Q: We are formulating several new breads and pastries for our large bakery. Several of these formulations include dry spices. How much spice should we add to get a well balanced formula?
T.M., Donaldsonville, La.

A: I recommend using 1 percent of ground spices, such as cinnamon, based on the total flour weight to create baked products with a balanced flavor profile. As taste is subjective, this recommended percent can be used as a starting point.

Q: We produce our signature banana bread almost every week. We buy bananas in bulk, and were hoping you knew a trick to lengthen the life of the bananas.
Nina, via e-mail

A: I place bananas in plastic grocery bags. Push out the air from the bag, and close it tightly. I have stored bananas up to five weeks in the refrigerator this way without the skins turning dark or the flavor deteriorating quickly. One thing taking place is that the ethylene gas is still active but greatly slowed by the chill of the refrigerator. They still continue to ripen, but at a much slower rate. The bags shield the bananas from dehydration and oxygen.

Q: We want to scale up a formula, but are not sure how to convert from cups to ounces. How much flour is in one cup?
Charlene, via e-mail

A: For consistent results, I always weigh flour and other ingredients. It's very difficult to get consistent weights using a measuring cup. So, I convert the flour in a formula to ounces right from the start.

Flour	0.25 c	0.50 c	1 c
Bread flour	1.19 ozs.	2.38 ozs.	4.75 ozs.
All purpose flour	1.06 ozs.	2.13 ozs.	4.25 ozs.
Cake flour	1.00 oz.	2.00 ozs.	4.00 ozs.
Whole wheat flour	1.13 ozs.	2.25 ozs.	4.50 ozs.
Rye flour	1.00 oz.	2.00 ozs.	4.00 ozs.

Q: When is a sugar solution saturated or supersaturated?
Mai, via e-mail

A: When you add sugar to water, the sugar crystals dissolve and the sugar becomes a solution. When as much sugar has been dissolved as possible, the solution is saturated. The saturation point is different at different temperatures. The higher the temperature, the more sugar that can be held in solution. When you cook a batch of candy, you cook sugar, water and various other ingredients to extremely high temperatures. At these high temperatures, the sugar remains in a solution, even though much of the water has boiled away. But when the candy is done cooking and begins to cool, more sugar is in the solution than is normally possible. The solution is supersaturated with sugar. Super-saturation is an unstable state. The sugar molecules will begin to crystallize back into a solid at the least provocation. Stirring or jostling of any kind can cause the sugar to begin crystallizing.

Q: What are the differences among light, medium or dark molasses?
Dave, via e-mail

A: Molasses is a by-product of cane sugar production. After the cane juice is concentrated, the sucrose crystallizes and is removed from the sugar with a centrifuge. This process is then repeated several times. As more sugar is extracted from the syrup, the ash content of the molasses increases, the flavor becomes stronger and the color becomes darker. Light molasses contains 1.5 percent to 3 percent ash, medium has 3 percent to 6 percent ash, and dark features 7 percent ash.

Q: We make a great fruit bread, and place it on the table to cool, but we are having problems with condensation on the bottom of the breads. How can we prevent this?
M.M., Auburn, Ala.

A: In order to avoid a creation of water from condensation on the bottoms of baked product, they should be immediately removed from the pans and placed on wire cooling racks. This allows for air circulation around the bottom of the bread and helps eliminate soggy bottoms.

Q: Bagels and baguettes are made with the same ingredients, but what gives the bagels such a tight crumb structure?
M.W., Yuma, Ariz.

A: Low hydration of around 50 percent gives bagels their distinct texture and appearance. Additionally, the different baking process and the low hydration results in a dense, tight crumb, which creates a chewy texture.

Q: When baking rich yeast dough, why is it suggested to bake the bread in a cooler oven than artisan breads?
S.S., Texarkana, Ark.

A: In general, rich yeast doughs require not only a cooler oven, but also almost no steam and an open damper. Here are a few reasons why:

- Sugar-rich doughs take color more readily.
- Dough with higher butter content will generally have liquid butter between the bottom of the baked product and the sheet pan during the baking process. Even though this may only be a small amount, it will quickly become overheated and lead to burning of the bottom of the baked products.
- Many yeast doughs are dusted with confectioners' sugar, or spread with macaroon-type mixtures before they are baked. If the temperature is too high at the start, these may be flashed and burned. Similar problems may arise with nuts and kernels that are sprinkled on top of the baked products.
- Baking certain products, such as panettone or large brioche, too quickly can cause the collapse and marking of the baked products.

