

**Circulim Verta**

**for**

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## Lawrence E. Steckel

### A-2. Educational History and Employment History

<b>A-2.1 Education History</b>	2003	<b>Ph.D.</b>	Crop Sciences	<b>University of Illinois</b>
	1989	<b>M.S.</b>	Agronomy	<b>University of Missouri</b>
	1987	<b>B.S.</b>	Agronomy	<b>Western Illinois University</b>

### A-2.2 Employment History

<b>Professor Extension (75%)/Research (25%)</b>	University of Tennessee Plant Sciences Department	2013 - Present
<b>Associate Professor Extension (75%)/Research (25%)</b>	University of Tennessee Plant Sciences Department	2008 - 2013
<b>Assistant Professor Extension (75%)/Research (25%)</b>	University of Tennessee Plant Sciences Department	2003 - 2008
<b>Graduate Research/Teaching Assistant</b>	University of Illinois Weed Science	2000 - 2003
<b>Field Sales Agronomist</b>	Pioneer Hi-Bred Intl. Southern Illinois	1989 - 1999
<b>Graduate Research/Teaching Assistant</b>	University of Missouri Weed Science	1987 - 1989
<b>Technical Service Intern</b>	Dow Corp. Agricultural Division, Iowa Territory	1986
<b>Undergraduate Research Assistant</b>	Western Illinois University Agronomy	1983 - 1987

### A-3. Statement of Responsibility

My appointment is 75% Extension and 25% Tennessee Agricultural Experiment Station with responsibility for row crop weed management. Extension duties include providing weed management information and recommendations to county adult agricultural agents, growers, crop consultants, agribusiness organizations, state and federal agencies, commodity groups, the media, life sciences companies and the scientific community concerned with weed management issues.

Research duties include developing economically and environmentally sustainable weed management systems for major agronomic crops of Tennessee and disseminating information to appropriate clientele. To accomplish this goal, applied research is conducted to address current and potential weed management challenges of row crop producers.

## B. Extension Ability and Effectiveness

### B-3. Non-Credit Instruction (67 Total)

1. Noncredit instruction (seminar series, workshops, faculty and/or staff training, journal clubs, etc.) <i>Provide descriptive titles of activity, your involvement, number of students or participants involved, number and duration of each session.</i>				
Descriptive Title including Dates <i>Insert or delete rows as needed.</i>	Involvement (Total, Coordinator, Team, Guest)	Number of students or participants	Number of Sessions	Duration of each session (hours)
Delta Wide Weed Workshop 10/5-10/6/2003 Jackson, TN. Round table discussion of weed control issues with university colleagues from all states adjoining the Mississippi River.	Team	67	1	4
Field Crop In-service Training (West TN) 1/12/2004 Weed control update in cotton, corn and soybeans.	Team	63	1	0.5
Field Crop In-service Training (Middle TN) 1/23/2004 Weed control update in corn and soybeans.	Team	32	1	4
Tennessee Agricultural Production Association 2/3/2004 Glyphosate-resistant horseweed management.	Guest	67	1	0.5
Weed Control Manual Committee Meeting 2/10/2004 Chaired committee to update the weed control manual.	Total	9	1	6
Glyphosate-Resistant Horseweed Management Workshop 7/14/2004. Discussed results from our research with colleagues from academia.	Guest	65	1	6
Weed Control Manual Committee Meeting 8/9/2004 Chaired committee to update the weed control manual.	Team	8	1	6
Delta-Wide Weed Workshop 10/5-10/6/2004. Crawley, LA. Round table discussion of weed control issues with university colleagues from all states adjoining the Mississippi River.	Team	38	1	6
Field Crop In-service Training (West TN) 1/12/2005. Weed control update in cotton, corn and soybeans.	Team	65	1	1
Tennessee Agricultural Production Association 2/1/2005. Presentation on glyphosate-resistant horseweed management in soybeans and cotton.	Guest	65	1	1
President and Dean's Tour of Station 5/5/2005. Update to UT administration on row crop weed control research.	Team	10	1	0.25
Weed Control Manual Committee Meeting 8/30-8/31/2005. Chaired committee to update the weed control manual.	Team	8	1	6
Monsanto Weed Resistance Workshop 9/29-9/30/2005. Update on glyphosate-resistant horseweed and glyphosate-tolerant pigweed findings in Tennessee.	Guest	60	2	5
Monsanto Roundup Ready Flex Workshop 10/18-10/19/2005. Update on the launch of Roundup Ready Flex Technology in cotton.	Guest	42	2	4
Field Crop In-service Training (West TN) 1/12/2006. Weed control update in cotton, corn and soybeans.	Team	65	1	1
Weed Control Manual Committee Meeting 8/24/2006. Chaired committee to update the weed control manual.	Team	8	1	8
Young Ag Leaders Tour 9/27/2006. Update on weed control research in cotton.	Team	23	1	0.5
Delta-Wide Weed Workshop 10/5-10/6/2006. Round table discussion of weed control issues with university colleagues from all states adjoining the Mississippi River.	Team	28	1	6

Field Crop In-service Training 1/4/2007. Weed control in corn, soybeans and wheat.	Team	55	1	1
Field Crop In-service Training 1/5/2007. Weed control update in cotton.	Team	48	1	0.5
Central TN Field Crop In-service Training 1/25/2007. Weed control update in corn and soybeans.	Team	25	1	1
BioFuels Conference - Switchgrass Production 1/30/2007. Gave two presentations: First was on aspects of agronomic production of switchgrass. The second was on weed control in switchgrass.	Team	200+	1	1
Tennessee Agriculture Pesticide Association – CCA Training 2/5/2007. Presentation on new developments in weed control.	Team	68	1	1
DuPont Crop Consultant Workshop 3/1/2007. Update on DuPont's new glyphosate resistant gene, GAT.	Guest	30	1	1
Glyphosate Stewardship Symposium 3/20 to 3/21/2007. Provided update on glyphosate-resistant weed issues from the southern perspective.	Team	112	1	0.75
Weed Control Manual Committee Meeting 8/14-8/15/2007. Chaired committee to update the weed control manual.	Team	18	1	8
Field Crop In-service Training 8/6/2008. Weed control update in cotton.	Team	16	1	0.25
Soybean In-service at Research and Education Center at Milan 8/30/2007 Herbicide-resistant weed update.	Team	21	1	0.25
West TN Row Crop Inservice 12/7/2007.	Team	60	1	1
Middle TN Row Crop Inservice 1/25/2008.	Team	45	1	1
Soybean scout school 6/25/2008.	Team	56	2	0.5
Soybean scout school 6/26/2008.	Team	52	2	0.5
Mid-South COOP GR weed training 8/22/2009	Guest	14	1	2
Soybean scout schools Dyer Fayette 6/1/2009.	Team	66	2	0.5
Soybean scout schools Cannon Giles 6/14/2009.	Team	85	2	0.5
Soybean scout schools Dyer Weekly 7/1/2009.	Team	66	2	0.5
Weed Management In-service Training Middle TN Waynesboro. 1/8/2009.	Team	21	1	0.5
Weed Management In-service Training Middle TN Jackson. 1/9/2009.	Team	35	1	0.5
Field Crop In-service Training 8/6/2009. Weed control update in cotton.	Team	45	1	0.25
Beltwide cotton conference; Consultants Conference 1/4/10. New Orleans, LA. Impact of burndown herbicide programs on weeds.	Invited	181	1	0.5
Weed Management In-service Training Middle TN Alcoa. 2/17/2010.	Team	18	1	0.5
Weed Management In-service Training Middle TN Jackson. 2/18/2010.	Team	24	1	0.5
GR weed management update for Argentina and Brazilian crop consultants. Fauz de Iguacu. 3/1/2010.	Guest	95	1	0.5
Soybean scout schools Dyer Fayette 7/1/2010.	Team	64	2	0.5
Weed Control Manual Committee Meeting 8/12/2010. Chaired committee to update the weed control manual.	Team	18	1	8
Mid-South COOP GR weed training 8/24/2010. Pickwick TN.	Guest	18	1	3
Drexel GR weed training 9/21/2010. Tunic MS.	Guest	23	1	1

Middle TN In-service. 12/7/10.	Team	25	1	.5
NACD GR weed discussion 12/8/10. WTREC	Guest	180	1	1
West TN In-service. 12/9/10. WTREC	Team	53	1	1
COOP GR Weed training 12/9/10. Tunica, MS.	Guest		1	1
Weed Olympics. Played farmer with field problem. Knoxville, TN. 7/27/11.	Team	12	1	0.5
West TN In-service. 1/12/12. WTREC	Team	58	1	1
Middle TN In-service. 1/19/12. Murfreesboro, TN	Team	48	1	1
West TN In-service. 12/10/13. WTREC	Team	55	1	1
Middle TN In-service. 1/12/13. Murfreesboro, TN	Team	44	1	1
West TN In-service. 12/9/13. WTREC	Team		1	1
Middle TN In-service. 1/12/13. Murfreesboro, TN	Team		1	1

**B-4. Extension Presentations (694 Total) (>35,704 contacts since 2008)**

2. Extension and outreach instruction. (Instruction delivered to Extension clientele [not Extension employees]). *Provide descriptive title of activity, your involvement, number of students or participants involved, number and duration of sessions.*

Descriptive Title including Dates <i>Insert or delete rows as needed.</i>	Involvement (Total, Coordinator, Team, Guest)	Number of students or participants	Number of Sessions	Duration of each session (hours)
Fayette County Cotton Weed Control Meeting 1/20/2004. Weed management research update in cotton.	Team	35	1	0.5
Dyer County Weed Control Update 1/29/2004. Presentation on new weed management technology.	Team	59	1	0.5
Cannon County Grain Crop Management 1/29/2004. Presentation on weed management in corn, soybeans and wheat.	Team	57	1	0.5
Obion County 2/2/2004. (Farm School) Presentation on weed resistance management.	Guest	104	1	1
Tennessee Grain Conference 2/5/2004. Management of glyphosate-resistant horseweed in soybean.	Team	350	1	0.5
Crockett County Cotton Management Update 2/6/2004. Presentation on preventing glyphosate-resistant weeds from becoming established and managing glyphosate-tolerant Palmer pigweed.	Team	35	1	0.5
Humphreys County Weed Control Update 2/16/2004. Presentation on weed management in cotton, corn and soybeans.	Team	21	1	0.5
Tennessee Farmers Coop Weed Management Update 2/18-2/20/2004 A meeting in East, Middle and West Tennessee to COOP employees with updates on weed control in corn, soybeans, wheat, pastures, tobacco and herbicide resistance management.	Total	238	3	6
Cotton Focus Meeting 2/19/2004. Presentation on pigweed identification and management.	Team	320	1	0.5
Lawrence County Weed Management in Row Crops 2/23/2004. Weed control updates in cotton, corn and soybeans.	Team	26	1	0.5
Lincoln County Producer Meeting 2/23/2004. Round table discussion on weed control issues of most concern to the producers present.	Team	15	1	0.5
Weakley County Row Crop Meeting 2/24/2004. Presentation on hard to control weeds in corn.	Team	26	1	0.5
Tipton/Shelby Counties Producer Meeting 2/25/2004. Round	Team	12	1	0.5

table discussion on weed control issues of most concern to the producers present.				
Dyer County Grain Production 2/26/2004. Presentation on glyphosate-resistant weed management in soybeans and cotton.	Team	14	1	1
Henry County 2/27/2004. Corn/Soybean weed management.	Team	12	1	0.5
11 <sup>th</sup> annual Beef School 3/2/2004. Presentation on managing difficult to control weeds in pastures.	Team	62	1	1
Lauderdale County Cotton Management Meeting 3/4/2004. Presentation on weed control in cotton.	Team	12	1	0.5
Madison County Weed Control Update 3/5/2004. Round table discussion on weed control issues of most concern to the producers present.	Team	12	1	0.5
Coffee County Crop Production Meeting 3/9/2004. Round table discussion on weed control issues of most concern to the producers present.	Team	15	1	0.5
Tipton County Producer Meeting 3/11/2004. Provided hands-on weed identification workshop.	Team	17	1	1
Cotton Scout School 5/28/2004. Presentation and hands-on demonstration on weed identification.	Team	80	1	1
Weed Research Field Tour 6/16/2004. Showed and discussed findings of 2004 weed control research.	Total	125	1	4
Wheat Production Meeting 8/24/2004. Presentation on controlling ryegrass in wheat.	Team	120	1	1
Cotton Variety and Management Field Day 8/26/2004. Provided an update on weed management research in cotton.	Team	112	1	4
Soybean Disease Field Day 9/8/2004. Presented and provided hands-on demonstration on identifying Tennessee's more troublesome weeds.	Guest	140	7	0.5
Obion County Farm School 2/2/2005. Presentation on pigweed management in corn and soybeans.	Team	101	1	0.5
Madison/Crockett County Cotton meeting 2/2/2005. Weed management with the new Roundup Ready Flex cotton.	Team	61	1	0.5
Tennessee Grain Conference 2/5/2005. Presentation on pigweed identification and management.	Team	450	1	1
Cotton Focus Meeting 2/15/2005. Presentation on evaluation of weed control strategies for cotton.	Team	311	2	0.5
Macon County Row Crop Meeting 2/17/2005. Management of weeds in corn, soybeans and wheat.	Team	22	1	1
Lincoln County Row Crop Weed Control 2/23/2005. Management of weeds in corn, soybeans and wheat.	Team	31	1	1
Tennessee Farmers COOP Weed Management Update 2/17, 2/18 and 2/21/2005. A meeting in East, Middle and West Tennessee to COOP employees with updates on weed control in corn, soybeans, wheat, pastures, tobacco and herbicide resistance management.	Coordinator	206	3	6
Millington Grain Conference 2/24/2005. Management of weeds in corn, soybeans and wheat.	Team	22	1	1
Hardeman County Cotton Producer Meeting 2/25/2005. Presentation on evaluation of weed control strategies in cotton.	Team	41	1	1
Lincoln County Cotton Meeting 3/15 and 3/16/2005. Round table discussion on weed control issues of most concern to	Team	23	2	1



the producers present.				
Tipton County Producer Meeting 3/22/2005. Presentation on weed management in corn, soybeans and cotton.	Team	38	2	1
Cotton Scout School 5/18/2005. Presentation and hands-on demonstration on weed identification.	Team	90	1	0.5
Weed Research Field Tour 6/16/2005. Showed and discussed findings of 2005 weed control research.	Total	134	1	4
Monsanto Producer Field Day on Roundup Ready Flex Cotton 7/27/2005. Discussed and answered questions on how to manage this new weed control technology in cotton.	Guest	65	1	0.5
Monsanto Field Day RR Flex Cotton Weed Control 8/4/2005. Discussed recent research on managing weeds in cotton with this technology.	Guest	246	5	0.5
Soybean Disease Field Day 9/13/2005. Provided hands-on weed ID workshop.	Guest	112	8	0.5
Regional IPM Cotton Scout School 10/31-11/2/2005. Presentations on horseweed management. Also conducted a hands-on weed ID session.	Team	144	2	6
Cotton Variety Tour 9/15/2005. Presented weed control research of most interest to cotton industry.	Team	140	1	4
Crockett County Producer Meeting 1/27/2006. Presented research findings on management of glyphosate-resistant horseweed and glyphosate-tolerant Palmer pigweed.	Team	21	1	0.75
TAPA CCA Training 1/30/2006. Update on the most recent developments in weed management in corn, cotton and soybeans.	Guest	62	1	1
Cotton and Rice Conference 2/1/06. Discussed aspects of the Roundup Ready Flex cotton system.	Guest	84	1	1
Tennessee Grain Conference 2/2/2006. Presentation on managing volunteer Roundup Ready corn in soybeans.	Team	353	2	0.5
Cotton Focus Meeting 2/9/2006. Two presentations. First: management of the new Roundup Ready Flex cotton. Second: update on finding of glyphosate-tolerant Palmer pigweed in Crockett and Lauderdale Counties.	Team	454	2	0.5
Cotton Scout School 5/30/2006. Provided hands-on demonstration of weed identification.	Team	75	2	1.0
Tennessee Farmers Coop Weed Management Update 2/28, 3/1 and 3/2/2006. A meeting in East, Middle and West Tennessee to COOP employees with updates on weed control in corn, soybeans, wheat, pastures, tobacco and herbicide resistance management.	Coordinator	164	3	5
Monsanto Field Day 8/2/06. Weed ID and management of weeds in cotton with Roundup Ready Flex technology.	Guest	256	2	0.5
Monsanto staff training 8/3/06. Update on pigweed demonstrating tolerance to glyphosate.	Guest	72	1	1
Cotton Scout School 5/25/2007. Presentation and hands-on demonstration on weed ID.	Team	80	1	1
Weed Research Field Tour 6/14/2006 Showed and discussed findings of 2006 weed control research.	Total	118	1	4
Soybean/Cotton IPM Field Training Lauderdale County 6/8/2006. Presentation on identification of grass and pigweed species.	Team	52	2	0.5
Haywood County Cotton Field Day 8/8/2006. Discussion of cotton variety characteristics.	Team	34	1	0.5

Haywood County Defoliation Field Day 9/8/06. Presentation and demonstration on cotton defoliation management.	Coordinator	32	1	1
Lauderdale County Defoliation Field Day 9/8/06. Presentation and demonstration on cotton defoliation management.	Coordinator	61	1	1
Crockett County Defoliation Field Day 9/15/06. Presentation and demonstration on cotton defoliation management.	Coordinator	33	1	1
Tipton County Defoliation Field Day 9/21/06. Presentation and demonstration on cotton defoliation management.	Coordinator	20	1	1
Hardeman County Cotton Production Round table 1/3/2007. Round table discussion with cotton producers on weed control.	Team	14	1	3
Cotton Focus Meeting 2/15/2007. Recent research on glyphosate-resistant horseweed management.	Team	248	1	0.5
Shelby County Cotton Production Meeting 1/16/2007. Weed control in corn and soybeans.	Team	12	1	0.5
Dyer County Row Crop Producer Meeting 1/19/2007. Weed control in cotton, corn and soybeans.	Team	65	1	1
Shelby/Tipton Counties Cotton Grower Meeting 1/26/2007 Presentation on glyphosate-resistant horseweed management in cotton.	Team	26	1	0.75
Fayette County Cotton Grower Meeting 1/31/2007 Presentation on weed management in cotton.	Team	25	1	0.75
West Tennessee Grain Conference – Presentation on difficult to control weeds in soybean. 2/1/2007	Team	322	1	0.5
Gibson County Grower Meeting 2/2/2007 Presentation on corn, cotton and soybean weed management.	Team	60	2	0.5
Haywood County Grower Meeting 2/6/2007. Presentation on controlling troublesome weeds in corn, cotton and soybeans.	Team	40	1	0.75
Tennessee Farmers COOP Weed Management Update 2/7/2007. A meeting in East Tennessee to COOP employees with updates on weed control in corn, soybeans, wheat, pastures, tobacco and herbicide resistance management.	Team	70+	1	1
Tennessee Farmers COOP Weed Management Update 2/8/2007. A meeting in Middle Tennessee to COOP employees with updates on weed control in corn, soybeans, wheat, pastures, tobacco and herbicide resistance management.	Team	60+	1	1
Tennessee Farmers COOP Weed Management Update 2/9/2007. A meeting in West Tennessee to COOP employees with updates on weed control in corn, soybeans, wheat, pastures, tobacco and herbicide resistance management.	Team	70+	1	1
Crockett County Grower Meeting 2/13/2007. Weed control update on corn, soybeans and cotton.	Team	50	1	1
Hardeman County Grower Meeting 2/14/2007. Round table discussion on weed control issues of most concern to the producers present.	Team	15	1	1
Cotton Focus 2/15/2007. Update on new research findings managing glyphosate-resistant horseweed.	Team	248	1	1
Obion County Farm School 2/19/2007. Management of glyphosate-resistant horseweed and pigweed in soybeans as well as ryegrass control in wheat.	Team	124	1	1

Lawrence County Grower Meeting 2/20/2007. Round table discussion on weed control issues of most concern to the producers present.	Team	8	1	1
Pulaski County Grower Meeting 2/21/2007. Round table discussion on weed control issues of most concern to the producers present.	Team	5	1	1
Maury County Grower Meeting 2/21/2007. Round table discussion on weed control issues of most concern to the producers present.	Team	10	1	1
Weakley County Grower Meeting 2/23/2007. Managing hard to control weeds in corn and soybeans.	Team	55	1	1
Cannon County Grower Meeting 2/27/2007. Managing pigweed in soybeans and corn production systems.	Team	35	1	1
Lauderdale County Grower Meeting 3/1/2007. Managing hard to control weeds in cotton, corn and soybeans.	Team	34	1	1
Cotton Scout School 5/25/2007. Weed ID presentation.	Team	75	1	0.75
Weed Research Field Tour 6/13/2007. Showed and discussed findings of 2007 weed control research.	Total	140	1	4
Agri-center Field Day 7/19/07. Discussion of the development and utilization of Dicamba/Roundup tolerant soybeans in future.	Guest	350+	12	0.5
Haywood County Cotton Field Day 7/24/07. Presentation on updates in cotton weed control and on glyphosate-resistant weed management.	Team	80	3	1
Monsanto Field Day 8/2/07. Presentation on pigweed ID and management, controlling drought stressed weeds in cotton and layby herbicide re-crop intervals to wheat.	Guest	89	1	0.5
Wheat Management Meeting Jackson, TN 8/20/07. Weed management strategies in wheat.	Team	60+	1	0.25
Soybean agronomic field day at Research and Education Center at Milan 8/30/2007 Herbicide-resistant weed update.	Team	47	3	0.25
Tennessee Forage and Grassland Council – Switchgrass weed control 11/2/2007	Guest	68	1	0.5
Gibson County grain and education meeting 1/16/2008	Team	42	1	1
Obion County Farm School 2/4/2008	Team	110	1	0.5
Middle TN Grain Conference 1/31/2008	Team	125	1	0.5
TAPA CCA conference 2/5/2008	Team	38	1	1
Haywood County Production meeting 2/6/2008	Team			
Gibson County cotton production meeting 2/12/2008	Team	28	1	0.5
Mississippi Crop College Weed control in Wheat Invited	Guest	87	1	1
Cotton Focus 2/14/2008	Guest	322	1	0.75
Weakly County Grain Production Meeting 2/15/2008	Team	43	1	0.5
Crockett County Row Crop Meeting 2/19/2008	Team	45	1	1
Lincoln County Grain Production meeting 2/19/2008	Team	38	1	0.5
Tennessee Farmers COOP Weed Management Update 2/20/2008. A meeting in East Tennessee to COOP employees with updates on weed control in corn, soybeans, wheat, pastures, tobacco and herbicide resistance management.	Team	70+	1	1
Tennessee Farmers COOP Weed Management Update 2/21/2008. A meeting in Middle Tennessee to COOP employees with updates on weed control in corn, soybeans, wheat, pastures, tobacco and herbicide resistance management.	Team	60+	1	1

Tennessee Farmers COOP Weed Management Update 2/22/2008. A meeting in West Tennessee to COOP employees with updates on weed control in corn, soybeans, wheat, pastures, tobacco and herbicide resistance management.	Team	60+	1	1
Lauderdale County Grain Production meeting 2/25/2008	Team	25	1	0.5
Shelby/Tipton Grain production meeting 2/26/2008	Team	20	1	.5
Cannon County Weed Control in wheat 2/28/2008	Guest	23	1	1
Best management practices workshop NCC sponsored Tunica, MS. 3/18/2008	Guest	52	1	0.5
TAPA CCA workshop. Weed control update. 2/5/2008	Guest	32	1	0.5
Cotton Focus 2/14/2008. Update on hard to control weeds in cotton.	Team	248	1	1
Weed control for winter wheat. Mississippi Crop College. 2/13/2008	Guest	130	1	0.5
Pulaski County Pesticide Applicators Training 3/12/2008	Guest	24	1	1
Lake County Row Crop Production Meeting 3/13/2008	Team	28	1	0.5
National Cotton Council Best Management Practices	Guest	65	1	1
Cotton scout school 5/30/2008	Team	32	1	0.5
Monsanto Field Day 8/7/08. Glyphosate-resistant update and management.	Guest	346	3	0.5
Cotton Incorporated Palmer Resistance	Guest	243	1	0.5
Middle TN Grain Conference Weed control update 1/29/2009	Guest	145	1	0.5
Obion Farm School 2/2/2009	Guest	86	1	1
Lincoln County Cotton meeting 2/3/2009	Guest	26	1	.5
Shelby County Weed Update 2/4/2009	Guest	21	1	.5
Tennessee Grain Conference 2/5/2009	Guest	258	1	0.5
Henderson Agronomic Roundtable 2/24/2009	Guest	11	1	0.5
Bayer Crop Sciences Agronomic Update	Guest	12	1	0.75
Crocket County Weed Update 3/2/2009	Guest	35	1	1
Haywood County Weed Update 3/3/2009	Guest	32	1	.5
Lauderdale County Weed Update 3/5/2009	Guest	35	1	.5
Gibson County Weed Update 3/6/2009	Guest	48	1	.5
Lake County weed mgt update 3/17/2009	Guest	21	1	.5
Henry County Producer meeting Weed Update 3/19/2009	Guest	35	1	0.75
Tennessee Farmers COOP Weed Management Update 2/18/2009. A meeting in East Tennessee to COOP employees with updates on weed control in corn, soybeans, wheat, pastures, tobacco and herbicide resistance management.	Team	210	3	1
Scout School. WTREC 5/29/2009.	Team	51	1	1
Tobacco Beef and More Field Day 6/25/2009	Guest	86	3	.5
Weed control field tour. Millington, TN 7/8/2009.	Team	126	2	1
Monsanto Crop Consultant Weed Resistance update	Guest	87	1	.5
TAPA Weed Control Update 7/23/2009	Guest	43	1	1
Monsanto DuQuoin, IL Field Day Weed Resistance update	Guest	165	4	1
Monsanto Union City Field 8/6/09	Guest	346	2	0.5
Dayhttp://www.cotton247.com/cottontv/?cid=1				
wheat producers meeting	Team	43	1	.5
Cotton Tour. WTERC 9/2/2009.	Coordinator	106	1	1
Wheat Production Conference. WTERC 9/2/2009	Coordinator	47	1	1
Look at them beans. Milan Agronomic Field day 9/9/09	Guest	250	4	0.25

Burndown strategies in cotton. BeltWide Cotton Conference Consultant Conference Roundtable 1/3/2010	Guest	280	1	0.5
Giles County Meeting 1/8/2010	Team	32	1	0.5
Cotton and Rice Conference 1/12/2010. Tunica, MS	Leader	42	2	1
Fayette County Cotton meeting 1/17/2010	Team	46	1	0.5
Dyer County Row Crop meeting. Weed Management 1/22/2010	Team	65	1	0.5
Middle TN Grain Conference. Weed Management 1/28/2010	Team	203	2	0.5
Gibson County Row Crops Meeting. GR Weed Management 2/1/2010	Team	48	2	0.5
Grain Conference 2/4/2010	Team	503	1	0.75
Haywood County Row Crops Meeting GR weed Management 2/2/2010	Team	35	1	0.5
Independent crop consultants meeting 2/8/2010	Team	12	1	0.5
Crocket County Row Crops Meeting GR weed Management 2/9/2010	Team	25	1	0.5
COOP E TN 2/10/10.	Team	46	1	1
Cotton Focus GR Weed control 2/11/2010	Team	250	2	0.5
Weakly County Row Crops Meeting GR Weed Management 2/12/2010	Team	55	1	0.5
North Alabama GR weed management presentation. Montgomery. 2/15/10	Invited	56	1	1
Lauderdale County Weed Update 2/22/20010	Guest	35	1	.5
Dow consultant meeting. I presented on GR weed management. 2/23/10.	Invited	46	1	1
Tennessee Farmers COOP Weed Management Update 2/24/2010. A meeting in Middle Tennessee to COOP employees with updates on weed control in corn, soybeans, wheat, pastures, tobacco and herbicide resistance management.	Team	60+	1	1
West TN Farmers COOP Weed Management Update 2/25/10	Leader	68	2	1
Gin Show GR Palmer Mgt meeting. Memphis, TN 2/26/10	Invited	77	1	0.5
Shelby/Tipton County Crop Mgt. Meeting. Millington, TN 3/4/10	Team	23	1	0.5
Glyphosate Resistant consultant meeting. Fauz de Igaucu Brazil. 3/9/10	Invited	86	1	1
Cannon county Weed Mngt meeting. 3/5/10. Clarksville, TN	Team	27	1	1
Brazilian Farmer Visit at WTREC on GR weeds. 5/26/2010	Invited	34	1	2
GR Palmer amaranth field day. Millington, TN 6/24/10	Leader	132	2	2
Cotton scout school. WTREC. 5/28/10.	Team	43	1	0.5
Milan No-till Field day. GR Weed Mng. In cotton. Milan, TN 7/22/10	Team	345	6	0.5
Monsanto Union City Field 8/5/10	Guest	430	3	0.5
Australian Farmer Visit at Milan on GR weeds 8/27/10	Invited	42	1	0.5
Cotton tour. GR weed stop 9/8/10	Team	92	2	0.5
Symposium for producers in mid-south 11/17/10	Team	823	1	0.5
Giles County Weed Resistance Meeting 11/16/10	Team	65	1	0.5
Illinois Spray School. GR weed resistance update. 12/2/10	Invited	78	2	2
Fayette County Row Crop Meeting. Weed Mng. 12/14/10. Bolivar, TN	Team	42	1	0.5
National Association of Conservation Districts. Glyphosate-resistance meeting with producers. My topic was overview of resistance problem. Jackson, TN 12/8/10	Guest	182	1	1

