

NUTRITION INTEGRITY IN MISSISSIPPI SCHOOLS

Replacing Kitchen Fryers with Combination Oven Steamers: Six Steps to Success

INTRODUCTION:

During spring 2007, the Mississippi Department of Education, Office of Healthy Schools and Child Nutrition Programs conducted a pilot test of kitchen equipment replacement in three school districts with grants and technical support from The Bower Foundation. The purpose of this pilot was to examine the feasibility of replacing school kitchen fryers with state-of-the-art combination oven steamers, also known as combi-ovens. From the beginning of the project, the goal was to document and share the experience of the three test sites in order to help other Mississippi schools improve the meals they serve to children.

The pilot sites represented different types of schools in different locations throughout Mississippi, including an elementary, a middle, and a high school with varying levels of free and reduced meals. The three schools were:

- **Starkville High School, Starkville School District**
Enrollment: 1187
Free/Reduced Meals: 62%
Child Nutrition Director: Beverly Lowry
- **East Central Middle School, Jackson County School District**
Enrollment: 689
Free/Reduced Meals: 51%
Child Nutrition Director: Lark Christian
- **Oak Grove Elementary School, DeSoto County School District**
Enrollment: 552
Free/Reduced Meals: 36%
Child Nutrition Director: Cynthia Coleman

This guide summarizes the lessons learned from all the three test sites – and provides a step-by-step process for replicating their success in your school kitchen. Each step includes some background information, as well as a checklist or handout that you may want to copy and share with others in your school or community as you work to improve the quality of your school meals.

STEP 1: Understanding the benefits of replacing fryers

Mississippi Child Nutrition Programs are committed to the concept of nutrition integrity in schools, as outlined by the School Nutrition Association:

Nutrition integrity is a “level of performance that assures all foods and beverages available in schools are consistent with the **Dietary Guidelines for Americans**, and, when combined with nutrition education, physical activity, and a healthy school environment, contributes to enhanced learning and the development of lifelong, healthy eating habits.”

<http://docs.schoolnutrition.org/tools/nifactsheet.pdf>

Replacing school kitchen fryers with combi-ovens is one important strategy for improving the nutrition and health of the more than 375,000 Mississippi children who eat at school. Mississippi schools serve nearly 31 million breakfasts and over 67 million lunches every year. Child nutrition directors are taking a close look at the nutritional quality of these meals to help address the rising rates of overweight, undernourished children. State-of-the-art kitchen equipment can help insure that school meals are appealing to children and that they are prepared using the most healthful cooking techniques and food products available.

In terms of the **Dietary Guidelines for Americans**, replacing traditional fryers with combi-ovens can enhance children’s health in several ways:

1. Food, including vegetables, prepared in these state-of-the-art combi-ovens looks very appealing – which may encourage children to enjoy healthier items.
2. Popular ‘kid foods’ like French fries and chicken strips are now available in healthier (and tasty) versions, designed for preparation using this equipment.
3. Serving baked, instead of fried, foods, can make a substantial difference in the calories, fat, and saturated fat that children consume. Using Mississippi Cycle Menus, here are the differences between one fried and one baked product:

PRODUCT	Total Calories	Total Fat (grams)	Saturated Fat (grams)
French Fries (fried) ½ cup serving	88	4.61	0.87
French Fries (baked) ½ cup serving	73 17 percent less than fried	2.05 55 percent less than fried	0.57 34 percent less than fried

In addition to improvements in nutrition, replacing fryers with combi-ovens in the Mississippi pilot test also enhanced kitchen safety and the morale of foodservice workers. The following handout summarizes the results from the DeSoto County, Jackson County, and Starkville schools. Based on their experience in the pilot project, all three directors plan to add more combi-ovens to their district kitchens – either to replace existing fryers or as equipment in new school construction.

REPLACING FRYERS WITH COMBI-OVENS: Mississippi Pilot Test Results ~ Spring 2007

Equipment installation

- ***“Installation was easier than most major pieces of equipment.”***
- The availability of correct utilities was an important key to success.
- Water issues (pipe size, drains, and regulators) were especially critical.