- **Q:** Can you share a simple spice mixture for Christmas stollen?
  Andrew, via e-mail
- **A:** I've always liked this mixture. Yes, I use ground white pepper in my spice mix. Try it, you'll like it.

Ingredients	Lbs.	Ozs.	Metric
Vanilla sugar	1	5	600 g
Nutmeg, ground	0	5.25	150 g
Cardamom, ground	0	15.75	450 g
Pepper, white	0	5.25	150 g
Total appr. wt.	2	15.25	1.35 kg

Stollen spice mixture

- Method: Blend these ingredients well, and use at 1 percent based on the flour weight.
- **Q:** How much salt is in salted butter, and does it make a difference if I use salted or unsalted butter in a formula?
  L.K., Cincinnati
- **A:** The amount of salt in salted butter can vary, but it generally contains up to 3 percent salt or 15 g of salt per 500 g of butter or 0.5 oz. of salt per 16 ozs. of butter. If you create something with a high percentage of butter, I recommend using unsalted butter because it gives you more control over the amount of salt in the formula. But if the butter is only a small percentage of the total formulation, then the additional salt in the butter becomes insignificant.
- **Q:** I found a great formula in an old cookbook, and it calls for an ingredient I'm unfamiliar with, castor sugar. What is castor sugar?
  Roy, via e-mail
- **A:** Castor or caster sugar is the name of a very fine sugar in Great Britain, so named because the grains are small enough to fit though a sugar “caster” or sprinkler. It is sold as “superfine” sugar in the United States, and it is readily available through your wholesaler.

- **Q:** Can you provide us with a formula for a “brown” Danish filling?
  Alyssa, via e-mail
- **A:** The following “brown” Danish filling has always worked well for me.

Ingredients	Lbs.	Ozs.	Metric
Hazelnuts, lightly roasted, ground	2	3.25	1 k g
Granulated sugar	1	12.25	800 g
Glucose	0	7	200 g
Cinnamon, ground	0	0.35	10 g
Water	1	1.5	500 ml
Total appr. wt.	5	8.35	2.51 kg

“Brown” Danish filling

- Method: Combine all ingredients until well blended. Use as desired.
- **Q:** How many cuts should a French bread/baguette have?
  A.K., Sanger, Calif.
- **A:** Before baking, bread should be scored with a bread slashing tool called a lamé, which creates incisions about 1/2 in. deep that overlap and run almost parallel to the center of the loaves. This prevents the formation of random breaks during the first minutes of baking. French bread is cut four times diagonally across the loaf, but the number of cuts may vary depending on the individual baker.
- **Q:** What is the best way to package freshly baked artisan bread?
  S.W., Calgary, Canada
- **A:** In order to slow down the drying of freshly baked bread and to keep the crust crispy, bread is best stored and sold in waxed paper or in perforated plastic bags.
- **Q:** We want to make a soft-baked, gluten-free cookie with chocolate chips. Can you provide a formula?
  Baisistha, via e-mail
- **A:** These are great cookies and gluten-free as well
- **Gluten-free cookies**

Ingredients	Lbs.	Ozs.	Metric
Ammonium bicarbonate		1.25	35 g
Baking powder		1.0	27 g
Chocolate chips	1	11.5	780 g
Dextrose		12.5	355 g
Glycerol		6.25	177 g
High fructose corn syrup	3	0.75	1.384 kg
Mono- and diglycerides		6.25	177 g
Resistant starch	1	2.75	532 g
Salt		1.25	37 g
Shortening	4	3.5	1.916 kg
Starch		0.5	18 g
Sugar	2	4.25	1.029 kg
Vanilla extract		1.25	35 ml
White rice flour	6	11.75	3.054 kg
Whole liquid eggs		15.5	443 ml
Total appr. wt.	**22**	**0.25**	**10 g**

Method: Cream shortening, salt and sugar using a paddle attachment until mixture is light and fluffy. Add eggs slowly, creaming well after each addition. Combine and sift dry ingredients. Add remaining liquids and then dry ingredients. Add chocolate chips. Deposit onto parchment-lined sheet pans. Size may vary depending on your needs. Bake at 375°F for 10 to 12 minutes or until done.

