D. A. Ball. 2002. Vernalization response of plants grown from spikelets of spring and fall cohorts of jointed goatgrass. Weed Science. 50: 461-465.
6. Hanson, D. E., D. A. Ball, and C. A. Mallory-Smith. 2002. Herbicide resistance in jointed goatgrass (Aegilops cylindrica): simulated responses to agronomic practices. Weed Technology. 16: 156-163.
7. Rainbolt, D. R., D. C. Thill, and D. A. Ball. 2001. Response of rotational crops to BAY MKH 6561. Weed Technology. 15(2)365-374.
8. Ball, D. A., F. L. Young, and A. G. Ogg Jr. 1999. Selective control of jointed goatgrass with imazamox in herbicide-resistant wheat. Weed Technology. 13(1):77-82.
9. Shinn, S. L., D. C. Thill, W. J. Price, and D. A. Ball. 1998. Response of downy brome and rotational crops to MON 37500. Weed Technology. 12:690-698.
10. Ball, D. A., D. L. Walenta, and P. E. Rasmussen. 1998. Impact of nitrogen fertilization and stubble burning on the downy brome seedbank in a winter wheat-fallow rotation. J. Production Ag. 11:342-344.
11. Ball, D. A., A. G. Ogg Jr., and P. M. Chevalier. 1997. The influence of seeding rate on weed control in small-red lentil. Weed Science. 45(2):296-300.
12. Ball, D. A., D. J. Wysocki, and T. G. Chastain. 1996. Nitrogen Application Timing Effects on Downy Brome and Winter Wheat Growth and Yield. Weed Technology. 10(2): 305-310.
13. Ball, D. A., Betty Klepper, and D. J. Rydrych. 1995. Comparative Above-Ground Development Rates for Several Annual Grass Weeds and Cereal Grains. Weed Science. 43:410-416.
14. Rickman, R. W., Betty Klepper, and D. A. Ball. 1995. An Algorithm for Predicting Grass Crown Root Axes. Agron. J. 87(6):1182-1185.
15. Ball, D.A. and M.J. Shaffer 1993. Simulating Resource Competition in Multispecies Agricultural Plant Communities. Weed Research 35(4):299-310.
16. Ball, D.A. and S.D. Miller 1993. Cropping history, tillage, and herbicide effects on weed flora composition in irrigated corn (Zea mays L.). Agronomy J. 85(4):817-821.
17. Smiley, R. W., W. Uddin, P. K. Zwer, D. J. Wysocki, D. A. Ball, T. G. Chastain, and P. E. Rasmussen. 1993. Influence of crop management practices on physiologic leaf spot of winter wheat. Plant Disease. 77:803-810.
18. Ball, D. A. 1992. Weed Seed Bank Response to Tillage, Herbicides, and Crop Rotation Sequence. Weed Science. 40:654-659.
19. Ball, D.A. and S.D. Miller 1990. Weed seed population response to tillage and herbicide use in three irrigated cropping sequences. Weed Science. 38:511-517.
20. Ball, D.A. and S.D. Miller. 1989. A Comparison of techniques for estimation of arable soil seed banks and relationship to weed flora. Weed Research. 29:365-373.
21. Ferris, H., D.A. Ball, L.W. Beem, and L.A. Gudmundson. 1986. Using Nematode Count Data in Crop Management Decisions. California Agriculture. 40(1):12-14.
22. Ball, D.A. and H. Ferris. 1982. A Technique for Inoculating Field Sites With Meloidogyne Eggs. J. of Nematology. 14(3):420-422.

**Extension Publications:**

1. Ball, D. A., R. Parker, J. Colquhoun, and I. Dami. 2014. Preventing Herbicide Drift and Injury to Grapes. O.S.U. Extension Publication (EM 8860) p. 8.
2. Taylor, R. V., D. A. Ball, and J. Fields. 2012. Zumwalt Old Field Rehabilitation: Status, Effectiveness of Treatments, and Future Plans Project Status Report. The Nature Conservancy, Enterprise, OR. <https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/oregon/Documents/2012-OldFieldRehab-Report.pdf>
3. Ball, D. A. and A. G. Hulting. 2009. Rattail Fescue Biology and Management in Pacific Northwest Wheat Cropping Sytems. PNW Extension Publication (PNW 613). p. 8.
4. Yenish, J. P., D. A. Ball, and R. Schirman. 2009. Integrated Management of Jointed Goatgrass in the Pacific Northwest. Washington State University Extension. Bulletin EB2042. p. 16.
5. Pacific Northwest Weed Control Handbook. 1992 - 2012. Contributing author.
6. Rainbolt, C., D. A. Ball, D. Thill, J. Yenish. 2004. Management Strategies for Preventing Herbicide-Resistant Grass Weeds in Clearfield Wheat Systems. PNW Extension Publication (PNW 572). p. 8.
7. M. Corp, S. Machado, D. Ball, R. Smiley, S. Petrie, M. Siemens, and S. Guy. 2004. [Chickpea Production Guide.](http://eesc.orst.edu/agcomwebfile/edmat/EM8791-E.pdf) OSU Extension Publication (EM8791-E Rev. Jan. 2004).
8. Anderson, R., E. Zakarison,, D. A. Ball, G. Wicks, W. Donald, F. Young, and T. White. 2002. [Jointed Goatgrass Ecology](http://www.jointedgoatgrass.org/Acrobat%20Files/Ecology.pdf). PNW Extension Publication (EB1932) p. 8.
9. Yenish, J., R. Veseth, A. Ogg, D. Thill, D. Ball, F. Young E. Gallandt, D. Morishita, C. Mallory-Smith, D. Wysocki, T. Gohlke. 1998. Managing Downy Brome under Conservation Tillage Systems in the Inland Northwest Crop-Fallow Region. PNW 0509. 15 pp.
10. Young, F., R. Veseth, D. Thill, W. Schillinger, D. A. Ball. 1995. Managing Russian Thistle under Conservation Systems in Crop-Fallow Rotations. PNW Extension Publication (PNW 492). pp12.
11. Young, F., R. Veseth, D. Thill, W. Schillinger, D. A. Ball. 1995. Russian Thistle Management under Conservation Systems in the Pacific Northwest Crop-Fallow Regions. PNW Cons. Tillage Handbook Series. Chapt. 5. No. 16. pp.9.
12. Nesse, P. E. and D. A. Ball. 1994. Downy Brome. PNW Extension Publication (PNW 474). pp 4.
13. Veseth, R., A. Ogg, D. Thill, D. A. Ball, D. J. Wysocki, F. Bailey, T. Gohlke, and H. Riehle. 1994. Managing Downy Brome under Conservation Tillage Systems in the Inland Northwest Crop-Fallow Region. PNW Cons. Tillage Handbook Series. Chapt. 5. No. 15. pp.8.

