

## **A Series of Consumer Workshops: Informing Alabama Consumers about Organic Agriculture**

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### **Authors' contributions**

*This work was carried out in collaboration between all authors. Author ABB designed the study, wrote the protocol and wrote the first draft of the manuscript. Author KKA reviewed the experimental design and all drafts of the manuscript. Authors ABB and RG managed the analyses of the study. Author KKA recruited the participants. Author RG collected the data. Authors ABB and RG performed the statistical analysis. All authors read and approved the final manuscript.*

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### **ABSTRACT**

A series of consumer-oriented workshops were conducted to inform Alabamians about organic agriculture. Workshops (N =10) were conducted by the participation of 257 farmers and consumers in nine Alabama, USA cities using a pretest-posttest procedure, an organic food survey and a questionnaire of purchase intent. The mean posttest score was significantly ( $p < 0.0001$ ) higher than the pretest score ( $5.6 \pm 1.8$  vs  $4.6 \pm 1.9$ ). Seventy three percent of the respondents preferred organic to conventional foods and 35% of them did not know where to purchase organic products. Extra efforts should be made to inform farmers and consumers from Alabama, USA about organic agriculture to create demand and respond to shifting market dynamics especially through the extension system.

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## 1. INTRODUCTION

Globally, organic agriculture remains one of the fastest growing markets due to increased concerns of consumers about health, environment and food safety [1]. Current organic farming statistics in the United States (U.S.A.) suggest that Alabama lags behind in the number of certified farms and land under organic farming. For instance, there were only 12 certified organic farms and 618.8 hectares of farmland under organic farming in Alabama by the year 2011 while there were 2,530 organic farms and 164,089 hectares under organic farming in California [2]. Thus, most of the organically grown products consumed in Alabama are imported from other states, particularly from California. Farmers from Alabama, who have difficulty in terms of limited resources, are ideally ready to exploit the huge, untapped southeastern market for organic agriculture.

To discuss the obstacles to the development of organic agriculture in Alabama and identify the priorities in organic research, different meetings were held among farmers, researchers from land grant institutions and other stakeholders between 2008 and 2011. One of the obstacles identified in these meetings was the lack of knowledge of farmers and consumers about the benefits of organic agriculture. It is interesting to note that Middendorf [3] had identified this identical barrier when investigating the challenges and information needs of organic growers and retailers in east-central Kansas. As a consequence, land-grant researchers, and stakeholders decided to work as a team to have an impact upon the removal of this obstacle.

According to some studies [1,4], all activities aimed at spreading organic agriculture should be directed to consumers since they are the major factor and the future of organic agriculture is linked to their demand [5]. Consumers are listed as one of the key stakeholders in organic agriculture in terms of ideas, available budget, demand, purchasing power and health concerns [5]. As a result, there is an urgent need to inform farmers and consumers about organic agriculture.

This study was part of a larger project which focused on increasing the adoption of organic farming practices in Alabama. These practices will be realized by educational and extensional activities in order to facilitate the ultimate

development of a strong and vibrant industry of organic agriculture. Specifically, this study organized a series of consumer-oriented training workshops to inform Alabamians about the benefits of organic agriculture and consumption of organic products and encouraged them to utilize organic products, thereby creating demand.

## 2. MATERIALS AND METHODS

### 2.1 Research Setting

Educational workshop series was conducted in Alabama, located in the southeastern region of the U.S.A. (Fig. 1). A single workshop was conducted in each of nine Alabamian cities namely, Auburn, Birmingham (two workshops), Dothan, Huntsville, Mobile, Montgomery, Phenix City, Troy and Tuscaloosa (Fig. 1).



**Fig. 1. Map of Alabama, U.S.A. showing the cities (highlighted in green) where the study was conducted**

**(Available: <http://geology.com/cities-map/alabama.shtml>; accessed 1/18/2016)**

## 2.2 Selection of Participants

Workshop participants were selected through advertisements on local television, radio and newspapers. Pamphlets and flyers were also posted at the Extension offices of U.S. Department of Agriculture (USDA), churches, schools, beauty salons, website of ASAN, specialty stores and supermarkets.