- *Source: Cereal Foods World, Volume 53, No. 4, July-August 2008, AACC International*

Q: Our bakery is close to the Minnesota State Fairgrounds, and corn dogs are sold during the event. Do you have a small formula we can try out to evaluate if this is something we could sell year-round?
L.R., St. Paul, Minn.
A: While corn dogs may not be a fit for every bakery, you know your market, and here is a small formula that you can try out:

Corn dogs

Pastry flour	1 ¼ c
Salt	1 tsp
Cornmeal	¾ c
Granulated sugar	4 Tbsp
Whole eggs, 2	
Whole milk	¾ c

Method: Heat oil in a deep fryer to 375°F (185°C). In a large bowl, stir together the flour, cornmeal, sugar, baking powder and salt. Make a well in the center, and pour in the eggs and milk. Mix until smooth and well blended. Pat the hot dogs dry with paper towels, so the batter will stick. Insert wooden sticks into the ends. Dip the hot dogs in the batter one at a time, shaking off the excess. Deep fry two pieces at a time in the hot oil until they are golden brown, about six minutes.
Q: Can you provide a formula for a 4-oz. muffin made with pumpkin puree?
Rachel, via e-mail
A: Try this formula.

Pumpkin muffins

Ingredients	Lbs.	Ozs.	Metric	Bakers %
Cake flour		9.5	270 g	60.0
Pastry flour		6.4	180 g	40.0
Butter		6.0	171 g	38.0
Salt		0.1	3 g	0.75
Granulated sugar		15.9	451 g	100.0
Whole eggs		5.6	158 g	35.0
Pumpkin puree		15.9	451 g	100.0
Cinnamon, ground		0.1	2 g	0.50
Nutmeg, ground		0.1	2 g	0.50
Cloves, ground		0.1	2 g	0.50
Allspice, ground		0.04	1 g	0.25
Baking soda		0.6	18 g	4.0
Walnuts, toasted and crushed		1.6	45 g	10.0
Raisins, macerated		7.9	225 g	50.0
Total appr. wt.	4	5.9	1.98 kg	439.5

Method: Macerate raisins in enough rum, fruit juice or water (75°F) to cover the raisins; let stand for no longer than 12 hours. Cream the butter, salt and sugar using a paddle attachment, until mixture is light and fluffy. Slowly add eggs, creaming well after each addition. Stir in pumpkin puree and mix slightly. In a separate bowl, sift together flours, spices and baking soda. Add slowly to creamed mixture and mix until smooth. Do not over mix. Drain the macerated raisins, and fold in with the walnuts. Portion 4 ozs. (115 g) of batter into greased or paper-lined muffin cups. Bake at 350°F for about 30 minutes. This formula yields 17 4-oz. muffins.
Source: Artisan Baking, Twelve Baking Recipes, 2007.
Klaus Tenbergen *is certified as a Master Baker in Germany, South Africa and the United States. He is currently an assistant professor at California State University in Fresno, teaching classes in Culinology®-the blending of culinary arts and the science of food. For more information, call 559/278-2164 or contact Klaus Tenbergen at* **ktenbergen@csufresno.edu**.

Q: What kind of walnut is best suited for baking?
Edwin, via e-mail

A: There are three basic walnut varieties.

English walnuts: Also called Persian walnuts, these are the most familiar type. Although native to Asia and Europe, California is now the major world producer. The shells of English walnuts are relatively easy to crack with a nutcracker, and the halves of the nut kernel can usually be removed in one piece.

Black walnuts: These walnuts have a very tough, dark outer hull, and the inner shells also are thicker than those of English walnuts. The shells have to be broken under so much pressure that the nut meats are usually crushed as well. These have a very distinctive, “cheesy” flavor. They are not to everyone's taste, but aficionados of these walnuts will go to great lengths to get their hands on them.

Butternuts: Also called “white walnuts,” these are native to the United States, but are rarely harvested for the marketplace. They are oilier and sweeter tasting than the other two walnut varieties.

As the English walnuts are easily available, I use these for all my bakery applications.