**Conference and Symposia Proceedings:**

1. Bennett, L. H. D. A. Ball, and D. S. Riar and J. P. Yenish. 2010. Efficacy of postemergence herbicides with a light activated, sensor controlled sprayer in chemical fallow. Proceedings 2010 Western Soc. Weed Sci. pg. 16.
2. Rauch, T., D. Thill, I. Burke, D. Pittman, J. Yenish, R. Rood, D. Ball, L. Bennett. 2010. Winter wheat varieties response to mesosulfuron applied under adverse environmental conditions. Proceedings 2010 Western Soc. Weed Sci. pg. 23.
3. Burke, I., J. Bell, T. Rauch, D. Thill, D. Ball, and J. Yenish. 2010. Detection and persistence of imazethapyr in a Palouse silt loam. Proceedings 2010 Western Soc. Weed Sci. pg. 91.
4. Ball, D. A. 2009. WSWS Presidential Address for 62nd Annual Meeting. Proceedings 2009 Western Soc. Weed Sci. pg. 1.
5. Rauch, T., D. Thill, I. Burke, D. Pittman, J. Yenish, R. Rood, D. Ball, and L. Bennett. 2009. Response of winter wheat varieties to mesosulfuron applied under adverse environmental conditions. Proceedings 2009 Western Soc. Weed Sci. pg. 15.
6. Ball, D. A., J. O. Evans, and G. A. Wicks. 2009. Influence of fallow tillage on jointed goatgrass emergence and competition in winter wheat. Proceedings 2009 Western Soc. Weed Sci. pg. 31.
7. Ball, D. A., and A. G. Ogg. 2009. Prediction and prevention of seed production in jointed goatgrass. Proceedings 2009 Western Soc. Weed Sci. pg. 34.
8. Young, F. L., J. P. Yenish, L. S. Sullivan, D. A. Ball, D. C. Thill, and R. S. Zemetra. 2009. Pacific Northwest USDA-ARS research and Extension activities. Proceedings 2009 Western Soc. Weed Sci. pg. 36.
9. Young, F. L., J. P. Yenish, D. A. Ball, and D. C. Thill. 2009. Integrated management of jointed goatgrass in the Pacific Northwest. Proceedings 2009 Western Soc. Weed Sci. pg. 79.
10. Rood, J., T. Rauch, D. Thill, B. Shafii, D. A. Ball, L. Bennett, J. Yenish, R. Rood, J. Nelson. 2008. Tillage Affects Imazamox Carryover in Yellow Mustard. Proceedings 2008 Western Soc. Weed Sci. pg. 43.
11. Jenks, B., D. A. Ball, and P. Stahlman. 2008. Preplant weed control and wheat tolerance to BAS 800H. Proceedings 2008 Western Soc. Weed Sci. pg. 55.
12. Ball, D. A., B. Jenks, and P. Stahlman. 2008. Broadleaf weed control in chemical fallow with BAS 800H. Proceedings 2008 Western Soc. Weed Sci. pg. 56.
13. Rood, J., T. Rauch, D. Thill, D. A. Ball, S. Frost, L Bennett, J. Yenish, and R. Rood. 2007. Tillage Affects Imazamox Persistence in Soil. Proceedings 2007 Western Soc. Weed Sci. pg. 59.
14. Frost, S., L. Bennett, and D. A. Ball. 2006. Medusahead Rye Control in Rangeland. Proceedings 2006 Western Soc. Weed Sci. pg. 22.
15. Jemmett, E., T. Rauch, D. Thill, D. Ball, S. Frost, L. Bennett, J. Yenish, R. Rood. 2006. Rattail Fescue Control with Glyphosate in Chemical Fallow. Proceedings 2006 Western Soc. Weed Sci. pg. 29.
16. Rauch, T., E. Jemmett, D. Thill, D. Ball, S. Frost, L. Bennett, Carol Mallory-Smith, C. Cole, Yenish, R. Rood. 2006. Rattail Fescue Control in Imazamox-Tolerant Winter Wheat. Proceedings 2006 Western Soc. Weed Sci. pg. 31.
17. Jemmett, E., T. Rauch, D. Thill, D. Ball, S. Frost, L. Bennett, J. Yenish, R. Rood. 2005. Management of Rattail Fescue in Chemical Fallow. Proceedings 2005 Western Soc. Weed Sci. pg. 21.
18. Rauch, T., E. Jemmett, D. Thill, D. Ball, S. Frost, L. Bennett, Carol Mallory-Smith, C. Cole, Yenish, R. Rood. 2005. Rattail Fescue Control in Imazamox-Tolerant Winter Wheat. Proceedings 2005 Western Soc. Weed Sci. pg. 21.
19. Corp, M. K., T. Darnell, D. A. Ball. 2006. Milton Freewater drift taskforce: A case study for solving drift issues locally. Proceedings 2006 Western Soc. Weed Sci. pg. 97.