Cannon/Rutherford/Warren/DeKalb counties row crop meeting. GR weed management.12/16/11.	Team	69	1	0.5
Maury and Lawrence County row crop meeting. Weed Mng. 12/17/10	Team	35	2	1
Hardeman county farmer roundtable meeting. GR weed management. Bolivar, TN. 1/11/11.	Team	12	1	0.5
Lincoln county row crop meeting. GR weed management. Fayetteville, TN 1/12/11	Team	18	1	0.5
Crockett county row crop meeting. GR weed management. Alamo, TN 1/13/11	Team	32	1	0.5
Fulton county KY row crop meeting. GR weed management. Fulton, KY 1/18/11	Team	48	1	0.5
Dyer county row crop meeting. GR weed management. Dyersburg, TN 1/21/11	Team	45	1	0.5
Mississippi Ag Consultants conference. GR weed management. Starkville, MS. 1/28/11.	Team	56	1	0.5
TN grain conference. Management of GR weeds in soybeans. Dyersburg, TN. 2/3/11.	Guest	121	1	1
Cotton Focus. Weed management. 2/10/11	Team	186	1	0.5
Obion county farm school. Update on weed management in corn and soybean. 2/14/11.	Team	145	1	0.5
CPS resistance meeting. Brownsville, TN. 2/15/11	Team	26	1	0.5
Shelby/Tipton row crops meeting. Weed management. Millington, TN 2/21/11	Guest	22	1	0.5
COOP E TN Weed management. Knoxville, TN. 2/22/11.	Team	28	1	0.5
COOP middle TN. Weed management. Smyrna, TN. 2/23/11.	Guest	46	1	1
COOP W TN. Weed management. Jackson, TN. 2/24/11.	Guest	54	1	1
Gin show Resistance Management symposia. Memphis, TN. 2/25/11.	Guest	86	1	1
Montgomery county row crop meeting. Weed management. Clarksdale, TN 2/28/11.	Guest	46	1	1
Middle TN grain conference. Weed control in soybeans. Dyersburg, TN 2/27/11.	Team	238	1	0.5
TN row crop consultants meeting. Update on weed management. Jackson, TN. 1/31/11	Team	22	2	0.5
Haywood county grower meeting. GR weed management. 3/3/11	Team	21	1	0.5
Cotton scout school. WTREC. 5/27/11.	Team	25	1	0.5
Pioneer Technology Conference 5/22/11	Team	86	1	0.5
Weed Tour – Tour of Weed control studies at WTREC 6/23/11	Leader	154	1	6
Southern Feed and Grain Conference. Destin FL. Glyphosate resistant weed update. 6/27/11.	Guest	245	1	1
Soybean scout school Lake county. Weed ID and management 7/6/11.	Guest	64	1	1
Soybean scout school Dyer and Madison counties. Weed ID and management 7/7/11.	Team	24	1	0.5
University of Illinois glyphosate-resistant weed management field day. 7/12/11.	Team	205	2	0.5
Soybean scout school Cannon county. Weed ID and management 7/18/11.	Guest	48	6	0.5
Soybean scout school Giles/Lincoln counties. Weed ID and management 7/19/11.	Team	25	1	0.5

Oklahoma State no-till conference. Glyphosate-resistant weeds: lessons learned in TN. Norman OK. 7/18/11.	Team	363	2	0.5
TAPA annual meeting. Pigeon Forge, TN. 8/28/11	Guest	27	1	1
University of Missouri glyphosate-resistant weed management field day. 8/2/11.	Guest	287	3	1
Monsanto Union City Field 8/4/11	Guest	222	3	0.5
Southern Illinois University glyphosate-resistant weed management field day. Red Bud, IL 8/9/11.	Guest	390	3	0.5
BASF GR Palmer control in soybean. Murray, KY 8/17/11.	Guest	120	2	0.5
BASF GR Palmer control in soybean. Germantown, TN 8/30/11.	Guest	75	1	0.5
University of Missouri IPM meeting "Weed management in soybeans and cotton". November 21, 2011. Invited presentation. Portageville, MO. Presented 1 time.	Guest	105	1	1
Cannon county producer meeting. GR weed management. Woodberry, TN 12/1/11.	Guest	65	1	1
Franklin county producer meeting. GR weed management. Winchester, TN 12/2/11	Guest	43	1	1
Regional COOP employee training. GR weed management. Murfreesboro, TN 12/6/11	Guest	154	1	1
American Seed Trade Association. Glyphosate-tolerant traits considerations on soybean seed production in the future. Chicago, IL. 12/7/11	Guest	207	2	1
CPS employee training. Crop production weed management. Jackson, TN. 12/8/11.	Guest	32	1	1
Minnesota Crop Production Retailers Conference. Minneapolis, MN. 12/15/11.	Guest	325	2	1
Lawrence County Producer meeting. GR weed management. Lawrenceburg, TN. 12/16/11.	Guest	31	1	1
Perry/Decatur county producer meeting. GR weed management. Parsons, TN 12/19/11.	Guest	25	1	1
Beltwide cotton conference. Consultant's conference. New weed control technologies on the horizon. Orlando, FL 1/3/12	Invited	145	1	1
Beltwide cotton conference. Consultant's conference. Double edged sword of Pre herbicides. Orlando, FL 1/4/12	Invited	125	1	1
GR Palmer management. Clinton, KY 1/8/12	Invited	41	1	1
GR Palmer management. Mercer, TN 1/8/12	Invited	23	1	1
Hickman, KY. Glyphosate-resistant weed management. 1/9/12	Invited	47	1	1
Farm Journal Corn College. Basic corn weed control. 1/10/12 Desoto, MS	Invited	147	1	1
Gibson County producer meeting. Weed management. 1/10/12. Trenton, TN	Invited	67	1	1
Dyer county meeting. Resistant weed management. 1/13/12 Dyersburg, TN	Invited	51	1	.5
Upper Cumberland row crop meeting 1/27/12	Invited	105	1	.75
Cotton and Rice Conference. Corn weed control tips. Tunica MS. 1/31/12 and 2/1/12	Invited	45	2	.75
Grain Conference. Dyersburg, TN 2/2/12	Invited	456	2	.75
KY/TN Grain Conference. GR weed management. Russellville, KY. 2/3/12	Invited	473	1	.5

Henry County Producer meeting. Weed management. 2/6/12.	Invited	133	1	1
Haywood County Producer meeting. Weed management 2/7/12.	Invited	95	1	.5
Tennessee Ag Production Association. Giant Ragweed completion to cotton. 2/8/12	Invited	44	1	.5
Crockett County Producer meeting. Weed management. 2/9/12.	Invited	53	1	.5
Obion farm school. Weed control in soybean. 2/13/12	Invited	51	1	.5
Lauderdale County Producer meeting. Weed management. 2/14/12.	Invited	98	1	.5
Hardeman County Producer meeting. Weed management. 2/15/12.	Invited	61	1	.5
Hardin county producer meeting. GR weed management. Savannah, TN 2/16/12	Invited	15	1	.5
Iowa Soybean Association research planning meeting. Update on herbicide resistance issues. Ames, IA. 2/16/12	Invited	43	1	1
Iowa Soybean Association production conference. Update on herbicide resistance issues. Ames, IA. 2/17/12	Invited	185	1	.5
Lincoln county producer meeting. GR weed management. Fayetteville, TN. 2/20/12.	Invited	165	1	1
Tipton county producer meeting. GR weed management. Covington, TN. 2/20/12.	Invited	54	1	1
Weakly county producer meeting. GR weed management. Fayetteville, TN. 2/21/12.	Invited	41	1	1
Weakly County Farm Conference. 2/21/12	Invited	81	1	.5
East TN COOP weed control updates 2/22/12	Invited	78	1	.5
Middle TN COOP weed control updates 2/23/12	Invited	95	1	.5
West TN COOP weed control updates 2/24/12	Invited	76	2	.75
Middle, TN grain conference. Murfreesboro, TN 2/26/12	Invited	82	2	.75
Ag Issues Forum at Commodity Classic. Nashville TN. 2/28/12	Invited	65	2	.75
Science behind weed control at Commodity Classic. Nashville TN. 2/28/12	Invited	267	1	1
Cotton Focus. Memphis, TN 3/2/12	Team	77	1	.5
Soil Conservation Service Annual Meeting. Conservation tillage threat from glyphosate resistant pigweed. 5/18/25	Guest	38	1	1
Cotton Scout School. Weed ID training. Jackson, TN 5/25/12	Team	102	1	1
Weed Tour – Tour of Weed control studies at WTREC	Leader	163	1	4
Invited presentation at University of Illinois Herbicide Resistant Weed Field day 7/10/12	Invited	112	2	.5
Invited presentation to Bayer seed trade partners 7/26/12	Invited	105	1	1
Invited presentations at Farm Journal Corn College. 7/16 to 7/18	Invited	550	11	1
Invited presentation at University of Illinois Herbicide Resistant Weed Field day 7/24/12	Invited	110	2	.5
Milan no-till field day. 7/26/12	Team	351	6	.5
Invited presentations at Farm Journal Corn College. Bloomington, IL. 7/16 to 7/18	Invited	550	11	1



Invited presentation at University of Illinois Herbicide Resistant Weed Field day. Tuscola, IL. 7/24/12	Invited	110	2	.5
Milan no-till field day. Milan, TN. 7/26	Team	351	6	.5
Monsanto field day. Presented on weed resistance management in soybean, corn and cotton. Union City, TN 8/7/12	Invited	222	3	.5
Cotton field day. Discussion on GR Palmer amaranth management. Jackson, TN 9/5/12.	Team	106	1	.5
Southern Soybean Breeder Tour. New herbicide tolerant trait technology Jackson, TN 9/7/12	invite	102	1	.5
South Dakota Short Course. Updated produces on glyphosate weed resistance issues. 12/19/12	Invited	241	1	1
Murry/Giles/Lawrence Co. Weed management update. Pulaski, TN 12/4/12	Invited	35	1	.5
Cannon/Rutherford/DeKalb/Warran co. Weed Management update. Woodbury, TN 12/6/12	Invited	52	1	.5
Henderson/Decatur co. Weed Management update. , TN 12/7/12	Invited	44	1	.5
Fayette co. Weed Management update. Somerville, TN 12/7/12	Invited	37	1	.5
Shelby/Tipton co. Weed Management update. Millington, TN 12/18/12	Invited	32	1	.5
Crockett co. Weed management update. Alamo, TN 1/3/13	Invited	28	1	.5
Hardeman co. Row crop roundtable. Bolivar, TN 1/4/13	Invited	12	1	.5
Madison co. Weed management update. Mercer, TN 1/16/13	Invited	42	1	.5
Lincoln co. Weed management update. Pulaski, TN 1/17/13	Invited	38	1	.5
Dyer county meeting. Resistant weed management. 1/18/13 Dyersburg, TN	Invited	51	1	.5
Gibson County producer meeting. Weed management. 1/25/13. Trenton, TN	Invited	67	1	1
Upper Cumberland row crop meeting. Sparta, TN. 2/1/13	Invited	47	1	1
Grain Conference. GR Palmer amaranth management. Dyersburg, TN 2/7/12	Invited	478	1	.5
KY/TN Grain Conference. GR Palmer amaranth management. Rushville, KY 2/8/13	Invited	245	1	.5
NRCS cover crop field day. Denmark, TN. Cover crop providing weed suppression. 2/11/13	Invited	24	1	.5
TAPA. Weed Mgt update. Jackson, TN. 2/13/13	Invited	48	1	.5
Cotton Focus GR Weed control, Jackson, TN. 2/14/2013	Team	205	1	0.5
Lauderdale co. Weed control update. Ripley, TN 2/15/13.	Invited	36	1	0.5
Independent consultant round table. Weed control update. Jackson, TN 2/18/13.	Invited	18	1	1
UAP retailers. Weed control update. Jackson, TN 2/20/13	Invited	36	1	0.5
Weakly co. Weed control update. Martin, TN 2/21/13	Invited	54	1	0.5
Alabama coop meeting. Weed control update for coop retailers. Decatur, AL. 2/22/13.	Invited	23	1	2
Obion farm school. Weed control update. 2/25/13	Invited	109	1	0.5

East TN COOP weed control updates Knoxville, TN. 2/26/12	Invited	78	1	.5
Middle TN COOP weed control updates. Smyrna, TN. 2/27/12	Invited	95	1	.5
West TN COOP weed control updates. Jackson, TN. 2/28/12	Invited	76	2	.75
Murry/Giles/Lawrence Co. Weed management update. Pulaski, TN 12/4/13	Invited	35	1	.5
Cannon/Rutherford/Dekalb/Warran co. Weed Management update. Woodbury, TN 12/6/13	Invited	52	1	.5
Henderson/Decatur co. Weed Management update. , TN 12/7/13	Invited	44	1	.5
Fayette co. Weed Management update. Somerville, TN 12/7/13	Invited	37	1	.5
Shelby/Tipton co. Weed Management update. Millington, TN 12/18/13	Invited	32	1	.5
Crockett co. Weed management update. Alamo, TN 1/3/13	Invited	28	1	.5
Hardeman co. Row crop roundtable. Bolivar, TN 1/4/13	Invited	12	1	.5
Madison co. Weed management update. Mercer, TN 1/16/13	Invited	42	1	.5
Lincoln co. Weed management update. Pulaski, TN 1/17/13	Invited	38	1	.5
Dyer county meeting. Resistant weed management. 1/18/13 Dyersburg, TN	Invited	51	1	.5
Gibson County producer meeting. Weed management. 1/25/13. Trenton, TN	Invited	67	1	1
Upper Cumberland row crop meeting. Sparta, TN. 2/1/13	Invited	47	1	1
Grain Conference. GR Palmer amaranth management. Dyersburg, TN 2/7/12	Invited	478	1	.5
KY/TN Grain Conference.GR Palmer amaranth management. Rushville, KY 2/8/13	Invited	245	1	.5
NRCS cover crop field day. Denmark, TN. Cover crop providing weed suppression. 2/11/13	Invited	24	1	.5
TAPA. Weed Mgt update. Jackson, TN. 2/13/13	Invited	48	1	.5
Cotton Focus GR Weed control, Jackson, TN. 2/14/2013	Team	205	1	0.5
Lauderdale co. Weed control update. Ripley, TN 2/15/13.	Invited	36	1	0.5
Independent consultant round table. Weed control update. Jackson, TN 2/18/13.	Invited	18	1	1
UAP retailers. Weed control update. Jackson, TN 2/20/13	Invited	36	1	0.5
Weakly co. Weed control update. Martin, TN 2/21/13	Invited	54	1	0.5
Alabama coop meeting. Weed control update for coop retailers. Decatur, AL. 2/22/13.	Invited	23	1	2
Obion farm school. Weed control update. 2/25/13	Invited	109	1	0.5
East TN COOP weed control updates Knoxville, TN. 2/26/12	Invited	78	1	.5
Middle TN COOP weed control updates. Smyrna, TN. 2/27/12	Invited	95	1	.5
West TN COOP weed control updates. Jackson, TN. 2/28/12	Invited	76	2	.75
TX consultant meeting. GR weed issues in the Midsouth. Lubbock, TX. 3/4/13	Invited	114	1	1
TX consultant meeting. GR weed issues in the Midsouth. Lubbock, TX. 3/5/13	Invited	157	1	1

MN soybean promotion weed issues grower meeting. GR weed issues in the Midsouth. Mahanomen, MN. 3/26/13.	Invited	90	1	1
MN soybean promotion weed issues grower meeting. GR weed issues in the Midsouth. Morris, MN. 3/27/13.	Invited	111	1	1
MN soybean promotion weed issues grower meeting. GR weed issues in the Midsouth. Mankato, MN. 3/28/13.	Invited	129	1	1
Weed Tour – Tour of Weed control studies at WTREC. 6/20/13	leader	126	1	4
Monsanto field day. Presented on weed resistance management in soybean, corn and cotton. Union City, TN 8/8/13	Invited	543	4	.5
BASF field day. Herbicide site of action training. Murray, KY. 8/13/13	Invited	77	2	1
Weed tour. WTREC. Jackson, TN 6/25/14	Leader	163	2	1.5
Fayette cotton weed control. Bolivar, TN 12/9/13	Invited	25	1	.5
In Service West TN. Jackson, TN 12/56/13	Invited	56	1	1
North Alabama Resistance meeting 9:00 a.m. Calhoun community colleges aerospace building Decatur, AL 12/11/13	Invited	42	1	2
In Service Middle TN/Middle TN meeting Woodbury, TN 12/12/13	Invited	77	2	1
Giles/Maury/Lawrence. Lawrenceburg, TN 12/13/13	Invited	33	1	.5
Shelby/Tipton. Millington, TN 12/14/13	Invited	18	1	.5
Milan no-till Field day. Milan, TN 7/24/14	Invited	2541	6	.5
University of Illinois Palmer field day. Kankakee, IL 7/30/14	Invited	421	6	.5
Fayette cotton weed control. Bolivar, TN 12/9/13	Invited	25	1	.5
AR Grower Meeting Dumas AR 1/3/14	Invited	258	1	1
Lincoln county Row crop weed control. Fayetteville, TN 1/10/14	Invited	28	2	.5
Forge and grassland council meeting. Weed resistance status in row crops. Memphis, TN 1/13/14	Invited	73	1	1
Crockett county 7:30 am/ Clinton KY 11:00 Independent consultants noon 1/14/14	Invited	121	3	1
Cotton and Rice Conference Tunica, MS 1/15/14	Invited	110	1	1
Cotton and Rice Conference Tunica, MS 1/16/14	Invited	42	1	1
Madison county Mercer, TN 1/17/14	Invited	18	1	.5
Haywood county/Travel to Pigeon Forge 1/21/14	Invited	25	1	.5
TNSPB Pigeon Soybean weed mgmt. research update. Forge. TN. 1/22/14	Invited	17	1	.5
TNSPB/East TN weed mgmt. update. in-service Knoxville, TN. 1/23/14	Invited	25	1	.5
Dyer county row crop weed control. Dyersburg, TN 1/24/14	Invited	108	1	1
Mid. TN Grain Conf. Weed resistance management. Manchester, TN 1/30/14	Invited	157	2	1
Perry County row crop weed control 1/31/14	Invited	12	1	.5
Rutherford County row crop weed control 1/31/14	Invited	18	1	.5
Farm School. Wheat weed control. Tiptonville, TN 2/10/14	Invited	106	1	.5
Lauderdale county Palmer mgmt. Ripley, TN 2/11/14	Invited	21	1	.5
TAPA. Weed biology ed. Jackson, TN 2/12/14	Invited	43	1	1
Cotton Focus. Weed mgmt. in cotton. Jackson, TN 2/13/14	Invited	105	1	.5
Gibson county weed mgmt. update. Trenton, TN. 2/14/14	Invited	37	2	.5
Helena meeting Monsanto Dyersburg, TN	Invited	36	1	.5
Alamo coop meeting Weed mgmt. Q and A. Alamo, TN. 2/19/14	Invited	30	1	.5

KY/TN Grain Conf. Russellville, KY. Weed resistance mgt. 2/21/14	Invited	235	1	1
Lake county weed management update. Tiptonville, TN 2/24/14	Invited	16	1	.5
Weakly County. Martin, TN. Weed management update. 2/25/14	Invited	53	1	.5
COOP E. TN. Weed management update. Knoxville, TN 2/26/14	Invited	48	2	1
COOP M. TN Weed management update. Smyrna, TN 2/27/14	Invited	57	2	1
COOP W. TN Weed management update. Jackson, TN 2/28/14	Invited	54	2	1
Weed ID training COOP employees, Germantown, TN 8/7/14	Invited	122	3	1
Weed ID training Syngenta employees, Germantown, TN 8/12/14 to 8/13/14	Invited	96	6	1
Corn weed control, Giles county, TN 8/15/14	Invited	25	1	.5
Corn and soybean weed control. MREC, Milan, TN 8/19/14	Team	12	1	.5
Mississippi state short course, Starkville, MS, 12/1/14	Invited	532	1	.5
Lawrence/Lewis/Maury counties, Lawrenceburg, TN 12/3/14	Invited	37	1	.5
College Station, TX, ADAMA TX consultant meeting. Weed Mgt in the midsouth presentation 12/8/14	Invited	56	1	1
Cannon/Warren/Coffee/Rutherford Counties, Woodbury, TN, 12/11/14	Invited	52	1	.5
Fayette county, Somerville, TN, 12/15/15	Invited	28	1	.5
Consultants meeting, Jackson, TN, 1/12/15	Invited	24	2	.5
Tipton County, Covington, TN, 1/13/15	Invited	39	1	.5
Missouri Soybean Conference, Sikeston, MO, 1/14/15	Invited	154	1	1
Ohio no-till conference, Cincinnati, OH, 1/15/15	Invited	379	1	1
TNSPB/E. TN Grain Conf. Knoxville, TN, 1/22/15	Invited	64	1	.5
Dyer county, Dyersburg, TN, 1/23/15	Invited	47	1	.5
Smith County, Livingston, TN, 2/2/15	Invited	32	1	.5
Crockett County, Alamo, TN, 2/3/15	Invited	31	1	.5
Gibson County, Trenton, TN, 2/4/15	Invited	53	1	.5
Shawneetown, IL, 2/13/15	Invited	31	1	1
COOP, Knoxville, TN, 2/16/15	Invited	57	2	1
Perry County, Linden, TN, 2/17/15	Invited	31	1	.5
COOP, Smyrna, TN, 2/18/15	Invited	68	1	.5
Weakley County, Martin, TN 2/19/15	Invited	56	1	.5
Farm School, Manchester, TN, 2/23/15	Invited	98	1	.5
Lauderdale County, Ripley, TN, 2/24/15	Invited	27	1	.5
ADAMA, Memphis, TN, 2/25/15	Invited	62	1	1
COOP, Jackson, TN, 2/26/15	Invited	67	2	1
Weed Tour – Tour of Weed control studies at WTREC. 6/24/15	leader	126	1	4
Lawrence County Corn Field day 8/4/15	Invited	25	1	.5
COOP Weed Mgt meeting Brownsville, TN 8/5/15	Invited	21	1	1
Monsanto field day. Presented on weed resistance management in soybean, corn and cotton. Union City, TN 8/6/15	Invited	560	4	.5
Capstan nozzle and resistance presentation, Topeka, KS 8/11/15	Invited	88	1	1
Martin, TN CPS weed mgt presentation 8/13/15	Invited	42	1	1

Cannon Co. Weed Walk 8/14/15	Invited	31	1	1
National Cotton Council Midsouth Cotton tour. Gave presentation on resistant weed Mgt. 8/17/15	Invited	48	1	1
Bayer Resistant MGT update to Helena reps. Jackson, TN 8/18/15	Invited	48	1	1
Bayer Resistant MGT update to CPS reps. Jackson, TN 8/18/15	Invited	39	1	1
BASF weed mgt presentation to growers. Germantown, TN 8/20/15	Invited	122	2	.5
BASF weed mgt presentation to growers. Germantown, TN 8/21/15	Invited	89	2	.5
International Fertilizer tour Jackson, TN 8/26/15	Invited	36	1	.5
Mississippi st short course. PPO resistance mgt 12/1/15	Invited	564	1	.5
Fayette county weed mgt update Bolivar, TN 12/7/16	Invited	28	1	.5
Giles county weed mgt update Lawrenceburg, TN 12/8/15	Invited	35	1	.5
Missouri Corn mgt meeting Sikeston, MO 12/9/15	Invited	324	1	.5
American seed trade meeting Chicago, IL 12/11/15	Invited	452	1	.5
Carroll county weed mgt update Huntersville 12/14/16	Invited	22	1	.5
Perry County weed mgt update Linden 12/29/16	Invited	15	1	.5
Obion county farm school Ridgely 2/1/16	Invited	121	1	.5
Mississippi consultant Conference Starkville, MS 2/2/16	Invited	181	1	.5
Lauderdale County grower meeting Ripley 2/3/16	Invited	35	1	.5
West TN Grain Conference Dyersburg 2/4/16	Invited	467	1	.5
Hardeman county grower meeting Boliver 2/12/16	Invited	12	1	.5
Haywood county grower meeting Brownsville 2/15/16	Invited	21	1	.5
Alabama COOP weed mgt update Huntsville, AL 2/16/16	Invited	28	1	1
Crockett county grower meeting Alamo 2/17/16	Invited	25	1	.5
Cotton Focus Jackson 2/18/16	Invited	221	1	.5
COOP update 2/19/16 West TN Jackson	Invited	87	3	1
COOP update 2/19/16 Middle TN Smyrna	Invited	65	3	1
COOP update 2/19/16 /East TN Alcoa	Invited	32	3	1
Weakly county grower meeting Martin 2/25/16	Invited	56	1	.5
NC State Weed Meeting Raleigh, NC 3/9/16	Invited	67	1	1

### B-5. Student Committees

Student	Department	Degree	Role	Dates
Lucas Owen	Plant Sciences	M.S.	Advisor	F2007-Sp2009
Evaluation of spring and fall burndown application timings on control of glyphosate-resistant horseweed in no-till cotton. Graduated Sp2009. (Current position: Agronomist Bayer Crop Science)				
Drew Ellis	Plant Sciences	Ph.D.	Member	Sp2006-Sp2009
Graduated Sp2009 (Current position: Technical Service Rep Dow Crop Science)				
Brock Waggoner	Plant Sciences	M.S.	Advisor	Sp2009-F2010
Control of glyphosate resistant horseweed ( <i>Conyza canadensis</i> ) with saflufenacil tank-mix partners. 2010. Graduated F2010 (Current position: Research Scientist Monsanto)				
Kelly Barnett	Plant Sciences	Ph.D.	Advisor	Sp2010-F2012
Giant ragweed ( <i>Ambrosia trifida</i> L.) biology, competition and control in cotton ( <i>Gossypium hirsutum</i> L.) Graduated F2012 (Current position: Technical Service Rep DuPont)				
C. Blake Edwards	Plant and Soil Sciences	M.S.	Adjunct Member	Sp2011-Sp2013
Mississippi State University Graduated Sp2013 (Current position: Research Scientist Monsanto)				

Brittany Gaban	Plant Sciences	M.S.	Member	Sp2011- Sp2013
Graduated F2012 (Current position: Research Scientist Monsanto)				
Mathew Wiggins	Plant Sciences	Ph.D.	Advisor	Sum2012-Present
Integration and management of winter-annual cover crops and herbicides to control glyphosate-resistant Palmer amaranth ( <i>Amaranthus palmeri</i> S. Wats). Graduated F2014 (Current position: Research Scientist Monsanto)				
Whitney Crow	Plant Sciences	M.S.	Advisor	Sum2013-Present
Glyphosate resistant Palmer amaranth ( <i>Amaranthus palmeri</i> ) management late-season and POST-harvest in corn production systems. Graduated F2014 (Current position: Pursuing Ph.D. in entomology at Mississippi State University)				
Garret Montgomery	Plant Sciences	Ph.D.	Advisor	Sum2014-Present

### B-5.1 Mentor for Junior Faculty

Faculty	Department	Role	Dates
Dr. Chris Main	Plant Sciences	Mentor	2006-2009
Dr. Dave Vebree	Plant Sciences	Mentor	2012-2014
Dr. Tyson Raper	Plant Sciences	Mentor	2014-present

## C. Research, Creative Achievements, and Scholarship

### C-2. Research and/or Scholarly Publications

#### C-2.1 Refereed Publications

##### Refereed articles (58) In Press (2)

**Steckel, L. E.**, M. S. DeFelice, and B. D. Sims. 1990. Integrating reduced rates of postemergence herbicides and cultivation for broadleaf weed control in soybeans (*Glycine max*). *Weed Sci.* 38:541-545.

**Steckel, L. E.**, C. L. Sprague, and A. G. Hager. 2002. Common waterhemp (*Amaranthus rudis*) control in corn (*Zea mays*) with preemergence and sequential applications of residual herbicides. *Weed Technol.* 16:755-761.

**Steckel, L. E.**, C. L. Sprague, A. G. Hager, F. W. Simmons, and G. Bollero. 2003. Effects of shading on common waterhemp (*Amaranthus rudis*) growth and development. *Weed Sci.* 51:898-903.

**Steckel, L. E.**, F. W. Simmons, and C. L. Sprague. 2003. Soil factor effects on the tolerance of two corn (*Zea mays*) hybrids to isoxaflutole plus flufenacet. *Weed Technol.* 17:599-604.

**Steckel, L. E.** and C. L. Sprague. 2004. Late-season common waterhemp (*Amaranthus rudis*) interference in soybean (*Glycine max*). *Weed Technol.* 18:947-952.

**Steckel, L. E.** and C. L. Sprague. 2004. Common waterhemp (*Amaranthus rudis*) interference in corn (*Zea mays*). *Weed Sci.* 52:359-364.

**Steckel, L. E.**, C. L. Sprague, E. W. Stoller, G. Bollero, and L. M. Wax. 2004. Temperature effects on germination of nine *Amaranthus* species. *Weed Sci.* 52:217-221.

Alford, J., R. M. Hayes, N. Rhodes, **L. E. Steckel** and T. C. Mueller. 2005. Broadleaf

signalgrass (*Brachiaria platyphylla*) interference in corn. *Weed Sci.* 53:97-100.

Reiling, K. R., F. W. Simmons, D. E. Reichers and **L. E. Steckel**. 2006. Application timing and soil pH effects on sulfentrazone phytotoxicity to two soybean (*Glycine max* (L.) Merr.) cultivars. *J. of Crop Prot.* 25:230-234.

Mueller, T.C., M. A. Thompson, C. Main and **L. E. Steckel**. 2006. Comparisons of glyphosate salts (isopropylamine, diammonium and potassium) and calcium and magnesium concentrations on the control of various weeds. *Weed Technol.* 20:164-171.

Main, C. L., **L. E. Steckel**, R. M. Hayes and T. C. Mueller. 2006. Biotic and abiotic factors influence horseweed emergence. *Weed Sci.* 54:1101-1105.

**Steckel, L. E.**, C. C. Craig and R. M. Hayes. 2006. Glyphosate-resistant horseweed (*Conyza canadensis*) control with glufosinate prior to planting no-till cotton. *Weed Technol.* 20:1047-1051.

**Steckel, L. E.** 2007. The Dioecious *Amaranth spp*: Here to stay. *Intriguing World of Weeds.* *Weed Technol.* 21:567-570.

