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Robert M. Kerr Food & Agricultural Products Center

FOOD TECHNOLOGY FACT SHEET

Adding Value to Oklahoma

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Understanding the Oklahoma Home Bakery Act

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Introduction

The Home Bakery Act became a new Oklahoma law in November of 2013. Prior to its passage, legally selling a prepared wedding cake, pie or any other bakery item required the item to be manufactured in at least an Oklahoma Department of Health inspected commercial kitchen. Now, an inspection is not necessary; however, there are several qualifiers to understand and follow (House Bill No. 1094).

First of all, baked goods containing meat (includes beef, poultry, pork, lamb and fish) and/or fresh fruit are not covered in the Home Bakery Act. Those products need to be produced in an inspected facility. Secondly, the home baker must affix to their product a label stating the following: "Made in a home food establishment that is not licensed by the State Department of Health." With this label, home bakers must list their name, address and the name of the prepared food. The label's font must be at least a 10-point type in a color that enables clarity on the label (Oklahoma State Department of Health, 2013). Additionally, as the home baker brings in sales, once receipts greater than $20,000 occur, the Home Bakery Act no longer applies, and the baker will need to acquire an Oklahoma Department of Health inspection. Also, products baked under the Home Bakery Act cannot be sold at farmer's markets, stores, restaurants or on the Internet. Products can only be sold from the baker's residence.

This new law enables talented home bakers a chance to earn extra income. Linked to this new opportunity is also a responsibility – a self-monitored cleaning/food safety system. Each year thousands of people become ill from food illnesses. Most are due to microbial illness. Some occur from cleaning agents and household chemicals. With all of the large-scale food manufacturing occurring throughout the U.S., surprisingly, most cases of foodborne illness occur from improper food handling and preparation practices in one's own home and kitchen. Foodborne illness outbreaks due to *Clostridium botulinum* (cause of botulism), *Salmonella*, *Campylobacter*, and other microbial pathogens from the consumption of home-produced food, sold for commercial sales, are well documented. For example, in 2009 a home-based caterer from South Dakota was responsible for 180 *Salmonella* illness cases (Murphy).

Most of the time, it is assumed bakery items are safe from food illness worries. Refrigeration isn't usually an issue and such ingredients as mayo-based salad dressings are not common. However, between 1990 and 2006, there were 179 documented outbreaks, resulting in 4,904 illnesses in the U.S., all of which were linked to breads, cakes, pies and other bakery items (Murphy). Bacteria are not the only causes of foodborne illnesses; viruses are as well, even with bakery items. In 2002, 2,700 people in Massachusetts, each of whom had attended one of 46 weddings catered by one particular bakery, were made ill by a norovirus (Friedman et al., 2005). Norovirus causes extreme gastroenteritis. The cause was one worker at the bakery being sick while still working.

Following simple and logical guidelines in the home-baker's kitchen and household will allow for a safe, high quality eating experience for consumers.

Make sure your home is clean

Home bakers intending to sell products should focus on the cleanliness of their kitchen; however, other areas of the home can also affect bakery products. Mold spores can be anywhere, floating around the room as carefree as a butterfly. They can come in the front door with the dust. Even if the home-baker's kitchen is on the opposite side of the house from the commonly-used door, mold spores can still be a problem.

In a study showing the speed in which mold spores can travel through a building, a researcher released spores of a selected mold from a 1-square-inch culture on a first floor room of a four-floor building. At the same time the mold was released on the first floor, culture plates were exposed in timed increments on the fourth floor. Researchers found that only after five minutes, mold spores had been carried throughout the fourth floor (Pyler, 2008).

On bake days, it is very prudent to slow the in-and-out traffic of the house and keep dust levels down in your dwelling. Most mold contaminates bakery items while they are cooling and uncovered. Large-scale produced bakery items contain mold inhibitors, which prolong bakery shelf-life; however, it takes cleanliness, sometimes in addition to mold inhibitors, to produce a long shelf-life, mold-free product (Albers-Nelson, 2010).

Make sure your kitchen is clean and organized

The kitchen will become the home baker's hospital "clean room." This means thinking about how clean items are that you normally don't think about.