20. Ball, D. A. 2004. Biology and management of rattail fescue in direct-seed systems. Pg. 93-97 in: NW Direct Seed Cropping Systems Conf. Proceedings. Jan. 7-9, 2004, Pendleton, OR.
21. Corp. M. K., D. A. Ball, M. C. Siemens. 2004. Wheat straw management and its effects on weed populations, stand establishment and yield in direct-seed chickpea. Proceedings 2004 Western Soc. Weed Sci. pg 20.
22. Anderson, R., D. C. Thill, T. Rauch, B. Hanson, D. A. Ball, M. Ensminger, K. Howatt, S. Seefeldt, M. Corp, J. Harbour. 2004. Guides to help producers manage weed resistance. Proceedings 2004 Western Soc. Weed Sci. pg 38.
23. Tarasoff, C. S., D. A. Ball, S. Frost, C. A. Mallory-Smith. 2004. Seed dormancy and germination characteristics of two alkaligrass species: Puccinellia distans and Puccinellia nuttalliana. Proceedings 2004 Western Soc. Weed Sci. pg 43.
24. Ball, D. A. 2004. Biology and management of rattail fescue in direct-seed systems. Pg. 93-97 in: NW Direct Seed Cropping Systems Conf. Proceedings. Jan. 7-9, 2004, Pendleton, OR.
25. Ireland, T. M., D. C. Thill, D. A. Ball, and J. Yenish. 2003. Annual grass control with glyphosate formulations and application timings in direct seed, dryland winter wheat cropping systems in the inland northwest. Proceedings 2003 Western Soc. Weed Sci. pg 77.
26. Ball, D. A., D. C. Thill, M. Ensminger, K. Howatt, S. Seefeldt, P. A. Banks, and R. L. Anderson. 2003. Development of weed resistance as affected by frequency of herbicide application. Proceedings 2003 Western Soc. Weed Sci. pg 89.
27. Ball, D. A., C. Rainbolt, D. C. Thill, J. P. Yenish. 2003. Weed Management Strategies for Clearfield Wheat Systems Across PNW Precipitation Zones. Pg. 90-96 in: NW Direct Seed Cropping Systems Conf. Proceedings. Jan. 8-10, 2003, Pasco, WA.
28. Yenish, J. P., T. Ireland, D. A. Ball, D. C. Thill. 2003. Evaluation of Glyphosate Formulations for Burndown in Direct Seed Systems. Pg. 97-104 in: NW Direct Seed Cropping Systems Conf. Proceedings. Jan. 8-10, 2003, Pasco, WA.
29. Thill, D. C., C. Rainbolt, T. Ireland, J. Campbell, J. Yenish, and D. A. Ball. 2003. Alternatives to Glyphosate as Part of a Resistance Management Strategy. Pg. 105-118 in: NW Direct Seed Cropping Systems Conf. Proceedings. Jan. 8-10, 2003, Pasco, WA.
30. Young, F. L., D. A. Ball, D. C. Thill, J. P. Yenish, J. R. Alldredge. 2002. Integrated management of jointed goatgrass (Aegilops cylindrica) in Pacific Northwest dryland cropping systems. Pg. 284-286 in: XIII Annual Aust. Weed Conf. Proceedings. Sept. 8-12, 2002 Perth, Aust.
31. Rainbolt, C. ,D. C.  Thill, D. A. Ball, J. P. Yenish, and F. Young, 2002.  [Managing Volunteer after Herbicide-Resistant Crops](http://http://pnwsteep.wsu.edu/directseed/conf2k1/dsclprocrainbolt.htm). Proceedings 2001 PNW Direct Seed Conference. pg 115.
32. Ball, D. A., D. Singh, G. J. Harris. 2000. Predicting seed production of Bromus tectorum L. using a simple growing degree-day model (168). Abstracts 3rd International Weed Sci. Congress. Foz Do Iguassu, Brazil.
33. Klepper, B, R. W. Rickman, S. E. Waldman, and D. A. Ball. 1997. Use of Growing Degree Days to Time Root Developmental Events in the Gramineae. p. 282. In: (Altman, Arie and Yoav Waisel, EDS. Biology of Root Formation and Development.) Basic Life Sciences, Volume 65. Plenum Press. New York.
34. Yenish, J. P., D. C. Thill, and D. A. Ball 2000.  [Weed Control Options and Strategies for Direct Seeded Pulse Crops](http://pnwsteep.wsu.edu/directseed/conf99/DS9PROJY.htm). Proceedings 1999 PNW Direct Seed Conference. pg 195.
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C. PROFESSIONAL PRESENTATIONS