**Steckel, L. E.**, C. L. Sprague, E. W. Stoller, L. M. Wax and F. W. Simmons. 2007. Tillage, cropping system and soil depth effects on common waterhemp (*Amaranthus rudis*) seed bank persistence. *Weed Sci.* 55:235-239.

Lins, R. D., C. M. Cole, R. P. Affeldt, F. B. Colquhoun, C. A. Mallory-Smith, R. A. Hines, **L. E. Steckel** and R. M. Hayes. 2007. Glyphosate application timing and rate for annual ryegrass (*Lolium multiflorum*) cover crop desiccation. *Weed Technol.* 21:602-605.

**Steckel, L. E.**, C. C. Craig, R. M. Hayes and D. K. Miller. 2007. Response of three nonglufosinate-resistant cotton varieties to reduced rates of glufosinate. *Weed Technol.* 21:780-784.

**Steckel, L. E.**, R. M. Hayes, R. F. Montgomery and T. C. Mueller. 2007. Evaluating glyphosate treatments on roundup ready alfalfa for crop injury and feed quality. *Online. Journal of Forage and Grazing lands* doi:10.1094/FG-2007-0201-01-RS.

M. A. Thompson, **L. E. Steckel**, A. T. Ellis and T. C. Mueller. 2007. Soybean tolerance to early pre-plant applications of 2,4-D ester, 2,4-D amine and dicamba. *Weed Technol.* 21:882-885.

D. Scroggs, D. K. Miller, J. L. Griffin, **L. E. Steckel**, D. C. Blouin, A. Stewart and P. R. Vidrine. 2007. Reduced input postemergence weed control with glyphosate and residual herbicides in second generation glyphosate-resistant cotton (*Gossypium hirsutum* L.). *Weed Technol.* 21:997-1001.

**Steckel, L. E.**, C. L. Main, A. Ellis and T. C. Mueller. 2008. Palmer amaranth (*Amaranthus palmeri* S. Wats) in Tennessee has low level glyphosate resistance. *Weed Technol.* 22:119-123.

Gwathmey, C. O., **L. E. Steckel** and J. E. Larson. 2008. Solid and skip-row spacing for irrigated and non-irrigated upland cotton. *Agronomy J.* 100:672-680.

**Steckel, L. E.** and C. O. Gwathmey. 2009. Glyphosate-resistant horseweed (*Conyza canadensis*) interference in cotton (*Gossypium hirsutum*). *Weed Sci.* 57:346-350.

**Steckel, L. E.**, M. A. Thompson and R. M. Hayes. 2009. Herbicide Options for Controlling

Glyphosate-Tolerant Corn in a Corn Replant Situation. *Weed Technol.* 23:243-246.

Larson, J. A., C. O. Gwathmey, D. F. Mooney, **L. E. Steckel**, R. K. Roberts. 2009. Does skip row planting configurations improve cotton net returns? *Agronomy J.* 101.4:738-746.

Norsworthy, J. K., K. L. Smith, **L. E. Steckel** and C. H. Koger. 2009. Weed seed contamination of cotton gin trash. *Weed Technol.* 23:574-580.

\*Owen, L. N., **L. E. Steckel**, C. L. Main, C. H. Koger and T. C. Mueller. 2009. Evaluation of Spring and Fall Burndown Application Timings on Control of Glyphosate-Resistant Horseweed in No-till Cotton. *Weed Technol.* 23:335-339.

Norsworthy, J. K., P. Jha, **L. E. Steckel** and R. C. Scott. 2010. Confirmation and control of glyphosate-resistant giant ragweed in Tennessee. *Weed Technol.* 24:64-70.

Ellis, A. T., **L. E. Steckel**, C. L. Main, Marcel de Melo, D. R. West and T. C. Mueller. 2010. A survey for diclofop-methyl resistance in Italian ryegrass from Tennessee and how to manage resistance in wheat. *Weed Technol.* 24:303-309.

Mueller, T. C., **L. E. Steckel** and M. Radosevich. 2010. Effect of soil pH and previous atrazine use history on atrazine degradation in a Tennessee field soil. *Weed Sci.* 58:478-483.

\*Owen, L. N., , T. C. Mueller, C. L. Main, J. Bond and **L. E. Steckel**. 2011. Evaluating rates and application timings of saflufenacil for Control of Glyphosate-Resistant Horseweed (*Conyza Canadensis*) in No-till Cotton (*Gossypium hirsutum*). *Weed Technol.* 25:1-5.

Johnson, B., B. Young, J. Matthews, P. Marquardt, C. Slack, K. Bradley, A. York, S. Culpepper, A. Hager, K. Al-Khatib, **L. Steckel**, M. Moechnig, M. Loux, M Barnards and R. Smeda. 2010. Weed control in dicamba-resistant soybeans. *Crop Management*. Published 20, September 2010.

Gwathmey, C. O., **L. E. Steckel**, Larson, J. A. and D. F. Mooney. 2011. Lower Limits of Cotton Seeding Rates in Alternative Row Widths and Patterns. *Agronomy J.* 103:584-592.

\*Waggoner, L. N., , T. C. Mueller, C. L. Main, J. A. Bond and **L. E. Steckel**. 2011. Control of glyphosate-resistant horseweed (*Conyza Canadensis*) with saflufenacil tank-mixtures in no-till Cotton (*Gossypium hirsutum* L.). *Weed Technol.* 25:310-315.

Mueller, T. C. and **L. E. Steckel**. 2011. Efficacy and dissipation of pyroxasulfone and three chloroacetamides in a Tennessee field soil. *Weed Technol.* 59:574-579.

Mueller, T. C., K. A. Barnett, J. T. Brosnan and **L. E. Steckel**. 2011. Glyphosate-resistant goosegrass (*Eleusine indica*) confirmed in Tennessee. *Weed Sci.* 59:562-566.

Main, C. L., J. C. Faircloth, **L. E. Steckel**, A. S. Culpepper and A. C. York. 2012. Cotton tolerance to fomesafen applied preemergence. *Cotton Sci.* 16:80-87

**Steckel, L. E.**, D. O. Stephenson, J. A. Bond, S. D. Stewart and K. A. Barnett. 2012. Tolerance of WideStrike cotton to over-the-top glufosinate tank mixtures. *Cotton Sci.* 16:88-95.

\*Barnett, K. A., T. C. Mueller and **L. E. Steckel**. 2012. Glyphosate-resistant giant ragweed control in WideStrike Flex cotton. *Weed Technol.* 26:611-616.

Ward, S. M., T. M. Webster and **L. E. Steckel**. 2013. Palmer amaranth: a review. *Weed Technol.* 27:12-27. Invited review from Weed Technology editor.



Stewart, S. D., **L. E. Steckel** and S. J. Steckel. 2013. Evaluation of WideStrike cotton (*Gossypium hirsutum* L.) injury from early season herbicide and insecticide tank mixes. *Cotton Sci.* 17:219-226.

Riar, D. S., J. K. Norsworthy, **L. E. Steckel**, D. O. Stephenson, IV, T. W. Eubank and R. C. Scott. 2013. Assessment of weed management practices and problem weeds in the Midsouth United States – soybean: A consultant's perspective. *Weed Technol.* 27:612-622.

\*Barnett, K. A., T. C. Mueller and **L. E. Steckel**. 2013. Glyphosate-resistant giant ragweed (*Ambrosia trifida* L.) control with glufosinate or fomesafen combined with growth regulator herbicides. *Weed Technol.* 27:454-458.

\*Barnett, K. A., A. S. Culpeper, A. C. York and **L. E. Steckel**. 2013. Palmer amaranth (*Amaranthus palmeri*) control with glufosinate by fluometuron to WideStrike cotton. *Weed Technol.* 27:291-297.

\*Barnett, K. A. and **L. E. Steckel**. 2013. Giant ragweed (*Ambrosia trifida* L.) competition in cotton (*Gossypium hirsutum* L.). *Weed Sci.* 61:543-548.

Riar, D. S., J. K. Norsworthy, **L. E. Steckel**, D. O. Stephenson, IV and J. Bond. 2013. Consultant perspectives on weed management needs in Midsouth United States cotton: a follow up survey. *Weed Technol.* 27:788-797.

Riar, D. S., J. K. Norsworthy, **L. E. Steckel**, D. O. Stephenson, IV, T. W. Eubank, J. Bond and R. C. Scott. 2013. Adoption of best management practices for herbicide-resistant weeds in midsouthern United States cotton, rice and soybean. *Weed Technol.* 27:788-797.

Merchant, R. M., L. M. Sosnoskie, A. S. Culpepper, **L. E. Steckel**, A. C. York and B. Braxton. 2013. Weed response to 2,4-D Amine, 2,4-DB and dicamba applied alone or with glufosinate. *Cotton Sci.* 17:212-218.

\*Barnett, K. A., A. S. Culpeper, A. C. York and **L. E. Steckel**. 2013. Evaluation of WideStrike cotton to repeated applications glufosinate at various application timings. *Weed Technol.* 27:778-787.

**Steckel, L. E.**, S. D. Stewart and S. J. Steckel 2015. Corn injury with post-applied HPPD inhibiting based premix herbicides with foliar- and in-furrow insecticides. *Weed Technol.* 29:18-23.

Owen, M. D. K., H. J. Beckie, J. Y. Leeson, J. K. Norsworthy and **L. E. Steckel**. 2015. Integrated pest management and weed management in the US and Canada. *Pest Management Science.* 71:357-376.

Mueller, T. C., B. W. Boswell, S. S. Mueller and **L. E. Steckel**. 2014. Dissipation of fomesafen, saflufenacil, sulfentrazone and flumioxazin from a Tennessee soil under field conditions. *Weed Sci.* 62:664-671.

\*Crow, W. D., **L. E. Steckel**, T. C. Mueller and R. M. Hayes. 2015. Evaluation of POST-harvest herbicides applications for seed prevention of glyphosate resistant Palmer amaranth (***Amaranthus palmeri***). *Weed Technol.* 29:405-411.

\*Wiggins, M. S., A. T. McClure, R. M. Hayes and **L. E. Steckel**. 2015. Integrating cover crops and POST herbicides for glyphosate-resistant Palmer Amaranth (*Amaranthus palmeri*) control in corn. *Weed Technol.* 29:412-418.

Price, A. J., C. D. Monks, A. S. Culpepper, L. M. Duzy, J. A. Kelton, M. W. Marshall, **L. E.**

**Steckel, L. M.** Sosnoskie and R. L. Nichols. 2016. High residue cover crops alone or with strategic tillage to manage glyphosate-resistant Palmer amaranth (*Amaranthus palmeri*) in Southeastern Cotton (*Gossypium hirsutum*). Soil and Water Conservation. 71:1-11. <http://www.jswconline.org/content/71/1/1.full.pdf+html?sid=f51499f6-93cd-472a-8916-62a7b257968d>

Huffman, J.L., C.W.Riggins, **L. E. Steckel** and P. J. Tranel. 2016. The EPSPS Pro106Ser substitution solely accounts for glyphosate resistance in a goosegrass (*Eleusine indica*) population from Tennessee, United States. Journal of Integrative Agriculture 15:1304-1312. [http://ac.els-cdn.com/S2095311915612205/1-s2.0-S2095311915612205-main.pdf?\\_tid=254e03da-9540-11e6-ad72-0000aacb35d&acdnat=1476801521\\_55ac69e949ec87f590e8dc3ad724318f](http://ac.els-cdn.com/S2095311915612205/1-s2.0-S2095311915612205-main.pdf?_tid=254e03da-9540-11e6-ad72-0000aacb35d&acdnat=1476801521_55ac69e949ec87f590e8dc3ad724318f)

Schwartz, L.M., J.K. Norsworthy, B.G. Young, K.W. Bradley, G. Kruger, V. Davis, **L.E. Steckel** and M. Walsch. 2016. Waterhemp (*Amaranthus tuberculatus*) and Palmer amaranth (*Amaranthus Palmeri*) seed production retention at soybean (*Glycine max*) harvest. Weed Technol 30:280-283.

Butts, T.R., J. K. Norsworthy, G.R. Kruger, L.D. Sandell, B.G. Young, **L.E. Steckel**, M.M. Loux, K.W. Bradley, S.P. Conley, D.E. Stoltenberg, F.J. Arriaga and V.M. Davis. 2016. Management of pigweed (*Amaranthus spp.*) in glufosinate-resistant soybean in the Midwest and Midsouth. Weed Technol 30:355-365.

Meyer, C. J. J. K. Norsworthy, G.R. Kruger, M. M. Loux, B.G. Young, **L.E. Steckel**, M.M. Loux, K.W. Bradley, M. T. Bararpour and V.M. Davis. 2016. Early season palmer amaranth and waterhemp control from preemergence programs utilizing HPPB-inhibiting and auxinic herbicides in soybean. Weed Technol 30: 67-75.

\*Crow, W. D., **L. E. Steckel**, T. C. Mueller and R. M. Hayes. 2016. Management of large, glyphosate resistant Palmer amaranth (**Amaranthus palmeri**) in corn. Weed Technol. 30:611-616.

\*Wiggins, M. S., R. M. Hayes and **L. E. Steckel**. 2016. Evaluating cover crops and herbicides for glyphosate-resistant Palmer amaranth (**Amaranthus palmeri**) control in cotton. Weed Technol 30:415-422.

Womac, A. R., G. Melnichenko, L. Steckel, G. Montgomery and R. M. Hayes. 2016. Spray tip effect on glufosinate canopy deposits in Palmer amaranth (*Amaranthus palmeri*) for pulse-wide modulation versus air induction technologies. J. Am. Soc. of Agri & Biol Engineers 59:1597-1608

\* Denotes graduate students under my direction.

**Other Publications**      **Steckel, L.E.** 2004. Cover pictures for Journal of Weed Technology, Volume 18, Number 4.  
**Steckel, L.E.** 2011. Cover pictures for Journal of Weed Science, Volume 59, Number 4.

## C-2.2 Book Chapters

**Steckel, L. E.**, C. L. Main and T. C. Mueller. 2010. Glyphosate-Resistant Horseweed the United States. *In*. Nandula, V. K., ed. September 2010. Glyphosate Resistance in Crops and Weeds: History, Development, and Management. p. 185-194. Hoboken, New Jersey: John Wiley and Sons, Inc.

## C-2.3 Extension Publications

### C-2.3.1 Special Publications (25 Total)

**Steckel, L. E.** and G. K. Breeden. 2003. 2004 Weed Control Manual for Tennessee Field Crops, Forage Crops, Farm Ponds and Harvest Aids. PB 1580.

**Steckel, L. E.**, P. A. Brawley and T. C. Mueller. 2004. Weed Science Research 2004. SP:R11-2818-012-001-04.

Patrick, C. R., M. A. Thompson and **L. E. Steckel**. 2004. Controlling the alfalfa weevil in Tennessee. PB 1033.

**Steckel, L. E.**, T. C. Mueller, M. A. Thompson, C. C. Craig, N. Rhodes, B. Brown, R. M. Hayes and B. D. Sims. 2004. 2005 Weed Control Manual for Tennessee Field Crops, Forage Crops, Farm Ponds and Harvest Aids. PB 1580.

**Steckel, L. E.**, P. A. Brawley and T. C. Mueller. 2005. Weed Science Research 2005. SP:R11-2818-012-001-05.

**Steckel, L. E.**, T. C. Mueller, M. A. Thompson, N. Rhodes, R. M. Hayes, B. Brown and B. D. Sims. 2005. 2006 Weed Control Manual for Tennessee Field Crops, Forage Crops, Farm Ponds and Harvest Aids. PB 1580.

**Steckel, L. E.**, P. A. Brawley and T. C. Mueller. 2006. Weed Science Research 2006. SP:R11-2818-012-001-06.

Patrick, C. R., M. A. Thompson and **L. E. Steckel**. 2006. Controlling the alfalfa weevil in Tennessee. PB 1033.

**Steckel, L. E.** 2006. University row crop weed specialist has weed management tips for cotton producers. Monsanto Project Weed Tip Box. 27232-1.

**Steckel, L. E.**, T. C. Mueller, M. A. Thompson, N. Rhodes, R. M. Hayes, B. Brown and B. D. Sims. 2006. 2007 Weed Control Manual for Tennessee Field Crops, Forage Crops, Farm Ponds and Harvest Aids. PB 1580.

**Steckel, L. E.** 2006. University row-crop specialist has weed management tips for cotton producers. Monsanto Special Publication 3E-9B-06-1886.

Mills, K., S. Culpepper, A. York, K. Smith and **L. Steckel**. 2006. Managing resistance to protect the value of Flex cotton. Syngenta Cotton Bulletin GS 406.51216. 12/06

**Steckel, L. E.**, and P. A. Brawley. 2007. Weed Science Research 2007. SP:R11-2818-012-017-07.

**Steckel, L. E.**, T. C. Mueller, M. A. Thompson, N. Rhodes, R. M. Hayes, B. Brown and B. D. Sims. 2007. 2008 Weed Control Manual for Tennessee Field Crops, Forage Crops, Farm Ponds and Harvest Aids. PB 1580.

C. D. Garland, G. E. Bates, C. D. Clark, D. A. Dalton, D. C. Gerloff, J. J. Goddard, K. J. Goddard, L. Howard, P. D. Keyser, M. A. Newman, D. R. Perrin, **L. E. Steckel**, F. Stribling, D. D. Tyler, M. D. Wilcox and J. B. Wills. 2007. Growing and harvesting switchgrass for ethanol production in Tennessee. SP701-A.

Armel, G., G. N. Rhodes, W. Klingeman, **L. E. Steckel** and G. Breeden. 2008. Common commercial pre-packaged herbicide mixtures. PB 1775.

Main, C. L., S. Stewart, **L. E. Steckel** and M. Newman. 2008. Wheat production in Tennessee. PB 576.

Main, C. L., S. Stewart, **L. E. Steckel**. 2008 Cotton production in Tennessee. PB 1514.

Main, C. L., M. Newman, S. Stewart and **L. E. Steckel**. 2009 Wheat production in Tennessee. PB 576.

Nichols, R. L., M. G. Burton, A. S. Culpepper, C. L. Main, M. W. Marshall, T. C. Mueller, J. K. Norsworthy, R. C. Scott, K. L. Smith, **L. E. Steckel**, and A. C. York. 2008. Distribution and Impact of Glyphosate-Resistant Palmer amaranth (*Amaranthus palmeri*) in the Southern United States. U.S. Resistant Pest Management Newsletter 17(2) 8-9. Spring 2008.

Nichols, R. L., J. Bond, A.S. Culpepper, D. Dodds, V. Nandula, C.L. Main, M.W. Marshall, T.C. Mueller, J.K. Norsworthy, A. Price, M. Patterson, R.C. Scott, K.L. Smith, **L.E. Steckel**, D. Stephenson, D. Wright and A.C. York. 2009. Glyphosate-Resistant Palmer Amaranth (*Amaranthus palmeri*) Spreads in the Southern United States (U.S.). Resistant Pest Management Newsletter 18 (2) (Spring 2009): 8-10.

**Steckel, L. E.**, T. C. Mueller, M. A. Thompson, N. Rhodes, R. M. Hayes, B. Brown and B. D. Sims. 2008. 2009 Weed Control Manual for Tennessee Field Crops, Forage Crops, Farm Ponds and Harvest Aids. PB 1580.

**Steckel, L. E.**, T. C. Mueller, M. A. Thompson, N. Rhodes, R. M. Hayes, B. Brown and B. D. Sims. 2010. 2011 Weed Control Manual for Tennessee Field Crops, Forage Crops, Farm Ponds and Harvest Aids. PB 1580.

**Steckel, L. E.**, T. C. Mueller, M. A. Thompson, N. Rhodes, R. M. Hayes, B. Brown and B. D. Sims. 2011. 2012 Weed Control Manual for Tennessee Field Crops, Forage Crops, Farm Ponds and Harvest Aids. PB 1580.

**Steckel, L. E.**, T. C. Mueller, M. A. Thompson, N. Rhodes, R. M. Hayes, B. Brown and B. D. Sims. 2012. 2013 Weed Control Manual for Tennessee Field Crops, Forage Crops, Farm Ponds and Harvest Aids. PB 1580.

**Steckel, L. E.**, T. C. Mueller, M. A. Thompson, N. Rhodes, R. M. Hayes, B. Brown and T. B. Raper. 2013. 2014 Weed Control Manual for Tennessee Field Crops, Forage Crops, Farm Ponds and Harvest Aids. PB 1580.

**Steckel, L. E.**, T. C. Mueller, M. A. Thompson, N. Rhodes, R. M. Hayes, B. Brown and B. D. Sims. 2014. 2015 Weed Control Manual for Tennessee Field Crops, Forage Crops, Farm Ponds and Harvest Aids. PB 1580.

**Steckel, L. E.**, T. C. Mueller, M. A. Thompson, N. Rhodes, R. M. Hayes, B. Brown and T. B. Raper. 2015. 2016 Weed Control Manual for Tennessee Field Crops, Forage Crops, Farm Ponds and Harvest Aids. PB 1580.

**Steckel, L. E.**, T. C. Mueller, M. A. Thompson, N. Rhodes, R. M. Hayes, B. Brown and T. B. Raper. 2016. 2017 Weed Control Manual for Tennessee Field Crops, Forage Crops, Farm Ponds and Harvest Aids. PB 1580.

**Steckel, L. E.**, and P. A. Brawley. 2012. Weed Science Research 2012. SP:R11-2818-012-001-12.

**Steckel, L. E.**, and P. A. Brawley. 2013. Weed Science Research 2013. SP:R12-5110-184-010-13.

**Steckel, L. E.**, and P. A. Brawley. 2014. Weed Science Research 2014. SP:R11-2615-590-015-14.

### **C-2.3.2 Web Publications (11 Total)**

**Steckel, L. E.** 2004 - Present. Weeds Home Page on utcrops.com@ <http://www.utcrops.com/>

**Steckel, L. E.** and T. C. Mueller. 2005. Palmer Amaranth (*Amaranthus palmeri*) Showing Reduced Sensitivity to Glyphosate.  
<http://www.utextension.utk.edu/fieldCrops/weeds/Tolerant%20Palmer%20Update.htm>

**Steckel, L. E.**, T. C. Mueller, M. A. Thompson, N. Rhodes, R. M. Hayes, B. Brown and B. D. Sims. 2007 Weed Control Manual for Tennessee Field Crops, Forage Crops, Farm Ponds and Harvest Aids. PB 1580. <http://weeds.utk.edu/rcmanual.htm>

Nichols, R. L., **L. E. Steckel**. 2008. Distribution and impact of glyphosate-resistant Palmer amaranth (*Amaranthus Palmeri*) in the southern United States. Resistant Pest Management Newsletter 17(2):8-9.

G. Armel, G. N. Rhodes, W. Klingeman, **L. E. Steckel** and G. Breeden. 2009. Common commercial pre-packaged herbicide mixtures. PB1755.  
<http://www.utextension.utk.edu/publications/pbfiles/PB1775.pdf>

**Steckel, L. E.** 2011. Identifying and managing resistant weeds Video  
<HTTP://WWW.YOUTUBE.COM/WATCH?v=GkP486q6LoU>

**Steckel, L. E.** 2012. Double edge sword of pre emergence herbicides. Cotton focus. Video  
<HTTP://WWW.YOUTUBE.COM/WATCH?v=4v2BHSnWCvO>

**Steckel, L. E.** 2013. Spray attention: Pre & Post-Emergence vs Post-Emergence. Video. 78 Views. <http://www.youtube.com/watch?v=wkrEKFwKKcg>

**Steckel, L. E.** 2013. Spray attention: Time of day application effect on Palmer control. Video 71 Views. <http://www.youtube.com/watch?v=zbvdMk-bG7g>

**Steckel, L. E.** 2013. Spray attention: Population and row width effect on Palmer control. Video. 87 views. <http://www.youtube.com/watch?v=u6zeOsHGbyQ>

**Steckel, L. E.** 2013. Spray attention: Cover crop evaluation of Palmer amaranth control. Video. 77 views. <HTTP://WWW.YOUTUBE.COM/WATCH?v=MvBTH7cTXPK>

Loux, M., W. Johnson and **L. Steckel**. Palmer amaranth: a threat to crop production in Ohio and Indiana. Video. 821 views. <http://www.youtube.com/watch?v=5Cn5boOP4t8>

McClure, A. M., L. E. Steckel and B. Brown. 2014. Converting switchgrass fields into soybean production. W313.

### **C-2.3.3 Web Based FACT Sheets (25 Total)**

**Steckel, L. E.** 2004. Pigweeds in Tennessee. W068.  
<http://www.utextension.utk.edu/publications/wfiles/W068.pdf>

**Steckel, L. E.** 2004. Early season pigweed identification. W069.  
<http://www.utextension.utk.edu/publications/wfiles/W069.pdf>

**Steckel, L. E.**, C. C. Craig and M. A. Thompson. 2004. Cleaning plant growth regulator (PGR) herbicides out of field sprayers. W071.  
<http://www.utextension.utk.edu/publications/wfiles/W071.pdf>

- Steckel, L. E.** 2004. Mature pigweed identification. W072.  
<http://www.utextension.utk.edu/publications/wfiles/W072.pdf>
- Steckel, L. E.** 2005. Pokeweed. W105.  
<http://www.utextension.utk.edu/publications/wfiles/W105.pdf>
- Steckel, L. E.** 2005. Horseweed. W106.  
<http://www.utextension.utk.edu/publications/wfiles/W106.pdf>
- Steckel, L. E.** 2005. Broadleaf Signalgrass. W107.  
<http://www.utextension.utk.edu/publications/wfiles/W107.pdf>
- Steckel, L. E.** 2005. Goosegrass. W116.  
<http://www.utextension.utk.edu/publications/wfiles/W116.pdf>
- Steckel, L. E.** 2005. Johnsongrass. W117.  
<http://www.utextension.utk.edu/publications/wfiles/W117.pdf>
- Steckel, L. E.** 2005. Hophornbeam Copperleaf. W120.  
<http://www.utextension.utk.edu/publications/wfiles/W120.pdf>
- Steckel, L. E.** 2006. Pitted Morningglory. W124.  
<http://www.utextension.utk.edu/publications/wfiles/W124.pdf>
- Steckel, L. E.** 2006. Sicklepod. W125.  
<http://www.utextension.utk.edu/publications/wfiles/W125.pdf>
- Steckel, L. E.** and N. Rhodes. 2006. Perilla Mint. W135.  
<http://www.utextension.utk.edu/publications/wfiles/W135.pdf>
- Steckel, L. E.** 2006. Yellow Nutsedge. W136.  
<http://www.utextension.utk.edu/publications/wfiles/W136.pdf>
- Steckel, L. E.** 2007. Giant Ragweed. W119.  
<http://www.utextension.utk.edu/publications/wfiles/W119.pdf>
- Steckel, L. E.** 2007. Wild Garlic. W157.  
<http://www.utextension.utk.edu/publications/wfiles/W157.pdf>
- Steckel, L. E.** 2007. Purple Deadnettle and Henbit. W165.  
<http://www.utextension.utk.edu/publications/wfiles/W165.pdf>
- Steckel, L. E.** 2007. Velvetleaf. W167.  
<http://www.utextension.utk.edu/publications/wfiles/W167.pdf>
- Steckel, L. E.** and M. A. Thompson. 2007. Replanting corn in a failed Roundup Ready Corn Stand. W164.  
<http://www.utextension.utk.edu/publications/wfiles/W164.pdf>
- Thompson, M. A., A. Wszelaki and **L. E. Steckel.** 2007. Using Accent herbicide for weed control in sweet corn. W166.  
<http://www.utextension.utk.edu/publications/wfiles/W166.pdf>
- Thompson, M. A. and **L. E. Steckel.** 2007. Controlling volunteer cotton in soybeans. W168.  
<http://www.utextension.utk.edu/publications/wfiles/W168.pdf>
- Steckel, L. E.** 2008. Cutleaf Eveningprimrose. W209.  
[HTTP://WWW.UTEXTENSION.UTK.EDU/PUBLICATIONS/WFILES/W209.PDF](http://www.utextension.utk.edu/publications/wfiles/W209.pdf)

**Steckel, L. E.,** R. Scott, J. Kelley, C. L. Main and R. Williams 2009. Sencor tolerant ratings for selected wheat varieties. W213.

<http://www.utextension.utk.edu/publications/wfiles/W213.pdf>

J. Brosnan, **L. E. Steckel** and G. Armel. 2009. EPA decision on the use of organic arsenical herbicides for weed management. W222.

<http://www.utextension.utk.edu/publications/wfiles/W222.pdf>

Thompson, A and **L. E. Steckel.** 2009. Sunflower product for dove fields. W211.

<http://www.utextension.utk.edu/publications/wfiles/W211.pdf>

Brown, B., A. McClure and **L. Steckel.** 2014. Converting switchgrass fields into soybean production. W313.