Q: I have two questions. Can the roots and leaves of rhubarb be consumed, and what can be used to sweeten the rhubarb stalks?
David, via e-mail

A: Rhubarb, which looks like a pink celery stalk, is botanically a vegetable, but it is used as a fruit, largely in pies and sauces. The roots and leaves aren't edible; in fact, the leaves are highly poisonous. Rhubarb stalks are extremely tart and require sweetening to make them appetizing. This can considerably increase their calorie content. For example, a typical home recipe for rhubarb pie calls for 4 cups of diced rhubarb to which 1 ¼ cups of sugar are added. This converts 104 calories' worth of rhubarb to more than 1,000 calories. An alternative to this is to sweeten rhubarb with other sweet fruits, such as apples.

Q: Our bakery ingredient supplier offers various types of cinnamon. Which one do you recommend using?
R.B., Davis, Calif.

A: Cinnamon is the dried inner bark of a tropical evergreen tree with about 100 different species, all with similar aromatic properties. The two most commonly available varieties are Ceylonese cinnamon and Chinese cinnamon. Chinese cinnamon, which is actually from the bark of the cassia tree, is not considered a true cinnamon. Grown in southern China and other parts of eastern Asia, cassia has a dark reddish color and is stronger in flavor than its Ceylonese cousin. Cassia is less expensive to process than true cinnamons and is the type of “cinnamon” most commonly sold and used in bakeries-though it is sometimes blended with Ceylonese cinnamon. Most cinnamon is sold in powdered form; however, it also is available in sticks (scrolled portions of bark) or essential oil. Cinnamon sticks are sold in various lengths, though the most common cinnamon stick is about 3 ins. long. My preference changes with my supplier or even the price, as the differences in outcome are very minimal and it has no impact on the application of use.

Q: How can we prepare cherries for freezing?
Dani, via e-mail

A: You can use several methods to pack cherries for freezing. The best one depends on how you want to use the frozen cherries later. I normally spread cherries in a single layer on sheet pan and freeze them. Then, I remove and quickly pack them in labeled freezer bags or containers removing as much air as possible. I seal and return them promptly to freezer. You can store them up to three months and use as needed.

Q: Throughout the week, we accumulate a few loaves of bread, which we use to make bread pudding. What can we do to set our bread pudding apart from the competition?
John, via e-mail

A: A whole world of opportunity exists with bread pudding, and it doesn't always have to be sweet. I like deep-frying (375°F) my bread pudding until golden brown, about three minutes. This gives the bread pudding a crispy outer crust, while maintaining a soft and moist internal structure and texture.

Q: Lately we have noticed a lot of published information on raisin products and would appreciate more information on raisin paste and juice concentrate. How can these products be used in a bakery?
J.S., El Paso, Texas

A: Extruding raisins through a fine mesh screen makes raisin paste. This paste can be used to add visual appeal and flavor to granola bars, yogurt, ice cream and other frozen novelties. It has excellent sweetening capabilities for use in fine confectionery fillings and bakery items, too. Raisin juice concentrate is a pure extract of raisins evaporated to produce self-preserving concentrate. It extends shelf life, substitutes for preservatives, maintains moisture and acts as a natural binding agent, enhancing flavors while sweetening and coloring food products.

Q: While reading the ingredient label of margarine, I wondered at the meaning of the E-numbers? Do you have an idea?
Michael, via e-mail

A: All food additives have E-numbers. The E stands for Europe. The E-numbers have been introduced in order to be able to clearly define the additives on an international level, because the names for the additives vary from country to country. Moreover, the E-number indicates the food additive is on the list of admissible additives, and therefore is not detrimental to health. Some examples are:

E 170 Acidulant calcium carbonate

E 263 Acidulant calcium acetate

E 300 Flour improver L-ascorbic acid (vitamin C)

E 322 Emulsifier lecithin

E 341 Acidulant calcium phosphate

E 410 Thickener carob gum

E 412 Thickener guar gum

E 450 Acidulant diphosphate

E 471 Emulsifier mono- and diglycerides of edible fatty acids

E 472e Emulsifier DATEM (diacetyl tartaric acid ester)

Q: We are always looking for additional products to sell in our retail bakery. We started making homemade peanut butter and roasted peanuts, but are not sure what type of peanuts are best to use.
Erin, via e-mail

A: If you make roasted peanuts to eat right out of the shell, use Virginia or Valencia peanuts, but if you are using roasted peanuts to make peanut butter, use Spanish peanuts as they have higher oil content.

Q: I am looking for something to give me the flavor of capers without using them; the problem is the vinegar that they are pickled in. I am working with them in focaccia breads and the vinegar destroys/weakens the protein.
N.L., Oro Valley, Ariz.

