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## Emphasizing Extension's Unbiased, Research-Based Recommendations Is Critical

### Abstract

With a multitude of information sources available to stakeholders, it is critical that Extension emphasize the supporting work and unbiased approach that comprise the backbone of our recommendations. In Alabama, management of target spot, a disease that can devastate cotton, is the result of 100 field trials, 6,700 man-hours, and \$485,800 in grants. The team involved delivered 94 associated publications and stakeholder activities and posted information via YouTube and Twitter. For Cooperative Extension to remain relevant, we must emphasize our strong experiment station partnership that ensures a foundation firmly planted in unbiased, research-based information that is not influenced by outside, market-driven interests.

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## Introduction

Two issues we are addressing in the Alabama Cooperative Extension System (ACES) and the Alabama Agricultural Experiment Station (AAES) are (a) distinguishing ourselves from all the other information sources available through the Internet and industry and (b) educating our stakeholders on the critical value of unbiased, research-based recommendations. We know that information sources over the past 30 years have evolved from personal and paper sources to include a vast array of Internet sites (Bailey, Hill, & Arnold, 2014; Pounds, 1985). Internet resources can immediately deliver a wide range of information on any topic (Burt, 2006); however, anyone relying on those resources must carefully vet them for accuracy (e.g., Cullens, 2013).

If we in Extension want to continue to have an impact on agriculture and other areas, we must educate our stakeholders on the critical value of unbiased, research-based information. In addition, we must value teamwork and stakeholder input (Gould & Ham, 2002), especially if we want to remain strong in an industry full of choices. Unfortunately, stakeholders typically do not have knowledge of the efforts we expend to provide unbiased, research-based information. In particular, agricultural stakeholders are seldom aware of the multitude of on-farm demonstrations, small-plot research trials, labor hours, experiences, and personal communications that underlie our recommendations. In fact, even we often do not realize the amount of

human and financial resources we have invested in developing management recommendations.

Herein, we use a real-world example of our response to a specific crop problem to illustrate why and how we in Extension should educate stakeholders on the effort involved in providing unbiased, research-based recommendations. It is critical that we continue to emphasize the difference between information provided by Extension and that provided by sources that often have a financial, "market-based" agenda. Our discussion addresses the expanse of the work conducted and the ways in which we communicated to stakeholders not only vital recommendations but a description of the immense effort we undertook to produce those recommendations.

## **Example Project: Target Spot Management Recommendations for Cotton**

### **Objectives**

For the project we are using as an example, a team was assembled for management of target spot (TS), a devastating late-season foliar disease in upland cotton. The overall yield impact can be a 30% reduction from what is expected (Hagan, Bowen, Pegues, & Jones, 2015).

The specific objectives were (a) to acquire stakeholder input, identify the specific problem, and develop a management team; (b) to use unbiased methods to plan and conduct small-plot research and on-farm demonstrations; and (c) to compile and interpret our findings without predetermined outcomes and then make that information available to our stakeholders.

### **Methods Used**

In taking action to achieve our objectives, we were guided by the principles of encouraging producer involvement, taking advantage of the expertise and resources available in Extension and research, and avoiding any outside influences that could bias the results. To begin the process, the team leader recognized the need to form a rapid, comprehensive response to develop TS management options. Responsibilities for that response were distributed across ACES and AAES personnel (Table 1).

**Table 1.**  
Extension and Research Team Investigating Target Spot

<b>Responsible entity</b>	<b>No. of personnel</b>	<b>Location</b>
Alabama Cooperative Extension		
County Extension coordinator	1	Baldwin County
Regional Extension agents	4	Central, Southeast, Southwest, and North
Statewide Extension specialist	1	Auburn University

Departmental faculty	1	Auburn University
Alabama Agricultural Experiment Station		
Research technician	1	Auburn University
Directors and associate directors	8	Research and Extension centers
<b>Total</b>	<b>16</b>	

Our team discussed the problem and potential impact on cotton at semiannual meetings (2011–2016) and through emails, ACES Timely Information fact sheets, and regional Extension agent (REA) and agent training webinars, which were also made available to stakeholders via YouTube. After the initial training webinars, we contacted crop advisors and producers in the affected areas to determine the extent of the problem. Stakeholder involvement continued throughout the project during on-site farm visits, county production meetings, state commodity commission meetings, and phone contacts.

Next, we prepared for and conducted small-plot research and on-farm demonstration trials. These efforts involved significant collaboration, coordination, and manpower. During the early planning stages, we met with Extension and research scientist colleagues from Louisiana State University, Mississippi State University, University of Arkansas, University of Florida, University of Georgia, and University of Tennessee, as well as with representatives from Cotton Incorporated, to build a robust multistate collaboration. Each group met with its respective state cotton producer commission to secure funding for its own TS management projects. Our efforts in Alabama resulted in securing \$485,800 from several sources, including the state cotton commission, Cotton Incorporated, Southern Region Integrated Pest Management, and the National Institute of Food and Agriculture (Table 2).