<b>C-2.3.4 Contributed to Newsletter Articles</b>	<b>Year</b>	<b># of Articles</b>	<b>Downloaded-Mailed</b>
Pioneer (Walking Your Fields)	1989-1999	120	---

### **C-2.3.5 News letter/blog publications (335 Total)**

Integrated Pest Management Newsletter <a href="http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/newsletters/newsletters_archive.htm">http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/newsletters/newsletters_archive.htm</a>	2004	26	1,967*
Integrated Pest Management Newsletter <a href="http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/newsletters/newsletters_archive.htm">http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/newsletters/newsletters_archive.htm</a>	2005	22	1,722*
Integrated Pest Management Newsletter <a href="http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/newsletters/newsletters_archive.htm">http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/newsletters/newsletters_archive.htm</a>	2006	23	1,800*
Integrated Pest Management Newsletter <a href="http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/newsletters/newsletters_archive.htm">http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/newsletters/newsletters_archive.htm</a>	2007	28	>2,000*
Integrated Pest Management Newsletter <a href="http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/newsletters/newsletters_archive.htm">http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/newsletters/newsletters_archive.htm</a>	2008	26	>5,000*
Integrated Pest Management Newsletter <a href="http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/newsletters/newsletters_archive.htm">http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/newsletters/newsletters_archive.htm</a>	2009	24	>5,000*
Integrated Pest Management Newsletter <a href="http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/newsletters/newsletters_archive.htm">http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/newsletters/newsletters_archive.htm</a>	2010	29	>5,000*

\*estimate of Ag Fax plus UTCrops downloads, email and direct mail

UT Crops News Blog	2011	21	>20,000**
UT News News Blog	2012	28	>25,792**
UT News News Blog	2013	27	>24,865**
UT News News Blog	2014	24	>24,009**
UT News News Blog	2015	28	>26,109**

\*\*number of hits from google metrics

### **C-2.4 Participation in Seminars, Workshops and Experiment Station Field Days**

### **C-2.4.1 Seminars and Workshops (36 Total)**

**Steckel, L. E.** "Aspects of common waterhemp emergence, interference and management". Monsanto Inc. St. Louis, MO. April 24, 2003. (Invited paper)

**Steckel, L. E.** "Weed control update". Nashville, TN. Tennessee Agricultural Production Association Meeting. February 4, 2004. (Invited paper)

**Steckel, L. E.** and R. M. Hayes. "Impact of glyphosate-resistant horseweed on conservation tillage in the North Delta Region". Cotton Incorporated. Crop Management Seminar. Tunica, MS. November 10, 2004. (Invited paper)

**Steckel, L. E.** "Management of glyphosate-resistant horseweed in cotton". DuPont Inc. Memphis, TN. March 3, 2005. (Invited paper)

**Steckel, L. E.** "Burndown of glyphosate-resistant horseweed in cotton". Syngenta Corp. Memphis, TN. March 4, 2005. (Invited paper)

**Steckel, L. E.** "Management research update on Roundup Ready Flex" Monsanto Inc. Memphis, TN. July 27, 2005. (Invited paper)

**Steckel, L. E.** and J. Bradford. "Glyphosate-resistant horseweed, long term management" Regional Cotton Pest Management Workshop. Memphis, TN. November 1 and 2, 2005. (Invited paper)

**Steckel, L. E.** "Resistance weed issues in Roundup Ready cotton" Mississippi State University Cotton Short Course. Starkville, MS. November 30, 2005. (Invited paper)

Gwathmey, O. and **L. Steckel**. 2006. Producing cotton in 15- and 30-inch rows. Deere & Company Field Tour. Fullen Farms. Ashport TN. ~40 attendees. August 16, 2006. (Invited talk)

**Steckel, L. E.** "Weed control in 15" row cotton" Deere & Company field tour. Fullen Farms. Ashport, TN. ~40 attendees August 16, 2006. (Invited talk)

Gwathmey, C.O. and **L.E. Steckel**. 2006. Producing cotton in 15- and 30-inch rows. Invited talk, National Cotton Council Leadership Class, Research & Education Center at Milan, September 27, 2006, Milan TN. ~25 attendees.

**Steckel, L. E.** "Identification and management of horseweed and Palmer amaranth" Monsanto Inc. Union City, TN. August 3, 2006. (Invited paper)

**Steckel, L. E.** "Glyphosate resistant horseweed management" Monsanto Inc. Union City, TN. August 4, 2006. (Invited paper)

**Steckel, L. E.** "Syngenta glyphosate-resistance workshop" October 9-11, 2006. (Lead a short presentation on resistance management and consulted with other faculty and industry personnel). (Invited talk)

**Steckel, L. E.** "Glyphosate-resistant horseweed and pigweed impact on cotton weed management and costs" Crop Management Seminar. Cotton Incorporated. Memphis, TN. November 1, 2006. (Invited paper)

**Steckel, L. E.** "Glyphosate-resistant weed management" Tennessee Farmers COOP Seminar. Nashville, TN. December 7, 2006. (Invited paper)

**Steckel, L. E.** "Management of glyphosate-resistant horseweed in cotton". DuPont Inc.



Memphis, TN. March 1, 2007. (Invited paper)

**Steckel, L. E.** "Management of glyphosate-resistant horseweed with Dicamba". Oliver Inc. Memphis, TN. March 2, 2007. (Invited paper)

Culpepper, S., A, York and **L. E. Steckel**. "Status report on glyphosate-resistant weeds – southern cropping systems". National glyphosate stewardship symposium. St. Louis, MO. March 20, 2007. (Invited paper).

**Steckel, L. E.** and R. Montgomery. "Management of dicamba and roundup tolerant soybeans". Monsanto Inc. Agri-Center, Memphis, TN. July 19, 2007. (Invited talk)

**Steckel, L. E.** Managing glyphosate resistant Palmer amaranth roundtable. Little Rock, AR. December 17, 2008.

**Steckel, L. E.** "Glyphosate-resistant Palmer amaranth update". Monsanto Inc. Union City, TN. August 7, 2008. (Invited talk)

**Steckel, L. E.** Orchestrate your opportunities. Weeds aspects of crop rotation. 2008. Beltwide Cotton Conference. Nashville, TN. January 10, 2008.

**Steckel, L. E.** and K. Smith. Glyphosate-resistant weed management in cotton. 2009. Beltwide Cotton Conference. San Antonio, TX. January 11, 2009.

**Steckel, L. E.** and K. Smith. Glyphosate-resistant weed management in cotton. 2010. Beltwide Cotton Conference. New Orleans, LA. January 9, 2010.

**Steckel, L. E.** and Ken Smith. 2011. Answers for your university weed scientists. Beltwide cotton conference. Atlanta, GA. January 4, 2011. (Invited talk).

**Steckel, L. E.** University of Illinois weed resistance field day. "Glyphosate-resistant weed management in the south". July 12, 2011. Invited presentation. Presented 6 times. About 200 attendees. (Invited talk).

**Steckel, L. E.** Oklahoma State University No-till Conference. "Glyphosate-resistant weeds: Lessons learned in Tennessee". July 22, 2011. Invited presentation. About 400 attendees. (Invited).

**Steckel, L. E.** University of Missouri weed resistance field day. "Glyphosate-resistant weed management in the south". August 2, 2011. Invited presentation. Presented 6 times. About 200 attendees. (Invited).

**Steckel, L. E.** Southern Illinois University weed resistance field day. "Glyphosate-resistant weed management in the south". August 9, 2011. Invited presentation. Presented 6 times. About 200 attendees. (Invited).

**Steckel, L. E.** 2011. Glyphosate-resistant weeds: Lessons learned in Tennessee. John Deere Weed Resistance Workshop. Kansas City, MO. Sept 19, 2011. (Invited).

**Steckel, L. E.** 2011. Glyphosate-resistant weeds: Lessons learned in Tennessee. University of Minnesota Crop Pest Management Short Course. Minneapolis, MN. Dec 15, 2011. (Invited).

**Steckel, L. E.** 2012. The changing arsenal of weed control. Beltwide cotton conference. Invited presentation. Atlanta, GA. January 3, 2012. (Invited).

**Steckel, L. E.** 2012. The double edged sword of pre emergence herbicides. Beltwide cotton conference. Invited presentation. Atlanta, GA. January 4, 2012. (Invited).

**Steckel, L. E.** 2012. New Technologies on the Horizon. BASF Science Behind the Future of Weed Control. Nashville, TN. February, 29, 2012. (Invited).

**Steckel, L. E.** 2012. Glyphosate-resistant weeds: Lessons learned in Tennessee. Bayer Crop Science. Nashville, TN. February, 29, 2012. (Invited).

#### **C-2.4.2 Experiment Station Field Day Presentations (95 Total)**

**Steckel, L. E.** and J. Parker. July 22, 2004. Palmer pigweed control in corn and soybeans. 2004 Milan No-till Field Day Tour Report pg 21. (Twenty minute presentation on field day tour, presented 8 times during the field day).

**Steckel, L. E.** 2004 Weed Tour. June 17, 2004. (Provided 3 - overview tour of weed management research).

**Steckel, L. E.** 2005 Weed Tour. June 11, 2005. (Provided 3 - overview tour of weed management research).

**Steckel, L. E.** "18<sup>th</sup> Annual Summer Celebration" West Tennessee Research and Education Center. July 13, 2006. (Gave 3 overview tours of the West Tennessee Research and Education Center numerous times during the field day). Jackson, TN.

**Steckel, L. E.** and A. Kendig. July 27, 2006. Identification and management of pigweeds. 2006 Milan No-till Field Day Tour Report pg 11-12. (Twenty-minute presentation on field day tour, presented 8 times during the field day).

**Steckel, L. E.** 2006 Weed Tour. June 12, 2006. (Provided 3-hour overview tour of weed management research).

**Steckel L. E.** 2006. Glyphosate-resistant horseweed management. Invited talk, National Cotton Council Leadership Class, Research & Education Center at Milan, 27 Sept. 2006, ~25 attendees. Milan TN.

**Steckel, L. E.** "19<sup>th</sup> Annual Summer Celebration" July 12, 2007. (Presented 1 overview tour of the West Tennessee Research and Education Center). Jackson, TN.

**Steckel, L. E.** and M. A. Thompson. . "19<sup>th</sup> Annual Summer Celebration" July 12, 2007. (Presented a 15 minute presentation on "Sprayers, spreaders and more" 3 times during the day. Jackson, TN.

**Steckel, L. E.** 2007 Weed Tour. June 16, 2007. (Provided 3-hour overview tour of weed management research).

**Steckel, L. E.,** R. Vidrine, D. Scroggs and D. Miller. 2007. "Weed competition and resistance issues". 6th Annual Dean Lee Research Station Field Day. Louisiana State AgCenter. Alexandria, LA. August 23, 2007. (Fifteen minute presentation on field day tour, presented 3 times during the field day). (Invited)

**Steckel, L. E.,** R. Scott and R Hayes. July 24, 2008. New herbicide-resistant traits on the horizon: Liberty Link Soybeans and Dicamba/Roundup Tolerant Soybeans. 2008 Milan No-till Field Day Tour Report pg 12. (Twenty minute presentation on field day tour, presented 8 times during the field day).

**Steckel, L. E.** “20<sup>th</sup> Annual Summer Celebration” July 10, 2008. (Provided 3 overview tours of West Tennessee Research Station).

**Steckel, L. E.** 2008 Weed Tour. June 13, 2008. (Provided 3-hour overview tour of weed management research).

**Steckel, L. E.** “21<sup>th</sup> Annual Summer Celebration” July 11, 2009. (Provided 3 overview tours of West Tennessee Research Station).

**Steckel, L. E.** “22<sup>nd</sup> Annual Summer Celebration” July 8, 2010. (Provided 3 overview tours of West Tennessee Research Station).

**Steckel, L.E.** and R. Scott. July 22, 2008. New herbicide resistant traits on the horizon. 2008 Milan No-till Field Day Tour Report pg 23. Presented 8 times.

Waggoner, B., R. Hayes and **L. E. Steckel.** July 22, 2010. What was once old is now new again. 2010 Milan No-till Field Day Tour Report pg 21. Presented 6 times.

**Steckel, L. E.** “23<sup>rd</sup> Annual Summer Celebration” July 17, 2010. (Provided 2 overview tours of West Tennessee Research Station).

**Steckel, L. E.** “24<sup>rd</sup> Annual Summer Celebration” July 11, 2011. (Provided 4 overview tours of West Tennessee Research Station).

**Steckel, L. E.** “25<sup>rd</sup> Annual Summer Celebration” July 12, 2012. (Provided 2 overview tours of West Tennessee Research Station).

**Steckel, L. E.** “Glyphosate-resistant weed management: present and future” July 26, 2012. 2012 Milan No-till Field Day Tour Report pg 21. Presented 7 times.

**Steckel, L. E.** “Glyphosate-resistant Palmer amaranth Management in cotton” July 26, 2014. 2014 Milan No-till Field Day Tour Report pg 21. Presented 6 times.

#### **C-2.4.3 Experiment Station Field Day Participation (12 Total)**

**Steckel, L. E.** “16<sup>th</sup> Annual Summer Celebration”. West Tennessee Research and Education Center. July 14, 2004. (Provided plant ID services in the plant diagnostic station). Jackson, TN.

**Steckel, L. E.** “17<sup>th</sup> Annual Summer Celebration” West Tennessee Research and Education Center. July 14, 2005. (Provided plant ID services in the plant diagnostic station). Jackson, TN.

**Steckel, L. E.** “18<sup>th</sup> Annual Summer Celebration” West Tennessee Research and Education Center. July 14, 2006. (Provided plant ID services in the plant diagnostic station). Jackson, TN.

Tyler, D., C. Walker and **L. E. Steckel.** July 27, 2006. Producing switchgrass: A summary of the findings from UT’s research projects. Research & Education Center at Milan. 2006 Milan No-till Field Day Tour Report pg 3-4.

Mueller, T. C., A. Bailey and **L. E. Steckel.** July 27, 2006. Weed management in soybeans. 2006 Milan No-till Field Day Tour Report pg 11.

Gwathmey, O., **L. E. Steckel** and J. Parker. July 27, 2006. Producing Cotton in 15- and 30-inch Rows. Research & Education Center at Milan. 2006 Milan No-till Field Day Tour Report pg 6-7. Milan, TN.

**Steckel, L. E.** “19<sup>th</sup> Annual Summer Celebration” July 12, 2007. (Provided plant ID services in

the plant diagnostic station). Jackson, TN.

**Steckel, L. E.** "20<sup>th</sup> Annual Summer Celebration" July 10, 2008. (Provided plant ID services in the plant diagnostic station). Jackson, TN.

**Steckel, L. E.** "21<sup>th</sup> Annual Summer Celebration" July 11, 2009. (Provided plant ID services in the plant diagnostic station). Jackson, TN.

**Steckel, L. E.** "22<sup>th</sup> Annual Summer Celebration" July 8, 2010. (Provided plant ID services in the plant diagnostic station). Jackson, TN.

**Steckel, L. E.** "23<sup>th</sup> Annual Summer Celebration" July 17, 2010. (Provided plant ID services in the plant diagnostic station). Jackson, TN.

**Steckel, L. E.** "24<sup>nd</sup> Annual Summer Celebration" July 11, 2011. (Provided plant ID services in the plant diagnostic station). Jackson, TN.

**Steckel, L. E.** "25<sup>nd</sup> Annual Summer Celebration" July 12, 2012. (Provided plant ID services in the plant diagnostic station). Jackson, TN.

**Steckel, L. E.** "25<sup>nd</sup> Annual Summer Celebration" July 13, 2013. (Provided plant ID services in the plant diagnostic station). Jackson, TN.

**Steckel, L. E.** "25<sup>nd</sup> Annual Summer Celebration" July 10, 2014. (Provided plant ID services in the plant diagnostic station). Jackson, TN.

### **C-2.5 Papers Presented at Technical Professional Meetings (165 Total)**

(\*denotes person making presentation)

\***Steckel, L. E.**, M. S. DeFelice and W. B. Brown. 1987. Weed control in grain sorghum, corn, and soybeans with BAS-514. Proc. North Cent. Weed Sci. Soc. 42:54.

\***Steckel, L. E.**, M. S. DeFelice and B. D. Sims. 1989. Integrating reduced rates of herbicides and management practices for weed control in soybeans. Proc. Southern Weed Sci. Soc. 42:39.

\***Steckel, L. E.**, C. L. Sprague and A. G. Hager. 2000. Waterhemp control in corn with preemergence and split applications of soil-applied herbicides. Proc. North Cent. Weed Sci. Soc. 55:93.

\***Steckel, L. E.**, F. W. Simmons and C. L. Sprague. 2001. Soil factor effects on isoxaflutole plus flufenacet phytotoxicity in two corn hybrids. Proc. North Cent. Weed Sci. Soc. 56:145.

\***Steckel, L. E.** and A. G. Hager. 2001. The dark world of waterhemp. Proc. University of Illinois Agronomy Day. pp 25.

\***Steckel, L. E.**, C. L. Sprague, F. W. Simmons, G. Bollero, A. G. Hager, E. W. Stoller and L. M. Wax. 2001. Tillage and cropping effects on common waterhemp (*Amaranthus rudis*) emergence and seed bank distribution over four years. Abstr. Weed Sci. Soc. Am. 41:321.

Riechers, D. and \***L. Steckel**. 2001. Understanding herbicide modes of action: Invaluable in diagnosing herbicide injury symptoms. Proc. Illinois Crop Prot. Tech. Conf. pp 119.

\***Steckel, L. E.** and C. L. Sprague. 2002. Late-season common waterhemp interference in corn. Proc. North Cent. Weed Sci. Soc. 57:112.

- \***Steckel, L. E.**, C. L. Sprague, F. W. Simmons and A. Hager. 2002. Shading effect on common waterhemp (*Amaranthus rudis*) growth, development and seed production. Abstr. Weed Sci. Soc. Am. 42:191.
- Bunting, J. A., \***L. E. Steckel** and C. L. Sprague. 2002. Herbicide calculations and formulations. What does it all mean? Proc. Illinois Crop Prot. Tech. Conf. pp 115.
- \***Steckel, L. E.** and C. L. Sprague. 2003. Late-season common waterhemp interference in soybean. Abstr. Weed Sci. Soc. Am. 43:18.
- \***Steckel, L. E.**, C. L. Sprague, E. W. Stoller and L. M. Wax. 2004. Temperature effects on germination of nine *Amaranthus* species. Abstr. Weed Sci. Soc. Am. 44:301.
- \***Steckel, L. E.**, R. M. Hayes, C. C. Craig and P. A. Brawley. 2004. Simulated glufosinate drift on to three glyphosate resistant cotton varieties. Proc. Beltwide Cotton Conf. 2004:2897.
- \*R. M. Hayes, C. C. Craig, **L. E. Steckel** and P. A. Brawley. 2004. Cotton response to postemergence pendimethalin, metolachlor, dimethenamid and trifloxysulfuron-sodium. Proc. Beltwide Cotton Conf. 2004:2875.
- \***Steckel, L. E.**, C. L. Sprague and L. M. Wax. 2004. Common waterhemp change in tolerance to three herbicides over time. Proc. South Weed Sci. Soc. 57:3.
- \*Craig, C. C., **L. E. Steckel**, R. M. Hayes and P. A. Brawley. 2004. Response of cotton cultivars to simulated glufosinate drift. Proc. South Weed Sci. Soc. 57:270.
- \***Steckel, L. E.**, P. A. Brawley, C. C. Craig and R. M. Hayes. 2005. Ignite application timing and tank-mixture effect on burndown of glyphosate resistant horseweed in no-till cotton. Proc. Beltwide Cotton Conf. 2005:2841.
- \*Hayes, R. M. and **L. E. Steckel**. 2005. Glyphosate resistant weeds: current problems, potential problems. Proc. Beltwide Cotton Conf. 2005:3161.
- Brawley, P. A., \***L. E. Steckel**, C. Craig, R. M. Hayes and T. C. Mueller. 2005. Glyphosate-resistant horseweed (*Conyza canadensis*) control in no-till cotton. Abstr. Weed Sci. Soc. Am. 45:16.
- \*Mallory-Smith, C., J. B. Colquhoun, R. P. Affeldt, R. Hines, **L. E. Steckel** and T. Bauman. 2005. Effect of glyphosate rate and application timing on annual ryegrass cover crop removal. Abstr. Weed Sci. Soc. Am. 45:14.
- \***Steckel, L. E.**, B. Hayes, T. Mueller, K. Smith, S. Nichols, A. Kendig, C. Craig and B. Nichols. 2005. Impact of glyphosate-resistant horseweed on conservation tillage in the North Delta region. Abstr. Weed Sci. Soc. Am. 45:42.
- \*Tyler, D. D. and **L. E. Steckel**. 2005. Management of no-tillage switchgrass to be used as a biomass energy source. Abstr. Soil and Water Conservation Society Annual Conference. SWCS, Ankeny, IA. March 24, 2005.
- \*English, B. C., D. G. De La Torre Ugarte, K. Jensen, C. Clark, C. Garland, K. Goddard, J. Menard, R. Roberts, **L. Steckel**, D. Tyler and M. Walsh. The UT switchgrass project: an analysis of year one. Presented at the FY05 program peer review and poster session. Washington, DC. Nov 14-16, 2005.
- \***Steckel, L. E.**, C. C. Craig and R. M. Hayes. 2005. Burndown of glyphosate-resistant horseweed in no-till cotton. Proc. South Weed Sci Soc. 58:9.

- Hayes, R. M., **L. E. Steckel**, \*T. C. Mueller and C. L. Main. 2005. Glyphosate-resistant horseweed: A case study. Proc. South Weed Sci Soc. 58:241.
- \*Main, C. L., R. M. Hayes, **L. E. Steckel** and T. C. Mueller. 2005. Shikimate accumulation profiles in glyphosate resistant horseweed. Proc. South Weed Sci Soc. 58:229.
- \*Smith, K. L., **L. E. Steckel** and D. H. Poston: 2005. Management challenges associated with GR horseweed control in cotton and soybeans. Proc. South Weed Sci Soc. 58:231.
- \*Tyler, D. D., B. English, R. Roberts, D Gerloff and **L. E. Steckel**. 2005. One year of agronomic experience with switchgrass production. Presented at status, trends and future of the south's forest and agricultural biomass, Athens, GA. 29-31.
- \*Tyler, D.D. B.C. English, R.K. Roberts, M. Walsh and **L. Steckel**. "Management of No-Tillage Switchgrass to be Used as a Biomass Energy Source." Poster presented at the 2005 Environmental Management Conference of the Soil and Water Conservation Society Annual Conference, July 30-August 4, 2005, Rochester, NY. Abstract available online at: [http://www.swcs.org/en/swcs\\_international\\_conference/2005\\_annual\\_conference/](http://www.swcs.org/en/swcs_international_conference/2005_annual_conference/).
- \***Steckel, L. E.** and S. Culpepper. 2006. Impact and management of glyphosate-resistant weeds in the southern region. Abstr National IPM Conference 46:4. (Invited paper)
- \***Steckel, L. E.**, C. C. Craig and M. A. Thompson. 2006. How to make old herbicides work in the new seed trait technology arena. Proc. South Weed Sci. Soc. 59:198. (Invited paper)
- \*Brawley, P. A. and **L. E. Steckel**. 2006. Glyphosate-resistant horseweed (*Conyza canadensis*) interference in cotton. Abstr. Weed Sci. Soc. Am. 46:9.
- \*Mueller, T. C., **L. E. Steckel**, J. S. McElroy and T. C. Teuton. 2006. An update on herbicide resistance in Tennessee. Proc. South Weed Sci. Soc. 59:70.
- \***Steckel, L. E.**, C. C. Craig and R. M. Hayes. 2006. No-till cotton burndown with Gramoxone Inteon and Ignite 280. Proc. Beltwide Cotton Conf. 2006:2273.
- \*Craig, C. C., **L. E. Steckel** and R. M. Hayes. 2006. The intangible benefits of a glyphosate production system. Proc. South Weed Sci Soc. 59:226. (Invited paper)
- \*Gwathmey, C. O. and **L. E. Steckel**. 2006. Crop maturity differences associated with yield compensation in skip-row cotton. Proc. Beltwide Cotton Conf. 2006:1871.
- \***Steckel, L. E.** December 2, 2006. Roundup Ready Flex cotton management. 9<sup>th</sup> Annual Conservation System Cotton and Rice Conference. Tunica, MS. Abstr. Accessed 11/7/2006. <http://www.cottoninc.com/Engineering/ConservationTillageConference2006/?Pg=1#16>. (Invited paper)
- \*Craig, C. C., **L. E. Steckel** and R. M. Hayes. 2006. 15" row cotton research in Tennessee. Proc. Beltwide Cotton Conf. 2006:1668.
- \*Mueller, T. C., **L. E. Steckel** and C. L. Main 2006. Reduced sensitivity of [*Amaranthus palmeri* S. Wats] to glyphosate results in lack of control in genetically modified crops. Abs of 11<sup>th</sup> International Congress of Pesticide Chemistry, IUPAC. Abstract II-1-ii-10C (paper and Invited oral presentation in Kobe, Japan).
- \*Culpepper, A. S., A. C. York, **L. E. Steckel** and E. Prostko. 2007. Herbicide resistant weeds: A Dilemma in Dixie. Proc. Beltwide Cotton Conf. 2007:578.

- \***Steckel, L. E.** and T. C. Mueller 2007. An update of herbicide resistance in Tennessee. Proc. Beltwide Cotton Conf. 2007:1235.
- \*Gwathmey, C. O. and **L. E. Steckel.** 2007. Solid versus skip-row patterns of 15-inch and 30-inch row cotton. Proc. Beltwide Cotton Conf. 2007:1779.
- \***Steckel, L. E.** and M. A. Thompson. 2007. Glyphosate-resistant weed management: an extension perspective. Proc. South Weed Sci Soc. 60:143. (Invited paper)
- \***Steckel, L. E.**, D. Tyler, B. English and D. De La Torre Ugarte. 2007. Weed control and agronomic research in the biomass crop switchgrass. Proc. South Weed Sci Soc. 60:217. (Invited paper)
- \*Scott R.C., **L. E. Steckel**, K. L. Smith, T. C. Mueller, L. R. Oliver and J. Norsworthy. 2007. Glyphosate-resistant Palmer amaranth in Tennessee and Arkansas. Proc. South Weed Sci Soc. 60:138. (Invited paper)
- \*Verell, J., A. Verell, **L. E. Steckel**, R. M. Hayes. 2007. On the farm technology for site-specific farming in the 21<sup>st</sup> century. Proc. South Weed Sci Soc. 60:215. (Invited paper)
- \***Steckel, L. E.** and P. A. Brawley. 2007. Glyphosate-resistant horseweed (*Conyza canadensis*) interference in cotton over two years. Proc. South Weed Sci Soc. 60:59.
- \*Tyler, D. B. English, R. Roberts, K. Goddard and **L. Steckel.** 2007. Switchgrass production as a bioenergy crop in the southeast. Proc. Soil and Water Conser. Soc. 2007: 133-134.
- \*Nichols, R. L., A. S. Culpepper, C. L. Main, T. C. Mueller, J. Norsworthy, R. Scott, K. L. Smith, **L. E. Steckel** and A. C. York. Glyphosate-resistant populations of *Amaranthus palmeri* in the United States. 'Resistance 2007'. Rothamsted, United Kingdom. 2007.
- \***Steckel, L. E.** and \*D. Tyler. 2007. Issues and opportunities in switchgrass production. American Society of Agronomy. New Orleans, LA. November 5, 2007. 53:12. (Invited paper).
- \*Nichols, R. L., A. S. Culpepper, C. L. Main, M. Marshall, T. C. Mueller, J. Norsworthy, R. Scott, K. L. Smith, **L. E. Steckel** and A. C. York. 2008. Glyphosate-Resistant Populations of *Amaranthus palmeri* Prove Difficult to Control in the Southern United States. 5<sup>th</sup> International Weed Science Conference, Vancouver, British Columbia. (Invited paper).
- \***Steckel, L. E.** 2007. Glyphosate-resistant horseweed control in soybeans tolerant to dicamba and glyphosate. Proc. North Cent. Weed Sci. Soc. 62:178.
- \*English, B. C., D. Tyler, C. Garland, K. Goddard, R. Roberts, **L. E. Steckel** and D. Mooney. Production of switchgrass for biofuels. 30<sup>th</sup> Symposium on Biotechnology for Fuels and Chemicals. 2008. Abstract 30:112.
- \***Steckel, L. E.** C. L. Main and W. G. Parker. 2008. Giant ragweed control in cotton. Proc. Beltwide Cotton Conf. 2008:1543.
- \*Main, C. L., J. C. Faircloth, A. S. Culpepper, **L. E. Steckel** and A. C. York. 2008. Cotton response to preemergence applications of fomesafen. Proc. Beltwide Cotton Conf. 2008:140.
- \*Owen, L., **L. E. Steckel**, C. L. Main and T. C. Mueller. 2008. Evaluation of spring and fall burndown application timings on control of glyphosate-resistant horseweed. Proc. Beltwide Cotton Conf. 2008:136.

- \***Steckel, L. E.** and P Brawley. 2008. Glyphosate-resistant horseweed (*Conyza canadensis*) control in cotton over two years. Proc. South Weed Sci Soc. 61: 62.
- \***Steckel, L. E.** and M. A. Thompson. 2008. Glyphosate-resistant weed management: an extension perspective. Proc. South Weed Sci Soc. 61: 143
- \***Steckel, L. E.**, D. Tyler, B. English and D. De La Torre Ugarte. 2008. Weed control and agronomic research in the biomass crop switchgrass. Proc. South Weed Sci Soc. 61: 215.
- \*Verell, J., A. Varel, **L. E. Steckel** and R. M. Hayes. 2008. On the farm technology for site-specific farming in the 21<sup>st</sup> century. Proc. South Weed Sci Soc. 61: 213.
- \*R. Scott, **L. E. Steckel**, K. L. Smith, T. C. Mueller, L. R. Oliver and J. Norsworthy. 2008. Glyphosate-resistant Palmer amaranth in Tennessee and Arkansas. Proc. South Weed Sci Soc. 61: 138.
- \***Steckel, L. E.**, K. L. Smith, R. Scott, D. Stephenson, T. Koger, J. Bond, S. Stewart, D. Dodd and V. Nandula. 2009. Glyphosate-resistant Palmer amaranth in the mid-south. Proc. South Weed Sci Soc. 62:373. (Invite paper)
- \*Ellis, J., **L. Steckel**, R. Scott and A. Hopkins. 2009. Control of glyphosate resistant weeds in no-till roundup ready soybeans with ignite. Proc. South Weed Sci Soc. 62:514.
- \***Steckel, L. E.**, C. Main and J. Holloway. 2009. Palmer amaranth control and cotton response to early preplant and preemergence applications of residual herbicides. Proc. South Weed Sci Soc 62:126.
- \*Waggoner, B., **L. Steckel** and T. Mueller. 2009. Giant ragweed control in soybeans. Proc. South Weed Sci. Soc 62:30.
- \*Owen, L., **L. Steckel**, C. L. Main and T. Mueller. 2009. Application timings and rates of saflufenacil (Kixor) in no-till cotton. Proc. South Weed Sci. Soc 62: 312.
- \*T. Mueller, **L. Steckel** and M. Radosevich. 2009. Effect of soil pH and previous use history on atrazine dissipation in soil. Proc. South Weed Sci. Soc 62: 519.
- \***Steckel, L. E.**, C. L. Main and J. K. Norsworthy. 2009. An update on glyphosate-resistant weeds in Tennessee. Proc. Beltwide Cotton Conf. 2009:1377.
- \*Norsworthy, J. K., K. L. Smith, **L. E. Steckel** and C. H. Koger. Gin trash: potential for weed seed dispersal. Proc. Beltwide Cotton Conf. 2009:1353.
- \*Owen, L. K., **L. E. Steckel**, C. L. Main and T. C. Mueller. 2009. Evaluation of fall and spring burndown application timings on control of glyphosate resistant horseweed in no-till cotton. Proc. Beltwide Cotton Conf. 2009:1212.
- \*Manning, J. K. , J. A. Bond, **L. E. Steckel**, D. O. Stephenson, J. B. McDuffie, R. L. Landry. 2010. Corn tolerance to Resolve. Proc South Weed Sci. Soc 63:30
- \*Bond, J. A., K. L. Smith, J. K. Norsworthy, D. O. Stephenson, **L. E. Steckel**, J. K. Manning, and J. B. McDuffie. 2010. Regional research addressing glyphosate-resistant Palmer amaranth control in cotton. Proc South Weed Sci. Soc 63:114.
- \***Steckel, L. E.** and C. L. Main. 2010. Glyphosate resistant giant ragweed control in cotton. Proc Beltwide Cotton Conf. 2010:1547.