- Clean refrigerator door handles, drawer handles, sink handles, soap dispensers, etc. Keep heavily used items clean to prevent bacteria or viruses from growing or spreading. In a systematic review of norovirus studies, researchers concluded that in a dried state at room temperature, the norovirus can survive, able to infect for 21-28 days (CDC, 2011).
- Keep sinks and food preparation areas clean and dry. Some health education entities recommend the sink (and surrounding area), and counter tops should be cleaned daily with a disinfectant of water and bleach (Emerging Infectious Diseases, 2004). In order for bleach to work effectively at sanitizing, organic matter must be cleaned away first. Food materials, etc., will eliminate the effectiveness of bleach. Also, never mix cleaning detergents with bleach as chlorine gas can be produced. A non-rinse sanitizing solution of bleach is made by adding 1 tablespoon of bleach per gallon of water (McGlynn, 2010).
- Remember that sponges and neatly-folded dishcloths do not dry out, thus harboring bacteria that can spread throughout the kitchen (Emerging Infectious Diseases, 2004). A damp sponge can allow one bacterium to multiply to more than four million in just eight hours (Epstein, 2010). What if these were *E. coli* bacteria and all you did was rinse the sponge out with water before you used it to wipe down your preparation area?
- Consider using separate ingredients and ingredient containers for products intended for sale and for foods made for regular consumption by the rest of the household. For example, brown sugar is needed for a buttercream icing. The home baker goes to the pantry and grabs the household brown sugar container to use, not knowing that her 6-year-old child snuck in with a spoon and ate several bites. Now, the home baker is using this brown sugar in the icing on the cupcakes being prepared to sell - these cupcakes aren't getting baked anymore.
- No animals on the counter tops. If you have a cat that likes to jump up on the kitchen counter while baking, this needs to stop (Emerging Infectious Diseases, 2004). Pets can carry harmful coliform bacteria on their paws. Coliform bacteria are intestinal bacteria that can cause debilitating gastrointestinal problems and kidney failure.
- Ensure that ingredients and packaging material used are kept away from household cleaners, flytraps, etc. If a cleaner has been placed in a special spray bottle, make sure it has been properly labeled. In 2006, 11 illnesses were reported in the U.S. from ingesting baked goods that had been contaminated with floor sealant (Murphy).
- On bake day, have a well-organized and freshly cleaned area. Have the family take a "time-out" from the kitchen and lock the pets outside or in another room while the product is cooling and until packaged.

Make sure you are clean

If you are sick or someone in your family is sick, don't bake products for sale.

- Remember the aforementioned norovirus example – thousands of people became gravely ill from one contaminated person icing wedding cakes.
- Wash hands with soap and water, even under fingernails, frequently (Emerging and Infectious Disease, 2004). It is important that hands are washed with soap and water to prevent the spread of infection and illness. The Centers for Disease Control suggest wetting hands first with cold or warm water, then lathering with soap (including the back of the hands, between fingers, and underneath nails). Next, scrub hands for at least 20 seconds before rinsing them under clean running water, then drying them with a clean towel or air. Sneeze and cough away from products where you are working. Remember to wash hands after blowing your nose. Thirty to 50 percent of humans have the bacteria *Staphylococcus aureus* inherent to their nasal cavity and throat (Smith, 2004). Coughing onto a baked product can spread this bacteria onto the finished for-sale product. *Staphylococcus aureus* poisoning is one of the most prevalent causes of gastroenteritis worldwide (Stewart, 2003).
- Wearing gloves is not always practical in the baking industry. If you can, wear them. However, gloves are not super bacteria-repelling substances. Studies show that when operators wear gloves, they tend to not wash as frequently. Gloves protect food from coming into contact with your hands. If the glove touches raw egg, wash the gloved hands. If you cough in your gloved hands, wash them. Also, it is a good manufacturing practice to wear gloves if cuts are present on hands.
- Wear a hair net.

- Don't wear jewelry while baking; however, if it is a must, ensure jewelry parts will not fall into baked items during preparation or packaging.