A: This is an interesting dilemma. Capers are preserved either in vinegar brine or in dry salt, but in the United States, the brine variety is far more common. Green olives have a similar flavor/color to capers, but you'll probably be facing the same vinegar issues. Squeeze the brine out of capers using cheesecloth, which will remove most of the liquid, leaving you with just the caper and enough moisture to help deliver flavor without interfering with the protein. You can even give a rough chop to the caper, pre-squeeze, to help extract more liquid and disperse the capers more evenly to deliver more

consistent flavor in your bread dough. Add the capers at the very end of the mixing process, so the gliadin and glutenin can develop.

Q: We are formulating several new breads and pastries for our large bakery. Several of these formulations include dry spices. How much spice should we add to get a well balanced formula?
T.M., Donaldsonville, La.

A: I recommend using 1 percent of ground spices, such as cinnamon, based on the total flour weight to create baked products with a balanced flavor profile. As taste is subjective, this recommended percent can be used as a starting point.

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A: I place bananas in plastic grocery bags. Push out the air from the bag, and close it tightly. I have stored bananas up to five weeks in the refrigerator this way without the skins turning dark or the flavor deteriorating quickly. One thing taking place is that the ethylene gas is still active but greatly slowed by the chill of the refrigerator. They still continue to ripen, but as a much slower rate. The bags shield the bananas from dehydration and oxygen.

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Charlene, via e-mail

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Bread flour	1.19 ozs.	2.38 ozs.	4.75 ozs.
All purpose flour	1.06 ozs.	2.13 ozs.	4.25 ozs.
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Whole wheat flour	1.13 ozs.	2.25 ozs.	4.50 ozs.
Rye flour	1.00 oz.	2.00 ozs.	4.00 ozs.

Q: Can you provide a formula for a 4-oz. muffin made with pumpkin puree?
Rachel, via e-mail

A: Try this formula.

Ingredients	Lbs.	Ozs.	Metric	Bakers %
Cake flour	0	9.5	270 g	60.0
Pastry flour	0	6.4	180 g	40.0
Butter	0	6.0	171 g	38.0
Salt	0	0.1	3 g	0.75
Granulated sugar	0	15.9	451 g	100.0
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In a separate bowl, sift together flours, spices and baking soda. Add slowly to creamed mixture and mix until smooth. Do not over mix. Drain the macerated raisins, and fold in with the walnuts. Portion 4 ozs. (115 g) of batter into greased or paper-lined muffin cups. Bake at 350°F for about 30 minutes. This formula yields 17 4-oz. muffins.

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Q: We want to make a soft-baked, gluten-free cookie with chocolate chips. Can you provide a formula?
Baisistha, via e-mail

A: These are great cookies and gluten-free as well.

Ingredients	Lbs.	Ozs.	Metric
Ammonium bicarbonate	0	1.25	35 g
Baking powder	0	1.0	27 g
Chocolate chips	1	11.5	780 g
Dextrose	0	12.5	355 g
Glycerol	0	6.25	177 g
High fructose corn syrup	3	0.75	1.384 kg
Mono- and diglycerides	0	6.25	177 g
Resistant starch	1	2.75	532 g
Salt	0	1.25	37 g
Shortening	4	3.5	1.916 kg
Starch	0	0.5	18 g
Sugar	2	4.25	1.029 kg
Vanilla extract	0	1.25	35 ml
White rice flour	6	11.75	3054 g
Whole liquid eggs	0	15.5	443 ml
Total appr. wt.	22	0.25	10 kg

Method: Cream shortening, salt and sugar using a paddle attachment until mixture is light and fluffy. Add eggs, one at a time, creaming well after each addition. Combine and sift dry ingredients. Add remaining liquids and then dry ingredients. Add chocolate chips. Deposit onto parchment-lined sheet pans. Size may vary depending on your needs, bake at 375°F for 10 to 12 minutes or until done.

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: Our bakery is close to the Minnesota State Fair Grounds and corn dogs are sold during the event. Do you have a small formula we can try out to evaluate if this is something we could sell year-round?
L.R., St. Paul, Minn.