\***Steckel, L. E.** 2010. Weed resistance situation in southern US row crops. Proc. Pan America Weed Resistance Conference.

\*Waggoner, B., **L. E. Steckel**, C. L. Main, T. C. Mueller, J. A. Bond. 2010. Investigations into the effects of tank mix partners on the efficacy and behavior of saflufenacil in glyphosate resistant horseweed (*Conyza canadensis*). Proc. Beltwide Cotton Conf. 2010:1557.

Culpepper, A. S. and **L. E. Steckel**. 2010. Impact of technology on consultants: weed management. Proc. Beltwide Cotton Conf. 2010:3.

Culpepper, A. S. and **L. E. Steckel**. 2010. Value of transgenic weed management. Proc. Beltwide Cotton Conf. 2010:6.

Gwathmey, C. O., **L. E. Steckel**, J. A. Larson and D. F. Mooney. 2010. Cotton seeding rates: how low can we go? Proc. Beltwide Cotton Conf. 2010:140.

\*Bond, J. A., K. L. Smith, D. O. Stephenson, J. K. Norsworthy, **L. E. Steckel**, J. K. Manning and J. B. McDuffie. 2010. Managing glyphosate-resistant Palmer amaranth with residual herbicides in mid-south cotton. Proc. Beltwide Cotton Conf. 2010:1533.

\***Steckel, L. E.** and M. A. McClure. 2010. Glyphosate resistant Palmer amaranth control in Roundup Ready soybeans. Proc South Weed Sci. Soc 63:88.

Nichols, R. L., J. Bond, A. S. Culpepper, D. Dodds, V. Nandula, C. L. Main, M. W. Marshall, T. C. Mueller, J. K. Norsworthy, A. Price, M. Patterson, R. C. Scott, K. L. Smith, **L. E. Steckel**, D. Stephenson, D. Wright, and A. C. York. Glyphosate-Resistant Palmer Amaranth (*Amaranthus palmeri*) Spreads in the Southern United States (U.S.) Arkansas glyphosate-resistant Palmer Amaranth Symposium. Sept 15, 2010. Forest City, AR.

\***Steckel, L. E.** New technology and the future of Palmer control. Arkansas glyphosate-resistant Palmer Amaranth Symposium. Sept 15, 2010. Forest City, AR.

\*Barnett, K. A., **L. E. Steckel**, A. L. York and A. S. Culpepper. 2011. Influence of glufosinate timing on cotton growth and yield. Beltwide cotton conference. 2011:318.

\*Merchant, R., A. S. Culpepper, A. L. York, **L. E. Steckel** and L. M. Sosnoskie. 2011. Influence of glufosinate timing on cotton growth and yield. Beltwide cotton conference. 2011:1558.

Culpepper, A. S., J. S. Richburg, A. C. York, **L. E. Steckel** and L. B. Braxton. 2011. Managing glyphosate-resistant Palmer amaranth using 2,4-D systems in dht cotton in GA, NC and TN. Proc. Beltwide Cotton Conf. 2011:1543.

\***Steckel, L. E.**, D. O. Stephenson, J. A. Bond, K. A. Barnett and S. D. Stewart. 2011. Tolerance of WideStrike cotton to ignite tank mix applications. Beltwide cotton conference. 2011:1540.

\*Stewart, S. D., S. Steckel, K. Pearson and **L. E. Steckel**. 2011. The potential interaction of foliar herbicides and insecticides on seedling cotton. Beltwide cotton conference. 2011:810.

\*Waggoner, B. S., G. R. Armel, **L. E. Steckel** and T. C. Mueller. 2011. Evaluating the effect of tank-mixture partners on uptake and translocation of saflufenacil on glyphosate resistant horseweed. Proc South Weed Sci. Soc 64:198.

\*Barnett, K. A., **L. E. Steckel**, T. C. Mueller, A. C. York and A. S. Culpepper. 2011. Palmer

amaranth control and cotton response to tank-mix combinations of glufosinate plus fluometuron. Proc South Weed Sci. Soc 64:176.

\***Steckel, L. E.**, A. C. York and A. S. Culpepper. 2011. How future herbicide tolerant traits may effect glyphosate-resistant weed management. Proc South Weed Sci. Soc 64:254.

\*Culpepper, A. S, A. C. York and **L. E. Steckel** 2011. Glyphosate-resistant Palmer amaranth management in cotton. Proc South Weed Sci. Soc 64:226.

\*Culpepper, A. S and **L. E. Steckel** 2011. Weed control and crop tolerance with 2,4-D Today. Proc South Weed Sci. Soc 64:136.

\*Barnett, K. A. and **L. E. Steckel**. 2011. Management of glyphosate-resistant Palmer amaranth in roundup ready soybeans. Abstr. Weed Sci. Soc. Am. 51:180.

\***Steckel, L. E** and Barnett, K. A. 2011. Potential tank-mix combinations to control glyphosate-resistant giant ragweed in cotton. Abstr. Weed Sci. Soc. Am. 51:179.

\*Culpepper, A. S, L. M. Sosnoskie, J. Kichler and **L. E. Steckel** 2011. Impact of cover crop residue and tillage on the control of glyphosate-resistant Palmer amaranth. Proc South Weed Sci. Soc 64:267.

\*Brabham, C. B., B. Johnson, B. G Young, J. M. Matthews, P. T. Marquardt, C. Slack, K. W. Bradley, A. York, A. S. Culpepper, A. Hager, K. Al-Khatib **L. E. Steckel**, M. Moechning, M. Loux, M. L. Bernards and R. J. Smeda. 2011. Weed control in dicamba-resistant soybeans. Abstr. Weed Sci. Soc. Am. 51:271.

\*Barnett, K. A. and **L. E. Steckel**. 2011. Biology and managment of giant ragweed in the Mid-South. Abstr. North Central Weed Control Conf. 66:199.

\***Steckel, L. E.** and K. A. Barnett. 2011. Confirmation and management of glyphosate-resistant goosegrass in Tennessee. Abstr. North Central Weed Control Conf. 66:103.

\*Barnett, K. A., A. York, S. Culpepper and **L. E. Steckel**. 2012. Evaluation of widestrike cotton response to glufosinate applications. Proc South Weed Sci. Soc 65:12.

\***Steckel, L. E.**, T. Eubank, E. Prostko, B. Scott and N. Rhodes. 2012. University extension role and responsibilities in protecting the technology. Proc South Weed Sci. Soc 65:88.

\***Steckel, L. E.**, T. Eubank, J. Weirich, B. Scott and R. Montgomery. 2012. Glyphosate-resistant palmer amaranth control in dicamba tolerant soybean system in the midsouth. Proc South Weed Sci. Soc 65:100.

Reynolds, D., R. Edwards, J. Irby, **L. E. Steckel**, L. Walton, R. Haygood, D. Ellis and J. Richburg. 2012. The effect of boom type and 2,4-D formulation on drift under field conditions. Proc South Weed Sci. Soc 65:270.

\*Barnett, K. A., T. C. Mueller, J. T. Brosnan and **L. E. Steckel**. 2012. Glyphosate-resistant goosegrass confirmed in Tennessee: Potential implications and control options for soybean. Abstr. Weed Sci. Soc. Am. 52:114.

\***Steckel, L. E.** 2012. Managment of glyphosate-resistant weeds in a corn rotation Proc Conservation Systems Cotton & Rice Conf. 15:39.

\*Gaban, B.L., **L. E. Steckel** and T. C. Mueller. 2012. A field study comparing conventional and round ready soybean isolines for weed control and yield. Proc South Weed Sci. Soc. 65:5.

- \*Reynolds, D., S. A. Culpepper, A. S. and **L. E. Steckel**. 2012. Volatility of GF-2726 as compared with other Auxin herbicides. Proc. Beltwide Cotton Conf. 2012:3.
- \***Steckel, L. E.** 2012. New herbicide technology traits and the future of pigweed control. Proc. Beltwide Cotton Conf. 2012:4.
- \***Steckel, L. E.** 2012. The changing arsenal of weed control. Proc. Beltwide Cotton Conf. 2012:7.
- \*Monks, C. D., J. A. Kelton, M. G. Patterson, A. J. Price, S. Bollman, A. S. Culpepper, M. W. Marshall, R. L. Nichols and **L. E. Steckel**. 2012. Integrated resistant pigweed control in the southeast. Proc. Beltwide Cotton Conf. 2012:141.
- \*Steckel, S. J., S. D. Stewart and **L. E. Steckel**. 2012. Evaluation of WideStrike cotton injury from early season herbicide x insecticide tank mixes. Proc. Beltwide Cotton Conf. 2012:834.
- \***Steckel, L. E.** 2012. The double edged sword of preemergence herbicides. Proc. Beltwide Cotton Conf. 2012:1519.
- \*Edwards, R., D. B. Reynolds, J. T. Irby, **L. E. Steckel**, K. A. Barnett, L. Walton, B. Haygood, D. Ellis and J. Richburg. 2012. The effect of colex-d technology in managing drift under field conditions with the enlist weed control system. Proc. Beltwide Cotton Conf. 2012:1523.
- \*Dodds, D. M., S. Bollman, A. Mills, A. S. Culpepper, D. Miller, J. K. Norsworthy, **L. E. Steckel** and A. C. York. 2012. Evaluation of crop safety and weed control programs in dicamba tolerant cotton. Proc. Beltwide Cotton Conf. 2012:1529.
- \*Barnett, K. A. and **L. E. Steckel**. 2012. The effect of giant ragweed on cotton maturity, yield and fiber quality. Proc. Beltwide Cotton Conf. 2012:1539.
- \*Norsworthy, J. K., K. L. Smith, R. C. Scott, **L. E. Steckel**, J. A. Bond, T. W. Eubank and D. Stephenson. 2012. Midsouth weed management survey with emphasis on palmer amaranth. Proc. Beltwide Cotton Conf. 2012:1544.
- \*Barnett, K. A. and **L. E. Steckel**. 2013. Glyphosate-resistant giant ragweed competition and control in mid-south cotton. Proc. BeltWide Cotton Conf. 2013:1034.
- \*Wiggins, M. S., Barnett, K. A. and **L. E. Steckel**. 2013. Glyphosate and glufosinate application timing for glytol + Liberty Link systems. Proc. BeltWide Cotton Conf. 2013:666.
- \*Norsworthy, J. K., R. Lassiter, J. Bond, A. S. Culpepper, D. Dodds, D. Miller and **L. E. Steckel**. 2013. Efficacy of enlist duo (glyphosate + 2,4-D) on glyphosate-resistant palmer amaranth: a summary of trials in enlist cotton. Proc. BeltWide Cotton Conf. 2013:1041.
- \*Gaban, B. L., **L. E. Steckel** and T. C. Mueller. 2013. Comparisons of Roundup Ready and conventional soybean growing systems for weed control, yield and economic profitability. Proc South Weed Sci. Soc. 66:116.
- \* Wiggins, M. S. and **L. E. Steckel**. 2013. Managing Palmer amaranth in cotton systems utilizing cover crops. Proc South Weed Sci. Soc. 66:117.
- \*Culpepper, A. S., York, A. C., **L. E. Steckel**, J. A. Bond and D. Stephenson. Palmer amaranth control significantly influences by the time of day in which Liberty is applied. 2013. Proc South Weed Sci. Soc. 66:168.

- \***Steckel, L. E.**, T. W. Eubank, R. Montgomery, B. Scott, R. Smeda, E. Blinka, A. Mills, S. Stanislav, S. Seifert-Higgins and F. Zabala. 2013. Palmer amaranth weed control programs for Roundup Ready 2Xtend soybeans in the mid-south. Proc South Weed Sci. Soc. 66:180.
- \*Norsworthy, J.K., **L. E. Steckel**, D. Stephenson, T. W. Eubank and B. Scott. 2013. A survey of weed management practices in midsouth soybean. Proc South Weed Sci. Soc. 66:187.
- \* Cobb, J. L., D. B. Reynolds, J. Irby, J. K. Norsworthy, **L. E. Steckel**, A. Mills, R. Montgomery, J. Sandbrink and K. Remund. 2013. A field scale comparison of AI and TTI nozzles to mitigate off-target movement of dicamba. Proc South Weed Sci. Soc. 66:224.
- \***Steckel, L. E.**, A. S. Culpepper, J. K. Norsworthy, A. C. York, B. Braxton, R. A. Haygood, R. Montgomery and C. D. Youmans. 2013. Influence of nozzle selection and auxin herbicides on efficacy. Proc South Weed Sci. Soc. 66:227.
- \* Barnett, K. A. and **L. E. Steckel**. 2013. Giant ragweed competition in cotton. Proc South Weed Sci. Soc. 66:274.
- \***Steckel, L. E.**, R. Montgomery, E. Blinka, T. W. Eubank, A. Mills, S. Stanislav, S. Seifert-Higgins, F. Zabala, R. Smeda and B. Scott. 2013. Palmer amaranth control programs for Roundup Ready 2Xtend soybeans. Abstr. Weed Sci. Soc. Am. 66:180.
- \* Wiggins, M. S., D. D. Tyler and **L. E. Steckel**. 2013. Cover crops as a weed suppression technique for Palmer amaranth in the mid-south. Abstr. Weed Sci. Soc. Am. 53:32.
- \*Cobb, J. L., D. B. Reynolds, J. Irby, J. K. Norsworthy, **L. E. Steckel**, A. Mills, R. Montgomery, J. Sandbrink and K. Remund. 2013. A field scale comparison of AI and TTI nozzles to mitigate off-target movement of dicamba. Abstr. Weed Sci. Soc. Am. 53:216.
- \*Crow, W. D., R. Hayes and **L. E. Steckel**. 2013. Post corn harvest palmer control. Proc South Weed Sci. Soc. 66:40.
- \* Edwards, B., T. Eubank, D. R. Shaw and **L. E. Steckel**. 2013. Preemergence and postemergence efficacy of dicamba on glyphosate-resistant Palmer amaranth. Abstr. Weed Sci. Soc. Am. 53:286.
- Light Interception of soybean as influenced by row width, seeding rate, and weed competition. Thomas R. Butts, Jason K. Norsworthy, Greg R. Kruger, Lowell Sandell, Bryan G. Young, Kevin Bradley, **Larry Steckel**, Mark Loux, and Vince Davis. Proc South Weed Sci. Soc.
- Butler, S., L.E. Steckel and E.Walker. 2014. Evaluation efficacy of Palmer amaranth with drift reduction nozzles. Butler, S., L.E. Steckel and E. Walker. Proc. South Weed Sci. Soc. 67:1.
- Meyer, C.J., J.K. Norsworthy, B. W. Scharge, H. D. Bell, B. G. Young, LX. Ranca, L. E. Steckel, K. W. Bradley, W. G. Johnson, M. M. Loux, V. M. Davis, T. W. Eubank, and G. R. Kruger. 2014. Temporal emergence pattern of Amaranthus Spp. From natural seedbanks in the Midwest and midsouth as explained by tillage practices, soil temperature, and soil moisture. Proc. South Weed Sci. Soc. 67:60.
- Wiggins, M.S., R. M. Hayes and L. E. Steckel. 2014. Management of cover crops for a no-till soybean system. Proc. South Weed Sci. Soc. 67:128.
- Norsworthy, J.K., T. Eubank, L. E. Steckel, J. L. Griffin, J. Mills, R. Montgomery, S. Stanislav and E. Blinka. 2014. Control of glyphosate-resistant Palmer amaranth and other weeds in RRII Xtend Soybean. Proc. South Weed Sci. Soc. 67:185.

- Norsworthy, J.K., C. J. Meyer, W. Scharge, H. D. Bell, B. G. Young, L.X. Ranca, L. E. Steckel, K. W. Bradley, W. G. Johnson, M. M. Loux, V. M. Davis, T. W. Eubank, and G. R. Kruger. 2014. Program approaches for managing Palmer amaranth and waterhemp using new soybean technologies. *Proc. South Weed Sci. Soc.* 67:188.
- Steckel, L.E., J. C. Holloway, B. Young and S. E. Cully 2014. Efficacy of weed management systems in MGI soybean. *Proc. South Weed Sci. Soc.* 67:197.
- Crow, W.D., L.E. Steckel, M.S. Wiggins, R.M. Hayes. 2014. Evaluation of Fluridone and Pyroxasulfone for residual control of Palmer amaranth in cotton compared to currently use commercial herbicide. *Proc. Beltwide Cotton Conf.* 2014:1042.
- Wiggins, M. S., and L.E. Steckel. 2014. Management of Palmer amaranth in cotton using cover crops and herbicides. *Proc. Beltwide Cotton Conf.* 2014:1055.
- Vineyard, C., S. Stewart, L. Steckel, and H. Kelly. 2014. The effects of pre-emergence herbicides on neonicotinoids seed treatments in seedling cotton. *Proc. Beltwide Cotton Conf.* 2014:777.
- Barber, T., J.A. Bond, D. Miller, D.B. Reynolds, L.E. Steckel, and D.O. Stephenson. 2014. Weed management in Roundup Ready Xtend cotton. *Proc. South Weed Sci. Soc.* 67:164.
- Crow, W.D., L.E. Steckel, and R.M. Hayes. 2014. Post corn harvest Palmer amaranth control. *Proc. South Weed Sci Soc.* 67:128.
- Hayes, R.M., R. Montgomery, D.B. Reynolds, D.M. Dodds, W.D. Crow, M.S. Wiggins, M. Goddard and L.E. Steckel. 2014. Evaluation of residual herbicides in Bollguard II XtendFlex cotton. *Proc. South Weed Sci. Soc.* 67:166.
- Wiggins M. S., R. M. Hayes, and L. Steckel. 2014. Management of glyphosate-resistant Palmer amaranth in cotton using cover crops and herbicides. *Proc. Weed Sci. Soc. Am.* 2014:19.
- Norsworthy J.K., M. J. Walsh, M. V. Bagavathiannan, K. W. Bradley, L. Steckel, G. Kruger, M. M. Loux, T. Eubank, V. Davis, W. Johnson, B. Young, and S. Powles. 2014. Harvest weed seed control: Testing Australian seedbank management tactics in USA soybean. *Proc. Weed Sci. Soc. Am.* 2014:53.
- Norsworthy J.K, L. Steckel, D. B. Reynolds<sup>3</sup>, T. Irby, T. Barber, A. Mills, R. Montgomery, J. Sandbrink, J. Travers, and K. Remund. 2014. Use of proper application techniques to mitigate off-target movement of glyphosate + dicamba during soybean reproductive development. *Proc. Weed Sci. Soc. Am.* 2014:71.
- Moore J.C., C.J. Meyer, J.K. Norsworthy, R. Smeda, B.G. young, G.R. Kruger, V.M. Davis, M.M. Loux, W.G. Johnson, L.E. Steckel. 2015. Temporal emergence of *Amaranthus* spp. Across the Midsouth and Midwest. *Proc. South Weed Sci. Soc.* 68:21.
- Steckel S., L.E. Steckel. 2015. Palmer amaranth control with fluridone in soybean. *Proc. South Weed Sci. Soc.* 68:47.
- Meyer C.J., J.K. Norsworthy, L.E. Steckel, G.R. Kruger, V.M. Davis, B.G. Young, W.G. Johnson, K.W. Bradley, M.M. Loux. 2015. Next generation preemergence programs for controlling Palmer amaranth and waterhemp in soybean. *Proc. South Weed Sci. Soc.* 68:65.
- Bagavathiannan M.V., M. Lacoste, S.B. Powles, L.E. Steckel, M. Popp, J.K. Norsworthy. 2015. Developing an educational tool (PAM model) for promoting integrated management of Palmer amaranth. *Proc. South Weed Sci. Soc.* 68:97.

- Umphres-Lopez A., L.E. Steckel, D. Kincer, T.C. Mueller. 2015. Effects of flooding on atrazine dissipation in soil. *Proc. South Weed Sci. Soc.* 68:124.
- Montgomery G.B., L.E. Steckel, J.C. Holloway. 2015. Evaluation of acuron as a new herbicide for weed control in corn. *Proc. South Weed Sci. Soc.* 68:144.
- Crow W.D., L.E. Steckel, R.M. Hayes, T.C. Mueller, 2015. Evaluation of post-harvest herbicide application for seed prevention of glyphosate resistant Palmer amaranth. *Proc. South Weed Sci. Soc.* 68:145.
- Scott A.G., A.T. McClure, L.E. Steckel, V.M. Davis, W.G. Johnson, M.M. Loux, J.K. Norsworthy, J. Farmer, K.W. Bradley. 2015. Influence of tillage methods on management of amaranthus species in soybean. *Proc. South Weed Sci. Soc.* 68:161.
- Butler S.A., L.E. Steckel. 2015. Influence of drift-reduction nozzle technology on efficacy of contact and systemic tank-mixed herbicides. *Proc. South Weed Sci. Soc.* 68:163.
- Norsworthy J.K., T. Barber, R. Scott, J.A. Bond, L.E. Steckel, D. Reynolds. 2015. Understanding risks associated with increased use of Auxin herbicides in Midsouth crops: What are the concerns? *Proc. South Weed Sci. Soc.* 68:180.
- Norsworthy, J. K., T.W. Eubank, L.E. Steckel, J.L. Griffin, J. Mills, R. Montgomery, S. Stanislav and E. Blinka. 2014. Control of glyphosate-resistant Palmer amaranth and other weeds in Roundup Ready II Xtend soy bean. *Proc South. Weed Sci. Soc.* 67:185.
- Barber T., J.K. Norsworthy, J.A. Bond, L.E. Steckel, D. Reynolds. 2015. Dicamba effects on soybean and their progeny. *Proc. South Weed Sci. Soc.* 68:182.
- Wiggins M.S., G.B. Montgomery, T.D. White, R.F. Montgomery, L.E. Steckel. 2015. Managing Cover crops for in-season weed control in dicamba-tolerant soybean. *Proc. South Weed Sci. Soc.* 68:216.
- Mueller T.C., R. Scott, D. Stephenson, D. Miller, E.P. Prostko, J. Grichar, J. Krutz, L.E. Steckel, P. Dotray. 2015. Effect of previous atrazine use on enhanced atrazine degradation in southern US soils. *Proc. South Weed Sci. Soc.* 68:224.
- Moore J.C., T. Butts, J.K. Norsworthy, G.R. Kruger, B.G. Young, L.E. Steckel, M.M. Loux, K.W. Bradley, W.G. Johnson, V.M. Davis. 2015. Light interception in soybean affects grain yield and weed suppression. *Proc. South Weed Sci. Soc.* 68:261.
- Montgomery, G., L. Steckel, J. Bond and H. Edwards. 2016. Combining cover crops and fall applied herbicides for Italian ryegrass control. *Proc. South Weed Sci. Soc.* 69:76.
- Buck, T., A. York, S. Culpepper and L. Steckel. 2016. Determining the most effective and economical PRE herbicides for GLB2 cotton. *Proc. South Weed Sci. Soc.* 69:96.
- Reeves, J., L. Steckel and S. Steckel. 2016. Examining nozzle effects on post-applied herbicide burn to cotton. *Proc. South Weed Sci. Soc.* 69:184.
- Reeves, J., G. Montgomery and L. Steckel. 2016. Nozzle effect on efficacy of glufosinate and fomesafen on Palmer Amaranth in soybean. *Proc. South Weed Sci. Soc.* 69:185.
- Tranel, P., J. Song, C. Riggins, N. Burgos, J. Martin and L. Steckel. 2016. Molecular screening for resistance to PPO inhibitors in Palmer amaranth (*Amaranthus palmeri*). *Proc. South Weed Sci.*

Soc. 69:220.

Montgomery, G. L. Steckel, B. Lawrence, H. Edwards and J. Bond. 2016. Environmental influences and time of day effects on PPO-Inhibiting herbicides. Proc. South Weed Sci. Soc. 69:287.

Steckel, L. R. Haygood, J. Ellis, M. Peterson, and C. Voglewede. 2016. Evaluation of a new arylex active herbicide for burndown of glyphosate-resistant horseweed in no-till soybean. Proc. South Weed Sci. Soc. 69:330.

Ducar, J., L. Steckel, G. Montgomery and G. Stapleton. 2016. Time of day effects on horseweed efficacy with various burndown herbicides. Proc. South Weed Sci. Soc. 69:414.

Mirsky, S., A. Davis, J. Norsworthy, M. Bagavathiannan, J. Bond, K. Bradley, W. Curran, D. Ervin, W. Everman, M. Flessner, G. Frisvold, A. Hager, B. Hartzler, N. Jordan, J. Lindquist, B. Schulz and L. Steckel. 2016. An integrated weed management approach to addressing the multiple herbicide-resistant weed epidemic in three major U.S. field crop production regions. Proc. South Weed Sci. Soc. 69:454.

## C-2.6 Popular Press Articles

### C-2.6.1 Written or Contributed to Popular Press Articles (286 Total Articles)

#### ***Delta Farm Press (106 articles) (Circulation: >26,000; >51,000 Website monthly viewers)***

Glyphosate-resistant horseweed manageable. Mar 19, 2004.

Footprints in the Field. July 16, 2004.

Footprints in the Field. Aug 27, 2004.

Footprints in the Field. Sept 3, 2004.

Growers focus on corralling horseweed. Dec 10, 2004.

Horseweed out of the barn, growing focus on control. Dec 13, 2004.

Footprints in the Field. Mar 25, 2005.

Footprints in the Field. Apr 22, 2005.

Footprints in the Field. May 6, 2005.

Footprints in the Field. Jun 3, 2005.

Horseweed changing weed control. Jul 8, 2005.

Footprints in the Field. Aug 12, 2005.

Resistant pigweed found. Sept 3, 2005.

Footprints in the Field. March 31, 2006.

Tennessee explores 15-inch cotton. April 21, 2006.

Footprints in the Field. April 21, 2006.

Footprints in the Field. May 5, 2006.

Footprints in the Field. May 19, 2006.

Footprints in the Field. June 2, 2006.

Footprints in the Field. July 14, 2006.

Footprints in the Field. June 16, 2006.

Footprints in the Field July 28, 2006.

Switching to new crop could help survive cost squeeze. Aug 11, 2006.

Resistant horseweed top weed. Sept 1, 2006.

15-inch cotton could help producers improve profits. November 3, 2006.

Resistant horseweed: spring forward, fall back? November 10, 2006.

Resistance burdensome to growers. November 24, 2006.

