

Designing Educational Farm Tours to Improve Consumer Trust in Modern Agriculture

Abstract

Breakfast on the Farm educational farm tours were introduced in Michigan in 2009 to improve consumer knowledge about, impressions of, and trust in modern food production. Over 89,000 participants have attended events on 40 commercial dairy, beef, crop, and fruit farms. This article addresses organization and funding of the events and some of their general impacts. Volunteers staff stations on topics such as animal care, food safety, nutrition, and water quality. Surveys indicate that attendees' impressions of and trust in farmers and food production improve and that product purchases increase. Events patterned after Michigan's model have occurred in several states and may be implemented elsewhere for similar purposes.

Keywords: [Extension programs](#), [farm tours](#), [consumer education](#), [agriculture literacy](#)

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Introduction

Breakfast on the Farm (BOTF) educational farm tours in Michigan (https://www.canr.msu.edu/breakfast_on_the_farm/index) help connect the public with the food system and build public trust. The main objectives are to improve consumers' understanding of farming and increase their trust in farmers by inviting individuals unfamiliar with agriculture to a modern farm. These educational farm tours allow visitors to see animal and crop production firsthand, visit displays to learn about farm practices, and ask questions of farmers and other professionals to assess their existing perceptions. In addition, surveys associated with the events provide farmers and industry members feedback regarding consumer values and concerns about modern food production, which industry, in turn,

may then address. BOTF began in Clinton County, Michigan, in 2009, in collaboration with Michigan State University (MSU) Extension and Clinton County Farm Bureau. MSU Extension, in collaboration with state and local industry organizations and local businesses, has coordinated 40 BOTF events attended by over 89,000 people. Events patterned after these have occurred in Florida, Maryland, Ohio, Ontario, Pennsylvania, and Vermont.

Background

Some U.S. consumers have concerns about modern food production, some of which are driven by special interest groups. Lack of knowledge is a contributing factor because most consumers are isolated from farming and many are unfamiliar with biology. For example, Lusk (2015) found that consumers were unaware that food contains DNA. Wolf, Tonsor, McKendree, Thomson, and Swanson (2016) found that two thirds of U.S. consumers were concerned about farm animal welfare and felt that animal well-being is more important than lower milk prices. Sapp et al. (2009) suggested that consumer trust is a significant industry issue, and consumers ranked farmers second to food companies as responsible for demonstrating trust-building transparency for animal well-being, environmental impact, and food safety (Arnot, Vizzier-Thaxton, & Scanes, 2016). Brown, Kiernan, Smith, and Hughes (2003) pointed out that Extension educators have a role in bridging the gap in public education related to contentious topics. Educational farm tours can create a venue for producers to learn about and develop understanding of consumers' values and address concerns or misconceptions. Opening of the farm is expected to build trust, as exemplified by findings from Boogaard, Bock, Oosting, Wiskerke, and van der Zijpp (2011), who determined that Dutch citizens with experience and knowledge of farming are more accepting of modern farming practices.

BOTF Model

A statewide BOTF advisory council promotes BOTF, solicits for and selects host farms, provides support, and seeks industry funding for events. An Extension BOTF coordinator leads the council, which includes representatives from agriculture organizations and several past event hosts. Along with financial support from statewide sponsors, significant dollars are raised locally to provide the free breakfast and cover equipment rental costs and other expenses.

The Planning Process

The MSU Extension BOTF coordinator, host farm member(s), local Extension educator(s), farmers, local business owners, and individuals from agribusiness comprise the event planning committee of 12 to 15 members. Subcommittees are responsible for planning the following aspects of the event:

- biosecurity and safety,
- breakfast,
- children's activities,
- commodity showcase,

educational stations and signage,

- facilities and rentals,
- media and marketing,
- parking,
- sponsorship and donations,
- tickets, and
- volunteers.

The event is advertised in social media and media outlets. Tickets are free and made available at local businesses and online.

The Event

Events have been held on commercial dairy, beef, crop, and fruit farms. Displays and stations along the tour route through the farmstead allow visitors to learn about various aspects of animal and crop production and management. Depending on the type of farm, stations and volunteers may address

- animal handling and transportation,
- animal housing and nutrition,
- animal health and veterinary care,
- antibiotic and growth promotor use,
- calves and calf housing,
- commodities,
- farm equipment,
- feed storage,
- food products and nutrition,
- food safety,
- genetically modified plants,
- manure storage and nutrient management,

- milk or meat safety,
- milking system,
- pesticides,
- pollinators,
- renewable energy,
- water quality, and
- weed and pest management.

Tours run from 9 a.m. to 1 p.m. Participants register upon arrival, eat breakfast, don protective overshoes, are screened for recent travel outside the United States, and start the self-guided tour. Children and parents look for key take-home messages on signage to complete a kid's quiz and receive a prize. During the tour, the farm family welcomes attendees and knowledgeable volunteers at educational stations answer questions. Events require 150 to 300 volunteers to staff the stations, serve breakfast, manage parking, and oversee other aspects of the event. Attendance in Michigan has grown from approximately 1,500 visitors at the inaugural event to over 3,000 at recent events.

The Postevent Evaluation

Attendees complete an end-of-tour paper exit survey with questions that event planners use to assess changes in knowledge about, impressions of, and trust in modern food production and farmers. Participants answer questions by assessing their levels of knowledge of and impressions about food production before and after the tour (examples are shown in Figure 1). Program evaluators analyze changes in mean responses for before and after the tour using a paired-samples *t*-test. Program evaluators also compare response distributions (e.g., *very negative* to *very positive*) across demographics (number of prior visits to a working farm, gender, age, etc.), using a cross-tabulation function and a chi-square test to detect differences in distributions. Online follow-up surveys are sent to participants who provide email addresses for the purpose of evaluating behavioral changes such as purchases of products. The MSU Institutional Review Board approved the evaluation protocol.