## 2.3 Instructional Protocol of Workshop

Prior to the start of each workshop, participants, who are accustomed to the production and consumption patterns of conventional agriculture, consumed samples of organic foods and

beverages in an organic dinner or as appetizers [4]. The workshop was guided by some phases of the transformative learning theory of Mezirow for adult education [6-8] where transformative learning is “a deep, structural shift in basic premises of thought, feeling, and actions” [9]. The adult learning theory in the transformative model allows participants to critically analyze the information presented to them so that they use the information to make the necessary structural shift to organic products.

PowerPoint deliveries, interactive periods of question-answer and discussion, handouts and videos were the major instructional methods that were utilized. The workshop content was divided

**Table 1. Contents of the educational workshop series**

<b>Topic</b>	<b>Contents</b>
Introductory remarks	Overview of the project and organic production Globally, nationally, regionally and locally
Introduction to organic foods	<b>Definition of organic foods</b> <ul style="list-style-type: none"> <li>• What is organic?</li> <li>• Organic history</li> </ul> When is organic food really organic? <ul style="list-style-type: none"> <li>• Specific organic standards</li> <li>• National program</li> </ul> USDA Organic Seal <ul style="list-style-type: none"> <li>• Which products wear the USDA organic seal?</li> <li>• The 100% organic label</li> <li>• What does made with organic ingredients mean?</li> <li>• Other food labels</li> </ul>
Economics of organic foods	<ul style="list-style-type: none"> <li>• United States (U.S.) organic sales</li> <li>• Organic retail sales in other countries</li> </ul>
Affordability and cost of organic food	<ul style="list-style-type: none"> <li>• How much does it cost?</li> <li>• Who eats organic food?</li> <li>• Pesticides and diseases</li> <li>• Federal government subsidies</li> </ul>
Organic food, nutrition and health	<b>Why organic foods matter?</b> <ul style="list-style-type: none"> <li>• Drivers of organic foods - health, taste, environment, safety</li> <li>• Which consumers buy organic food</li> <li>• Organic versus natural and genetically modified foods (GMOs)</li> <li>• Attributes and benefits of organic foods as borne out by research studies</li> </ul> <b>Case studies of organic foods</b> <ul style="list-style-type: none"> <li>• Nutrition</li> <li>• Health</li> <li>• Flavor</li> </ul> <b>Encouraging consumers to utilize organic foods</b> <ul style="list-style-type: none"> <li>• How to create a healthy organic table</li> <li>• Organic cooking, organic baby foods</li> <li>• Where to find organic products</li> <li>• Organic food delivery</li> <li>• Tips for affording organic foods</li> <li>• Organic food coupons</li> </ul>
Closing remarks	

into four broad categories ranging from the definition of organic agriculture, organic food production and certification to case studies and research findings as shown in Table 1. A pretest-posttest procedure, which was administered before and after each workshop, was used to evaluate the impact of the workshop sessions. Moreover, participants completed an evaluation at the end of each workshop.

## 2.4 Organic Food Survey (OFS) and Questionnaire of Purchase Intent (QPI)

The study team comprising of organic producers, stakeholders, extension agents, academicians and researchers designed an OFS and a QPI to gather exploratory data on the perceptions and purchase intent of consumers. The OFS and QPI were tested on a small group of farmers and consumers. The workshop participants were stopped after registration and asked to complete the OFS and QPI. The OFS was an 8-item closed ended questionnaire which required responses, such as “yes”, “no” or “not really”. The QPI was measured on a 5-point scale, ranging from “definitely will buy - 5” to “definitely will not buy -1”.

## 2.5 Data Analysis

The data for the pretest-posttest procedure were analyzed using a paired-samples t-test [11]. The OFS and PIQ data were summarized using descriptive statistics.