A: While corn dogs may not be a fit for every bakery, you know your market, and here is a small formula that you can try out:

Corn dogs	
Pastry flour	1 ¼ c
Salt	1 tsp
Cornmeal	¾ c
Granulated sugar	4 Tbsp
Whole eggs	2 each
Whole milk	¾ c

Method: Heat oil in a deep fryer to 375°F (185°C). In a large bowl, stir together the flour, cornmeal, sugar, baking powder and salt. Make a well in the center, and pour in the eggs and milk. Mix until smooth and well blended. Pat the hot dogs dry with paper towels, so the batter will stick. Insert wooden sticks into the ends. Dip the hot dogs in the batter one at a time, shaking off the excess. Deep fry two pieces at a time in the hot oil until they are golden brown, about six minutes.

Q: When is a sugar solution saturated or even supersaturated?
Mai, via e-mail

A: When you add sugar to water, the sugar crystals dissolve and the sugar becomes a solution. When as much sugar has been dissolved as possible, the solution is saturated. The saturation point is different at different temperatures. The higher the temperature, the more sugar that can be held in solution. When you cook up a batch of candy, you cook sugar, water and various other ingredients to extremely high temperatures. At these high temperatures, the sugar remains in a solution, even though much of the water has boiled away. But when the candy is done cooking and begins to cool, more sugar is in the solution than is normally possible. The solution is supersaturated with sugar. Super-saturation is an unstable state. The sugar molecules will begin to crystallize back into a solid at the least provocation. Stirring or jostling of any kind can cause the sugar to begin crystallizing.

Q: What is the difference between gelato and traditional, American-style ice cream?
D.J., Washington, D.C.

A: Four principal differences exist-fat content, key ingredients, texture and flavor. Gelato contains less butterfat (4 percent to 8 percent) than American-style ice cream (10 percent to 18 percent). Gelato's key ingredients are whole milk, sugar (usually confectioners' sugar), flavorings (especially fresh fruit) and sometimes skimmed milk powder, which adds viscosity and helps stop the build up of ice crystals. Gelato is not as frozen in texture when served-it's more of a semi-frozen ice cream and is generally best eaten fresh the day it's made. The flavor of gelato is generally agreed to be purer on the palate, especially gelato made with water (sorbetto). Gelato is normally stored in a forced air freezer that prevents the gelato from freezing completely. Try this simple banana gelato.

Ingredients	Lbs.	Ozs.	Metric
Milk, whole	2	3	1 L
Water	2	3	1 L
Confectioners' sugar		14	400 g
Bananas, ripe	2	3	1 kg
Lemon, fresh juice		2	56 ml
Total appr. wt.	**7**	**9**	**3.456 kg**

Banana gelato

Method: Place the sugar and water in a saucepan, and stir while slowly bringing the mixture to a boil. This ensures the sugar dissolves. Remove the pan from the heat and cool. In a separate bowl, mash the bananas, and stir in the juice from the lemon. Add the milk and the cooled sugar/water syrup. Transfer into an ice cream maker and freeze according to the manufacturer's instructions.

Q: What is your favorite topping for ice cream?
J.R., Irvine, Calif.

A: The topping options are almost limitless for ice cream. I have always enjoyed this toffee sauce.

Ingredients	Lbs.	Ozs	Metric
Brown sugar	1	2	500 g
Butter, unsalted	1	2	500 g
Syrup, golden		1	30 g
Whole milk		4.5	125 ml
Total appr. wt.	**2**	**9.5**	**1.155 kg**

Toffee sauce

Method: Slowly heat the sugar, butter and syrup in a saucepan, and stir until fully melted/dissolved. Boil for four minutes, and then cool slightly before stirring in the milk. You also may use a heavy cream if you prefer a richer sauce. While the sauce is still warm, pour it over ice cream.

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: We added a small coffee shop to our bakery. While we trained our servers, we want to make them aware of allergy concerns. Do you have any trick we can use to remember the menu items we should caution our customers about?
A.G., McLean, Va.

A: Most allergies can be attributed to eight items: tree nuts, peanuts, dairy products, wheat, eggs, fish, shellfish and soybeans. A simple memory device will assist your staff in remembering the "big eight."

Never (nuts)

Prepare (peanuts)

Menus (milk)

Without (wheat)

Explaining (eggs)

Food (fish)

Components (crustaceans/shellfish)

to Servers (soybeans)

Q: We recently added artisan bread production to our cake shop. What is autolyse, and what is the reason for doing it?
A.A., La Mirada, Calif.