University row-crop specialist has weed-management tips for cotton producers. Dec 6, 2006.  
Glyphosate-resistant weeds burden growers' pocketbook. Feb 21, 2007.  
Premix herbicides for corn give contact, residual control. March 23, 2007.  
Low canopy temperatures hammer mid-south wheat. April 18, 2007.  
Wheat crop goes bumper to disaster. May 4, 2007.  
Corn and weeds coming up in a hurry. May 17, 2007.  
Fall applications improve horseweed control. May 17, 2007.  
Weed problems in Tennessee cotton. June 15, 2007.  
University row-crop specialist has weed management tips for cotton producers. October 5, 2007.  
Volunteer corn problems for wheat. October 12, 2007.  
Simplified corn weed control? Well, it's a bit more complicated. November 9, 2007.  
Glyphosate-resistant giant ragweed confirmed in Tennessee. March 27, 2008.  
Weed control much more complex new tools coming. March 27, 2008.  
Residuals may be more effective early. April 4, 2008.  
Resistant pigweeds blow up in many mid-south fields. July 25, 2008.  
Dicamba-resistant soybeans focus of UT weed scientist. September 5, 2008.  
Resistance problems increasingly a concern for many corn producers. November 14, 2008.  
Resistant Palmer pigweed...from rare to everywhere. December 12, 2008.  
Pollen movement major factor in spread of resistant pigweed. March 27, 2009.  
Pigweed predictions becoming reality. August 7, 2009.  
Changing tactics will be needed for herbicide-resistant weeds. January 22, 2010.  
Total postemergence herbicide era over. Blog Video. Jan 29, 2010.  
<http://deltafarmpress.com/management/Total-postemergence-herbicide-era-over>  
Era of Total postemergence weed control could be coming to end. February 5, 2010.  
New Burndown option available to soybean growers this spring. February 5, 2010.  
Weed resistance will headline farm and gin show. February 5, 2010.  
Glyphosate-resistant Palmer amaranth...growers' options. March 5, 2010.  
Shift coming in Tennessee cotton herbicide technologies for 2010? April 6, 2010.  
Pigweed – control early or live with it. May 7, 2010.  
Resistant giant ragweed. May 28, 2010.  
Took cover picture. May 28, 2010.  
Resistant palmer need not be crisis. June 25, 2010.  
Plan that works now might be 'express train' to resistant weeds. August 13, 2010.  
Three reasons we're in danger of running out of crop herbicides. November 5, 2010.  
New technologies will play role in controlling resistant pigweed. January 7, 2011.  
Herbicide plans more complex. February 25, 2011.  
Herbicide resistance cost farmers millions in higher expenses, lost yield. February 25, 2011.  
Resistant weeds cost Tennessee growers \$200 million. Blog Video. Feb 28, 2011.  
<http://deltafarmpress.com/soybeans/resistant-weeds-cost-tennessee-growers-200-million>  
Glyphosate-resistant goosegrass in Tennessee. Blog Video. May 17, 2011.  
<http://deltafarmpress.com/management/glyphosate-resistant-geesegrass-tennessee>  
With no pre-applied herbicides, pigweeds take control. Jun 22, 2011.  
<http://deltafarmpress.com/management/no-pre-applied-herbicides-pigweeds-take-control>  
Palmer pigweed can take over with no pre-applied herbicides. July 1, 2011.  
<http://deltafarmpress.com/management/no-pre-applied-herbicides-pigweeds-take-control>  
Cotton growers made progress with resistant Palmer amaranth. Aug 19, 2011.  
<http://deltafarmpress.com/management/2011-late-season-report-tennessee-weed-control>  
Palmer pigweed attach like 'sci fi movie'. Aug 26, 2011.  
<http://deltafarmpress.com/cotton/palmer-pigweed-attack-sci-fi-horror-movie>  
Glyphosate-resistant Palmer now reaches across Tennessee. September 30, 2011.  
<http://deltafarmpress.com/management/resistant-palmer-amaranth-coast-coast-tennessee>  
Even "scattered" populations of pigweed can reduce yields. November, 4, 2011.  
Complete resistant-weed control will not be poured from a jug. Jan 13, 2012.  
<http://deltafarmpress.com/cotton/complete-resistant-weed-solutions-not-jug>  
What's new in soybean weed control in 2012? January 20, 2012.  
Pigweed control: start clean, overlap residual, manage escapes. Feb 17, 2012.  
BASF highlights "the science behind the future of weed control" March 1, 2012.  
<http://deltafarmpress.com/basf-highlights-science-behind-future-weed-control>



Farmers find cold steel new mode of action in weed fight. March 1, 2012.  
<http://deltafarmpress.com/equipment/farmers-find-cold-steel-new-mode-action-weed-resistance-fight>

Complex has become new norm for weed control in mid-south. March 30, 2012.

Farmers plan to update weed control this year. April 24, 2012.

Tennessee farmers increase corn acreage, battle resistant weeds. June 1, 2012.

New weed control technologies show promise, must be protected. July 9, 2012.

Mid-south growers getting the message on weed resistance. August 17, 2012.

Milan no-till field day highlights next herbicide-tolerant crops. August 17, 2012.

Pigweed control improving in Tennessee, but still costly. August 21, 2012.

Fall burndown clears out weeds, controls seed banks. September 6, 2012.

Combating herbicide resistance in wheat. October 16, 2012.  
<http://deltafarmpress.com/wheat/combating-herbicide-resistance-wheat>

Farmers plan to update weed control management. January 16, 2013.

Mid-south corn acreage rising as atrazine-resistant pigweed lurks. January 18, 2013.

New day dawning for weed control in cotton. January 29, 2013.  
<http://deltafarmpress.com/cotton/new-day-dawning-weed-control-cotton>

A look at herbicide tolerant traits. April 12, 2013.  
[http://deltafarmpress.com/management/look-herbicide-tolerant-traits?NL=DFP-01&Issue=DFP-01\\_20130416\\_DFP-01\\_306&YM\\_RID=Isteckel@utk.edu&YM\\_MID=1387142&sfvc4news=42](http://deltafarmpress.com/management/look-herbicide-tolerant-traits?NL=DFP-01&Issue=DFP-01_20130416_DFP-01_306&YM_RID=Isteckel@utk.edu&YM_MID=1387142&sfvc4news=42)

Glyphosate-resistant pigweed becoming bigger issue in middle Tennessee soybeans. June 13, 2013.  
[http://southeastfarmpress.com/soybeans/glyphosate-resistant-pigweed-becoming-bigger-issue-middle-tennessee-soybeans?NL=DFP-01&Issue=DFP-01\\_20130620\\_DFP-01\\_540&YM\\_RID=sdstewart@utk.edu&YM\\_MID=1403279&sfvc4news=42](http://southeastfarmpress.com/soybeans/glyphosate-resistant-pigweed-becoming-bigger-issue-middle-tennessee-soybeans?NL=DFP-01&Issue=DFP-01_20130620_DFP-01_540&YM_RID=sdstewart@utk.edu&YM_MID=1403279&sfvc4news=42)

Four reasons Palmer amaranth won this year. Aug. 2, 2013.  
<http://deltafarmpress.com/soybeans/4-reasons-pigweeds-won-year>

Ginned-up GMO panic threatens food security. September 13, 2013.  
<http://deltafarmpress.com/corn/real-threat-food-security-ginned-panic-over-gmos>

Scientists dusting off old chemistry to find new tools for controlling problem weeds. October 9, 2013.  
<http://deltafarmpress.com/cotton/scientists-dusting-old-chemistry-find-new-tools-controlling-problem-weeds>

How to choose the right cover crop for your farm. October 18, 2013  
<http://deltafarmpress.com/management/how-choose-right-cover-crop-your-farm>

Favorable fall weather helped mature mid-south cotton crop. November 1, 2013.  
<http://deltafarmpress.com/cotton/fall-weather-helped-mature-mid-south-cotton-crop>

Diversity helps soybean growers manage weeds and herbicide resistance. January 17, 2014.  
<http://deltafarmpress.com/southern-corn-and-soybean-production-guide/diversity-helps-soybean-growers-manage-weeds-and-herbicide>

Corn in rotation is a strong weed management tool. January, 17, 2014.  
<http://deltafarmpress.com/southern-corn-and-soybean-production-guide/corn-rotation-strong-weed-management-tool>

Resistant weeds continuing march across much of Mid-South farmland. January, 24, 2014.

Herbicide confirmed in Tennessee Chickweed. April 3, 2014. Print version April 11, 2014.  
<http://deltafarmpress.com/wheat/herbicide-resistance-confirmed-tennessee-chickweed>

Mid-south cotton planting moving quickly toward completion. May 27, 2014.  
<http://deltafarmpress.com/cotton/mid-south-cotton-planting-moving-quickly-toward-completion?page=2>

Think out of the box while waiting on traits. August 14, 2014.  
[http://deltafarmpress.com/soybeans/think-out-box-while-waiting-traits?NL=DFP-01&Issue=DFP-01\\_20140820\\_DFP-01\\_506&YM\\_RID=Isteckel@utk.edu&YM\\_MID=1482856&sfvc4news=42&cl=article\\_2\\_b](http://deltafarmpress.com/soybeans/think-out-box-while-waiting-traits?NL=DFP-01&Issue=DFP-01_20140820_DFP-01_506&YM_RID=Isteckel@utk.edu&YM_MID=1482856&sfvc4news=42&cl=article_2_b)

Cheap weed control in sorghum costly for resistance management. March 10, 2015.

Superweeds – common fallacies and an interesting study. May 12, 2015.  
<http://deltafarmpress.com/rice/superweeds-common-fallacies-and-interesting-study>

PPO/glyphosate resistance in Palmer not an overnight event. Jan. 20, 2016.  
<http://deltafarmpress.com/soybeans/ppo/glyphosate-resistance-palmer-not-overnight-event>

4 reasons for less pigweed in Tennessee cotton. March 8, 2016  
<http://deltafarmpress.com/cotton/4-reasons-less-pigweed-tennessee-cotton>

Ryegrass escapes at corn planting time. April 1, 2016.  
<http://deltafarmpress.com/corn/ryegrass-escapes-corn-planting-time>

What are your herbicide options for large Palmer amaranth in corn? April 28, 2016.  
<http://deltafarmpress.com/corn/what-are-your-herbicide-options-large-palmer-amaranth-corn>

Tennessee survey indicates scale of PP-resistant pigweed. June 16, 2016.  
<http://deltafarmpress.com/weed-control/tennessee-survey-indicates-scale-ppo-resistant-pigweed>

The struggle between science and politics impacting the Mid-South. June 29, 2016.  
<http://deltafarmpress.com/cotton/struggle-between-science-and-politics-impacting-mid-south>

Liberty herbicide living on borrowed time without alternative: Part I – Video. Aug. 8, 2016.  
<http://deltafarmpress.com/soybeans/liberty-herbicide-living-borrowed-time-without-alternatives-part-i>

Conditions Created ‘perfect storm’ for dicamba injury: Part II – Video. Aug. 9, 2016.  
<http://deltafarmpress.com/soybeans/conditions-created-perfect-storm-dicamba-injury-part-ii>

**Agfax**

Circulation 1500

Tennessee Planting Forecast. April 10, 2006.  
Tennessee Planting Forecast. April 17, 2006.  
Tennessee Planting Forecast. April 20, 2006.  
Tennessee Planting Forecast. April 24, 2006.  
Tennessee Planting Forecast. April 27, 2006.  
Tennessee Planting Forecast. May 1, 2006.  
Tennessee Planting Forecast. May 5, 2006.  
Tennessee Planting Forecast. May 8, 2006.  
Tennessee Planting Forecast. May 12, 2006.  
Tennessee Planting Forecast. May 15, 2006.  
Cotton Replanting Report. May 23, 2006.  
Cotton Crop Report. June 6, 2006.  
Tennessee Defoliation Recommendations. Sept. 17, 2006.

**AGprofessional**

BASF: Strategies to managing resistant weeds. March 5, 2012.  
We are having a Palmer pigweed heart attack. March 8, 2012.  
The new post-emergence application era. April 16, 2012.  
Four reasons Palmer amaranth won this year. Aug. 2, 2013.  
Burndown options needed due to dicamba shortage. Feb 14, 2013.  
PPO-resistant palmer amaranth is on the road. Nov 2015.

**Agwired**

Experts offer weed insights at BASF event. March 4, 2012.  
<http://agwired.com/2012/03/01/experts-offer-weed-insights-at-basf-event/>

**Beltwide Daily Newspaper for Beltwide Cotton Conference**

Tackling a tricky situation. January 11, 2007.

**COOP News**

Farmers face uncertainty for 2006 crop. March 9, 2006.

**DTN**

Herbicide applications: with weird weather, scout closely for escapes. May 14, 2015.  
<http://agfax.com/2015/05/14/weed-managment-weather-throws-a-wrench-at-soil-applied-herbicides-dtn/>

**Corn and Soybean Digest**

Passing on postemergence. Apr. 1, 2010.

**Farm Press Blog**

Herbicide resistant weeds cost farmers millions. February 25, 2011.

**Farm Industry News Blog**

Game changer: multiple-herbicide resistant weeds in Minnesota, North Dakota. March 5, 2012.  
<http://farmindustrynews.com/blog/game-changer-multiple-herbicide-resistant-weeds-minnesota-north-dakota>  
Weed resistance is a hot topic at commodity classic 2012. April 5, 2012.  
<http://farmindustrynews.com/herbicides/weed-resistance-hot-topic-commodity-classic-2012>

**Farm Journal**

Glyphosate resistant weeds. Oct., 2005.  
War of the weeds. Feb., 16, 2007.  
Resistance on the rise. March 3, 2010.  
Weeds gone wild. January 4, 2011. [http://www.agweb.com/farmjournal/article/weeds\\_gone\\_wild/](http://www.agweb.com/farmjournal/article/weeds_gone_wild/)

Back in action. January 6, 2012. [http://www.agweb.com/article/back\\_in\\_action/](http://www.agweb.com/article/back_in_action/)  
Put the weed seed bank out of business.  
Make your weeds queasy. July 27, 2013.  
[http://www.agweb.com/article/make\\_your\\_weeds\\_queasy/](http://www.agweb.com/article/make_your_weeds_queasy/)

### ***Farm Week (Illinois Farm Bureau)***

New tools help farmers combat resistant weeds, drought. March 12, 2012.

### ***Grist***

Weed wisdom: What to do when nature outfoxes herbicides. June 23, 2014.

### ***Illinois AgriNews***

Pigweed putting some folks right out of business. October 9, 2011.

### ***Cotton Farming***

Keys to burndown. Feb, 2006.  
Expanded label improves horseweed control. Apr., 2005.  
Understanding weed resistance. May, 2005.  
Harvest report. Sept., 2006.  
Burndown programs take out glyphosate resistant marestail. Oct., 2006.  
Battle continues on resistant pigweed. May, 2009.  
The good old days of weed control. August, 2009. [http://www.cottonfarming.com/home/2009\\_SeptCF-Viewpoint.html](http://www.cottonfarming.com/home/2009_SeptCF-Viewpoint.html)  
Scout, spray early. March, 2010.

### ***Cotton Grower***

Target:Weeds. June, 2005.  
Sounding the Alarm. Jan., 2009.  
Resistance Fighters. Sept., 2009.  
Don't Give Pigweed the Light of Day. Feb., 2010.  
Leaving the back door open. Sept., 2010.  
Cover photo of GR Palmer in cotton: for Sept., 2010 addition of *cotton grower*.  
Making Mid-season Decisions. July, 2011.  
Palmer amaranth: driver weed control doesn't come in a jug. March, 2012.  
New solutions to the pigweed problem. Feb., 2013.  
Help is on the way. April, 2013.  
Late burndown strategies. April, 2015.  
Post-harvest field prep can reduce weed problems at planting. Oct 27, 2016

### ***Cotton 24/7***

Resistance management. Jan., 2010.  
A familiar foe. March, 2010.

### ***Croplife***

Changing face of weed control. March 20, 2011.

### ***Mid-South Farmer***

Glyphosate-tolerant pigweed cause for concern in West Tennessee. Oct., 2005.  
More flexibility for Roundup Ready cotton. Nov., 2005.  
Mixing it up - Residuals play a bigger role in cotton. May, 2006.  
Residuals pick up the slack. July, 2006.  
Grower uses Liberty Link/Ignite system to deal with resistance. Oct., 2006.  
Palmer amaranth resistance threat to cotton industry. March 30, 2007.  
Even more weeds thwart glyphosate. April, 2008.  
Pigweed woes. June 28, 2011.  
Planting cotton in fields with heavy glyphosate-resistant Palmer amaranth. Feb. 17, 2012.

### **Memphis Commercial Appeal**

The perfect weed. August 9, 2009.

### **MidAmerica Farmer Grower**

The Right Choices. May 28, 2004.

Researchers struggle with efforts to overcome horseweed resistance. Aug. 18, 2004.

Feel for Flex. May 8, 2006.

Milan tour to focus on timely topic. July 14, 2006.

Dealing with resistance is a learning experience. April, 2007.

Overcoming weeds. May 9, 2008.

Managing resistance. Aug. 1, 2008.

Weed control landscape is undergoing change. October 9, 2009.

Weed spectrum changes; Good old days may be over. January 29, 2010.

Cotton seeding rates balancing risk and reward. March 19, 2010.

Stewardship: Mange Weeds July 8, 2011.

<http://www.mafg.net/Articles.aspx?ArticleID=OTUOMA%3d%3d-sx3KF%2f8qZYg%3d>

Post harvest glyphosate-resistant Palmer control. Aug 26, 2011.

Tank mix partners for pigweed attempts to minimize burn injury. March 2, 2012.

Managing glyphosate resistant Palmer amaranth in grain sorghum. March 9, 2012.

<http://www.mafg.net/Articles.aspx?ArticleID=MTE2NDQ%3d-dgH2pbH5ngo%3d>

Issues with ryegrass in corn. April 24, 2012.

<http://www.mafg.net/Articles.aspx?ArticleID=MTlwOTE%3d-DNoMKyboho0%3d>

Corn pre-applied herbicide considerations. April, 26, 2013.

Larger Palmer control proves tricky in Mid-South. June 28, 2013.

<http://www.agwatchnetwork.com/newsView.cfm/uuid/FD04468B-5F0B-4CA3-B260DADC9164DC79>

Weed control requires fine-tuned approach. 2013.

<http://www.mafg.net/Articles.aspx?ArticleID=MTQ1MzQ%3d-Exnp4ZYKEmY%3d>

Dicamba shortage will force use of substitutes. 2013.

<http://www.mafg.net/Articles.aspx?ArticleID=MTQ1NDA%3d-Xxs%2fAl%2fJks%3d>

Herbicide options for corn that will be double cropped with soybeans in 2013. 2013.

<http://www.mafg.net/Articles.aspx?ArticleID=MTQ2NDM%3d-RkwZqocy4RQ%3d>

Burndown strategies with the calendar running out and crop mix in question. 2013.

<http://www.mafg.net/Articles.aspx?ArticleID=MTQ5MDg%3d-8TbQIdeGhzE%3d>

Pyroxasulfone based products (Fierce and Zidua) now labeled in soybeans. 2013.

<http://www.mafg.net/Articles.aspx?ArticleID=MTQ5MDk%3d-klDhPWkOb%2bE%3d>

Burndown considerations with cold temperatures. 2013.

<http://www.mafg.net/Articles.aspx?ArticleID=MTQ5NTU%3d-S857ji3KBU%3d>

Poor burndown activity on cover crop wheat and horseweed. 2013.

<http://www.mafg.net/Articles.aspx?ArticleID=MTUxNTQ%3d-F3W0AladCL1%3d>

Corn maturity cutoffs for herbicides. 2013.

<http://www.mafg.net/Articles.aspx?ArticleID=MTU0MzY%3d-DZndH2N7ZQ%3d>

Managing corn, cotton and soybean replant. 2013.

<http://www.mafg.net/Articles.aspx?ArticleID=MTU1NDM%3d-Wwegit9n2ss%3d>

Glyphosate-resistant Palmer amaranth becoming a bigger issue in middle Tenn. 2013.

<http://www.mafg.net/Articles.aspx?ArticleID=MTU2ODc%3d-kHgGvDL7H9Q%3d>

After corn harvest Palmer amaranth control options. 2013.

<http://www.mafg.net/Articles.aspx?ArticleID=MTYxNDI%3d-Azc%2bdpk29XM%3d>

Hit resistance hard. February 14, 2013. Video interview.

<http://www.youtube.com/watch?v=YwL2gwOZsSU>

Corn and soybean injury from pre applied herbicides. May 29, 2014.

[http://www.mafg.net/NewsDetail.aspx?NewsID=1647&utm\\_source=May+30%2C+2014+Issue+22&utm\\_campaign=14-22+enewsletter&utm\\_medium=email](http://www.mafg.net/NewsDetail.aspx?NewsID=1647&utm_source=May+30%2C+2014+Issue+22&utm_campaign=14-22+enewsletter&utm_medium=email)

Study to focus on consistent results from Liberty. May 7, 2015.

[http://www.mafg.net/NewsDetail.aspx?NewsID=2447&utm\\_source=May+8%2C+2015+Issue+19&utm\\_campaign=15-19+enewsletter&utm\\_medium=email](http://www.mafg.net/NewsDetail.aspx?NewsID=2447&utm_source=May+8%2C+2015+Issue+19&utm_campaign=15-19+enewsletter&utm_medium=email)

### **C & EN News**

Rocky road for roundup. September 21, 2015.

<http://cen.acs.org/articles/93/i37/Rocky-Road-Roundup.html>

### **Pork Network**

Resistant weeds means more post equipment needed. March 20, 2012.

<http://www.porknetwork.com/pork-news/latest/Resistant-weeds-means-more-post-equipment-needed-143475056.html>

### **The Progressive Farmer**

Waging war against herbicide-resistant marestail. January, 2006.

Thrips threat. Pg CL1 to CL3. April, 2014.

### **RiceLand Walking the Fields**

Glyphosate-resistant Palmer pigweed confirmed in Tennessee. September 22, 2005.

### **Science**

What happens when weed killers stop killing? Vol 341. September 20, 2013.

### **Southeast Farm Press**

Start clean, stay clean to stay ahead of resistant horseweed. Dec. 14, 2005.

Tennessee researchers confirm glyphosate-resistant pigweed. Oct. 27, 2005.

Resistant weeds will add to crop expenses. Dec. 6, 2007.

University row-crop specialist has weed-management tips for cotton producers. Dec. 6, 2007.

Pollen big factor in resistant pigweed spread. April 28, 2009.

Changing tactics necessary to manage resistant weeds. Feb. 3, 2010.

Dry soil at planting adding to pigweed control problems. April 27, 2012.

Tank-mixes offer pigweed, horseweed burndown options after wheat harvest. May 21, 2012.

<http://southeastfarmpress.com/grains/tank-mixes-offer-pigweed-horseweed-burndown-options-after-wheat-harvest>

Does time of day influence pigweed control? May 24, 2012. (Authored by my Grad Student Matt Wiggins)

<http://southeastfarmpress.com/cotton/does-time-day-influence-pigweed-control>

Pigweed leading to expensive cotton weed control. June 11, 2012.

<http://southeastfarmpress.com/cotton/pigweed-leading-expensive-cotton-weed-control>

Post-harvest pigweed control could pay off next year. August 3, 2012.

<http://southeastfarmpress.com/grains/post-harvest-pigweed-control-could-pay-next-year>

Options available for controlling volunteer corn in front of wheat. August 9, 2012.

<http://southeastfarmpress.com/grains/options-available-controlling-volunteer-corn-front-wheat>

Tennessee specialist says major dicamba shortage coming this spring. Feb. 11, 2013.

<http://southeastfarmpress.com/soybeans/tennessee-specialist-says-major-dicamba-shortage-coming-spring>

Henbit, poa have become the major weed problems in wheat. Feb. 14, 2013.

<http://southeastfarmpress.com/grains/henbit-poa-have-become-major-weed-problems-wheat>

Herbicide options available for corn, soybean double-crop. Feb. 16, 2013.

<http://southeastfarmpress.com/grains/herbicide-options-available-corn-soybean-double-crop>

Burndown strategies with calendar running out, crop mix in question. March 19, 2013.

<http://southeastfarmpress.com/grains/burndown-strategies-calendar-running-out-crop-mix-question>

Fierce, Zidua added to soybean weed control arsenal. March 21, 2013.

<http://southeastfarmpress.com/soybeans/fierce-zidua-added-soybean-weed-control-arsenal>

Is warmer weather needed for burndown treatments? March 25, 2013.

<http://southeastfarmpress.com/grains/warmer-weather-needed-burndown-treatments>

Late-season burndown options for cotton. April 16, 2013.

<http://southeastfarmpress.com/cotton/late-season-burndown-options-cotton>

Cover crop wheat, horseweed presenting burndown problems. April 23, 2013.

<http://southeastfarmpress.com/grains/cover-crop-wheat-horseweed-presenting-burndown-problems>

Good news, bad news with burndown this spring. May 1, 2013.

<http://southeastfarmpress.com/soybeans/good-news-bad-news-burndown-spring>

How much herbicide is left on April-planted corn? May 8, 2013.

<http://southeastfarmpress.com/grains/how-much-herbicide-left-april-planted-corn>

Cotton replant costs tallied. May 13, 2013.

<http://southeastfarmpress.com/cotton/cotton-replant-costs-tallied>

Managing corn, cotton and soybean replants. May 30, 2013.

<http://southeastfarmpress.com/grains/managing-corn-cotton-and-soybean-replants>

Two-pass weed control programs in corn providing better weed control. June 6, 2013.

<http://southeastfarmpress.com/grains/two-pass-weed-control-programs-corn-providing-better-weed-control>

Questions to ask in soybean double-crop burndown strategy. June 11, 2013.

<http://southeastfarmpress.com/soybeans/questions-ask-soybean-double-crop-burndown-strategy>

Over-the-top herbicide injury in cotton, soybeans very high this spring. June 12, 2013.

<http://southeastfarmpress.com/cotton/over-top-herbicide-injury-cotton-soybeans-very-high-spring>

Glyphosate-resistant pigweed becoming bigger issue in middle Tennessee. June 13, 2013.

<http://southeastfarmpress.com/soybeans/glyphosate-resistant-pigweed-becoming-bigger-issue-middle-tennessee-soybeans>

Busy wheat harvest has allowed pigweed to thrive in cotton, soybeans. June 28, 2013.

<http://southeastfarmpress.com/cotton/busy-wheat-harvest-has-allowed-pigweed-thrive-cotton-soybeans>

Cotton acres, Pix strategy in fields with multiple planting dates. July 2, 2013.

<http://southeastfarmpress.com/cotton/cotton-acres-pix-strategy-fields-multiple-planting-dates>

Tennessee weed control hampered by cool temperatures. July 7, 2013.

<http://southeastfarmpress.com/soybeans/tennessee-weed-control-hampered-cool-temperatures>

Palmer amaranth regrowing from PPO herbicide application – now what? July 8, 2013.

<http://southeastfarmpress.com/soybeans/palmer-amaranth-regrowing-ppo-herbicide-application-now-what>

Small Palmer amaranth escapes causing problems in Tennessee soybeans. July 11, 2013.

<http://southeastfarmpress.com/soybeans/small-palmer-amaranth-escapes-causing-problems-tennessee-soybeans>

Late-planted Tennessee cotton struggles to reach full potential. August, 8, 2013.

<http://southeastfarmpress.com/cotton/late-planted-tennessee-cotton-struggles-reach-full-potential>

Game plan to win against pigweed in southern soybeans. Dec. 3. 2013.

<http://southeastfarmpress.com/soybeans/game-plan-win-against-pigweed-southern-soybeans?page=2>

Stop pigweed “jailbreak” in Tennessee soybean and cotton. May 29, 2014.

[http://southeastfarmpress.com/cotton/stop-pigweed-jailbreak-tennessee-soybean-and-cotton?NL=DFP-01&Issue=DFP-01\\_20140603\\_DFP-01\\_525&YM\\_RID=lsteckel@utk.edu&YM\\_MID=1469202&svc4news=42&cl=article\\_4](http://southeastfarmpress.com/cotton/stop-pigweed-jailbreak-tennessee-soybean-and-cotton?NL=DFP-01&Issue=DFP-01_20140603_DFP-01_525&YM_RID=lsteckel@utk.edu&YM_MID=1469202&svc4news=42&cl=article_4)

New herbicide technologies still require proven cultural practices. Jan. 15, 2015.

<http://southeastfarmpress.com/grains/new-herbicide-technologies-still-require-proven-cultural-practices>

You have choices for best POST herbicide to control pigweed in corn. May 3, 2016.

<http://southeastfarmpress.com/soybeans/you-have-choices-best-post-herbicide-control-pigweed-corn>

With pigweed, mixing a PPO with Liberty on a cloudy day is a good idea. June 2, 2016.

<http://southeastfarmpress.com/soybeans/pigweed-mixing-ppo-liberty-cloudy-day-good-idea>

‘Perfect storm’ created for dicamba injury in Mid-South – Video. Aug. 9, 2016.

<http://southeastfarmpress.com/soybeans/perfect-storm-created-dicamba-injury-mid-south>

### **Southwest Farm Press**

Switching to new crop could help farmers weather cost squeeze. Oct. 10, 2006.

Dicamba-resistant soybeans expected by 2013. Sept. 11, 2008.

Pollen big factor in resistant pigweed spread. April 28, 2009.

Changing tactics necessary to manage resistant weeds. Feb. 3, 2010.

### **Successful Farming**

The \$120,000,000 pest. Oct. 10, 2013.

[http://m.agriculture.com/crops/120000000-pest-thats-just-one-state\\_179-ar34725](http://m.agriculture.com/crops/120000000-pest-thats-just-one-state_179-ar34725)

### **Southwest Farm Press**

The \$120,000,000 pest. October, 2013.

### **Southern Farmer (4)**

Resistant pigweeds spreads across south. October, 2005.

New switchgrass research studies production in south. April, 2007.

Turning on the switch for the future. March, 2008.

Less tillage conserves farm profit. April, 2008.

### **SoybeanSouth**

Mapping out spring herbicides. March, 2009.

Scout, spray early. March, 2010.

[http://www.ricefarming.com/home/Soybean\\_South/issues/2010-03/2010\\_MarScout.html](http://www.ricefarming.com/home/Soybean_South/issues/2010-03/2010_MarScout.html)

### **Thrive magazine**

Is weed pressure in your area lighter than it was five years ago? 1Q 2014.

### **The Grower**

Adopt healthy herbicide habits to avoid a pigweed heart attack. March 19 2012.

<http://www.thegrower.com/news/Adopt-healthy-herbicide-habits-to-avoid-a-pigweed-heart-attack--142931635.html?ref=635>

### **The Jackson Sun**

Local crops hanging on despite record rain. April 27, 2004.

### **The Milan Mirror**

Getting a handle on stubborn mareestail. July 22, 2008.

### **The Business Journal**

Tennessee researchers confirm glyphosate-resistant pigweed. September 24, 2005.

***The Humboldt Chronicle***

Young farmers host meeting. March 22, 2006.

***The Sentinel***

Area farmers warned to expect arrival of resistant waterhemp. Nov 20, 2011.

***Thrive***

Season-long control with residuals pays off in more ways than one. 1Q, 2011.

The weed doctors. 1Q/2012

Defend your yields. 1Q/2014

**C-2.6.2 Radio/TV/Online/DVD Video (>50 Total)**

**HeartLand AgNetwork (Radio)**

Changes in weed management. January 17, 2008.

Late burndown challenges in cotton and soybeans. April 24, 2008.

Identification of glyphosate-resistant weeds. May 12, 2008.

Managing weeds with herbicides in short supply. June 16, 2008.

Causes and management of weed escapes. July 31, 2008.

Glyphosate-resistant Palmer update. Dec 3, 2008.

Resistant Pigweed-Tennessee Research. Oct 8, 2009.