## 3. RESULTS AND DISCUSSION

### 3.1 Workshop Series

#### 3.1.1 Pretest-posttest

Two hundred and fifty seven farmers and consumers participated in a series of organic workshops held in nine Alabamian cities between 2012 and 2014 (Table 2). The average attendance for each workshop was 25.7 people. A complete dataset of 123 correctly matched pretest-posttest forms were obtained. The results revealed a highly significant difference between the pretest-posttest scores,  $t = 6.1$ ;  $p < 0.0001$  for a 5% level. The mean posttest scores ( $5.6 \pm 1.8$ ) were significantly higher than those from the pretest ( $4.6 \pm 1.9$ ).

#### 3.1.2 Responses to the evaluation questionnaire

A total of 135 evaluation questionnaires were obtained. Aspects of the workshops session

were rated on a 5-point scale where 1= strongly disagree, 3 = neither agree nor disagree and 5= strongly agree. The responses are shown in Fig. 2.

**Table 2. Number of participants in educational workshop series**

Cities	Number of participants
Auburn	42
Birmingham (twice)	32
Dothan	35
Huntsville	19
Mobile	21
Montgomery	42
Phenix City	35
Tuscaloosa	10
Troy	21
<b>Total</b>	<b>257</b>

#### 3.1.3 Session content

The mean score ( $4.5 \pm 0.8$ ) for session content indicated that the participants were well informed. Participants agreed that the workshop met the expectations, giving a mean score of  $4.4 \pm 0.9$  (Fig. 2).

#### 3.1.4 Session design

Fig. 2 shows the mean scores for the session design of workshops. Participants mostly agreed that the presentations were clear ( $4.5 \pm 0.8$ ) and they stimulated learning ( $4.5 \pm 0.9$ ). Moreover, participants agreed that they gained sufficient knowledge ( $4.2 \pm 1.0$ ) and the difficulty level of the sessions was appropriate ( $4.3 \pm 0.9$ ).

#### 3.1.5 Instructions and location

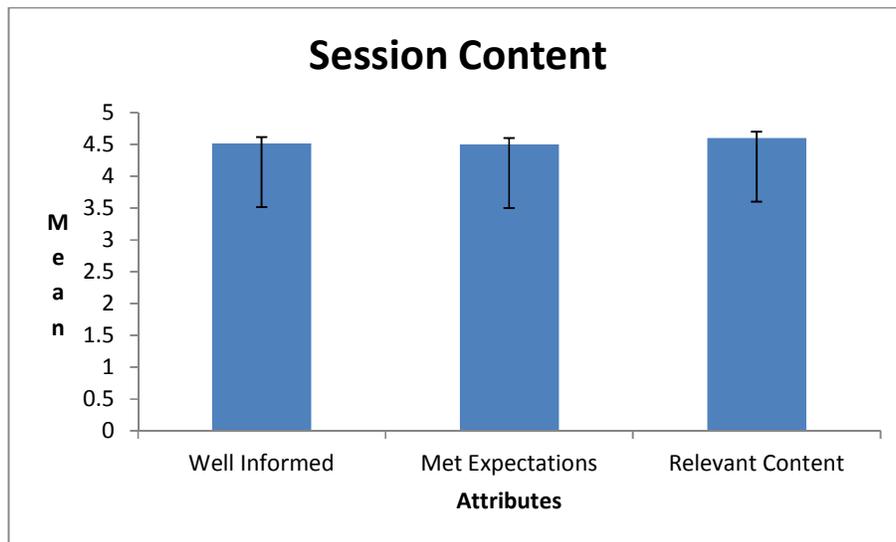
Most participants agreed that the presenters were well prepared ( $4.6 \pm 0.8$ ), helpful ( $4.6 \pm 0.8$ ) and the locations were appropriate and comfortable ( $4.6 \pm 0.9$ ).

