

This issue brief examines the impact in Mississippi of a grant program of The Bower Foundation to encourage a shift in food preparation methods in public schools from frying to the use of combination oven-steamers.

### COMBI-OVENS

Combination oven-steamers cook foods that have traditionally been fried with a combination of baking and steaming in a manner that results in a crisp product that is similar in taste and texture to the fried alternative.

### GRANT CRITERIA

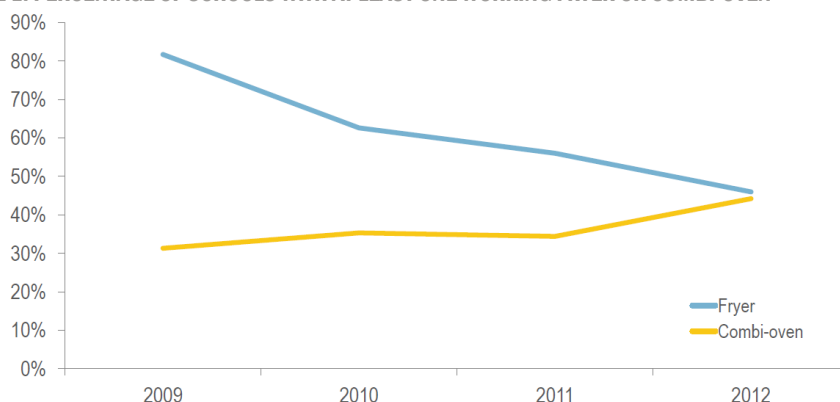
Schools must agree to do the following:

- Match grant funds on a 1:1 basis
- Pay for any needed kitchen remodeling or modifications
- Remove all fryers from the school
- Obtain approval of the local school board
- Issue at least two school district press releases

Beginning in 2006, The Bower Foundation, in partnership with the Mississippi Department of Education, initiated a Nutrition Integrity Pilot Study with three public schools in the state to assess the feasibility of replacing fryers in school kitchens with combination oven-steamers. The pilot successfully documented improvements in nutrition and acceptance by students, as well as noted enhancements in kitchen safety and morale of foodservice workers. Using information collected through the pilot study, The Bower Foundation engaged a consultant to work with the Office of Healthy Schools in the State Department of Education to develop equipment specifications, purchasing procedures, and an implementation guide. The Bower Foundation offered twenty Nutrition Integrity Grants to schools interested in transitioning from fryers to combi-ovens in the 2007-2008 school year, targeting larger schools to enhance the impact of the program. Based on the apparent success of the initial grants and demand from schools, additional grants were provided in subsequent years and supplemented with local, state, and federal funds.

As part of a comprehensive evaluation of the impact of the Mississippi Healthy Students Act funded by the Robert Wood Johnson Foundation and The Bower Foundation, on-site annual assessments of the nutritional environment in a representative sample of Mississippi public schools was conducted by researchers from the University of Mississippi. This study documented a close association between the use of combi-ovens and reductions in frying foods. Researchers noted that schools with a combi-oven were five times less likely to offer fried foods to students.

FIGURE 1: PERCENTAGE OF SCHOOLS WITH AT LEAST ONE WORKING FRYER OR COMBI-OVEN



Source: Mississippi Nutrition Environment Evaluation Data System, University of Mississippi, 2012.

Given these indicators of a positive impact of the Nutrition Integrity Grants, The Bower Foundation commissioned the University of Mississippi researchers to conduct a more detailed analysis of the grant program. Researchers interviewed school food service staff in 149 school districts that included 811 production sites and conducted site visits to a sampling of model schools. The study also included a menu nutrient analysis and an assessment of the economic impact of transitioning to combi-ovens.

*Researchers noted that schools with a combi-oven were five times less likely to offer fried foods to students.*

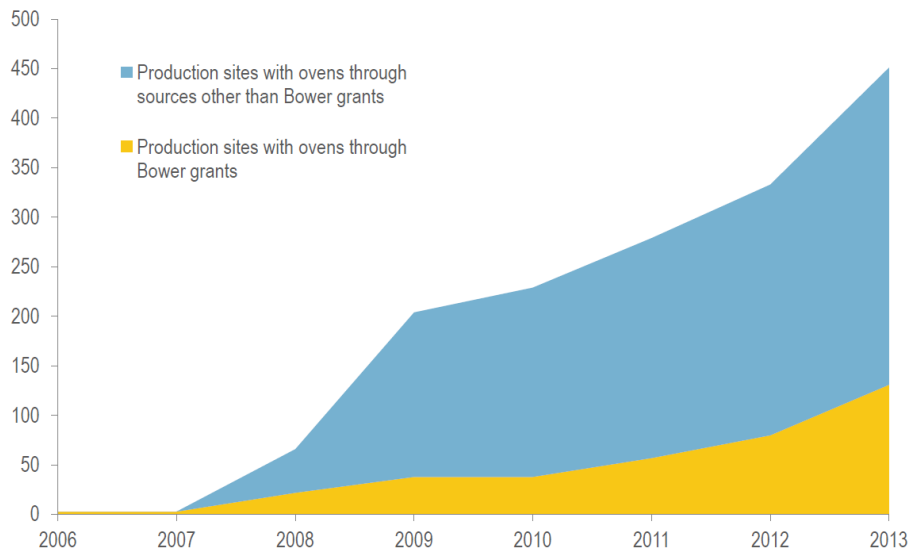
### ***Grants Serve as a Catalyst***

The study collected information on all combi-ovens installed in public school kitchens, not just those purchased through the Bower grant program. Researchers found that the initial Bower grant offerings served as a catalyst that spurred the purchase of combi-ovens using a variety of funding sources.