**Table 2.**  
Funding Sources That Supported the Alabama Target Spot Investigation Project

<b>Funding investigator</b>	<b>Funding, 2011–2016</b>	<b>Source</b>
Regional Extension agent	\$10,700	Alabama Cotton Commission
Extension specialist	\$27,000	Cotton Incorporated
Research/Extension faculty	\$51,000	Alabama Cotton Commission
	\$49,700	Alabama Agricultural Experiment Station agricultural research seed grant
	\$70,000	Cotton Incorporated
	\$60,000	Southern Region integrated pest management grants (2)
	\$25,000	Industry

	\$192,400	Multistate National Institute of Food and Agriculture grant
Total	\$485,800	

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With funding secured, we began the broad scope of work that occurred from 2012 through 2016. With the need for a rapid yet comprehensive response, we conducted 100 trials over 5 years at the research and Extension centers (RECs) and in producer fields (Table 3). The highest concentrations of work were at the Gulf Coast REC and Brewton Agricultural Research Unit because those research units are located in the epicenter of the initial outbreak in southwest Alabama. ACES and AAES personnel worked 6,700 man-hours, not including travel time.

**Table 3.**

Effort and Location Descriptions for the Five-Year Target Spot Investigation Project

Location	Years	No. of trials	Man-hours
Central			
E.V. Smith Field Crops Unit	2013–2016	14	938
E.V. Smith Plant Breeding Unit	2013–2016	11	737
Prattville Agricultural Research Unit	2013–2016	5	335
North			
Sand Mountain Research and Extension Center	2016	1	67
Tennessee Valley Research and Extension Center	2013	2	134
Southeast			
Wiregrass Research and Extension Center	2011, 2013–2016	11	737
Southwest			
Brewton Agricultural Research Unit	2012–2016	14	938
Gulf Coast Research and Extension Center	2012–2016	33	2,211
On-farm demonstrations	2012–2015	9	603
Total		100	6,700

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Finally, we compiled and analyzed all the data, interpreted the results as a team, and then transferred the findings to our stakeholders. Our results were rapidly communicated by ACES in a far-reaching approach that included meetings with stakeholder committees, in-person contacts, on-farm tours, regional production meetings, and use of social media. The results were presented to scientists and producers at state and national conferences and published in ACES Timely Information fact sheets, the annual AAES cotton research bulletin,

abstracts, proceedings, refereed technical reports, and a peer-reviewed journal article (Table 4). We also made the information available as social media content, including YouTube videos and Twitter alerts that highlighted TS diagnosis and management recommendations (Table 4).

**Table 4.**  
Summary of Dissemination of Target Spot Management Findings

<b>Dissemination activity/channel</b>	<b>No.</b>	<b>Publisher</b>
Abstracts and proceedings	16	National Cotton Council
Twitter posts	35	Alabama Extension
Webinars	2	Alabama Extension
Videos (YouTube)	4	Alabama and Georgia Extension
Alabama Cooperative Extension System Timely Information fact sheets	10	Alabama Extension
Field tours	5	Regional and county Extension personnel
Foliar Disease of Cotton bulletin	1	Cotton Incorporated
News articles	4	Various
Plant Disease Management Reports	16	American Phytopathological Society
Refereed journal article	1	<i>Phytopathology</i>
Alabama Crops website ( <a href="http://www.alabamacrops.com">http://www.alabamacrops.com</a> )		Alabama Extension
<b>Total</b>	<b>94</b>	

## Implications

Using our project as an example of teamwork and rapid response is helping us improve stakeholder understanding of and appreciation for ACES and the AAES. As has already been mentioned, it is critical for Extension to emphasize the amount of work supporting our recommendations and to make clear that our results are free from outside, market-driven influences. As we present our findings and describe the work that went into this project, we encounter both surprise and positive response with regard to the breadth and depth of our efforts. Perhaps, then, the most significant part of our project for Extension as a whole has been demonstrating the importance of presenting an overall view of a project to our stakeholders. With an understanding of the amounts of time, effort, and money required to develop recommendations, funding sources may be more compelled to support Extension programs. Although we knew we had done a tremendous amount of work on our project, it came as some surprise even to us when all aspects of the effort were documented. If this is the case for those who participate in an Extension effort, how much more important is it for our stakeholders to be explicitly informed about these circumstances as well?

We carry the primary burden of informing others of the efforts routinely conducted by Extension researchers and educators if we are to remain critical to stakeholders in agriculture and other areas. In most states, there exists a leadership stakeholder group that acts to steer policy and funding toward projects that impact members' interests. We have found that the likelihood of success, support, and appreciation for ACES and AAES efforts is greater when that group is brought into the decision-making process early in the initiation of a project. It is easy to get sidetracked with project results such that mission drift occurs and the impact directly to the stakeholders is never adequately communicated. Our experience has been that meeting with the stakeholder steering group in person with team members present is the best way to pass along findings and convey the effort behind those results. This meeting between Extension, researchers, and the steering group should occur before the release of information to the general public. In this way, the steering group continues to be part of the overall team and can be given appropriate credit among their peers so that their constituency will support our efforts going forward.

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