Figure 1.

Example Questions for Determining a Participant's Levels of Knowledge and Impressions Before and After an Educational Farm Tour

Q1. Listed below are a several topics about which information was presented during your visit today. For each topic please indicate how much you feel you knew about the topic BEFORE your visit today and how much you feel you know about the topic now AFTER your visit. (Mark only one box for before and one box for after for each statement on the 5-point scale below, where 1 is Very Little Knowledge or understanding and 5 is Very Great Knowledge.)

Your Knowledge About....	BEFORE YOUR VISIT					AFTER YOUR VISIT				
	Very Little		Very Great			Very Little		Very Great		
	1	2	3	4	5	1	2	3	4	5
a. What cows eat.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. The amount of milk a cow produces in a day.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Why newborn calves are removed from their mother and put in a separate pen soon after birth.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q2. Listed below are a number of topics about which information was presented during your visit today. For each topic, please indicate your general impression BEFORE and AFTER your visit. (Mark only one box for before and one box for after for each statement on the 5-point scale below, where 1 is Very Negative and 5 is Very Positive.)

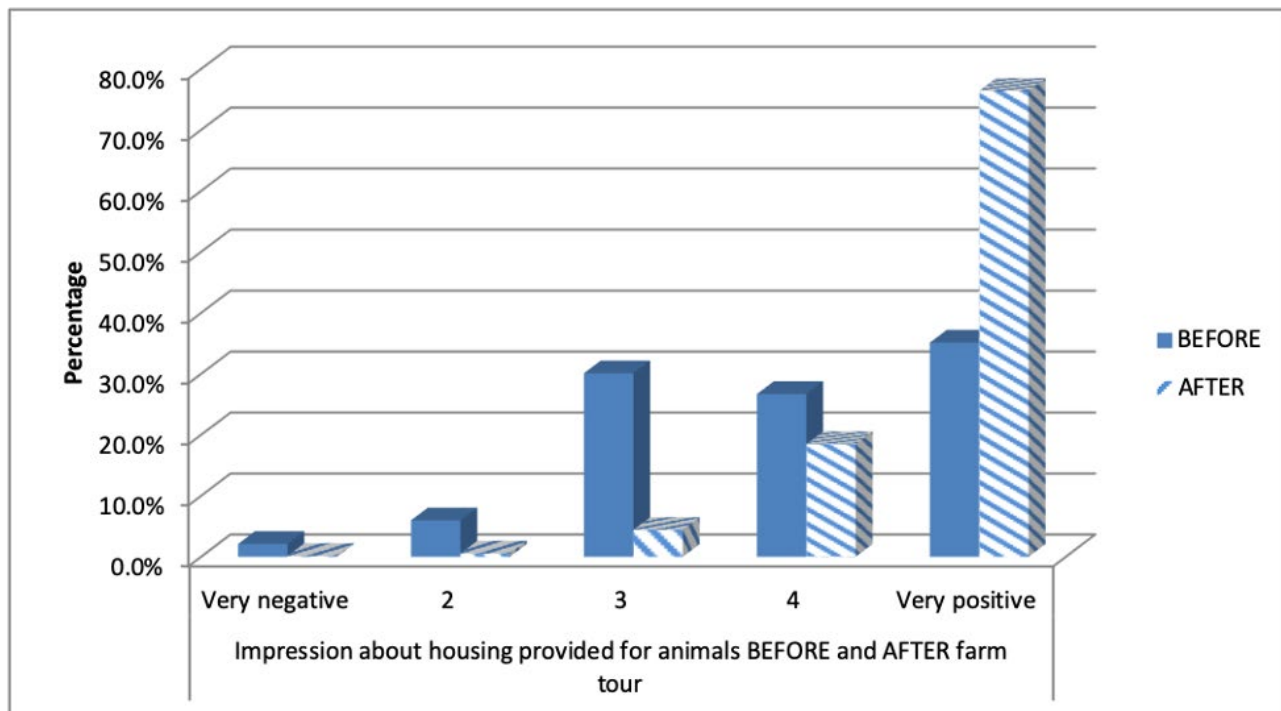
My General Impression About....	BEFORE YOUR VISIT					AFTER YOUR VISIT				
	Very Negative		Very Positive			Very Negative		Very Positive		
	1	2	3	4	5	1	2	3	4	5
a. How farmers care for the environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. How farmers treat food-producing animals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. The steps to safe guard milk.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Housing provided for dairy animals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Evaluation Results

Of the 1,695 participants completing exit surveys from 10 early dairy events, 42.2% had not visited a dairy farm in the preceding 20 years and 20.5% had made only one or two prior dairy farm visits. Figure 2 is an example of the change in impressions regarding dairy housing, where those with *positive* and *very positive* impressions increased from 61.8% before the tour to 94.9% after the tour. In this example, a paired *t*-test of the before and after means (3.9 and 4.7, respectively) showed significance ($p < .0001$). Results from online follow-up surveys indicate that 20% of households purchased more dairy products as a result of the tour.

Figure 2.

Participants' General Impressions About Housing Provided for Dairy Animals Before and After Tours at 10 Dairy Farms



Note: All respondents; $N = 1,472$ paired responses.

Conclusions

BOTF events attract large participation and improve public impressions of modern farming. Survey methods can be used to test changes in impressions and trust to demonstrate impacts of educational farm tours. The methods described herein may be implemented elsewhere for similar purposes. Contact author Ashley Kuschel or author Mary Dunckel for additional information about BOTF in Michigan.

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