

**Training Needs of Mississippi State University Extension Agents in Organic Agriculture**

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### **Introduction/Need for Research**

Organic agriculture is one of the fastest growing segments of agriculture in the United States, including Mississippi. As the organic sector continues its upward trajectory, consumers continue to eat and use more organic products than ever before. The demand for organically grown produce continues to increase, leading supermarkets to carry certified organic produce. Mississippi State University Extension is working to help existing non-organic growers convert at least some of their production to organic methods or to assist those who want to begin organic production (Mississippi State University Extension, 2017). Knowledge and support for organic agriculture among Extension agents is limited within the southern region of the United States, even though Extension agents' knowledge about organic production is essential in moving the organic industry forward (Sanderson, 2004). The growth of organic production in Mississippi, while slow, has shown signs of increasing in recent years (Mississippi State University Extension, 2017). While agents in Mississippi receive calls from their constituents with questions, many lack a satisfactory working knowledge to provide valid responses to those who wish to engage in organic practices.

### **Conceptual or Theoretical Framework**

This study was inspired by the definition of training needs proposed by Borich (1980), who indicated that a need is a discrepancy or gap between "what is", or the present state of affairs in regard to the group and situation of interest, and "what should be", or desired state of affairs. According to Borich (1980), institutions engaging in any training program continually look for ways to determine training effectiveness and improve their training techniques. The most frequent method used to assess training needs is usually the follow-up study questionnaire to those that have received the training or courses of study to solicit opinions about the program and the training received or needed.

### **Methodology**

The purpose of this study was to determine the perception and training needs of Mississippi State University Extension agents and the level of demand they were receiving for information in organic agriculture. An online questionnaire was administered through Qualtrics to all 154 extension agents working for Mississippi State University Extension. The survey was divided into six sections. Section four of the questionnaire collected the data reported in this abstract regarding the current level of knowledge Extension agents had about 29 organic agriculture topics and how important it was for them to have such knowledge. Eighty-four agents responded for a 55% response rate. Means and standard deviations were used to report data for the level of importance and current knowledge levels on the 29 organic agriculture topics. This information was then used to calculate the mean weighted discrepancy scores to rank the training needs of Extension agents in organic agriculture.

### **Results/Findings**

Respondents rated 29 topics on how important it was for them to be knowledgeable about that topic using the following Likert-type scale: 1 = Not important, 2 = Somewhat important, 3 = Important, and 4 = Very important. The following five topics were rated as the most important topics for Extension agents to know about organic agriculture: "Benefits of Integrated Pest Management (IPM) in organic agriculture" ( $M = 3.18, SD = .75$ ), "What is organic agriculture"

( $M = 3.16$ ,  $SD = .79$ ), “IPM practices used in organic agriculture” ( $M = 3.12$ ,  $SD = .82$ ), “Organic agriculture standards” ( $M = 3.10$ ,  $SD = .83$ ) and appropriate amounts of IPM in organic agriculture ( $M = 3.09$ ,  $SD = .82$ ). The five least important topics for Extension agents to know were “Types of organic agriculture equipment” ( $M = 2.80$ ,  $SD = .83$ ), “Raising livestock organically” ( $M = 2.63$ ,  $SD = .91$ ), “Using biofuel in organic agriculture” ( $M = 2.58$ ,  $SD = .88$ ), “Growing row crops organically” ( $M = 2.54$ ,  $SD = .91$ ), and “Benefits of organic agriculture” ( $M = 2.29$ ,  $SD = .78$ ).

Respondents also rated their current level of knowledge of the same 29 organic agriculture topics using the following Likert-type scale: 1 = Not knowledgeable, 2 = Somewhat knowledgeable, 3 = Knowledgeable, and 4 = Very knowledgeable. Respondents reported being most knowledgeable on the following five topics: “What is organic agriculture” ( $M = 2.25$ ,  $SD = .80$ ), “Benefits of organic agriculture” ( $M = 2.18$ ,  $SD = .75$ ), “Growing produce organically” ( $M = 2.02$ ,  $SD = .87$ ), “Crop rotation systems for organic agriculture” ( $M = 2.00$ ,  $SD = .94$ ), and “Types of organic fertilizers used in organic agriculture” ( $M = 1.98$ ,  $SD = .89$ ). Respondents were least knowledgeable in “Benefits of bio-fertilizers used in organic agriculture” ( $M = 1.59$ ,  $SD = .88$ ), “Post-harvest handling techniques in organic agriculture” ( $M = 1.56$ ,  $SD = .91$ ), “Using biofuel in organic agriculture” ( $M = 1.55$ ,  $SD = .90$ ), “Types of bio-fertilizers used in organic agriculture” ( $M = 1.53$ ,  $SD = .86$ ), and “Steps in utilizing bio-fertilizers in organic agriculture” ( $M = 1.52$ ,  $SD = .86$ ).

Borich’s (1980) needs assessment model was used to calculate mean weighted discrepancy for each of the 29 organic agriculture topics. The top five training needs identified were: “Appropriate amounts of bio-fertilizers to use in organic agriculture” (MWDS = 5.57), “Appropriate amounts of IPM in organic agriculture” (MWDS = 5.56), “Organic certification” (MWDS = 5.49), “Organic agriculture standards” (MWDS = 5.39), and “Types of bio-fertilizers used in organic agriculture” (MWDS = 5.36).

### Conclusions

The most important training needs of Mississippi State University Extension agents were “Appropriate amounts of bio-fertilizers to use in organic agriculture”, “Appropriate amounts of IPM in organic agriculture”, and “Organic certification”. The findings are like those of Elhamoly, Koledoye, and Kamel (2014), who reported that the highest-ranking in-service training needs of Extension agents and specialists in organic agriculture were “Appropriate amounts of bio-fertilizers”, “Steps of utilizing bio-fertilizers” and “Steps of utilizing IPM”.

### Implications

The Director and Associate Director of Mississippi State University Extension, as well as the Plant Science Planning Work Group, should use the results of this study to develop professional development workshops for Extension agents to learn more about organic agriculture practices. Both formal and non-formal professional development opportunities should be considered as well as establishing productive, working relationships with organic farming networks and appropriate state organizations to promote greater awareness of organic agriculture opportunities in Mississippi.

### References

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