**Invited International Presentations:**

1. Herbicide tolerance in imidazolinone-resistant wheat for weed management in the Pacific Northwest. 7th International Wheat Conf. Mar del Plata, Argentina. November 29, 2005.
2. Herbicide resistance issues in the Pacific northwest United States. Seminar presentation in the Department of Agronomy and Agroecology. University of Bueno Aires, Buenos Aires, Argentina. August 23, 2005. 25 participants.
3. Predicting seed production of *Bromus tectorum* using a simple growing degree-day model. Invited speaker, III International Weed Science Congress. Foz Do Iguassu, Brazil. June 7, 2000.
4. Herbicide resistance management strategies. Invited speaker, Monsanto Global Research Update. Banff, Alberta, Canada, September 1, 1999.
5. Weed Management in dryland crops in the western U.S. Invited seminar presenter, China Agricultural University, Beijing, China. March 26, 1999
6. Experiments in wheat/fallow agroecosystems and implications for pest management. Invited speaker, XIII International Plant Protection Congress. The Hague, Netherlands. July 4, 1995.
7. Nitrogen application timing for integrated management of *Bromus tectorum* in winter wheat. Invited poster presenter, XIII International Plant Protection Congress., The Hague, Netherlands. July 4, 1995.

**Invited National and Regional Presentations:**

1. Downy brome plant growth and herbicide resistance modeling. Western Society of Weed Science special symposium. March 15, 2012. Reno, NV. 50 attendees.
2. Glyphosate resistant weeds panel discussion. PNW Direct-Seed Conference, Spokane, WA. February 29, 2012. 75 attendees.
3. Aminocyclopyrachlor herbicide research update. DuPont industry update. July 26, 2011. Salt Lake City, UT. 30 attendees.
4. DuPont MAT28 research symposium. Presented in Sonoma, CA, August 5, 2010.
5. BAS 800H research update. Presented at BASF technical meeting. Raleigh, NC . October 20, 2009.
6. BAS 800H research update. Presented at BASF technical meeting. Raleigh, NC . March 30, 2009.
7. Arysta LifeScience Co. Flucarbazone herbicide technical review. Denver, CO. January 5-6, 2009.
8. Dow AgroSciences pyroxsulam research exchange meeting. Phoenix, AZ. November 17-19, 2008.
9. BAS 800H research update. Presented at BASF technical meeting. Pendleton, OR . June 2, 2008.
10. Arysta LifeScience Co. Flucarbazone herbicide technical review. Denver, CO. January 7-8, 2008.
11. BAS 800H research update. Presented at BASF technical meeting. Lethbridge, Alberta. August 27, 2007.
12. BAS 800H research update. Presented at BASF technical meeting. Lethbridge, Alberta. June 6, 2007.
13. Dow AgroSciences company technical meeting to discuss weed management issues in Pacific northwest wheat. Indianapolis, IN. January 24, 2007. 24 participants.
14. Dryland agriculture and weed management in Argentina, Invited oral presentation for Oregon Society of Weed Science Annual Conference. October 17, 2006.
15. BAS 800H research update. Presented at BASF technical meeting. Raleigh, NC. August 29, 2006.
16. BAS 800H research update. Presented at BASF technical meeting. Lethbridge, Alberta. June 7, 2006.
17. Procarbazone-sodium weed control and effects on Kentucky bluegrass seed production. Invited speaker at a Arvesta Co. technical symposium. Colorado Springs, CO. March 12, 2004.
18. Biology and control of rattail fescue. Invited speaker, PNW Direct Seed Conference, Pendleton OR. January 9, 2004.
19. Biology and control of rattail fescue. Invited speaker, Washington State Weed Control Conference, Yakima, WA. November 6, 2003.
20. Alternatives to glyphosate for weed control in fallow. Invited speaker, Oregon Society of Weed Science. Hood River, OR. October 21, 2003.
21. Trinexapac-ethyl growth regulator effects on Kentucky bluegrass and tall fescue seed production. Invited speaker at a Syngenta Crop Protection Inc. technical symposium. Corvallis, OR. February 25, 2003.
22. Vegetation management during fallow periods in direct-seed cropping systems. Invited presenter at the PNW Direct Seed Conference. Pasco, WA. January 10, 2003.
23. Herbicide-resistant wheat technologies: strategies for weed management and agronomic concerns. Invited workshop speaker. Montana State University Crop Pest Management School. Bozeman, MT. January 8, 2002.
24. Mode of action of sulfonylurea herbicides. Invited speaker, Oregon Society of Weed Science. Hood River, OR. October 23, 2001.
25. Weed management in grass seed production in the Columbia Basin. Invited seminar speaker. Oregon Seed Growers League annual meeting. December 11, 2000.
26. Downy brome management in direct-seed cropping systems. Northwest Direct Seed Cropping Systems Conference. January 5, 2000.
27. Downy brome population response to dryland cropping practices: Implications for management. OSU-CBARC Seminar. November 23, 1999.
28. New trends in canola weed control. Washington State Weed Conference. Yakima, WA. November 4, 1999.
29. Eastern Oregon weed control research update. Oregon Society of Weed Science. Hood River, OR. October 27, 1999.
30. Downy brome population response to dryland cropping practices: Implications for management. USDA-ARS Irrigated Agriculture Research Unit, Prosser, WA. October 8, 1999.
31. Use of Degree Day Models for Fallow Weed Control. IPM in Oregon Conference. Corvallis, OR. April 7, 1999.
32. Control of jointed goatgrass in herbicide-resistant wheat. American Cyanamid Co. technical update. Colorado Springs, CO. November 3, 1998.
33. Weed control in winter wheat with MKH65461. Bayer technical update. Spokane, WA. August 31, 1998.
34. Herbicide combinations for broad-spectrum weed control in winter wheat. Monsanto technical update. Waikoloa, HI. March 12, 1998.
35. Oregon Vegetation Management Society. Weed seed longevity in the soil. Lincoln City, OR. October 22, 1998. 175 attendees.
36. Bayer technical update on MKH 6561 in wheat. Spokane, WA. September 1, 1998. 45 attendees.
37. Predicting seed development time in downy brome: Ecological and Management implications. Presented at Montana State University, Bozeman, MT. April 24, 1997.
38. Predicting seed development time in downy brome: Ecological and Management implications. Presented at Kansas State University, Manhattan, KS. May 5, 1997.
39. Sulfonylurea herbicide injury to canola. Special symposium organized by DuPont Inc. Orlando, FL. February 2, 1997. 65 attendees.
40. STEEP III annual conference. Presented information on current cropping systems research in Pilot Rock, OR. Kennewick, WA. Janurary 8, 1997. 250 attendees.
41. Herbicide resistant weeds in the PNW. Washington State Crop Improvement Association. Spokane, WA. November 19, 1996. 300 attendees.
42. Longevity of weed seeds in the soil. Washington State Weed Conference. Yakima, WA. November 7, 1996. 450 attendees.
43. Monsanto/Academic Technical Seminar, Research progress report on downy brome control in wheat. Denver, CO. August 14, 1995.
44. Sulfonylurea Herbicide Facts and Fiction. Washington State Weed Conference. Yakima, WA. November 4, 1994. 500 attendees.
45. Jointed Goatgrass on the Move. Washington State Weed Conference. Yakima, WA. November 3, 1994. 500 attendees.
46. Jointed Goatgrass Biology and Control. Oregon Society of Weed Science. Bend, OR. October 18, 1994.
47. Downy Brome History, Distribution, and Why it’s a Problem in Conservation Tillage Systems. (Invited Member of a Research Panel). USDA-CSRS STEEP II Annual Conf. Richland, WA. January 5, 1994.
48. Weed Seed Bank Changes under Changing Management. Washington State Weed Conference. Yakima, WA. November 4, 1993.
49. Influence of Seeding Rate and Arrangement on Weed Control in Small Red Lentils. USDA-CSRS Cool Season Food Legume Research Center meeting, Boise, ID. November 2, 1993.
50. Relationship Between Growing Degree Days and Development Rate for Jointed Goatgrass, and Several Other Winter Annual Grasses, and Cereals. USDA-CSRS Jointed Goatgrass Symposium . Denver, CO. October 29, 1993.
51. A Few Comments on Spray Drift Prevention. Oregon Society of Weed Science. Clackamas, OR. October 19, 1993.
52. Postemergence Harrowing for Grass Weed Control in Winter Wheat. Western Society of Weed Science. Tucson, AZ. March 10, 1993.
53. Jointed Goatgrass - Distribution, Biology, and Control. Oregon Society of Weed Science. Bend, OR. October 20, 1992.
54. Weed Seed Bank Response to Tillage and Crop Rotational Sequences. Weed Science Society of America. Orlando, FL. February 12, 1992.
55. Where We Are Headed in Eastern Oregon Weed Control. Oregon Society of Weed Science Annual Meeting. Clackamas, OR. October 16, 1991.