A: Autolyse is a technique in which flour and water are briefly mixed and allowed to rest for up to 30 minutes before the kneading process. This helps improve the dough-handling qualities throughout the bread making process. When water and flour are combined, gluten forms in a random, disorganized matrix that is very weak. As the dough is kneaded, the disorganized bonds are pulled apart and reattached into straight, strong, orderly sheets. The autolyse step reduces kneading time by allowing enzymes in the dough to break down disorganized bonds of gluten. Autolyse helps the gluten form a stronger, more organized network with less kneading and results in a slightly higher dough yield, due to the absorption of additional water by the flour.

Q: What flour do you recommend we use for making croissant dough?
D.A., Boston

A: I achieve very good results with unbleached, unbromated bread flour with 11.2 percent to 12.2 percent protein and about 0.5 percent ash content.

Q: What conversion should we use when using dry whole eggs to make liquid whole eggs?
Keryn, via e-mail

A: I normally use 25 percent dry whole eggs and 75 percent water to get the equivalent of liquid eggs. For example, 250 g dry whole eggs and 750 ml water or 4 ozs. dry whole eggs and 12 ozs. water.

Advantages of genoise

Q: What is the advantage of making a genoise?
Rosalinda, via e-mail

A: Genoise — French butter sponge cake or European sponge cake — uses the whole egg method. The genoise uses whole eggs instead of separated eggs (sponge) and contains butter, which makes a very flavorful and tender cake. It is not as sweet as the sponge cake because it contains less sugar. It can be dry, so syrup is sometimes used to moisten the cake layers for a soft and tender crumb. The syrup also adds flavor. Additional flavorings can be added to genoise batter, such as extracts, liqueurs, citrus zest and finely ground nuts.

Q: Should eggs be cold or at room temperature when used in baking?
A.W., Ayr, N.D.

A: Cold eggs are easier to separate, but room temperature eggs give more volume when beaten. Therefore, separate the eggs when they are cold, and then cover the egg whites and yolks with plastic wrap, which prevents them from drying out. Bring them to room temperature before using.

Q: What is the difference between yellow cake and white cake?
S.B., Omaha, Neb.

A: Yellow cakes are made with whole eggs, which give them their yellow color and their name. White cakes are made with egg whites, hence the white crumb color. Additionally, several other ingredients vary, such as sugar, shortening and emulsifier levels.

Q: During our laminating process of croissant dough, the butter does not spread uniformly. How do we achieve uniform spreading?
Kenneth, via e-mail

A: If the dough is too cold during the laminating process, the butter chills, which prevents it from spreading. The dough should be kept at about 64°F (18°C) to ensure an even distribution of the fat.

Q: We bake cakes from scratch, but the cakes collapse during baking. What causes this?
E.B., Northbrook, Ill.

A: Fallen/collapsed cakes can have several causes. Make sure that the cakes are not under-baked with too short of a baking time. Additionally, too much or too little liquid can cause cakes to collapse. Make sure that the cake pan is appropriately sized for the amount of batter. A pan that is too small, which makes the batter too deep, results in fallen cakes. Also, do not move or jar the cakes before the batter is sufficiently set.

Q: We recently have had problems with the quality of our whole wheat flour. How long can we store it?
S.F., Hackensack, N.J.

A: Whole wheat flour contains the wheat germ with a fat content, which is mostly poly-unsaturated, of 10 percent to 11 percent. The shelf life of whole wheat flour depends on the storage conditions. I would recommend storing whole wheat flour for no more than 30 days in cool and dry storage conditions.

Q: We want to expand our menu by offering a light lemon mousse to use our locally grown lemons. Do you have a formula?
D.B., Huron, Calif.

A: If the lemon juice is too acidic for your customers, increase the amount of water and decrease the amount of lemon juice. As long as the total amount of liquid remains 35 ozs. when combining the water and lemon juice, this formula will turn out beautifully.