<http://deltafarmpress.com/management/resistant-pigweed-tennessee-research>

Resistant weeds cost Tennessee growers \$200 million. Aug 9, 2011.

<http://deltafarmpress.com/management/2011-late-season-report-tennessee-weed-control>

**KWKZ Charleston, MO (Radio)**

Glyphosate-resistant weeds. Feb 26, 2011.

Weed management March 2, 2012.

**Rural Routes (Radio)**

Agriculture and glyphosate resistant weed issues. July 7, 2011.

**KWKZ Portageville (Radio)**

**Louisiana Agri-News Network (Radio)**

Glyphosate-resistant horseweed management. August 3, 2006.

Cost of managing glyphosate-resistant weeds August 23, 2007.

**Educational (DVD)**

Liberty Link Soybeans and Ignite herbicide DVD March, 9, 2009.

Weed Resistance National Cotton Council DVD mailed to 1000 cotton growers. May 13, 2009.

Bayer: Pan America Weed Resistance Symposia. Video. January, 2010.

<http://www.bayercropscience.us/news/respect-the-rotation#/VIDEOS/14>

**Ag Web (Web Video Interview)**

Manage weeds 30 days ahead of planting corn. Jan 20, 2012.

[http://www.agweb.com/article/manage\\_weeds\\_30\\_days\\_ahead\\_of\\_planting\\_corn/](http://www.agweb.com/article/manage_weeds_30_days_ahead_of_planting_corn/)

Palmer amaranth gains ground in the midwest. July 18, 2012.

[http://www.agweb.com/farmjournal/farm\\_journal\\_corn\\_college/article/palmer\\_amaranth\\_gains\\_ground\\_in\\_the\\_midwest/](http://www.agweb.com/farmjournal/farm_journal_corn_college/article/palmer_amaranth_gains_ground_in_the_midwest/)

**Ag Day (TV)**

Weed management tips for Roundup Ready Flex cotton. November 6, 2006.

Grain conference report on glyphosate resistant Palmer amaranth. February 11, 2009.

Weed Resistance National Cotton Council DVD mailed to 1000 cotton growers. May 13, 2009.

Glyphosate-resistant Palmer pigweed. Several times in 2010.

Glyphosate-resistant weed update. Several times in summer of 2010.  
Weed Resistance management. Several times in spring of 2011.  
Weed warriors. April 20, 2011. <http://www.agweb.com/farmjournal/multimedia/focus-on-weed-research/>  
Follow up on Weed Warriors. December 6, 2011.

#### **ABC Channel 7 (TV)**

Glyphosate-resistant Palmer amaranth in West Tennessee. On at 5:00 and 6:00 pm August 13, 2009 and 6:00 am August 14, 2009.

#### **Cotton 24/7 (TV)**

Resistance management. Jan 2010.

#### **Market to Market (Iowa Public Television)**

Farmers battle new enemies in the war on weeds.  
[http://www.iptv.org/mtom/story.cfm?feature/9155/mtom\\_20120223\\_3726/video](http://www.iptv.org/mtom/story.cfm?feature/9155/mtom_20120223_3726/video)

#### **Webinar (Online/telephone)**

Glyphosate - weed resistance status in southern cropping systems. March, 29, 2007.  
Glyphosate - weed resistance status in southern cropping systems. February 26, 2008.  
Glyphosate - weed resistance status in southern cropping systems. March, 11, 2008.  
Glyphosate - weed resistance status in southern cropping systems. February 25, 2009.  
Glyphosate - weed resistance status in southern cropping systems. March, 3, 2009.  
Liberty Link Soybean Management. Online Educational module. May 15, 2009.  
Sharpen – weed resistance management in southern cropping systems. December 15, 2009.  
Sharpen – weed resistance management in southern cropping systems. January 23, 2010.  
Glyphosate - weed resistance status in southern cropping systems. December 10, 2010.  
Glyphosate - weed resistance status in southern cropping systems. December 15 am, 2010.  
Glyphosate - weed resistance status in southern cropping systems. December 15 pm, 2010.  
Glyphosate - weed resistance status in southern cropping systems. January 23 am, 2011.  
Glyphosate - weed resistance status in southern cropping systems. February 3 pm, 2011.  
Glyphosate - weed resistance status in southern cropping systems. February 10 pm, 2011.  
Glyphosate - weed resistance status in southern cropping systems. February 10 pm, 2012.

#### **Farm Journal (Online)**

Interview on glyphosate resistant weed status. March 26, 2009.  
<http://www.youtube.com/watch?v=Aau-tFsrR28>

#### **AR Extension (Online)**

New technology and future of pigweed control. Jan 6, 2011.  
[http://www.youtube.com/watch?v=2\\_iJhIGtOJM](http://www.youtube.com/watch?v=2_iJhIGtOJM)

#### **National Cotton Council (Online)**

Field Day with Larry Steckel. March 5, 2011.  
<http://www.cotton.org/tech/pest/steckel-field-day-video.cfm>

#### **AgWired (Online)**

<HTTP://WWW.ZIMMCOMM.BIZ/BASF/CC12-BASF-STECKEL.MP3>

### **C-2.7 Articles Appearing in In-House Publications**

#### ***Third Thursday***

UT confirms resistant pigweed in Tennessee. Oct., 2005.

#### ***Tennessee Land Life & Science***

Resistant Weeds – Problems in the field in West Tennessee Oct., 2007.



*Tennessee Land Life & Science*  
Palmer pigweed headaches. Oct., 2012.

## **C-2.8 Research Reports/Summaries (152 Total Written and Verbal)**

### **C-3. Projects, Grants, Commissions, and Contracts**

**(\$4,451,640 Total Funded Grants, Gifts, Contracts, In-kind Support to Dr. Steckels Program)  
(\$9,157,217 Total with cooperators)**

#### **C-3.1 Grants (\$1,476,228 Directly to Dr. Steckels Program) (\$6,181,805 Total with cooperators)**

Sprague, C. L. and **L. E. Steckel**. "Competitiveness of late emerging waterhemp in corn and soybeans". Funded by Illinois Council of Food and Agricultural Research 2000-2003. (\$86,000; lead PI)\*. Completed.

Hayes, R. M. and **L. E. Steckel**. "Weed management systems in cotton". Funded by Cotton Incorporated Tennessee State Support Committee. 2004. (\$25,000; lead PI). Completed.

Mueller, T. C. and **L. E. Steckel**. "Weed control systems in soybeans". Funded by Tennessee State Soybean Promotion Board. 2004. (\$15,000; lead PI). Completed.

**Steckel, L. E.**, T. C. Mueller and R. Hayes. "Evaluation of late-season emerging Palmer Amaranth interference potential and control in soybeans". Funded by Tennessee State Soybean Board. 2004. (\$10,000; lead PI). Completed.

**Steckel, L. E.**, M. A. Thompson and T. C. Mueller. "2,4-D Formulation and burndown application timing evaluation in soybeans". Funded by Tennessee State Soybean Promotion Board. 2004. (\$5,000; lead PI). Completed.

**Steckel, L. E.**, T. C. Mueller and M. A. Thompson. "Comparison of Clarity, 2,4-D Amine and 2,4-D ester formulations for soybean safety while controlling horseweed." Funded by Tennessee State Soybean Promotion Board. 2005. (\$9,464; lead PI). Completed.

English, B. C., D. D. Tyler, C. D. Garland, K. J. Goddard, D. C. Gerloff, M. Walsh, R. K. Roberts and **L. E. Steckel**. "Switchgrass weed control research". Part of a (\$990,000) grant funded by the United States Department of Energy. 2005. My part: (\$30,000; conducted the weed research). Completed.

Mueller, T. C. and **L. E. Steckel**. "Weed control systems in soybeans". Funded by Tennessee State Soybean Promotion Board. 2005. (\$17,660; lead PI). Completed.

**Steckel, L. E.** and R. M. Hayes. "Weed management systems in cotton". Funded by Cotton Incorporated Tennessee State Support Committee. 2005. (\$24,800; lead PI). Completed.

Gwathmey, C. O. and **L. E. Steckel**. "Solid and skip row spacings for cotton". Funded by Cotton Incorporated Tennessee State Support Committee. 2005. (\$11,500; collaborated with the weed management research). Completed.

Thompson, M. A. and **L. E. Steckel**. "Improving harvest quality of indeterminate soybeans with harvest aids." Funded by Tennessee State Soybean Promotion Board. 2006. (\$3,000; collaborator) Completed.

Gwathmey, C. O. and **L. E. Steckel**. "Optimum plant densities for 15- and 30-inch picker cotton". Funded by Cotton Incorporated Tennessee State Support Committee. 2006. (\$11,334 collaborated with the weed management research). Completed.

**Steckel, L. E.** and R. M. Hayes. "Weed management systems in cotton". Funded by Cotton Incorporated Tennessee State Support Committee. 2006. (\$25,000; Lead PI). Completed.

**Steckel, L. E.**, T. C. Mueller and M. A. Thompson. "Management of glyphosate resistant weeds." Funded by Tennessee State Soybean Promotion Board. 2006. (\$12,926; Lead PI). Completed.

Gwathmey, C. O. and **L. E. Steckel**. "Optimum plant densities for 15- and 30-inch picker cotton". Funded by Cotton Incorporated Tennessee State Support Committee. 2007. (\$11,350; Conducted weed control ratings and writing of manuscript). Completed.

**Steckel, L. E.** "Cotton focus support". Funded by Cotton Incorporated Tennessee State Support Committee. 2007. (\$5,000). Completed.

**Steckel, L. E.** "Glyphosate resistant horseweed and Palmer amaranth management". Funded by Cotton Incorporated Tennessee State Support Committee. 2007. (\$26,000). Completed.

**Steckel, L. E.**, T. C. Mueller and M. A. Thompson. "Management of glyphosate resistant weeds." Funded by Tennessee State Soybean Promotion Board. 2007. (\$12,926; Lead PI). Completed.

Mueller, T. C. and **L. E. Steckel**. "Giant ragweed management in no-till soybeans and confirmation of herbicide resistant weeds." Funded by Tennessee State Soybean Promotion Board. 2007. (\$5,000; Lead PI). Completed.

**Steckel, L. E.** and M. A. Thompson. "Evaluating the competitive ability of glyphosate-resistant horseweed in soybeans." Funded by Tennessee State Soybean Promotion Board. 2007. (\$4,500; Lead PI). Completed.

**Steckel, L. E.** "Glyphosate resistant horseweed and Palmer amaranth management". Funded by Cotton Incorporated Tennessee State Support Committee. 2007. (\$26,000). Completed.

Main, C. L. and **L. E. Steckel**. "Cotton focus support". Funded by Cotton Incorporated Tennessee State Support Committee. 2007. (\$5,000; Lead PI). Completed.

**Steckel, L. E.** "Glyphosate resistant horseweed and Palmer amaranth management". Funded by Cotton Incorporated Tennessee State Support Committee. 2007. (\$26,000). Completed.

**Steckel, L. E.** and K. Smith. "Glyphosate-resistant Palmer amaranth screen in Arkansas and Tennessee". The Cotton Foundation Grant Program. May 2007. \$20,000 (\$10,000; Lead PI). Completed.

**Steckel, L. E.** "Glyphosate resistant horseweed and Palmer amaranth management". Funded by Cotton Incorporated Tennessee State Support Committee. 2008. (\$26,000). Completed.

**Steckel, L. E.** and K. Smith. "Glyphosate-resistant Palmer amaranth screen in Arkansas and Tennessee". The Cotton Foundation Grant Program. Aug, 2008. \$20,000 (\$10,000 Lead PI). Completed.

**Steckel, L. E.**, T. C. Mueller and M. A. Thompson. "Management of glyphosate resistant weeds." Funded by Tennessee State Soybean Promotion Board. 2008. (\$8,500; Lead PI). Completed.

Mueller, T. C. and **L. E. Steckel**. "Giant ragweed management in no-till soybeans and confirmation of herbicide resistant weeds." Funded by Tennessee State Soybean Promotion Board. 2008. (\$5,000; Lead PI). Completed.

Mueller, T. C. and **L. E. Steckel**. "Giant ragweed management in no-till soybeans and confirmation of herbicide resistant weeds." Funded by Tennessee State Soybean Promotion Board. 2009. (\$5,000; Lead PI). Completed.

**Steckel, L. E.**, T. C. Mueller and M. A. Thompson. "Management of glyphosate resistant weeds." Funded by Tennessee State Soybean Promotion Board. 2009. (\$21,500; Lead PI). Completed.

**Steckel, L. E.** "Weed manual printing support." Funded by Tennessee State Soybean Promotion Board. 2009. (\$3000). Completed.

Monks, D., C. Burmester, M. Patterson, A. Price S. Culpepper, **L. E. Steckel**, C. L. Main, M. Marshall, R. Nichols. 2009. Demonstrating Use of High-Residue, Cover-Crop Conservation-Tillage Systems to Control Glyphosate-Resistant Palmer Amaranth. United States Department of Agriculture-Natural Resource Conservation Service. Conservation Innovation Program. July, 2009. \$186,275.98 (my program \$21,928.78; Conducted TN location of this research) Completed.

**Steckel, L. E.** "Glyphosate resistant horseweed and Palmer amaranth management". Funded by Cotton Incorporated Tennessee State Support Committee. 2009. (\$26,000). Completed.

McClure, A. M., S. D. Stewart, **L. E. Steckel**, C. L. Main and M. Newman. "2010 Row Crops Information Training for Agricultural Extension Agents in Tennessee". ARRA Innovative Extension Program. 2009. (\$4,000; collaborator). Completed.

McClure, A. M., S. D. Stewart, **L. E. Steckel**, C. L. Main and M. Newman. "2011 Row Crops Information Training for Agricultural Extension Agents in Tennessee". ARRA Innovative Extension Program. 2009. (\$4,000; collaborator). Completed.

Stewart, S. D., **L. E. Steckel**, A. M. McClure, E. Webster and M. Newman. "Row crop scout schools". ARRA Innovative Extension Program. 2009. (\$9,500; collaborator). Completed.

**Steckel, L. E.**, N. Rhodes, G. Armel and J. Brosnan. In-service weed management in forages, turf, horticulture/right of ways and row crops. 2009. ARRA Innovative Extension. 2009. (\$10,500; collaborator). Completed.

Stewart, S. D., **L. E. Steckel**, C. L. Main, A. Catchot and G. Lorenz. 2008. Impact of early burndown timings on incidence of early season spider mites. The Cotton Foundation Grant Program. May 2007. (\$9,500; collaborator). Completed.

**Steckel, L. E.** and M. A. McClure. 2010 "Research and Extension Support for Management of Glyphosate-Resistant Weeds." Funded by Tennessee State Soybean Promotion Board. 2010. (\$37,700; Lead PI). Completed.

McClure, M. A., S. Stewart, R. Williams, M. Newman, S. Danehower and **L. E. Steckel**. 2010 "GoBeans- A soybean verification program for Tennessee." Funded by Tennessee State Soybean Promotion Board. 2009. \$17,000 (collaborator). Completed.

**Steckel, L. E.** and T. C. Mueller. 2010. "Support to purchase equipment to monitor off-target movement of dicamba and 2,4-D." Funded by Tennessee State Soybean Promotion Board. (\$16,800; Lead PI). Completed.

**Steckel, L. E.** and A. S. Culpepper. 2010. "Evaluation of Ignite Based Systems in Controlling Glyphosate Resistant Palmer Amaranth in Cotton." The Cotton Foundation Grant Program. Aug, 2010 \$20,000 (\$10,000; Lead PI). Completed.

**Steckel, L. E.** "Glyphosate resistant horseweed and Palmer amaranth management". Funded by Cotton Incorporated Tennessee State Support Committee. 2010. (\$22,334). Completed.

**Steckel, L. E.** and M. A. McClure. 2011. "Research and Extension Support for Management of Glyphosate-Resistant Weeds." Funded by Tennessee State Soybean Promotion Board. 2011. (\$50,000; Lead PI). Completed.

**Steckel, L. E.** "Glyphosate resistant horseweed and Palmer amaranth management". Funded by Cotton Incorporated Tennessee State Support Committee. 2011. (\$22,348). Funded for 2012.

**Steckel, L. E.** and A. S. Culpepper. 2011. "Evaluation of Palmer amaranth competition on cotton yield and fiber quality." The Cotton Foundation Grant Program. Aug, 2012 \$20,000 \$10,000; Lead PI). Completed.

**Steckel, L. E.** T. C. Mueller and M. A. McClure. 2012. "Research and Extension Support for Management of Glyphosate-Resistant Weeds." Funded by Tennessee State Soybean Promotion Board. 2012. (\$50,000; Lead PI). Completed.

**Steckel, L. E.** M. Wiggins and D. Tyler. 2012. "Weed management with cover crops". Tennessee Association of Conservation Districts. (\$30,000; Lead PI). In progress.

**Steckel, L. E.** and M. Wiggins. 2012. "Demonstrate and Evaluate cover crop efficacy on Palmer amaranth." Cotton Incorporated Core Grant Program. April, 2012 (\$10,000; Lead PI). 2012.

**Steckel, L. E.** "Glyphosate resistant horseweed and Palmer amaranth management". Funded by Cotton Incorporated Tennessee State Support Committee. 2012. (\$22,348). Funded for 2013.

Norsworthy, J. **Steckel, L. E.**, B. Young, W. Johnson, K. Bradley, R. Smeida, and M. Krutz. Glyphosate-resistant weed management. United Soybean Board. 2012. \$710,000 (\$90,000). Funded for 2013.

Stewart, S. D., K. Vail, M. Newman, **L. E. Steckel**, A. McClure and C. Main. 2012. EIPM coordination and support program. \$185,962 (\$4,000). Funded for 2013.

Johnson, W., K. Smith, **Steckel, L. E.**, K. Bradley, M. Owen, B. Hartzler, R. Zollinger, S. Knezevic, D. Peterson, M. Moechnig, J. Green, M. Loux, A. Hager, J. Gonand, J. Martin. Glyphosate-resistant weed management. United Soybean Board. 2012. \$420,000 (\$30,000). Funded for 2013.

Johnson, W., K. Smith, **L. E. Steckel**, K. Bradley, M. Owen, B. Hartzler, R. Zollinger, S. Knezevic, D. Peterson, M. Moechnig, J. Green, M. Loux, A. Hager, J. Gonand, J. Martin. Glyphosate-resistant weed management. United Soybean Board. 2013. \$420,000 (\$30,000). Funded for 2014.

Norsworthy, J. **L. E. Steckel**, B. Young, W. Johnson, K. Bradley, R. Smeida, and M. Krutz. Glyphosate-resistant weed management. United Soybean Board. 2013. \$710,000 (\$90,000). Funded for 2014.

**Steckel, L. E.** “Glyphosate resistant horseweed and Palmer amaranth management”. Funded by Cotton Incorporated Tennessee State Support Committee. 2012. (\$23,000). Funded for 2013.

**Steckel, L. E.** T. C. Mueller and M. A. McClure. 2013. “Research and Extension Support for Management of Glyphosate-Resistant Weeds.” Funded by Tennessee State Soybean Promotion Board. 2013. (\$50,000; Lead PI). In progress.

**Steckel, L. E.** “Tennessee cotton variety testing program”. Funded by Cotton Incorporated Tennessee State Support Committee. 2013. (\$25,000). Funded for 2014.

**Steckel, L. E.** “Glyphosate-resistant weed management”. Funded by Cotton Incorporated Tennessee State Support Committee. 2013. (\$23,000). Funded for 2014.

Stewart, S. D., K. Vail, H. M. Kelly, **L. E. Steckel**, A. McClure and C. Main. 2013. EIPM coordination and support program. \$125,000 (\$10,000). Funded for 2014.

Yin, Frank, D. Tyler, A. McClure, **L. E. Steckel**, M. Essington and L. Jaehoon. Long-term impacts of cover crops, crop rotations and conservation tillage systems on soil properties, nutrient cycling, soil water availability and crop productivity. \$213,469/year (\$634,000 3 year Total) (\$31,722 3 yr.total). Funded for 2014-2016.

**Steckel, L. E.** T. C. Mueller and M. A. McClure. 2014. “Research and Extension Support for Management of Glyphosate-Resistant Weeds.” Funded by Tennessee State Soybean Promotion Board. 2014. (\$50,000; Lead PI). In progress.

Bagavathiannan, M., J. Norsworthy and **L. E. Steckel**. 2014. “Developing and implementing a bio-economic decision-support tool for guiding integrated management of palmer amaranth. USDA-NIFA crop protection and pest management grants. (\$30,022). Funded for 2014-2015.

**Steckel, L. E.** “Glyphosate resistant horseweed and Palmer amaranth management”. Funded by Cotton Incorporated Tennessee State Support Committee. 2013. (\$23,000). Funded for 2014.

Norsworthy, J. **L. E. Steckel**, B. Young, W. Johnson, K. Bradley, R. Smeida, and M. Krutz. Glyphosate-resistant weed management. United Soybean Board. 2014. \$710,000 (\$90,000). Funded for 2015.

Johnson, W., K. Smith, **L. E. Steckel**, K. Bradley, M. Owen, B. Hartzler, R. Zollinger, S. Knezevic, D. Peterson, M. Moechnig, J. Green, M. Loux, A. Hager, J. Gonand, J. Martin. Glyphosate-resistant weed management. United Soybean Board. 2014. \$420,000 (\$30,000). Funded for 2015.

**Steckel, L. E.** T. C. Mueller and M. A. McClure. 2014. “Research and Extension Support for Management of Glyphosate-Resistant Weeds.” Funded by Tennessee State Soybean Promotion Board. 2014. (\$50,000; Lead PI). In progress.

Stewart, S. D., K. Vail, H. M. Kelly, **L. E. Steckel**, A. McClure and T. Raper. 2014. EIPM coordination and support program. \$125,000 (\$10,000). Funded for 2015.

McClure, M. A., S. Stewart, R. Williams, H. Kelly, S. Danehower and **L. E. Steckel**. 2014 “GoBeans- A soybean verification program for Tennessee.” Funded by Tennessee State Soybean Promotion Board. 2014. \$18,000 (collaborator). On going.

McClure, M. A. and **L. E. Steckel**. 2014 “Support for technician” Funded by Tennessee State Soybean Promotion Board. 2014. \$15,000 (collaborator). On going.

Stewart, S. and **L. E. Steckel**. 2014 "Soybean scout school support" Funded by Tennessee State Soybean Promotion Board. 2014. \$6,681 (collaborator).

Buschermohl, M, L. Duncan. and **L. E. Steckel**. 2014 "Funded by Tennessee State Soybean Promotion Board. 2014. \$19,500 (collaborator). On going.

Buschermohl, M, L. Duncan. and **L. E. Steckel**. 2014 "Funded by Tennessee State Soybean Promotion Board. 2014. \$21,500 (collaborator).

Stewart, S, D, K. M. Vail, M. A. McClure, D. D. Hensley, H. M. Kelly, T. Raper, and **L. E. Steckel**. 2015 "IPM programs for agronomic crops, schools and pesticide applicators in Tennessee." \$84,000. On going. (collaborator). (Funding that went to my program)\*.

Johnson, W., K. Smith, **L. E. Steckel**, K, Bradley, M. Owen, B. Hartzler, R. Zollinger, S. Knezevic, D. Peterson, M. Moechnig, J. Green, M. Loux, A. Hager, J. Gonand, J. Martin. Glyphosate-resistant weed management. United Soybean Board. 2015. \$420,000 (\$30,000).

Norsworthy, J. **L. E. Steckel**, B. Young, W. Johnson, K. Bradley, R. Smeida, and M. Krutz. Glyphosate-resistant weed management. United Soybean Board. 2015. \$710,000 (\$90,000).

Norsworthy, J. **L. E. Steckel**, B. Young, W. Johnson, K. Bradley, R. Smeida, and M. Krutz. Glyphosate-resistant weed management. United Soybean Board. 2015. \$372,000 (\$62,000).

**Steckel, L. E.** T. C. Mueller and M. A. McClure. 2015. "Research and Extension Support for Management of Glyphosate-Resistant Weeds." Funded by Tennessee State Soybean Promotion Board. (\$88,000; Lead PI). In progress.

**Steckel, L. E.** "Glyphosate resistant horseweed and Palmer amaranth management". Funded by Cotton Incorporated Tennessee State Support Committee. 2014. (\$23,000). Funded for 2015.

**Steckel, L. E.** "Glyphosate resistant horseweed and Palmer amaranth management". Funded by Cotton Incorporated Tennessee State Support Committee. 2015. (\$23,000). Funded for 2016.

**Steckel, L. E.** "Glyphosate resistant horseweed and Palmer amaranth management". Funded by Cotton Incorporated Tennessee State Support Committee. 2016. (\$19,900). Funded for 2017.

Bagavathiannan, M., J. Norsworthy and **L. E. Steckel**. 2014. "Developing and implementing a bio-economic decision-support tool for guiding integrated management of palmer amaranth. USDA-NIFA crop protection and pest management grants. (\$30,022). Funded for 2015

Stewart, S. and **L. E. Steckel**. 2015 "Soybean scout school support" Funded by Tennessee State Soybean Promotion Board. 2014. \$6,000(collaborator).

Johnson, W., **L. E. Steckel**, K, Bradley, M. Owen, B. Hartzler, R. Zollinger, S. Knezevic, D. Peterson, M. Moechnig, J. Green, M. Loux, A. Hager, J. Gonand, J. Martin. Glyphosate-resistant weed management. United Soybean Board. 2016. \$420,000 (\$25,000). Funded for 2017.

**Steckel, L. E.** T. C. Mueller and M. A. McClure. 2016. "Research and Extension Support for Management of Glyphosate-Resistant Weeds." Funded by Tennessee State Soybean Promotion Board. 2016. (\$115,000; Lead PI). In progress.

Stewart, S. and **L. E. Steckel**. 2016 “Soybean scout school support” Funded by Tennessee State Soybean Promotion Board. 2016. \$6,000(collaborator).

Young, B, et al., **L. E. Steckel**. 2016. Research to integrate BMPs. United Soybean Board. \$526,000 total, \$42,000 (collaborator).

### **C-3.3 Contracts (\$738,412 Total Contracts)**

**Steckel, L. E.** “Experimental herbicide trial”. Funded by Monsanto. 2003. (\$6,300). Completed.

**Steckel, L. E.** and R. M. Hayes. “Roundup Ready alfalfa research”. Funded by Monsanto. 2003. (\$9,000 Lead PI). Completed.

**Steckel, L. E.** and R. M. Hayes. “Weed control in Roundup Ready Flex cotton”. Funded by Monsanto. 2003. (\$5,000 Lead PI). Completed.

**Steckel, L. E.** and R. M. Hayes. “Roundup Ready alfalfa research”. Funded by Monsanto. 2004. (\$9,000 Lead PI). Completed.

**Steckel, L. E.** “Weed control in Roundup Ready Flex cotton”. Funded by Monsanto. 2004. (\$5,000). Completed.

**Steckel, L. E.** “Management of glyphosate-resistant Palmer amaranth”. Funded by Monsanto. 2005. (\$4,250). Completed.

**Steckel, L. E.** and R. M. Hayes. “Roundup Ready alfalfa research”. Funded by Monsanto. 2005. (\$9,000 Lead PI). Completed.

**Steckel, L. E.** “Weed control in Roundup Ready Flex cotton”. Funded by Monsanto. 2005. (\$5,000). Completed.

**Steckel, L. E.** and C. C. Craig. “Agronomic factors impacting 15” cotton production systems”. Project 84. Funded by Deere and Company. 2005-2006. (\$9,000 Lead PI). Completed.

**Steckel, L. E.** “New herbicide research”. Funded by BASF. 2007. (\$6,300). Completed.

**Steckel, L. E.** “Dicamba tolerant soybean research”. Funded by Monsanto. 2007. (\$4,000). Completed.

**Steckel, L. E.** “Dicamba tolerant soybean research”. Funded by Monsanto. 2008. (\$6,000). Completed.

Thompson, M. A. and **L. E. Steckel**. “GAT corn research” Funded by Pioneer HiBred. 2008. (\$10,000 calibrator). Complete.

**Steckel, L. E.** “Dicamba tolerant soybean research”. Funded by Monsanto. 2009. (\$6,000). Completed.

**Steckel, L. E.** and C. L. Main “Dicamba/Ignite tolerant cotton research”. Funded by Monsanto. 2009. (\$29,700 Lead PI). Completed.

**Steckel, L. E.** “New herbicide research”. Funded by BASF. 2009. (\$22,000). Completed.

**Steckel, L. E.** "Acetochlor formulation over soybean". Funded by Monsanto. 2009. (\$10,400). Completed.

**Steckel, L. E.** "BAS 800 herbicide research". Funded by BASF. 2009. (\$11,200). Completed.

**Steckel, L. E.** "GAT soybean research" Funded by Pioneer HiBred. 2009. (\$13,000). Completed.

**Steckel, L. E.** "Dicamba tolerant soybean research". Funded by Monsanto. 2010. (\$8,000). Completed.

**Steckel, L. E.** and C. L. Main "Dicamba/Ignite tolerant cotton research". Funded by Monsanto. 2010. (\$12,000 Lead PI). Completed.

**Steckel, L. E.** and C. L. Main "Dicamba/Ignite tolerant cotton research". Funded by Monsanto. 2011. (\$11,000 Lead PI). Completed.