**Poster Presentations:**

1. Ball, D. A., J. O. Evans, and G. A. Wicks. 2009. Influence of fallow tillage on jointed goatgrass emergence and competition in winter wheat. In: Proceedings 2009 Western Soc. Weed Sci. pg. 31.
2. Ball, D. A., and A. G. Ogg. 2009. Prediction and prevention of seed production in jointed goatgrass. In: Proceedings 2009 Western Soc. Weed Sci. pg. 34.
3. Frost, S. M., L. H. Bennett, and D. A. Ball. 2006. Medusahead rye control in rangeland. In: Proc. West. Soc. Weed Sci. 59:22.
4. Jemmett, E., T. Rauch, D. Thill, D. Ball, S. Frost, L. Bennett, J. Yenish, and R. Rood. 2006. Rattail fescue control with glyphosate in chemical fallow. In: Proc. West. Soc. Weed Sci. 59:29.
5. Rauch, T., E. Jemmett, D. Thill, D. Ball, L. Bennett, S. Frost, C. Mallory-Smith, C. Cole, J. Yenish, and R. Rood. 2006. Rattail fescue control in imazamox-tolerant winter wheat. In: Proc. West. Soc. Weed Sci. 59:31.
6. Ball, D. A., S. A. Frost, L. H. Bennett, T. A. Rauch, E. Jemmett, D. C. Thill, J. P. Yenish, and R. Rood. 2005. Management of rattail fescue in chemical fallow. In: Proc. West. Soc. Weed Sci. 58:21.
7. Rauch, T., E. Jemmett, D. Thill, D. Ball, L. Bennett, S. Frost, C. Mallory-Smith, C. Cole, J. Yenish, and R. Rood. 2005. Rattail fescue control in imazamox-tolerant winter wheat. In: Proc. West. Soc. Weed Sci. 58:21.
8. Tarasoff, C., L. Fandrich, C. Mallory-Smith, D. A. Ball, and S. Frost. 2005. Reproductive stategies – A study of rattail fescue seed biology and plant vernalization requirements. In: Proc. West. Soc. Weed Sci. 58:44.
9. Tarasoff, C. S., D. A. Ball, S. Frost, and C. Mallory-Smith. 2004. Seed dormancy and germination characteristics of two alkaligrass species. West. Soc. Weed Sci. March 2004.
10. Corp. M. K., D. A. Ball, M. C. Siemens. 2004. Wheat straw management and its effects on weed populations, stand establishment, and yield in direct-seed chickpea. West. Soc. Weed Sci. March 2004.
11. Campbell, J. M., D. C. Thill, R. Stougaard, D. A. Ball, J. Yenish. 2004. Preplant applied graminicide effects on wheat and barley. In: Proc. West. Soc. Weed Sci. March 2004.
12. D. A. Ball, D. C. Thill, M. Ensminger, K. Howatt, S. Seefeldt, P. A. Banks, and R. L. Anderson. 2003. Development of weed resistance as affected by frequency of herbicide application. West. Soc. Weed Sci. March 2003.
13. Corp, M. K., and D. A. Ball. 2002. Contrasting herbicide treatment costs and effectiveness in controlling Russian thistle and knotweed in winter wheat. West. Soc. Weed Sci. March 2002.
14. Ireland, T. M., D. C. Thill, J. Yenish, and D. Ball. 2002. Annual grass weed control in stubble in the inland northwest: A comparision of glyphosate-containing herbicides. West. Soc. Weed Sci. March 2002.
15. Park, K., C. A. Mallory-Smith, D. A. Ball, and G. W. Mueller-Warrant. 2002. Point mutation confers sulfonylurea resistance to one downy brome biotype but not in another. West. Soc. Weed Sci. March 2002.
16. Park, K., C. A. Mallory-Smith, G. W. Mueller-Warrant, and D. A. Ball. 2001. Growth characteristics of sulfonylurea-resistant and –susceptible downy brome biotypes. West. Soc. Weed Sci. March 2001.
17. Evans, J. O., D. A. Ball, and G. A. Wicks. 2001. Contrasting jointed goatgrass emergence patterns under uniform fallow-tillage across the western United States. West. Soc. Weed Sci. March 2001.
18. Ball, D. A. and C. Mallory-Smith. 2000. Sulfonylurea herbicide resistance in downy brome. West. Soc. Weed Sci. March 2000.
19. Walenta, D. L., J. P. Yenish, F. L. Young, S.S. Seefeldt, D. A. Ball, and E. R. Gallandt. 2000. Jointed Goatgrass Seed Production in Spring Wheat. March 2000.
20. Rainbolt, C. R., D. C. Thill, and D. A. Ball. 2000. Rotational crop response to BAY MKH 6561. March 2000.
21. Young, F. L., S. Seefeldt, J. Yenish, D. Thill, and D. A. Ball. Strategies for Integrated Jointed Goatgrass Management in the Pacific Northwest. West. Soc. Weed Sci. March 1999.
22. P. Hendrickson, C. Mallory-Smith, D. Ball. Primisulfuron effects on rotational crops. West. Soc. Weed Sci. March 1999.
23. D. L. Walenta, J. Yenish, F. Young, S. Seefeldt, E. Gallandt, D. Ball. Jointed goatgrass seed production in spring seeded wheat. West. Soc. of Weed Sci. March 1999.
24. Singh, D., D. A. Ball, J. McMorran. Varietal tolerance of seedling Kentucky bluegrass to primisulfuron and tribenuron. Western Soc. of Weed Sci. March 1999.
25. Ball, D. A., D. J. Wysocki, and T. G. Chastain. Nitrogen Application Timing Effects on Downy Brome and Winter Wheat Growth and Yield. West. Soc. Weed Sci. March 1995.
26. Ball, D. A., D. J. Wysocki, and T. G. Chastain. Nitrogen Application Timing Effects on Downy Brome and Winter Wheat Growth and Yield. STEEP II annual conference. Richland, WA. January 4, 1995.
27. Klepper, Betty, D. A. Ball, and D. J. Rydrych. 1994. Root-Shoot Developmental Rates and Relationships in Grasses. Am. Soc. Plant Physiologists annual meeting. Portland, OR. August 1, 1994
28. Klepper, Betty, D. A. Ball, and D. J. Rydrych. 1993. Root-Shoot Developmental Relations in Eight Grass Species. Am. Soc. Agronomy annual meetings. Cincinnati, OH. November 7, 1993.
29. Ball, D. A., and M. J. Shaffer. A Computer Model for Simulation of Plant Competition in Agricultural Plant Communities. Am. Soc. of Agron. annual meetings. San Antonio, TX. October 24, 1990.
30. Shaffer, M. J., M. K. Brodahl, and D. A. Ball. NLEAP Model: Description and Validation. Am. Soc. of Agron. annual meetings. San Antonio, TX. October 24, 1990.
31. Ball, D. A., and M. J. Shaffer. Simulation of Plant Community Interactions in Annual Row Crop Systems.Am. Soc. of Agron.annual meetings. Las Vegas, NV. October 15, 1989.