Meal participation and extra food sales

- ***“Going from fried to baked did not affect our participation levels.”***
- There was no reduction in paid or free/reduced meal participation.
- High school extra fries sales fell, but students shifted to water/juice.

Student satisfaction

- ***“Many students never knew that we had switched to baked fries.”***
- In surveys and interviews, some students preferred the new products.
- Student satisfaction remained stable and plate waste did not increase.

Adult reaction

- ***“Administrators and guests were very impressed with the food.”***
- Adults thought the food looked very appealing, especially vegetables.
- Adults rated the quality and flavor of the baked items as “great.”

Foodservice worker reaction

- ***“Managers and cooks love their new combination oven steamer.”***
- After training, they found the equipment easy to operate and to clean.
- Workers are proud to serve such great looking, great tasting foods.

Kitchen safety

- ***“Getting rid of hot oil was an easy way to improve kitchen safety.”***
- No frying means less slippery floors and fewer burns from splatters.
- New combi-ovens have excellent safety and self-cleaning features.

Food production costs

- ***“High-temp steam reduced our cooking times by 30-50 percent.”***
- Combi-ovens improve productivity, with no need for added staff hours.
- After start-up costs, regular cleaning supplies may be slightly higher.

Media coverage

- ***“Newspapers and TV stations were eager to cover the project.”***
- Positive coverage showcased district leadership in child health issues.
- Articles enhanced the image of school nutrition program and meals.

STEP 2: Assessing your kitchen's needs and challenges

Once you have realized the benefits of replacing a fryer with a combi-oven (or adding a new combi-oven), you need to assess the needs and challenges in your specific kitchen. Since there are several different combination oven steamers on the market – with variations on latest crisping features, you will need to know as much as possible about your kitchen situation before deciding which brand is best for your school. Ultimately, your decision on which manufacturer and which combi-oven to choose, will be based on balancing a number of factors, including:

- Space and utilities available under the hood
- Cost of equipment plus start-up costs (changes in utilities, etc.)
- Brands of equipment used currently in kitchen
- Existing relationships with equipment suppliers and repair technicians

The **Kitchen Assessment Checklist** on page 5 is a general checklist, rather than a checklist for a specific piece of equipment. (Once you have decided on a brand and model of a combination oven steamer, you will need to complete a checklist based on those specifications.) It reflects the experience of the schools in the pilot test – and has been designed to help you avoid some of the problems that those three directors encountered while replacing their fryers. They all stress the importance of doing a thorough kitchen assessment and advise other directors to pay special attention to the following issues that they had in common:

- Due to the large size and weight of the combi-ovens, getting into the kitchen may be an issue. Depending on the layout, coming through the cafeteria may be easier than through a loading dock – and doors may have to be removed along with their frames.
- Water availability and quality are important issues for these units, since they rely on super-heated steam to function properly. Pay careful attention to the diameters of existing pipes (at least $\frac{3}{4}$ to 1-inch pipes are necessary); drain possibilities under the hood or nearby; and water filters and regulators.
- The type of gas and pressure of gas are also critical to the functioning of these units. The only real problem in the pilot test developed in a kitchen that had propane rather than natural gas available. In some schools, an electric model may be the preferable option.

Once you have completed the basic checklist, you can begin to consider the budgetary issues that will be key to your purchasing decision. These include:

- How much is currently available in our budget for equipment replacement?
- What additional sources of funding, like special grants, may be available?
- In addition to the cost of combination oven steamer, what other start-up costs will be necessary (e.g., water line replacements, water regulators, and electrical upgrades? The pilot test schools had start-up costs of approximately \$4,000 for removing their existing fryers and upgrading their utilities to accommodate the new equipment.

