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U.S. Department of Agriculture **Accomplishments Report AD-421** U.S. Dept. of Agriculture, State Agricultural Experiment Stations and Other Institutions			Date (Month, Day, Year) 03/23/2012
1. Accession 0220772	Agency Identification No. 2. NIFA 3. LA.B	5. Work Unit/Project No. **LAB94018**	6. Status **Annual Report**

7. Title

Integrated Weed Management Strategies in Soybean and Sugarcane: Agronomic and Economic Considerations

12. Investigator Name(s) (Last Name and Initials)

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20. Termination Date 11/30/2014	40. Period Covered (mo/da/year): 01/01/2011 TO 12/31/2011

Outputs:

Research in the areas of application timing of harvest aids and efficacy and economics of weed control programs was presented in three papers published in scientific journals. Presentations of results were made to producers, consultants, and county agents through 15 meetings and field days. Research in the areas of soybean response to dicamba, efficacy and economics of fallow programs for sugarcane, weed management programs in sugarcane, and the value of harvest aids in soybean IPM programs were presented at professional meetings resulting in five abstracts. An electronic sugarcane newsletter was distributed several times during the year providing weed control recommendations and updates on herbicides and highlighting specific weed management programs and costs.

Outcomes/Impacts:

A johnsongrass population in Pointe Coupee Parish was confirmed as resistant to glyphosate. To obtain 50% control required a rate 10.2 times that of the normal glyphosate rate; for 95% control a rate 40 times that of the normal rate would be required. In soybean, preemergence control of hemp sesbania was greatest for flumioxazin plus cloransulam-methyl and flumioxazin plus pyroxasulfone (around 80%); morningglory control was greatest for chlorimuron plus flumioxazin plus thifensulfuron, flumioxazin plus chlorimuron, flumioxazin plus cloransulam-methyl, and flumioxazin plus pyroxasulfone (around 90%). Dicamba provided excellent weed control when applied preemergence and when applied postemergence in combination with glyphosate in dicamba-tolerant soybean. Dicamba improved preemergence control of hemp sesbania when applied with flumioxazin, flumioxazin plus chlorimuron ethyl, acetochlor plus flumioxazin, sulfentrazone plus metribuzin, metribuzin, and chlorimuron plus metribuzin (82 to 98%) and when applied with s-metolachlor plus fomesafen, s-metolachlor, acetochlor, and pyroxasulfone (73 to 78%). Prickly sida control was improved when dicamba was applied with s-metolachlor plus fomesafen, s-metolachlor, acetochlor, sulfentrazone plus metribuzin, and pyroxasulfone. Pyroxasulfone applied preemergence and postemergence was ineffective on hemp sesbania and morningglory and injurious to soybeans. In sugarcane, postemergence control of johnsongrass six weeks after treatment (WAT) was 53% with thiencarbazone-methyl plus isoxaflutole, 32% with tembotrione, 45% with thiencarbazone-methyl plus tembotrione, 12% with mesotrione, and 75% with asulam plus trifloxysulfuron. Sugarcane injury was significant for thiencarbazone-methyl plus isoxaflutole and tembotrione. When metribuzin, clomazone plus diuron, pendimethalin plus metribuzin, and clomazone plus metribuzin were applied in mid-February, bermudagrass control 4 WAT was 33 to 68% and 10 to 40% 6 WAT. When applied in mid-March, bermudagrass control 4 WAT with the herbicides was 38 to 75% and 30 to 58% 6 WAT. Sugarcane injury was greatest for clomazone plus diuron. Fallow season programs for bermudagrass control were implemented during the summer of 2010 and included various combinations of bottom plowing, disking, chisel plow, and re-hipping of beds coupled with single or multiple applications of glyphosate. For the sugarcane crop the following year, no-differences in stalk population and yield among the fallow treatments were observed. For bermudagrass plants collected at 20 locations across the sugarcane belt, control with glyphosate ranged from 46 to 93%. Considerable differences among biotypes in growth rate and growth characteristics were observed. Halosulfuron, halosulfuron plus dicamba, sulfentrazone plus metribuzin, and trifloxysulfuron were applied postemergence in October to sugarcane and purple nutsedge. Four weeks after application control for all treatments was equivalent and ranged from 56 to 68%. Sugarcane injury was 25% for sulfentrazone plus metribuzin, but no more than 9% for the other treatments.

Publications:

Boudreaux, J.M. and J.L. Griffin. 2011. Application timing of harvest aid herbicides affects soybean harvest and yield. Weed Technol. 25:38-43.

Mite Caceres, J.R., J.L. Griffin, M.E. Salassi, and J.M. Boudreaux. 2011. Efficacy and economics of EPTC in fallowed sugarcane fields. J. Am. Soc. Sugarcane Technol. 31:25-38.

Taverner, J., J.S. Beasley, R.E. Strahan, J.L. Griffin, and S.M. Borst. 2011. Selective postemergence herbicide control of torpedograss in centipedegrass. Weed Technol. 25:212-216.

Participants:

J.L. Griffin, (PI), C.d. Blouin, D.K. Miller, R.P. Strahan, M.E. Salassi, J.S. Beasley, J.M. Boudreaux, J. Taverner, S.M. Borst, and J. Mite, LSU AgCenter.

Target Audiences:

Target audiences for this project include crop producers, crop consultants, crop advisors, agrichemical company representatives, county agents, extension specialists, and weed management professionals.

Project Modifications:

Nothing significant to report during this reporting period.

Approved (Signature)	Title	Date