D. RESEARCH GRANTS, CONTRACTS, AND GIFTS

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| **Year** | **Amount** | **Funding Agency (Principal Investigator)** | **Research Topic** |
| 2012 | $24,650 | Various Agrichemical Co. | Herbicide Research |
| 2011 | $15,000 | Oregon Wheat Commission (Hulting, Ball, Mallory-Smith) ($52,065) | Wheat Weed Research |
| 2011 | $24,999 | USDA-STEEP (Burke, Pan, Ball, etc.) (~$150,000) | Management Strategies for CRP to Crop Transition |
| 2011 | $35,800 | Various Agrichemical Co. | Herbicide Research |
| 2010 | $27,000 | WA State Turfgrass Seed Commission | Grass Seed Research |
| 2010 | $22,800 | Oregon Wheat Commission ($55,765) | Wheat Weed Research |
| 2010 | $55,651 | Various Agrichemical Co. | Herbicide Research |
| 2010 | $18,982 | USDA-CSREES-GSCSSA (Hamm, Ball, Horneck, Rondon) ($77,901) | Maintaining profitability of grass seed production in the Columbia Basin |
| 2009 | $35,000 | WA State Turfgrass Seed Commission | Grass Seed Research |
| 2009 | $20,000 | Oregon Wheat Commission | Wheat Weed Research |
| 2009 | $58,750 | Various Agrichemical Co. | Herbicide Research |
| 2008 | $1,000 | Columbia Basin Grass Seed Assoc. | Grass Seed Research |
| 2008 | $19,400 | Oregon Wheat Commission | Wheat Weed Research |
| 2008 | $14,000 | Monsanto Company | Canola Research |
| 2008 | $52,638 | Various Agrichemical Co. | Herbicide Research |
| 2007 | $8,550 | Columbia River Seed Inc. | Grass Seed Research |
| 2007 | $5,000 | Columbia Basin Grass Seed Assoc. | Grass Seed Research |
| 2007 | $20,000 | Oregon Wheat Commission | Wheat Weed Research |
| 2007 | $10,000 | Washinton Turfgrass Seed Commission | Grass Seed Research |
| 2007 | $13,000 | Monsanto Company | Canola Research |
| 2007 | $67,663 | Various Agrichemical Co. | Herbicide Research |
| 2006 | $55,962 | USDA-CSREES-STEEP (Ball, Yenish, Corp) | Developing chemical fallow systems |
| 2006 | $20,000 | Oregon Wheat Commission (Ball) | Eastern Oregon Weed Control in Wheat |
| 2006 | $17,000 | USDA-CSREES-GSCSSA (Hamm, Ball, Horneck, Rondon) | Maintaining profitability of grass seed production in the Columbia Basin |
| 2006 | $20,000 | Washington State Turfgrass Seed Commission (Ball) | Herbicides for weed control in grass seed production |
| 2006 | $15,250 | Washington State Commission on Pesticide Registration (Ball) | Herbicides for weed control in grass seed production |
| 2006 | $5,000 | Columbia Basin Grass Seed Association (Ball) | Herbicides for weed control in grass seed production |
| 2006 | $36,850 | Various Agricultural Chemical Companies (Ball) | Weed Control Trials |
| 2005 | $7,500 | Washington State Turfgrass Seed Commission | Herbicides for weed control in grass seed production |
| 2005 | $19,500 | Oregon Wheat Commission | Eastern Oregon Weed Control in Wheat |
| 2005 | $13,500 | USDA-CSREES-GSCSSA (Hamm, Ball, Horneck) | Maintaining profitability of grass seed production in the Columbia Basin |
| 2005 | $17,000 | Washington State Commission on Pesticide Registration (D.A.Ball) | Herbicides for weed control in grass seed production |
| 2005 | $36,600 | Various Agricultural Chemical Companies (D. A. Ball) | Weed Control Trials |
| 2004 | $53,499 | USDA-CSREES-STEEP III (Ball, Mallory-Smith, Thill, Yenish) | Rattail fescue management in direct-seed dryland wheat |
| 2004 | $18,000 | Oregon Wheat Commission (D.A. Ball) | Eastern Oregon Weed Control in Wheat |
| 2004 | $13,500 | USDA-CSREES-GSCSSA (Hamm, Ball, Horneck) | Maintaining profitability of grass seed production in the Columbia Basin |
| 2004 | $17,500 | Washington State Commission on Pesticide Registration (D.A.Ball) | Herbicides for weed control in grass seed production |
| 2004 | $12,000 | USDA-CSREES-GSCSSA (Hamm, Ball, Horneck) | Maintaining profitability of grass seed production in the Columbia Basin |
| 2004 | $5,000 | Washington Turfgrass Seed Commission (D. A. Ball) | Grass weed control in Columbia Basin grass seed production |
| 2004 | $5,000 | Columbia Basin Grass Seed Association (D. A. Ball) | Grass weed control in Columbia Basin grass seed production |
| 2004 | $3,825 | Oregon Seed Council (Oregon Department of Agriculture) (D. A. Ball) | Grass weed control in Columbia Basin grass seed production |
| 2004 | $45,200 | Various Agricultural Chemical Companies (D. A. Ball) | Weed Control Trials |
| 2003 | $2,500 | Agricultural Research Foundation (M. Corp, S. Machado, D. Ball) | Residue management in direct seed chickpea production |
| 2003 | $5,175 | Oregon Dept. of Agriculture Alternatives to Field Burning Program (D.A. Ball) | Maintaining profitability of grass seed production in Columbia Basin of OR |
| 2003 | $20,360 | Washington State Commission on Pesticide Registration (D.A.Ball) | Herbicides for weed control in grass seed production |
| 2003 | $7,500 | Oregon Wheat Commission (D.A. Ball) | Eastern Oregon Weed Control in Wheat |
| 2003 | $45,700 | Various Agricultural Chemical Companies (D. A. Ball) | Weed Control Trials |
| 2002 | $3750 | Oregon Dept. of Agriculture Alternatives to Field Burning Program (D.A. Ball) | Maintaining profitability of grass seed production in Columbia Basin of OR |
| 2002 | $7,500 | Oregon Wheat Commission (D.A. Ball) | Eastern Oregon Weed Control in Wheat |
| 2002 | $10,207 | USDA-CSREES-GSCSSA (Hamm, Ball, Horneck) | Maintaining profitability of grass seed production in the Columbia Basin |
| 2002 | $13,500 | Washington State Commission on Pesticide Registration (Ball, Hamm) | Herbicides for weed control in grass seed production |
| 2002 | $27,668 | USDA-CSREES STEEP III (Yenish, Thill, Ball) | Vegetation Management with herbicides during fallow in direct-seed wheat |
| 2002 | $10,000 | Agricultural Research Foundation (D.A. Ball) | Minor grass weeds in Grande Ronde Valley grass seed production. |
| 2002 | $5,000 | USDA-CSREES Jointed Goatgrass Program (J. Evans) | Fallow Tillage Influence on Jointed Goatgrass (Moro) |
| 2002 | $14,000 | Various Agricultural Chemical Companies (D. A. Ball) | Weed Control Trials |
| 2001 | $14,750 | Oregon Wheat Commission (D.A. Ball) | Eastern Oregon Weed Control in Wheat |
| 2001 | $13,500 | Washington State Commission on Pesticide Registration (Ball, Hamm) | Herbicides for weed control in grass seed production |
| 2001 | $9,200 | USDA-CSREES STEEP III (Yenish, Thill, Ball) | Vegetation Management with fallow herbicides in direct-seed wheat |