General Guidance Only: Exact specifications will vary with oven model

KITCHEN ASSESSMENT CHECKLIST

<p>SPACE UNDER HOOD</p> <p>Floor area available under hood (Minimum area = approx. 50 by 52 inches, depending on other equipment)</p> <p>Height available under hood (Minimum for two stacked units is approx. 50 inches, less for one unit)</p>	<p>Calculate space under hood.</p> <p>AREA: _____ by _____</p> <p>HEIGHT: _____</p>
<p>ROUTE INTO KITCHEN</p> <p>Combi-ovens are rolled in using a hydraulic lift. Check possible routes for a clearance of at least 48 inches (with room for turns). Doors <u>and</u> frames may have to be removed.</p>	<p>Note route from outside (may be loading dock or through cafeteria) into kitchen.</p>
<p>WATER</p> <p>Combi-ovens require a water source plus a drain for water, either under hood or piped to another drain. Check pipe size: <u>¾-inch pipe is usually required for incoming water.</u></p>	<p>Describe location of water drain under hood – or distance to other drain location. Note diameter of existing water pipes.</p>
<p>ELECTRIC POWER</p> <p>Check electrical source for voltage and phase. <u>Some combi-ovens cannot run on a GFI or GFCI.</u></p>	<p>Describe existing electric power source, note phase and voltage available, and distance from source to under hood.</p>
<p>GAS SOURCE</p> <p>To run effectively on gas, some combi-ovens require <u>natural gas</u> (not propane). If natural gas is not available, choose an electric unit.</p>	<p>Describe type of available gas, diameter of gas lines, and distance from gas line to space under hood.</p>
<p>OTHER KITCHEN NOTES</p> <p>Decisions about which brand of combi-oven to purchase may be related to other factors, like current brands of equipment in kitchen and ongoing relationships for repair.</p>	<p>Note other factors that may affect decision.</p>

STEP 3: Creating school support for installing an combi-oven

Once you have determined that a combi-oven is appropriate for your kitchen and that it can be installed with a minimal amount of disruption, it is now time to 'sell' the idea to others in your school district. The difficulty of this step will, of course, depend on many factors within your school system. Whatever your situation, it is critical to get as many folks 'on board' with the change as possible – from your foodservice staff to the administration and school board.

As with any significant change, communication is the key to getting support for a combi-oven project. In order to move ahead with your plans, you will need to be as comfortable as possible talking about:

- The **Mississippi Pilot Project** and how it applies to your school (see handout on pilot test results, page 3)
- Your **Kitchen Assessment** and what start-up changes will be necessary (see checklist on kitchen needs and challenges, page 5)
- Talking points on **Benefits of Replacing a Fryer with a Combi-Oven** (see handout on benefits of fryer replacement, page 7)
- A basic **budget of costs** (combination oven steamer + installation + training + any anticipated increases in costs of utilities and/or cleaning supplies)
- An **outline of available funds** (existing equipment budget + possible grants)
- A **proposed timeline for purchasing, installation, and training**

Here are some possible ways to 'sell' your project. Not all suggestions will be appropriate for your situation. Choose those that feel right to you – and add other strategies that have worked in your schools previously.

Getting support from foodservice manager and cooks

- Schedule meeting with your staff. If possible, a visit to a nearby kitchen with a new combination oven steamer may be appropriate.
- Share the results of the pilot test and your kitchen assessment, as well as a reasonable timeline for installation and staff training.
- Ask staff for their feedback, as well as their concerns and questions.

Getting support from administration and school board

- Invite school board and administrators (superintendent, principal, and business manager as appropriate) to join you for school lunch and to tour kitchen facilities.
- Share results of pilot test and kitchen assessment; outline budget and grant opportunities; and describe staff support for change.
- Discuss concerns, questions, and proposed timeline.

Getting support from School Health Council (SHC)

- Schedule meeting with SHC – invite them to school lunch, to tour existing kitchen, or nearby school with combi-oven (as appropriate).

- Share results of pilot test, kitchen assessment, and benefits. Answer questions and discuss how project fits with overall wellness goals.

Benefits of Replacing a Fryer with a Combi-Oven in Our School Kitchen

This important project will demonstrate our commitment to serving healthful, tasty meals that support academic success in our school.

- We want to improve the nutritional quality of our school breakfast and lunch meals to help address the rising rates of overweight, undernourished children.
- This project will help make our school meals healthier, by reducing the amount of calories from fat and saturated fat served in our cafeteria.