Cross-contamination

In a bakery setting, cross-contamination occurs when perishable ingredients accidentally touch a finished baked product, cleaned workspace or a baked product's packaging before sealing (Smith, 2004). When using raw eggs, be mindful of where it has fallen and your hands. Raw eggs can harbor *Salmonella*. If you have a tiny amount of raw egg on your hands and touch the refrigerator handle, drawer handle or outside of another ingredient bottle, then the entire kitchen can be contaminated. [*Salmonella* spp. cells can remain viable in a dry environment for several months (Smith 2004).]

Wash hands and counters after use. In 2011, 25 people in Rhode Island became ill from consuming zeppoles (a deep-fried Italian pastry much like a fritter); 10 of those people were hospitalized. The cause of the illness came from the storage of baked pastries in used egg crates. The baked pastry shells were exposed to infected eggs (Marler, 2011). It is extremely important that baked goods are kept away from raw ingredients. The use of pasteurized eggs are helpful in minimizing cross-contamination risks.

- Food illness-causing organisms can be passed to already baked and cooling products as well. For example, ill household members could go to the kitchen to get juice or medicine and cough on exposed food products. Be aware of foot traffic near baked and cooling products.
- Do not store a raw ingredient over a baked or ready-to-eat product.

Temperature

Make sure cold ingredients are brought to the home cold and kept that way, ensuring the safety and integrity of ingredients (Emerging Infectious Disease, 2004). Recommended refrigeration temperature is less than 41 degrees Fahrenheit (United States Food and Drug Administration, 2013).

Ingredients and ingredient handling

Home bakers should ensure that leftover ingredients are handled and stored properly. The baker will need to determine if the original packaging is still appropriate for storage. If the packaging is damaged or dirty, a new container is needed. Additionally, the baker should follow the principle of first in/first out when dealing with leftover ingredients to ensure ingredients that were purchased first are used first.

- Make certain ingredients used in baking come from a licensed facility. This is important in case a used ingredient is recalled. A licensed facility will have a recall program.

Cream-filled pastries, icings and pies

- Cream-filled pastries like cream puffs, éclairs, cream-filled doughnuts, etc., have cream fillings added to pre-baked doughs. These fillings are heated in preparation, but they are not sterile. They also contain nutrients and a high water activity allowing for increased microbial growth. Transferring the fillings from the mixer bowl, piping into doughs, etc., requires a lot of transferring, time and utensils. Hygienic control is important in such products because most of the foodborne outbreaks associated with cream-filled bakery products are linked with the bacterium *Staphylococus aureus*. Custard pies, although thoroughly baked, can become post-bake contaminated and allow for growth. Good manufacturing practices and adequate refrigeration during manufacture and storage are important in preventing such occurrences (Stewart, 2003).
- Icings are inherently all sugar and possess very little water to allow for bacterial growth. This is why the milk or butter added to a buttercream icing allows for a short duration of room temperature storage. However, adding eggs and cream cheese is another story. These ingredients add increased bacterial nutrition and water, and with post-contamination, invite bacterial growth. Products should be refrigerated to slow or eliminate growth.
- Such pies as pumpkin, sweet potato, custard and cheesecake are baked and sit out at room temperature at family gatherings. However, they are not shelf-stable and considered to be a potentially hazardous food. These pies need to be maintained with proper refrigeration (Guidelines are established to make a shelf-stable pumpkin pie).

Paperwork

Large manufacturing companies are required, due to inspections, to maintain the lot numbers of the ingredients used in a particular product run of food. This is done in case a used ingredient is "recalled;" the manufacturer will know which processed food contains the recalled ingredient. Products from the home baker will probably be consumed quickly, with less chance of any finished products left for a recall; however, that doesn't reduce the chance of any particular ingredient being recalled. The total amount of ingredients a home baker might have on hand is probably low, and like the finished product, consumed quickly, which would reduce the chance of having any ingredients leftover to recall. Maintaining these records is a good practice and a relief to have in the event of a bakery-related recall.

Food manufacturers are also required to record their cleaning practices (with what type of sanitizer) and activities. This is recommended even for the home-baker. In this way, consistency and frequency of cleaning can be measured and serve as a reminder for the home-baker production day.

Papers, chapters and books have been written about food safety. The intent of this fact sheet was to bring to your attention a few statistics, thought processes and suggestions to have a profitable and reputable home-bakery business.

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