### 3.2 Organic Food Survey (OFS)

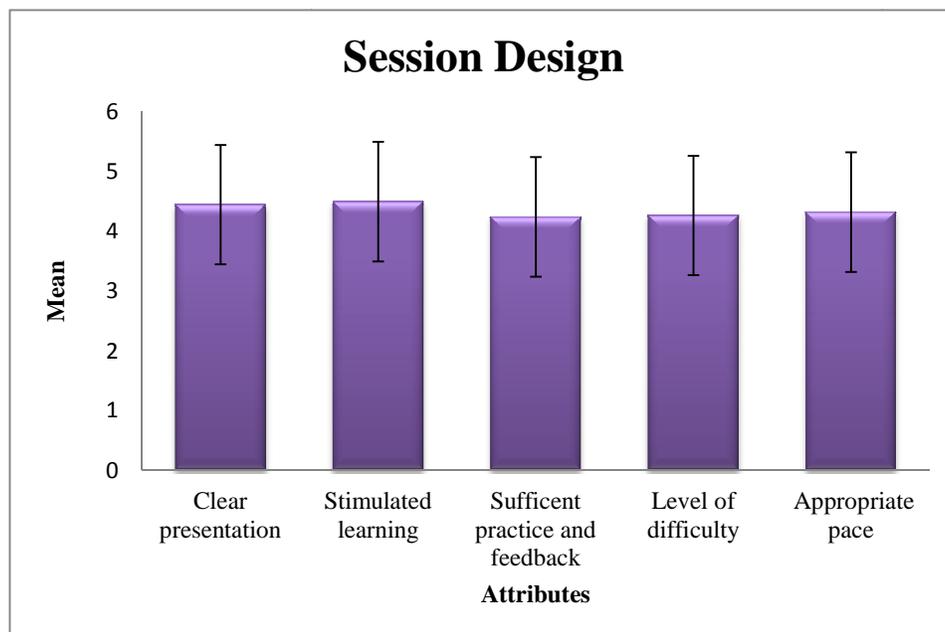
#### 3.2.1 Demographics of OFS participants

One hundred and seven of 257 participants who attended the workshops responded to the OFS. The demographic characteristics of the respondents are shown in Table 3. Roughly 65% of the participants were females while 29% were males and 6% did not disclose their gender (Table 3). The majority of respondents (57%) were more than 56 years old. Most of the respondents (48%) were African Americans and 33% of them earned between \$20,000 and \$39,999 annually.

**(a) Session content**



**(b) Session design**



**Fig. 2. Responses to the Evaluation Questionnaire for the Workshop Series (N = 135) showing: a) the responses when asked about the contents of the session and b) responses to the session design**

**3.2.2 Responses to OFS**

The responses to the OFS are shown in Table 4. The majority (73.0%) of respondents mentioned that they preferred organic to conventional foods. A high percentage (86.0%) of respondents indicated that they would consider buying organic

foods more often if they were sold at a lower price. More than half of the respondents did not know where to buy locally grown organic produce. Roughly 32% of the respondents indicated that they would be willing to travel six to ten miles to shop for organic and other natural products (Fig. 3).

**Table 3. Demographic characteristics of respondents in the Organic Food Survey (OFS); N =107**

Characteristics	Percent (Number)	
<b>Gender</b>		
Female	65.4	(70)
Male	29.0	(31)
Did not disclose	5.6	(6.0)
<b>Age (years)</b>		
≥56	57.0	(61.0)
36-55	31.0	(33.0)
25-32	8.0	(8.6)
<25	4.0	(4.3)
<b>Ethnicity/Race</b>		
African Americans	48.0	(51.4)
Caucasians	41.0	(43.9)
Hispanics	1.0	(1.1)
Asians	2.0	(2.1)
Other ethnicities	8.0	(8.6)
<b>Income (\$)</b>		
≥80,000	23.0	(24.6)
60,000 – 79,999	23.0	(24.6)
20,000 – 39,999	33.0	(35.3)
≤19,999	20.0	(21.4)
Did not disclose	1.0	(1.1)

**3.3 Questionnaire of Purchase Intent (QPI)**

**3.3.1 Responses to the scale of purchase intent**

Complete datasets for the QPI were received from 63 respondents. The purchase intent of the respondents is indicated in Fig. 4. A substantial percentage (56%) of the respondents indicated willingness to purchase organic produce.