Serving baked – rather than fried foods – can make a substantial difference in the number of calories and fat that children eat.

- The relatively small differences per serving become substantial when you look at the total number of servings eaten at school.
- For example, one large Mississippi high school serves about 2,000 ½ cup servings of French fries per day. Switching from the current fried product to a newer baked product would lead to the following savings per day:
 - **30,000 fewer fat calories served every day**
 - **Over 5,000 fewer grams of fat served every day**
 - **600 fewer grams of saturated fat served every day**
- Assuming 180 school days per year, the savings per year from just one item would be at least (depending on the number of fries served):
 - **Over 5.4 million fewer fat calories served in a school year**
 - **Over 900,000 fewer grams of fat served in a school year**
 - **Over 100,000 fewer grams of saturated fat served in a school year**

Replacing our fryer with a combination oven steamer will also have other important benefits for our Child Nutrition Program.

- This equipment cooks many other eye-appealing, great tasting food items in addition to potato products and chicken tenders. Foods cooked in the combi-oven stay moist inside and hold their temperature longer on the serving line.
- A combi-oven will help us improve the overall quality of our school breakfast and lunch meals. Increasing participation and decreasing plate waste will mean that students are better nourished and ready-to-learn in the classroom.
- This equipment can also help improve safety and sanitation in our school kitchen. Removing fryers means less hot oil in the kitchen, reducing the chance of slipping on a greasy floor or getting burnt by splattering oil.
- Adding a combination oven steamer will be a morale booster for foodservice workers. Cooks in schools that replaced fryers with combi-ovens appreciated the training on new cooking techniques. They were also pleased to make a direct contribution to improving student nutrition with healthier food options.

For more information, contact _____

PHONE _____ Email _____

STEP 4: Purchasing and installing your new equipment

Communication will be equally important once your project is approved and you are ready to purchase and install your combination oven steamer. All of your organizational skills will also be critical during this part of the process.

According to the three directors involved in the Mississippi pilot project to replace fryers with combi-ovens, the installation process was no more difficult than any other piece of equipment that they had overseen in their school kitchens. The checklist on page 9 includes their suggestions for organizing the purchasing and installation process. The actual order of the checklist steps – and whether you need all of them – will depend on the specifics of your school kitchen.

In terms of communication, the directors emphasized the importance of the following:

- **Communication with the equipment manufacturer**
The equipment manufacturer will understand the specifics of their combi-oven better than anyone else. A pre-installation visit with a company representative is a good way to review utility questions (like the dimensions of water pipes or necessity for water regulators). It is the time to make certain that the actual delivery and installation process will go as smoothly as possible.
- **Communication regarding utilities (electricity, water, and gas)**
Combi-ovens will not run properly unless they have been connected to the correct electrical, water, and gas lines. Utility issues may be especially complex when combi-ovens are installed in older school kitchens. If you're not certain about the technical specifications of your utilities, you may need to contact the school district's architect – and let him/her speak directly with the workers from the utility company, local contractor, or school maintenance department.
- **Communication and training with foodservice staff**
Today's combination oven steamers are highly advanced pieces of equipment with many new and unique operating features. A company chef (who understands the equipment inside and out) is the best person to provide training on these combi-ovens. The three directors in the pilot test reported that their cooks and managers thoroughly enjoyed their training – and felt confident to operate the equipment afterwards. They recommend a one-day training in kitchens where the combi-ovens will primarily be used for one or two items, like French fries and chicken tenders. They suggest at least a day-and-a-half training in situations where the ovens will be used for a wide

variety of foods, like vegetables and baked goods, in addition to potato and chicken products.