#### **PRODUCTION SITE**

Production sites include kitchens in schools that participate in the school lunch program and prepare food for one or more school cafeterias. Schools whose kitchens are only used to serve foods prepared at another site or that serve extremely small numbers or unique student populations are excluded.

**FIGURE 2. CUMULATIVE NUMBER OF PRODUCTION SITES INSTALLING COMBI-OVENS BY SOURCE OF FUNDS**



Source: University of Mississippi.

#### **OTHER FUNDING SOURCES IDENTIFIED BY THE RESEARCHERS INCLUDED THE FOLLOWING:**

- Local funds
- ARRA grants (2009 federal stimulus funds)
- Renovation funds
- District funds
- National School Lunch Program (2010)
- Food service funds
- New school funding
- Tribal funds
- FEMA funds (Katrina)

### ***Most Schools Have Transitioned or Plan to Transition***

A majority of production sites (58%) were reported to no longer use a fryer to prepare food. An additional 7 percent noted that they had a fryer but did not use it for school meals. (Many schools generate revenue from catering community events and commented that they needed to retain their fryers for this purpose.) Only about a third of the production sites (36%) still used a fryer for school meal preparation.

Of the 339 production sites that still have fryers, food service staff for three-quarters of these sites reported that they would remove all fryers if they had a combi-oven. These findings point to a continued demand for additional ovens. Only one-quarter stated that they would not remove their fryers even if they had a combi-oven. The primary concerns expressed about removing fryers include cost, space, possible reduction in food quality, potential student complaints, and longer cooking times relative to the speed of frying.

### ***Factors Related to Use of Combi-Ovens***

A majority of production sites (56%) reported using a combi-oven. Larger schools are significantly more likely ( $p < 0.001$ ) to have combi-ovens, likely reflecting the grant criteria favoring schools with higher enrollment. Majority white schools are significantly ( $p < 0.001$ ) more likely to report using combi-ovens than majority black schools.

### ***Nutrient and Economic Analysis***

For menu items prepared in a combi-oven rather than fried, nutrient analysis documented decreases in fat calories, saturated fat calories, and total calories ranging from 68 - 120 calories for selected menus. Creative menu planning can replace these calories with more healthy options, improving levels of fiber, antioxidants, sodium, and other nutrients. Although cost and space were voiced as concerns by school personnel, if a combi-oven replaces more than a fryer, there can be economic and space savings.

### ***Lessons Learned***

Mississippi's experience over a seven year period implementing this grant program has provided information that may benefit other states and localities:

***Combination oven steamers can replace multiple pieces of equipment and thus streamline the workplace and enhance the food preparation process and food quality in a cost-effective manner.***

- Combination oven steamers can replace multiple pieces of equipment and thus streamline the workplace and enhance the food preparation process and food quality in a cost-effective manner
- Combi-ovens create a safer and cleaner work environment
- School districts have been able to meet the grant matching requirements
- In many school districts the combi-ovens were so successful and popular that the district found local funds to add more ovens
- Word of mouth and a sense of pride about improving school nutrition create friendly competition among schools and districts, helping drive demand
- The required press releases created a positive image for the schools in the community, promoting public awareness, education, and support
- Food suppliers will create and modify food products that work well with combi-ovens
- Children like the food cooked in the combi-ovens – food flavor and texture are enhanced
- Manufacturers have created cooking formulas which can be programmed into the equipment via a flash drive, thus creating greater consistency in the food products
- Partnerships with academic researchers can provide evidence of impact and help target resources effectively

The Bower Foundation offers the following recommendations to philanthropies that may wish to establish similar grant programs:

- Partner with the state's Department of Education
  - All Mississippi grants have gone through the state's Office of Child Nutrition, providing grant coordination and oversight
  - State involvement brings attention to school health at the state policy level and promotes appropriate buy-in
  - State purchasing provides for economies of scale and helps institutionalize the program for sustainability
- Start with a few (3 – 5) “leader” school food service directors who can troubleshoot to ensure success and then serve as success storytellers at state meetings of school food service directors
- Make regular presentations at state educator meetings to inform educators about the grants and the link between nutrition and academic performance
- Develop exact equipment standards to include the manufacturer's chef training to be provided at every school site
- Develop a detailed implementation guide to include site access and specifications for the space, utilities, and ventilation



Additional information can be obtained from the following sources:

Bower Grants: <http://www.bowerfoundation.org/school-health.php>

Implementation Guide: [http://www.healthyschoolsms.org/ohs\\_main/documents/FryertoOvenGUIDEapril608.pdf](http://www.healthyschoolsms.org/ohs_main/documents/FryertoOvenGUIDEapril608.pdf)

Copies of this Issue Brief: <http://www.mshealthpolicy.com/publications>

Center *for*  
Mississippi  
Health  
Policy

Plaza Building, Suite 700  
120 N. Congress Street  
Jackson, MS 39201

Phone 601.709.2133  
Fax 601.709.2134

[www.mshealthpolicy.com](http://www.mshealthpolicy.com)