**3.4 Implications**

Organic workshop series of consumers as well as the OFS and QPI conducted in Alabama provided the opportunity to inform 257 farmers

and consumers about organic agriculture. The workshop participants tended to be older females with average annual incomes between \$20,000 and \$39,999. This profile is different than that of Roitner-Schobesberger et al. [11] who reported that 58% of Thai organic buyers were older males and had annual family incomes of \$11,084. The respondents in the OFS rated organic foods as too expensive. Organic foods are generally 20% more expensive than conventional foods [12,13]. On the other hand, the lack of consumer knowledge about using, preparing and cooking organic foods is another potential barrier in front of creating demand for organic food.

The workshop series also allowed us to derive some strategies from the valuable comments of participants in supporting the development of organic agriculture in Alabama. Comments, such as *‘I am inexperienced in organic foods so I may use more practical help in changing my family’s diet’*; *“You should offer versions of this workshop on weekends. ‘These workshops provide increased availability of organic foods and sustainable farming methods.’ ‘It was a wonderful workshop, very educational. I am completely converting to organic foods and will also work to educate and feed my family organically’*; *“The workshops helped me to understand the economics of organic gardening and how to improve the soil and product. I learned about the pesticides and their harmful effects”*. The comments were really helpful in determining the necessary strategies.

Even though the study had some limitations, such as a small and convenient sample and the possibility that the participants may not be the real representatives of Alabamians, this educational series gave a first synopsis of the knowledge level and insights of Alabamians regarding organic agriculture.

**Table 4. Responses to the Organic Food Survey (OFS) in percent (number); N = 107**

Question	Yes	No	Not really
Do you prefer organic foods over conventional foods?	73.0 (78.1)	10.0 (10.7)	17(18.2)
Do you think you eat healthy?	74.0 (79.2)	6.0 (6.4)	20 (21.4)
Do you think organic food is pricy?	59.0 (63.0)	13.0 (14.0)	28(3.0)
If organic food is sold at a lower price, would you consider buying it more often?	86.0 (92.0)	7.0 (7.5)	7.0 (7.5)
Do you know where you can buy locally grown, but organic produce?	48.0 (51.4)	29.0 (31.0)	23.0 (24.6)
Do you know how to prepare and cook organic food?	50.0 (53.5)	18.0 (19.3)	32.0 (34.2)
			<b>Sometimes</b>
When eating out is organic food a factor in deciding where to go?	14.0 (15.0)	54.0 (57.8)	32.0 (34.2)