| 2001 | $15,000 | Oregon Dept. of Agriculture Alternatives to Field Burning Program (D.A. Ball) | Herbicides for weed control in grass seed production |
| 2001 | $5,000 | USDA-CSREES Jointed Goatgrass Program (J. Evans) | Fallow Tillage Influence on Jointed Goatgrass (Moro) |
| 2001 | $44,500 | Various Agricultural Chemical Companies (D. A. Ball) | Weed Control Trials |
| 2000 | 14,750 | Oregon Wheat Commission (D.A. Ball) | Eastern Oregon Weed Control in Wheat |
| 2000 | $20,810 | Oregon Dept. of Agriculture Alternatives to Field Burning Program (D.A. Ball) | Herbicides for weed control in grass seed production |
| 2000 | $12,800 | American Cyanamid Co. | Herbicide-resistant wheat |
| 2000 | $7,600 | USDA-CSREES Jointed Goatgrass Program (Frank Young) | Integrated Management of Jointed Goatgrass (Gooseberry) |
| 2000 | $5,000 | USDA-CSREES Jointed Goatgrass Program (J. Evans) | Fallow Tillage Influence on Jointed Goatgrass (Moro) |
| 2000 | $22,700 | Various Agricultural Chemical Companies (D. A. Ball) | Weed Control Trials |
| 1999 | $10,400 | Oregon Wheat Commission (D.A. Ball) | Eastern Oregon Weed Control in Wheat |
| 1999 | $35,200 | Various Agricultural Chemical Companies (D. A. Ball) | Weed Control Trials |
| 1999 | $20,000 | Washington State Commission on Minor Use Pesticides (D.A. Ball) | Herbicides for weed control in grass seed production |
| 1999 | $12,800 | American Cyanamid Co. | Herbicide-resistant wheat |
| 1999 | $7,700 | USDA-CSREES Jointed Goatgrass Program (Frank Young) | Integrated Management of Jointed Goatgrass (Gooseberry) |
| 1999 | $7,500 | Various Agricultural Chemical Companies (D. A. Ball) | Weed Control Trials |
| 1999 | $5,000 | USDA-CSREES Jointed Goatgrass Program (J. Evans) | Fallow Tillage Influence on Jointed Goatgrass (Moro) |
| 1998 | $50,552 | USDA-CSREES STEEP III (D.A. Ball) | Conservation Systems for Downy Brome Management (Pilot Rock) |
| 1998 | $47,000 | Oregon Wheat Commission (D.A. Ball) | Eastern Oregon Weed Control in Wheat |
| 1998 | $25,000 | Various Agricultural Chemical Companies (D. A. Ball) | Weed Control Trials |
| 1998 | $20,000 | Washington State Commission on Minor Use Pesticides (D.A. Ball) | Herbicides for weed control in grass seed production |
| 1998 | $7,600 | USDA-CSREES Jointed Goatgrass Program (Alex Ogg Jr.) | Integrated Management of Jointed Goatgrass |
| 1998 | $5,000 | USDA-CSREES Jointed Goatgrass Program (J. Evans) | Fallow Tillage Influence on Jointed Goatgrass |
| 1997 | $12,500 | American Cyanamid Co. (D.A. Ball) | Herbicide-resistant wheat |
| 1997 | $10,947 | Oregon Department of Agriculture (D. A. Ball) | Downy Brome Control in Grass Seed Production Systems |
| 1997 | $46,900 | Oregon Wheat Commission (D.A. Ball) | Eastern Oregon Weed Control in Wheat |
| 1997 | $7,500 | USDA-CSREES Jointed Goatgrass Program (Alex Ogg Jr.) | Integrated Management of Jointed Goatgrass |
| 1997 | $43,800 | Various Agricultural Chemical Companies (D. A. Ball) | Weed Control Trials |
| 1997 | $13,000 | Washington State Commission on Minor Use Pesticides (D.A. Ball) | Herbicides for weed control in grass seed production |
| 1996 | $46,500 | Oregon Wheat Commission (D.A. Ball) | Eastern Oregon Weed Control in Wheat |
| 1996 | $34,034 | Oregon Department of Agriculture Alternatives to Field Burning Program (D. A. Ball) | Downy Brome Management in Kentucky Bluegrass |
| 1996 | $7,000 | USDA-CSREES Jointed Goatgrass Program  (A. Ogg) | Integrated Management of Jointed Goatgrass |
| 1996 | $39,750 | Various Agricultural Chemical Companies  (D. A. Ball) | Weed Control Trials |
| 1995 | $40,000 | USDA-CSRS STEEP II (D. A. Ball) | Dryland Cropping Systems for Downy Brome Control |
| 1995 | $46,500 | Oregon Wheat Commission (D.A. Ball) | Eastern Oregon Weed Control in Wheat |
| 1995 | $17,500 | USDA-CSREES Jointed Goatgrass Program | Prediction, and Prevention of Seed Production in Jointed Goatgrass |
| 1995 | $10,000 | E.I. DuPont Inc. (D. A. Ball) | Injury to Canola from Sulfonylurea Herbicides |
| 1995 | $16,500 | Various Agricultural Chemical Companies (D. A. Ball) | Weed Control Trials |
| 1994 | $40,000 | USDA-CSRS STEEP II (D. A. Ball) | Dryland Cropping Systems for Downy Brome Control |
| 1994 | $ 4,400 | USDA-CSRS STEEP II (D. A. Ball) | Integrated Weed and Nitrogen Management |
| 1994 | $32,500 | Oregon Wheat Commission (D.A. Ball) | Eastern Oregon Weed Control in Wheat |
| 1994 | $20,000 | USDA-CSRS National Jointed Goatgrass Steering Committee (D. A. Ball) | Prediction, and Prevention of Seed Production in JGG. |
| 1994 | $ 3,368 | ITT (S. R. Radosevich) | Night Tillage to Reduce Weed Seed Germination |
| 1994 | $ 2,000 | Oregon State Economic Development Funds (G. Clough) | Weed Control in Onions |
| 1994 | $13,500 | Various Agricultural Chemical Companies (D. A. Ball) | Weed Control Trials |
| 1993 | $10,573 | USDA-CSRS Strategies to Replace Dinoseb in Horticultural Crops (D.A. Ball) | Green Pea Weed Management |
| 1993 | $21,000 | USDA-CSRS Cool-Season Food Legume Research Center (D.A. Ball) | Red-Lentil Weed Management |
| 1993 | $23,000 | USDA-CSRS STEEP II (D.A. Ball) | Integrated Weed and Nitrogen Management |
| 1993 | $30,000 | Oregon Wheat Commission (D.A. Ball) | Eastern Oregon Weed Control in Wheat |
| 1993 | $ 6,000 | Various Agricultural Chemical Companies (D.A. Ball) | Weed Control Trials |
| 1992 | $ 6,000 | Boise Cascade Company (D.A. Ball) | Weed Control in Hybrid Cottonwood Plantations |
| 1992 | $10,600 | USDA-CSRS Strategies to Replace Dinoseb in Horticultural Crops (D.A. Ball) | Green Pea Weed Management |
| 1992 | $24,350 | USDA-CSRS Cool-Season Food Legume Research Center (D.A. Ball) | Red-Lentil Weed Management |
| 1992 | $28,000 | USDA-CSRS STEEP II (D.A. Ball) | Integrated Weed and Nitrogen Management |
| 1992 | $10,000 | Oregon Wheat Commission (D.A. Ball) | Eastern Oregon Weed Control in Wheat |
| 1992 | $17,600 | Various Agricultural Chemical Companies (D.A. Ball) | Weed Control Trials |
| 1991 | $24,350 | USDA-CSRS Cool Season Food Legume Research Center (D.A. Ball) | Red-Lentil Weed Management |
| 1991 | $33,000 | USDA-CSRS STEEP II (D.A. Ball) | Integrated Weed and Nitrogen Management |
| 1991 | $10,000 | Oregon Wheat Commission (D.A. Ball) | Weed Control in Eastern Oregon Wheat |