**Steckel, L. E.** "Dicamba tolerant soybean research". Funded by Monsanto. 2011. (\$5,000). Completed.

**Steckel, L. E.** "Inzen grain sorghum research". Funded by DuPont. 2011. (\$3,000). Completed.

**Steckel, L. E.** "GAT soybean research". Funded by DuPont. 2011. (\$3,000). Completed.

**Steckel, L. E.** "Hppd tolerant soybean research". Funded by Syngenta. 2012. (\$14,000). On going.

**Steckel, L. E.** "Dicamba drift research". Funded by Monsanto. 2012. (\$16,000). On going.

**Steckel, L. E.** "Dicamba-tolerant cotton research." Funded by Monsanto. 2012 (\$17,571). On going.

**Steckel, L. E.** "Dicamba-tolerant soybean research". Funded by Monsanto. 2012. (\$13,063). On going.

**Steckel, L. E.** "Examination of warrant herbicide". Funded by Monsanto. 2012. (\$4,000). On going.

**Steckel, L. E.** "Examination of warrant herbicide". Funded by Monsanto. 2012. (\$4,000). On going.

**Steckel, L. E.** "Evaluation of MIG tolerant soybean". Funded by Syngenta. 2013. 13-0922 (\$10,000). On going.

**Steckel, L. E.** "Evaluation experimental herbicides in corn". Funded by Syngenta. 2013. 13-0714 (\$10,000). On going.

**Steckel, L. E.** and M. Wiggins. "Evaluate cover crop efficacy on Palmer amaranth." Funded by Monsanto. 2013. (\$35,000). On going.

**Steckel, L. E.** "Evaluate cover crop efficacy on Palmer amaranth." Funded by Monsanto. 2013. (\$22,988). On going.

**Steckel, L. E.** "Herbicide trait research". Funded by Dow. 2013. (\$53,540). On going.



**Steckel, L. E.** "Weed control research". Funded by Cheminova. 2013. (\$15,500). On going.

**Steckel, L. E.** "Weed control research". Funded by BASF. 2013. (\$12,000). On going.

**Steckel, L. E.** "Weed control research". Funded by Bayer. 2013. (\$21,000). On going.

**Steckel, L. E.** "Weed control research". Funded by DuPont. 2013. (\$37,500). On going.

**Steckel, L. E.** "Weed control research". Funded by Novasource. 2013. (\$3,000). On going.

**Steckel, L. E.** "Weed control research". Funded by LeHigh. 2013. (\$3,000). On going.

**Steckel, L. E.** "Weed control research". Funded by Novasource. 2013. (\$1,800). On going.

**Steckel, L. E.** "Weed control research". Funded by Exacto. 2013. (\$4,550). On going.

**Steckel, L. E.** "Weed control research". Funded by MANA. 2013. (\$4,500). On going.

**Steckel, L. E.** "Weed control research". Funded by Loveland. 2013. (\$4,000). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2014. (\$33,900). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by BASF. 2014. (\$44,750). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Dow. 2014. (\$20,400). On going.

**Steckel, L. E.** "Weed control research". Funded by Valent. 2014. (\$10,500). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Syngenta. 2014. (\$12,000). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2014. (\$70,000). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2014. (\$10,112). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2014. (\$12,800). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2015. (\$6,000). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2015. (\$5,120). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2015. (\$10,240). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2015. (\$7500). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2015. (\$13,130). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by DuPont. 2015. (\$19,000). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Syngenta. 2015. (\$9,500). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2016. (\$26,800). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2016. (\$5,400). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2016. (\$4,800). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2016. (\$4,500). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2016. (\$5,200). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2016. (\$7,000). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2016. (\$13,000). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2016. (\$2,000). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Dow. 2016. (\$30,500). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Monsanto. 2016. (\$8,960). On going.

**Steckel, L. E.** "New herbicide trait evaluation." Funded by Syngenta. 2016. (\$20,000). On going.

**Steckel, L. E.** "Herbicide stewardship." Funded by Monsanto. 2016. (\$25,000). On going.

### **C-3.4 Unrestricted Gifts/Non Exchange (\$1,901,672 Total Gifts)**

(\$29,850) 2003. Life science company herbicide evaluation trials.

(\$60,450) 2004. Life science company herbicide evaluation trials.

(\$3,000) 2004. "Desiccation of annual ryegrass cover crop with glyphosate". Funded through Oregon Ryegrass Growers Seed Commission in a cooperative effort with Oregon State University.

(\$3,000) 2005. "Desiccation of annual ryegrass cover crop with glyphosate." Funded through Oregon Ryegrass Growers Seed Commission in a cooperative effort with Oregon State

University.

(\$105,000). 2005. Life science company herbicide evaluation trials.

(\$139,175). 2006. Life science company herbicide evaluation trials.

(\$157,325). 2007. Life science company herbicide evaluation trials.

(\$3,500) 2007. Tennessee Farmers Cooperative to support printing of the Weed Control Manual.

(\$1,500) 2007. Jimmy Sanders Farm Supply to support printing of the Weed Control Manual.

(\$2,500) 2007. Helena Chemical Company to support printing of the Weed Control Manual.

(\$2,500) 2007. United Agri Products to support printing of the Weed Control Manual.

(\$169,000). 2008. Life science company herbicide evaluation trials.

(\$3,500) 2008. Tennessee Farmers Cooperative to support printing of the Weed Control Manual.

(\$1,500) 2008. Jimmy Sanders Farm Supply to support printing of the Weed Control Manual.

(\$3,500) 2009. Tennessee Farmers Cooperative to support printing of the Weed Control Manual.

(\$1,500) 2009. Jimmy Sanders Farm Supply to support printing of the Weed Control Manual.

(\$189,491). 2009. Life science company weed management trials.

(\$168,450). 2010. Life science company weed management trials.

(\$236,700). 2011. Life science company weed management trials.

(\$206,400). 2012. Life science company weed management trials.

(\$258,781). 2013 NEXT Contracts. Life science company weed management trials.

(\$18,500). 2013 gifts for Weed Manual.

(\$39,000). 2014 NEXT Contracts. Life science company weed management trials.

(\$250) 2014. Support for refreshments weed tour.

(\$3,500) 2014. Support for next year.

(\$5,000) 2014. Support for printing weed manual.

(\$2,500) 2014. Support for printing weed manual.

(\$90,300). 2014 NEXT Contracts. Life Science Company weed management trials.

(\$155,200) 2015 NEXT Contracts. Life Science Company weed management trials.

(\$5,000) 2015. COOP. Support for printing weed manual.

(\$2,500) 2015. Helena Support for printing weed manual.

### **C-3.5 In-kind Support (\$436,878 Total In-kind Support)**

- (\$6,300) 2004. Pesticides/Seed provided by chemical and seed companies.
- (\$1,133) 2004. Meals and refreshments provided by DuPont Inc. and Syngenta Corp. for University of Tennessee Weed Research Field Tour.
- (\$50,000) 2005. John Deere 15" Row Cotton Picker\*.  
\*Cotton picker was collaborative gift to cotton Team.
- (\$14,900) 2005. Pesticides/Seed provided by chemical and seed companies.
- (\$1,440) 2005. Meals and refreshments provided by DuPont Inc. and Syngenta Corp. for University of Tennessee Weed Research Field Tour.
- (\$38,435) 2006. Pesticides/Seed provided by life science companies.
- (\$2,480) 2006. Meals and refreshments provided by Syngenta Corp. for University of Tennessee Weed Research Field Tour.
- (\$29,114) 2007. Pesticides/Seed provided by life science companies.
- (\$2,400) 2007. Meals and refreshments provided by DuPont Inc. and Syngenta Corp. for University of Tennessee Weed Research Field Tour.
- (\$31,344) 2007. Pesticides/Seed provided by life science companies.
- (\$2,100) 2007. Meals and refreshments provided by DuPont Inc. and Syngenta Corp. for University of Tennessee Weed Research Field Tour.
- (\$25,344) 2007. Pesticides/Seed provided by life science companies.
- (\$2,100) 2007. Meals and refreshments provided by DuPont Inc. and Syngenta Corp. for University of Tennessee Weed Research Field Tour.
- (\$1,800) 2008. Meals and refreshments provided by DuPont Inc. and Syngenta Corp. for University of Tennessee Weed Research Field Tour.
- (\$3,200) 2009. Meals and refreshments provided by DuPont Inc. and Syngenta Corp. for University of Tennessee Weed Research Field Tour.
- (\$29,344) 2008. Pesticides/Seed provided by life science companies.
- (\$31,444) 2009. Pesticides/Seed provided by life science companies.
- (\$29,000) 2010. Pesticides/Seed provided by life science companies.
- (\$23,000) 2011. Willmar 915 hooded sprayer donated by Monsanto.
- (\$27,000) 2011. Pesticides/Seed provided by life science companies.
- (\$21,000) 2012. Pesticides/Seed provided by life science companies.
- (\$31,000) 2013. Pesticides/Seed provided by life science companies.

(\$33,000) 2013. Pesticides/Seed provided by life science companies.  
(\$27,000) 2014. Pesticides/Seed provided by life science companies.  
(\$40,200) 2015. Pesticides/Seed provided by life science companies.  
(\$102,400) 2016. Pesticides/Seed provided by life science companies.

## **C-5. Participation in Seminars and Workshops**

### **(Professional Development)**

2003 Delta-Wide Weed Science Workshop, Jackson, TN.  
2003 Weed Control Manual Committee Meeting for 2004, Nashville, TN.  
2004 Monsanto Company Field Day, Union City, TN.  
2004 Delta-Wide Weed Science Workshop Baton Rouge, LA.  
2004 Tennessee Cotton State Support Committee Meeting and Tour. Milan, TN.  
2004 Weed Control Manual Committee Meeting for 2005, Nashville, TN.  
2004 Plant Sciences Department Faculty Retreat, Winchester, TN.  
2004 Southern Weed Science Society Annual Meeting, Memphis, TN.  
2004 Weed Science Society of America Annual Meeting, Kansas City, MO.  
2004 Beltwide Cotton Conference, San Antonio, TX.  
2004 Extension Conference, Nashville, TN.  
Seminars: Five Generations in the Work Place  
Your Game Plan for Building Wealth  
Retirement Strategies for Every Age  
Are We Communicating  
Keeping Your Audience Engaged  
2005 Marketing Our Achievements- Putting Our Best Foot Forward!, Knoxville, TN.  
2005 Academic Weed Resistance Workshop Monsanto, St. Louis, MO.  
2005 Southern Weed Science Society Annual Meeting, Charlotte, NC.  
2005 Beltwide Cotton Conference, New Orleans, LA.  
2005 Weed Control Manual Committee Meeting for 2006, Nashville, TN.  
2005 Mississippi State Weed Tour, Starkville, MS.  
2005 Monsanto Flex Cotton Information Meeting, Atlanta, GA.  
2005 Monsanto Roundup Ready Flex Meeting, Tunica, MS.  
2005 Extension Regional Conference, Nashville, TN.  
2005 Pioneer Hi-Bred Field Day, Union City, TN.  
2006 Syngenta Weed Resistance Management Workshop, Wilmington, NC.  
2006 Delta-Wide Weed Science Workshop, Rosedale, AR.  
2006 Weed Control Manual Committee Meeting for 2007, Knoxville, TN.  
2006 Southern Weed Science Society Annual Meeting, San Antonio, TX.  
2006 Beltwide Cotton Conference, San Antonio, TX.  
2006 Weed Science Society of America Annual Meeting, New York, NY  
2006 Cotton Incorporated Crop Management Seminar, Tunica, MS.  
2007 Beltwide Cotton Conference, New Orleans, LA.  
2007 Southern Weed Science Society Annual Meeting. Nashville, TN.  
2007 Plant Sciences Department Faculty Retreat, Sevierville, TN.  
2007 National Glyphosate Stewardship Symposium, St. Louis, MO.  
2007 Governors Conference on Biofuels Montgomery Bell State Park, TN.  
2007 Weed Control Manual Committee Meeting for 2008, Jackson, TN.  
2007 DuPont GAT Tour and Conference, Leland, MS.  
2007 Pioneer Weed Resistance Tour. West TN.  
2007 Monsanto Research Station Tour. Leland, MS.  
2007 SUPER Training, Jackson, TN.  
2008 Academic advisory panel to Monsanto on use of their Dicamba tolerant Trait. St. Louis, MO.

2008 Pioneer Weed Resistance Tour. West TN.  
 2008 Monsanto Research Station Tour. Leland, MS.  
 2009 Academic advisory panel to Monsanto on use of their Dicamba tolerant Trait. Jacksonville, FL.  
 2008 Weed Control Manual Committee Meeting for 2008, Jackson, TN.  
 2009 Weed Control Manual Committee Meeting for 2009, Knoxville, TN.  
 2009 Monsanto Crop Consultants Conference. Memphis, TN.  
 2009 Monsanto Research Station Tour. Scott, MS.  
 2009 Bayer CropScience Cotton Specialist Meeting. Tuscan, Arizona.  
 2009 Bayer glyphosate-resistant weed tour with Bayer research scientist from Germany.  
 2009 Syngenta conducted roundtable discussion with large Brazilian farmers on resistant weed management.  
 2009 Beltwide Cotton Conference, San Antonio, TX.  
 2010 Participated in glyphosate resistant workshop with NRCS meeting. Beltsville, MD.  
 2010 Glyphosate Resistant Conference for Argentinean and Brazilian crop consultants. Fauz De Iguacu, Brazil.  
 2010 Chaired the Southern Weed Science Society Herbicide Weed Resistance Committee. Little Rock, AR.  
 2010 Tour of Embrapa soyja research facilities Brazil.  
 2010 Beltwide Cotton Conference. New Orleans, LA Consultant conference Invited speaker.  
 2010 Participated in Bayer Crop Sciences Respect the Rotation Tour. Memphis and west AR.  
 2010 Weed Control Manual Committee Meeting for 2010, Jackson, TN.  
 2010 Participated in University of Arkansas GR Palmer amaranth symposium, Forrest City, AR  
 2011 Participated in establishing Center workshop. Knoxville, TN  
 2011 Participated in Monsanto Dicamba trait academic conference. St. Louis, MO.  
 2011 Participated in Monsanto Dicamba trait field tours. Tunica, MS.  
 2011 Participated in Dow 2,4-D trait academic conference. Indianapolis, IN.  
 2012 Attended UT Center workshop. Knoxville, TN.  
 2012 Participated Farm Journal Corn College. Heyworth, IL.  
 2012 Participated in Dow 2,4-D trait academic conference. Indianapolis, IN.  
 2012 Chaired the Southern Weed Science Society Herbicide Weed Resistance Committee. Little Rock, AR.  
 2012 Participated in Tennessee Agriculture Production Association work shop. Jackson, TN.

## **C-6. Professional Honors and Awards**

<b>Awards</b>		
	1994	Winner Pioneer Agronomist Sales Support Award.
	1999	Finalist Pioneer Agronomist Sales Support Award.
	2000	Incomplete List of Teachers Ranked as Excellent by Their Students.
	2004	The Dutch and Marilee Cavender Publication Award Presented for the 2004 Tennessee Weed Control Manual.
	2004	Team Member, Communication State Award for the IPM Newsletter.
	2004	Finalist for the Team Communication Southern Region Award for the IPM Newsletter.
	2006	The Dutch and Marilee Cavender Publication Award Presented for the Web-Based Weed Identification Series.
	2011	The outstanding person in Tennessee award. Presented by the Tennessee Agricultural Production Association in recognition of outstanding research and extension programs.

- 2012 Excellence in Extension Award of Merit. The University of Tennessee Chapter of Gama Sigma Delta.
- 2013 The University of Tennessee AgResearch Impact Award. This award is presented to an AgResearch faculty or professional staff member whose efforts have had a profound effect on improving the efficiency, sustainability and/or economic viability of the food and fiber industry of rural areas of Tennessee.
- 2015 Extension Award. The Weed Science Society of America. This award is for outstanding service as an extension worker in the field of Weed Science.
- 2016 Conservation Systems Cotton Researcher of 2016. National Conservation Systems Cotton and Rice Conference.

**Academic Honors**

- 1987 Graduate *Cum Laude*, Western Illinois University
- 2000 Brockton Graduate Fellowship
- 2001 Brockton Graduate Fellowship
- 2002 University Graduate Fellowship
- 2003 University Graduate Fellowship
- 2003 The University of Illinois Chapter of Gamma Sigma Delta

**C-7. Program Involvement Out of State**

UTCrops.com. FACT sheets and 96 IPM Newsletters accessed by producers, consultants, industry personnel and government agencies in many Southern and Midwestern States.

Cooperative research examining glufosinate drift onto glyphosate-resistant cotton. 2004. Conducted jointly with weed scientists at Louisiana State University.

Multi-state research and demonstrations examining desiccation of annual ryegrass cover crop with glyphosate. 2004. Funded through Oregon Ryegrass Growers Seed Commission in a cooperative effort with weed scientists at Oregon State University.

Cooperative research examining residual herbicides in glyphosate-resistant Flex cotton. 2005. Conducted jointly with weed scientists at Louisiana State University.

Multi-state research and demonstrations examining desiccation of annual ryegrass cover crop with various burndown herbicides. 2005. Funded through Oregon Ryegrass Growers Seed Commission in a cooperative effort with weed scientists at Oregon State University.

North Central Region IPM Grant Review Panel member. 2006. St. Louis, MO.

Multi-state research evaluating Reflex herbicide as a pre plant in cotton. 2006. Conducted jointly with weed scientists at Clemson University, University of Georgia and North Carolina State University.

National glyphosate stewardship symposium: A call to action. Moderator. March 20-21, 2007 St. Louis, MO.

Cooperative research examining residual herbicides in glyphosate-resistant Flex cotton. 2007. Conducted jointly with weed scientists at Mississippi State University.

Presented management recommendations on delaying the development of glyphosate-resistant weeds. 6th Annual Dean Lee Research Station Field Day. Louisiana State AgCenter. Alexandria, LA. August 23, 2007. (Fifteen minute presentation on field day tour, presented 3 times during the field day). (Invited).

Management of glyphosate-resistant horseweed. 2008. North Carolina State Weed Resistance Tour. July 22, 2008. (Invited).

Bayer Respect the Rotation Tours. I presented Glyphosate-resistant weed management information in 2011 in Portageville, MO; Red Bud, IL.

University of Illinois Weed Resistance Field day. I presented Glyphosate-resistant weed management information in 2012 in Tuscola, IL.

### **International Experience**

England. 1993. Toured English farms. Sponsored by Pioneer Hi-Bred Intl. Inc.

Austria. 1995. Visited Austrian farms and hybrid seed corn facility. Sponsored by Pioneer Hi-Bred Intl. Inc.

Japan. \*Mueller, T. C., **L. E. Steckel**, and C. L. Main 2006. Reduced sensitivity of [*Amaranthus palmeri* S. Wats] to glyphosate results in lack of control in genetically modified crops. Abs of 11th International Congress of Pesticide Chemistry, IUPAC. Abstract II-1-ii-10C (poster and Invited oral presentation in Kobe, Japan).

Germany. 2009 Bayer Crop Sciences Herbicide Innovation Conference. Invited and participated in a herbicide conference hosted by Bayer Crop Sciences at their facilities in Monheim and Dueseldorf, Germany.

Switzerland. 2009 Toured Pioneer Hybrid Europe Headquarters in Luzerne, Switzerland.

Brazil. 2010. Invited to speak to 12 large Brazilian soybean producers. Memphis, TN.

International. 2010. "Weed resistance situation in southern US row crops." Pan America Weed Resistance Conference. Invited to speak on the weed resistant issues of the southern US to Weed Scientist from across the Western Hemisphere. Miami, FL.

Brazil. 2010. Invited by Valent to give presentations on glyphosate-resistant weeds to 85 crop consultants from Brazil and Argentina. Fauz de Igocu, Brazil. Also tour Embrapa and Coamo research facilities.

Israel. 2010. Invited by MANA to give presentation on glyphosate-resistant weeds to 45 folks from MANA as well as faculty and graduate students from Hebrew University. Tel Aviv, Israel. Also toured MANA herbicide manufacturing plant.

Argentina. 2011. Spoke about herbicide resistant weed management issues with 61 soybean/corn growers and consultants. Milan, TN.

Brazil. 2011. Spoke about weed management issues with 54 soybean growers and consultants. Jackson, TN.

Brazil. 2012. Spoke about weed management issues with 27 soybean growers and consultants. Jackson, TN.

Croatia 2014. Conducted extension demonstration on no-till compared to conventional and minimum-till with Croatian famers on about 100 hectares in 6 different fields.

Argentina. 2014. Spoke about herbicide resistan weed management issues with 67 soybean/corn growers and consultants. Milan, TN.



Argentina. 2015. Spoke about herbicide resistant weed management issues with 57 soybean/corn growers and consultants. Milan, TN.

## **D. Service to the University, the Public, and the Profession**

### **D-1. Summary of Service Record.**

My philosophy of service has been heavily shaped by the many individuals who have assisted me in getting to where I am today. Therefore, I try to provide service when asked for whether it is the Department, University or Public. However I do realize that service to the institution, discipline and profession must be balanced with research and Extension duties.

One of the bigger services I render to Extension is the time commitment I make in the area of plant identification. To date, I have identified well over 500 plants samples sent in through the Distance Diagnostic Center, email or walk-ins. I also provide assistance to the 4-H program through judging at the 4-H Roundup and assisting coaches with seed and plant identification. Within the department, I am or have served on a number of committees including the equipment committee, search committees for cotton specialist, crop physiologist and department head. In the college I am serving on the search committee for EPPs plant pathologist position. I also provide a number of internal critical reviews for FACT sheets from my extension colleagues.

Within my profession, I have served as an Associate editor for the last 4 years for the *Journal of Weed Technology*. Moreover, I review for the Weed Science Society of America's journal *Weed Science*. I also have provided critical review of manuscripts based on weed science in the *Journal of Cotton Science*. Each year I judge the student paper contest at the Beltwide Cotton Conference. I have also been a judge for the student paper contest from 2004 to 2006 at the Southern Weed Science Society Annual Meeting. I have chaired the Agronomic session for the Weed Science Society of America annual meetings in 2006 and 2010. I have also chaired the Agronomic session for the Southern Weed Science Society in 2012. I have been a member of the Southern Weed Science Society board since 2011. I have also chaired the Weed Science section for the 2012 Beltwide Cotton Conference. I was also academic representative to the TAPA board, President Elect of TAPA 2012.

### **D-1.1 Service to the University**

#### Department

- (2004-Present) UT Information Systems Committee
- (2007) Graduate Programs Committee
- (2006-2007) Plant Sciences Equipment Committee
- (2006) Search Committee for Cotton Specialist
- (2006) PS457 Guest lecture
- (2007) Academic representative on the TAPA Board
- (2008) Academic representative on the TAPA Board
- (2009) Academic representative on the TAPA Board
- (2009) Was fill in member for department on metrics committee meeting.
- (2008-2009) Member of graduate student committee.
- (2010) Academic representative on the TAPA Board
- (2011) Member of search committee for Plant Sciences physiologist
- (2012) Member of search committee for EPP plant pathologist
- (2012) Member of search committee for Plant Sciences Department Head
- (2013) Member of search committee for Cotton Specialist
- (2014) Member of search committee for Cotton Specialist
- (2015) Plant Sciences Graduate Student committee
- (2016) Plant Sciences Graduate Student committee

### Extension Service

(2005) Regional Cotton Pest Management Workshop Committee  
(2004-Present) University of Tennessee Weed Control Manual Committee and Chair  
(2004-Present) UT Row Crops Committee  
(2004-Present) UT Soybean Rust Committee  
(2006) Horticulture Production Manual Judge for 4-H Roundup  
(2005-2006) Advised on 4-H Weed Seed Identification Quiz  
(2009) Judged horticulture projects at 4-H Roundup  
(2010) Judged horticulture projects at 4-H Roundup  
(2016) Member of search committee for West Tennessee Extension program leader

### University of Tennessee

(2004-Present) Bio-Based Energy Analysis Group  
(2004,2006, 2008, 2010, 2012) Milan No-Till Field Day Contributor (Speaker and Organizer for Weed Control Stops)

### **Record of contribution to enhance equal opportunity**

Supervise 3 minority employees and am major advisor for 1 minority graduate student (Ph.D). I strive to recruit graduate and undergraduate students to UT and encourage participation in 4-H and FFA.

## **D-1.2 Service to the Public**

### **Service to Government Agencies**

(2004-2012) Written 12 letters of support for state 24c special needs labels for herbicides.

(2005-2007) Conducted research on weed control in switchgrass to support United States Department of Energy biofuels initiative.

(2004) Assisted Tennessee Department of Agriculture evaluating injury from pesticide spray drift.

(2006) North Central Region Integrated Pest Management Grant Review Panel Committee.

(2007) Biofuels Initiative Farmer Education Sub Committee.

(2007) Coordinated Crisis Exemption label for wheat treated with Harmony.

(2007) Coordinated Crisis Exemption label for Select herbicide on corn replant situations.

(2007) National Glyphosate Stewardship Symposium Committee Member.

(2009) Assisted TN Department of AG on herbicide drift complaints.

(2009) Asked to evaluate credentials of Assistant Professor applying for Promotion and tenure in the Department of Plant and Soil Sciences at Mississippi State University.

(2009) Asked to evaluate credentials of Assistant Professor applying for Promotion and tenure in the School of Plant and Soil Sciences at Louisiana State University.

(2009) Gave deposition on possible PGR herbicide drift to 10 acres of tomatoes.

(2010) Witness in trial on possible PGR herbicide drift to 10 acres of tomatoes.

(2010) Presented a seminar to NACD Herbicide Resistance Task Force. Initial Meeting – January 11, 2010 –Beltsville, MD.

(2010) Presented a seminar to NACD Herbicide Resistance Task Force. Second Meeting – August 10-11, 2010 – Little Rock, AR.

### **Service to Industry**

(2004) Advised National Cotton Council on the use and importance of minor use herbicides in cotton  
Refer back to “Invited Presentations” and “Workshop Seminar” sections for other citations.

(2006) North Central Region IPM Grant Review Panel member.

(2006) Member of Weed Scientist Team for Preservation of MSMA for use in cotton.

(2004-2007) Advised life science companies (BASF, Bayer, Dow, DuPont, Monsanto, Syngenta, etc.) on feasibility of experimental herbicide’s value in southern row crop production systems.  
Refer to Section B-2 and C-2.4.1 for other industry workshops.

(2007-2008) Showed glyphosate-resistant weeds on grower fields to Pioneer management. Also advised them on probable utility and grower acceptance of possible new herbicide resistant traits.

(2008) Served on dicamba tolerant soybean academic advisory panel.

(2008-2010) Monsanto academic advisory panel for dicamba trait in soybean.

(2009) Wrote letter of disagreement with fomesafen 850’ buffer to no target plants to EPA public comment

(2009) Attended Dow Ag Sciences DHT academic advisory panel.

(2009) First forty days steering committee.

(2009) Southern Field Crop Alliance Steering committee.

(2010) Southern Field Crop Alliance Steering committee.

(2010) Tennessee Agriculture Production Association. Outstanding Academic board member.

(2011) Southern Weed Science Society board member (Member at large academic).

(2011) Tennessee Agriculture Production Association. President Elect.

(2012) Southern Weed Science Society board member (Member at large academic).

(2012) Invited speaker to Bayer seed partners meeting. Raleigh North Carolina.

### **Clientele Recommendations (Growers/Ext. Agents/etc.)**

>6000 phone calls logged from county agents, crop consultants and growers on weed management related issues from March 2014 to October 2015.

856 Field Complaint Diagnostics (In-field visits).

675 Plant and Weed Identifications for Public (Through UT distance diagnostics lab, email, walk-ins).

**Community Activities** Knights of Columbus  
Assist in fund drives for mentally handicapped youth in West Tennessee. 2004-2012.

### D-1.3 Service to the Profession

**Professional Organizations** Weed Science Society of America, Southern Weed Science Society of America,

(2003) Judge of various events at the Southern Weed Contest.  
(2004) Moderator for Beltwide Cotton Conference Weed Section.  
(2004) Eastern Weed Team Coach for 2004 Southern Weed Contest.  
(2004) Judge of Southern Weed Science Society Paper Contest.  
(2005) Weed Science Society of America Integrated Pest Management Section Chair.  
(2005) Regional Cotton Pest Management Workshop Committee.  
(2005) Moderator for Weed Science Society of America Integrated Pest Management Section.  
(2005) Judge of Beltwide Cotton Conference Paper Contest.  
(2005) Judge of Southern Weed Science Society Paper Contest.  
(2006 to present) Associate Editor *Weed Technology* Journal.  
(2006) Local Arrangements Committee for 2007 Southern Weed Science Society Conference.  
(2006) Judge of Beltwide Cotton Conference Paper Contest.  
(2006) Judge of Southern Weed Science Society Paper Contest.  
(2006) Eastern Weed Team Coach for 2006 Southern Weed Contest.  
(2007) Judge of Beltwide Cotton Conference Paper Contest.  
(2007) Moderator for Beltwide Cotton Conference Weed Section.  
(2007-Present) Southern Weed Society Student Program Committee.  
(2007-Present) Southern Weed Society Sales Coordination Committee.  
(2007) Agronomic Session Chair Southern Weed Society Conference.  
(2008) Judge of Beltwide Cotton Conference Paper Contest.  
(2009) Judge of Beltwide Cotton Conference Paper Contest.  
(2009) Judge of Southern Weed Society Conference Paper Contest.  
(2009) Weed Resistance Committee Secretary Southern Weed Society Conference.  
(2010) Weed Resistance Committee Chair Southern Weed Society Conference.  
(2011) Glyphosate-resistant weed management symposium organizer Southern Weed Society Conference.  
(2011) Agronomic Session Chair Weed Science Society of America Conference.  
(2012) Agronomic Session Chair Southern Weed Science Society Conference.  
(2012) Weed Section Chair Beltwide Cotton Conference.  
(2010) Tennessee Agriculture Production Association. Outstanding Academic board member.  
(2011) Southern Weed Science Society board member (Member at large academic).  
(2011) Tennessee Agriculture Production Association. President Elect.  
(2011) Judged and took farmer role in Farmer problem in weed Olympics.  
(2011 to Present) Adjutant status with Plant and Soil Science Dept. Mississippi State University.  
(2012) Southern Weed Science Society board member (Member at large academic).  
(2013) Southern Weed Science Society board member (Member at large academic).  
(2014-2016) Weed Science Society of America (Board of Directors - Secretary).

**Journal Referee** *Weed Technology* Journal (Associate Editor 2008 to present)  
*Weed Science* Journal  
*Journal of Cotton Science*  
Delta Agricultural Digest  
Critical Review in Plant Sciences