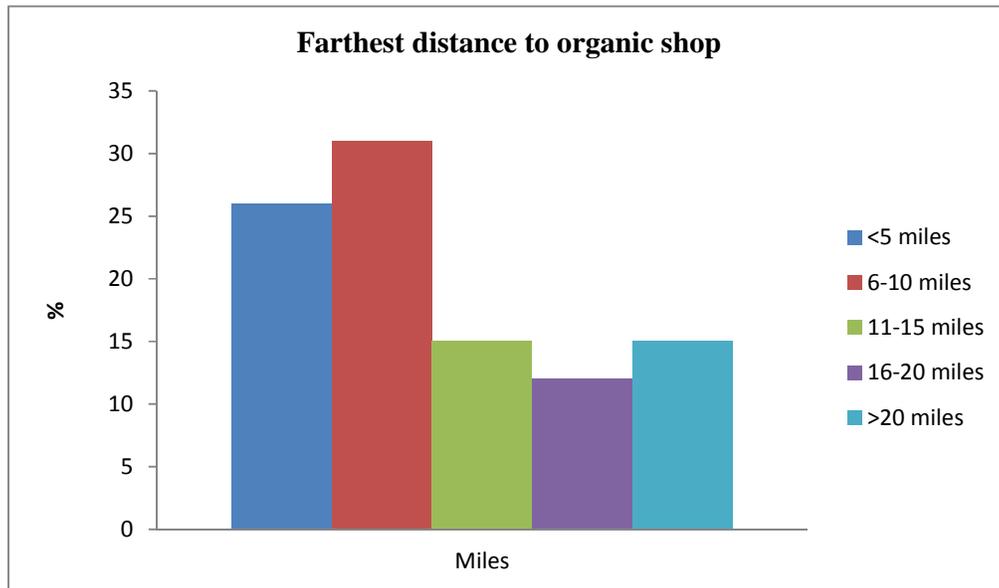


Fig. 3. Longest distance (ranged from <5 miles to >20 miles) consumers will travel to shop for organic and other natural products

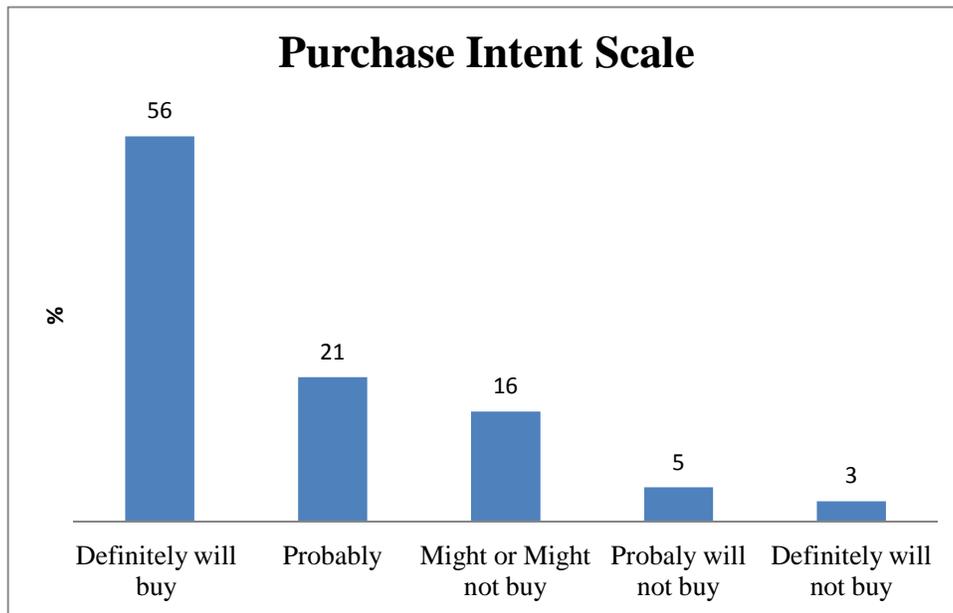


Fig. 4. Responses to the questionnaire of purchase intent on a 5-point scale, ranging from “definitely will buy - 5” to “definitely will not buy -1”

#### 4. CONCLUSION AND RECOMMENDATIONS

Conducting educational series like the current one reported is an excellent strategy to increase awareness of farmers and consumers about organic agriculture. A similar result showing that educational workshops are an effective way to

reach some audiences is also reported in other studies [14]. The study reveals that farmers and consumers are willing to learn about organic agriculture. Furthermore, Alabamian farmers and consumers will create demand and respond to the shifting market dynamics if organic foods are affordable and they can be easily reached.

On the other hand, this study also contributes to the improvement of knowledge about organic farming in Alabama. The success of these workshops in creating awareness for organic farming shows that such workshops should be repeated in other cities of Alabama to inform Alabamians about organic agriculture and encourage them to become regular users and buyers of organic products.

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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