CHECKLIST FOR SUCCESSFUL FRYER REPLACEMENT and/or COMBINATION OVEN STEAMER INSTALLATION

(Exact order of these items will vary depending on your situation)

_____ Schedule pre-installation site visit with company representative

_____ Determine number of units needed, as well as additional equipment and supplies necessary for daily operations

_____ Determine if any changes are necessary in existing utilities

_____ Order combi-oven, additional equipment, utensils and supplies

_____ Rack for combination oven steamer

_____ Additional steam table pans and scoops

_____ Oven cleaning supplies recommended by manufacturer

_____ Remove fryer

_____ Make necessary changes to kitchen utilities

_____ Electricity

_____ Water (drain, size of pipes, and regulators)

_____ Natural gas lines (size of lines, etc.)

_____ Arrange 24-hour notice for delivery of combination oven steamer

_____ Clear route from outside to inside (remove doors, etc.)

_____ Arrange for all necessary utility connections

_____ Arrange for any necessary inspection of equipment

_____ Schedule training for foodservice staff with company chef

_____ Order appropriate food products for training demos

_____ Develop list of contacts for trouble shooting problems

_____ Chef

_____ Trained repair technician

STEP 5: Introducing and monitoring acceptance of new items

Once you have installed your new combi-oven and trained your staff in how to use it, it's time to introduce the new baked products to your customers and to monitor their acceptance of them. In the Mississippi pilot test, this process went very smoothly. Student (and staff) satisfaction remained high – and the new products had no negative effects on meal participation or extra food sales.

The pilot test directors offer the following tips for introducing the new baked food items to students of various age groups.

Elementary and middle school students:

- Do not announce the equipment change to students. Telling students that you will be serving something different allows them to have negative perception – before they have even had a chance to taste the new items.
- Monitor meal participation on days when baked products are prepared in the combi-oven. Compare these participation levels to the same meals, served in the same season, when fried products were served.
- Monitor product acceptance by informal observations and conversations with students in the cafeteria. Monitor plate waste by observing amount of new baked products that are thrown into garbage by students.
- After one cycle of menus using combi-oven and baked products, tell families about the new equipment via monthly menus and/or website. Emphasize improvements in the quality of foods (visual appeal, crisp outside, moist inside, temperature retention, etc.), as well as nutritional benefits of new products (fewer calories, fat, saturated fat, etc.).
- In elementary schools, issue a special invitation for parents/grandparents to join children for a cafeteria meal and to sample new baked products.

High school students:

- In high schools where French fries are served on a daily basis, you will need to warn students if there will be one or more days without fries. (It is obviously preferable to replace equipment during a school break, like summer vacation, when students will not notice the disruption in usual foods served.)
- Make the announcement general (*No fries will be served in the cafeteria on Thursday and Friday so that some new equipment can be installed.*); describe the specific substitution that will be made for fries (*All students will receive a package of baked chips instead of fries.*); and thank them for their patience.
- Monitor meal participation and extra food sales for products prepared in the combi-oven. Compare these participation levels and extra food sales to the same meals, served in the same season.

- Monitor product acceptance by informal observations and conversations with students and teachers/staff in the cafeteria. Monitor plate waste by observing amount of baked products that are thrown into garbage.

WAYS TO MONITOR ACCEPTANCE OF NEW ITEMS

As you begin to serve products prepared in a combi-oven, you must monitor customer acceptance of the new items. Monitoring is vital for two reasons:

1. Regular monitoring will help you identify any problems with combi-oven function leading to concerns with product quality.
2. Data will help you share a positive story of healthy changes with teachers, administrators and school board, as well as the community and local media.

Use this form to collect data as you monitor the acceptance of new products by your customers. In order to get accurate comparisons, compare like menus in like seasons. (For example, high school students may naturally purchase fewer extra fries – and more water or juice – as weather becomes warmer in the spring.) You may also want to record specific quotes from your customers, especially positive reactions that will help you tell the story of healthy changes.