SERVICE

A. COLUMBIA BASIN AGRICULTURAL RESEARCH CENTER (CBARC)

* CBARC Field Day Lunch Sponsorship Committee Member. 1991-present.
* CBARC Computer Committee Member. 1993 - present
* CBARC Field Day Special Report Committee Chair. 1993 - 1994.
* Editor of 1995 Columbia Basin Agri. Research Annual Report. 1995. O.S.U. Special Rpt. 946.
* Editor of 1994 Columbia Basin Agri. Research Annual Report. 1994. O.S.U. Special Rpt. 933.
* Editor of 1993 Columbia Basin Agri. Research Annual Report. 1993. O.S.U. Special Rpt. 909.

B. DEPARTMENT OF CROP AND SOIL SCIENCE

* Promotion Committee for Fara Brummer Dept. of Agricultural Education 2012
* Departmental Promotion and Tenure Committee. 2008-2011.
* Weed Science Assistant Professor, Ontario, Position Search Committee Member. 2006.
* Weed Science Extension Specialist, Position Search Committee Member. 2000.
* Weed Science Assistant Professor, Position Search Committee Member. 1994.
* Reviewed Manuscripts for Research and Extension Publications, 1991- present.

C. OREGON STATE UNIVERSITY

* Information Services Planning Committee. 1995.

D. PROFESSIONAL SERVICE

* Western Society of Weed Science Nominations Committee Chair 2011-2012.
* Oregon Society of Weed Science President 2010-2011.
* Western Society of Weed Science President. 2008-2009.
* USDA-CSREES National Jointed Goatgrass Research Initiative Steering Committee. 2000-2008.
* Western Society of Weed Science President-Elect. 2007-2008.
* Western Society of Weed Science Research Section Chair. 2003-2004.
* Western Society of Weed Science Research Section Chair-elect. 2002-2003.
* Western Society of Weed Science Education and Regulatory Section Chair. 1998-1999.
* Western Society of Weed Science Education and Regulatory Section Chair-elect. 1997-1998.
* Weed Science Society of America Graduate Student Award Subcommittee Chairman 1997.
* Weed Science Society of America Graduate Student Award Subcommittee 1994-1999.
* Western Society of Weed Science resistance management committee. 2000-2003.
* Western Society of Weed Science Weeds of the West book revision committee. 1999-2000.
* Western Society of Weed Science Executive Committee (Extension and Regulatory). 1999.
* Western Society of Weed Science Student Paper Judging Committee Chairman 1996.
* Western Society of Weed Science Student Paper Judging Committee 1993-1995.
* Western Society of Weed Science Research Project #7 (Alternative Weed Control Methods) Committee Chair 1994.
* Western Society of Weed Science Research Project #7 Committee. 1993 .
* WCC-77 Biology and Control of Winter Annual Grass, Chair and meeting organizer, 2001.
* WCC-77 Biology and Control of Winter Annual Grass, Committee Chairman 1997.
* WCC-77 Biology and Control of Winter Annual Grass, Secretary 1991-1993.
* WCC-77 Biology and Control of Winter Annual Grass, OR Representative 1991-present.
* WCC-51 Pesticide Application Technologies, OR Representative 1992-1995.
* Oregon Society of Weed Science, President 1996.
* Oregon Society of Weed Science, President-Elect 1995.
* Oregon Society of Weed Science, Annual Meeting Program Chair, 1995.
* Oregon Society of Weed Science 2nd Vice President 1994.
* Oregon Society of Weed Science Local Arrangements Committee 1994.
* Oregon Society of Weed Science Board of Directors 1992-present.
* Pacific Northwest Weed Workers Secretary/Chairman 1994.
* Pacific Northwest Weed Workers Local Arrangements 1992-present.
* Member, Washington State Department of Agriculture Chemical Drift Task Force 1994.

E. COMMUNITY SERVICE

* City of Pendleton Downtown Development Public Advisory Committee 2010-2011.
* Oregon State Soccer Association High school referee. 1994 - 2001.
* Pendleton Jr. High Student Tour of Pendleton Experiment Station. May 2, 1992. 35 attendees.
* State FFA Youth Tour, Pendleton Experiment Station. October 23, 1991. 55 attendees.
* Vice President, Carson Valley Kiwanis Club. Gardnerville, NV 1984.
* Secretary, Carson Valley Kiwanis Club. Gardnerville, NV 1983.
* Member Nevada State Fair Board of Directors. 1983-1984.
* Vice President, Douglas County Fair Board. Minden, NV 1983.

HONORS AND AWARDS

* Oregon Wheat Growers League, Above and Beyond Award, 2012
* Oregon Society of Weed Science, Distinguished Service Award, 2012
* American Society of Agronomy 2010 Extension Educational Materials Certificate of Excellence Presented to D. A. Ball and A. G. Hulting in recognition of Extension Bulletin PNW 613 “Rattail fescue: Biology and management in PNW wheat cropping systems”.
* Nominated for National Association of Wheat Growers Excellence in Research Award by Oregon Wheat Growers League 2000.
* Oregon Society of Weed Science, President 1996.
* Nominated Outstanding Dissertation in Biological Sciences. University of Wyoming, 1987.
* Epsilon Sigma Phi Outstanding Young Extension Worker. University of Nevada, 1984.

**List of all cases in the last 10 years which the witness offered expert opinion or testified as an expert by deposition.**

Expert Witness 2014:

In the matter of Gilbert Hintz v. Jorde Certified Seed LLC

US District Court for Eastern District of Washington

Case No. CV-13-100-TCR

Expert Witness 2013:

In the Matter of Bryan L. Jones

OAH Case No.: 1203027

Agency Case Nos.: 110241, 110569

DOJ File No. 603-714-GN0244-11

Expert Investigation 2012:

Prepared for: Harold B. Thomas, Investigator 2012

Oliver, Thomas, Caeton, Pierce & Patty Investigations

9493 North Fort Washington Road # 102

Fresno, CA 93730

Re: Rad Farms Application, LLC

Expert Witness 2009:

In the Matter of Kevin and Karen Kohlman v. Roseburg Forest Products Co.

Circuit Court of OR for Douglas County

Case No. 05CV5475CC

Expert Witness 2009:

In the Matter of Cameron and Comfort v. McDonald Agri-Services Ltd

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