BEFORE installation	AFTER installation
Average daily lunch participation	Average daily lunch participation
Paid lunches _____ (% paid _____)	Paid lunches _____ (% paid _____)
Reduced-price _____ (% reduced _____)	Reduced-price _____ (% reduced _____)
Free lunches _____ (% free _____)	Free lunches _____ (% free _____)
Staff lunches _____	Staff lunches _____
Total extra food sales per day	Total extra food sales per day
Portions baked served _____	Portions fried served _____
Total meals served in four-week cycle	Total meals served in four-week cycle
Breakfast _____	Breakfast _____
Lunch _____	Lunch _____

STEP 6: Sharing your success story of healthier school meals

Child health and school nutrition issues are hot topics. This is especially true in Mississippi, where the rates of overweight children and adults – as well as health problems like diabetes and heart disease – are among the highest in the nation. Since local communities are interested in local responses to these critical health issues, the media in your area (TV, radio, and newspapers) will be eager to cover improvements – like new combination oven steamers – in local school kitchens.

Installing a new piece of kitchen equipment, especially high-tech, state-of-the-art equipment like a combination oven steamer, gives your school nutrition program a golden opportunity. It is a chance to share information about the newly installed equipment – and, at the same time, to showcase all the things that your school is doing to insure that children are as healthy, fit, and ready to succeed as possible.

Here are a few tips to help you maximize your current opportunities and build positive media relationships for future coverage of your school nutrition program:

- **Develop a plan rather than letting media coverage “just happen.”**
Media coverage will generally work better for everyone if you create a plan – rather waiting and/or worrying about reporters showing up when your kitchen is torn apart or you are in middle of a staff training session. If your district has a designated press contact person, work with her/him (or an appropriate administrator) to decide the best time and way to invite reporters to see your new combination oven steamer and sample the new baked products.
- **Consider an event to showcase your success with the new equipment.**
An event is an easy way to coordinate media coverage and share your success with community leaders at the same time. Once the new combi-oven was up and running smoothly at Oak Grove Elementary School in DeSoto County, the Child Nutrition director invited members of the local media and important stakeholders to a “Taste and Test” luncheon. The invitees include district administrators, school board members, PTA/PTO leaders, local legislators, TV stations, and local newspapers. A representative and chef from the combi-oven manufacturer explained the equipment – and attendees completed a simple survey about the quality of the baked products. This single event generated many positive headlines, like “*Tasty treats are healthy at Oak Grove Elementary,*” in multiple newspaper articles and TV stories.
- **Write a press release to notify the media about your kitchen changes.**

A simple press release (sent by fax or Email to multiple media outlets) is an efficient way to generate interest in your program's changes. You can adapt the following sample release **by filling in the information highlighted in yellow**. Always remember to include as many details as possible about the specific changes in your school. The local media will want to know how this affects local families – and how local children are reacting to the new food items.

SAMPLE PRESS RELEASE FOR LOCAL MEDIA

**INSERT SCHOOL LOGO
or
USE SCHOOL STATIONARY**

FOR IMMEDIATE RELEASE:

Contact:

_____ (Contact name)
 _____ (Title, e.g., Child Nutrition Director)
 _____ (School name)
 _____ (Telephone number)
 _____ (Fax number)
 _____ (E-mail address)

_____ **SCHOOL CAFETERIA IMPROVES STUDENT MEALS**
 (name)

New oven steamer reduces fat and calories, produces healthier food

_____ (city), Mississippi, _____ (date)

A new oven recently installed at _____ School means that high-fat tater tots and fried chicken are a thing of the past in local school lunches. Children are happily eating baked fries and chicken tenders, as well as _____ (other foods), prepared in a new _____ (brand) combination oven steamer that uses super-heated steam to cook with less fat and fewer calories. School administrators, community leaders, and local legislators will have the chance to try the new foods for themselves at a luncheon on _____ (date/time).

“We’ve been cooking with this new equipment for _____ months,” says Child Nutrition Director _____. “Our baked foods are crisp on the outside, moist on the inside, and children enjoy them just as much as the fried versions. Our teachers and staff have also told us that the new healthier foods taste great.”

Switching to lower-fat cooking techniques is just one of the changes that _____ School has made to help students be healthy, fit, and ready to learn. “We recognize the connection between good health and academic success,”

says Principal [REDACTED]. "In addition to a combination oven steamer in the kitchen, we have also [REDACTED]

[REDACTED]
(describe other improvements in school wellness, nutrition or physical activity, like more fresh fruit, water and milk in vending machines, walking programs, etc.)