Ingredients	Lbs.	Ozs.	Metric
Egg yolks		7	200 ml
Granulated sugar	1	1.5	500 g
Corn starch		1.75	50 g
Lemon juice	1	1.5	500 ml
Water	1	1.5	500 ml
Lemon zest (5 lemons)			
Butter, unsalted		5.25	150 g
Egg whites		5.25	150 ml
Total appr. wt.	**4**	**7.75**	**2.05 kg**

Lemon mousse

Method: Whisk together the egg yolks and sugar until ribbons form. Add the cornstarch through a sieve, and mix well. Place the lemon juice, water and lemon zest in a small saucepan, and heat slowly until it almost boils. Gradually pour the hot mixture into the egg-sugar mixture, whisking continually. Pour back into the saucepan, bring to a boil rapidly, and cook until the mixture has thickened, stirring continually. Strain it into a bowl. Add the butter, and mix until it has melted. Place the bowl in a cold water bath, and whisk the batter until it has cooled down. Beat the egg whites to medium peak. Gently fold the egg whites into the lemon mixture a little at a time until somewhat smooth. Divide the mixture into individual serving dishes, cover with plastic and refrigerate for one to two hours, or until the mixture sets.

Q: We would love to use hazelnuts in our assortment of cookies. Do you have a formula?
Jennifer, via e-mail

A: I've always found this formula to work well.

Ingredients	Lbs	Ozs.	Metric
Butter, softened	1	1.5	500 g
Granulated sugar		10.5	300 g
Vanilla extract		0.5	15 ml
Egg yolks (10)		7	200 ml
Pastry flour		14	400 g
Baking powder		0.5	15 g
Ground hazelnuts	1	2.5	525 g
Whole hazelnuts, as needed for garnish			
Total appr. wt.	**4**	**4.5**	**1.955 kg**

Hazelnut cookies

Method: Cream the softened butter, sugar and vanilla extract until the mixture is pale and fluffy. Add the egg yolks, and beat until smooth. Combine the flour, baking powder and the ground nuts, and add to the butter mixture. Stir gently to mix. Divide the dough into about 0.5-oz. (15-g) pieces, and roll them into small balls. Place the balls on a baking sheet lined with parchment paper, leaving some space between them. Flatten the balls slightly using a wide palette knife or a spatula. Press one whole hazelnut in the center of each cookie. Bake the cookies at 435°F (225°C) for about six minutes or until they are lightly browned. This formula yields about 10 dozen cookies.

Q: We just returned from a trip to France and Italy where we ate nougat with nuts, which we now want to offer in our bakery. Do you have a formula?
Lizhu, via e-mail

A: Nougat is a traditional sweet in France, Italy (where it is called torrone), Spain (where it's called turrón) and the Middle East, where it's often made with rose water and pistachios. Some authorities say the original recipe was brought to Europe via the Middle East, although others say it originated in Greece.

Ingredients	Lbs.	Ozs.	Metric
Honey	1	6	625 g
Egg whites		10.5	300 ml

Ingredients	Lbs.	Ozs.	Metric
Confectioners' sugar	1	6	625 g
Vanilla extract		0.35	10 ml
Almonds, whole and blanched	1	1.5	500 g
Hazelnuts		13.25	375 g
Pistachios		13.25	375 g
Total appr. wt.	**6**	**2.85**	**2.81 kg**

Nougat

Method: Toast all the nuts until lightly browned, and cool completely. Place the honey, sugar and egg whites in a large bowl; stir continually over a double boiler until it thickens and turns ivory white, about 20 minutes. To test whether the nougat mixture has cooked sufficiently, drop a small amount of it into ice cold water — if it immediately hardens, the nougat is ready. Remove the saucepan from heat, and quickly stir in the vanilla extract, almonds, hazelnuts and pistachios. Cover a work surface with confectioners' sugar, pour the nougat onto it, and quickly form it into a ball. Then, press the nougat tightly into a sheet pan lined with lightly oiled parchment paper. Cover with another piece of parchment paper, weight it and cool completely. Cut the cold nougat into bars and sell tightly wrapped.

Q: We would like a formula for a rich shortbread.
Tara, via e-mail

A: Below is a great formula from Scotland.

Ingredients	Lbs.	Ozs.	Metric
Pastry flour	3	12	1.42 kg
Almonds, ground		4	115 g
Margarine	1		450 g
Butter	1		450 g
Confectioners' sugar	1	8	680 g
Total appr. wt.	**7**	**8**	**3.115 kg**

Scottish shortbread

Method: Sift the flour, and combine with the ground almonds. Cream together fats and sugar, and add the sifted flour and almonds; blend thoroughly. Scale into 17-oz. pieces and roll out to 6 ins. in diameter. Notch the edge and dock the center. Bake in ring moulds to prevent the edges from scorching. Bake at 375°F (190°C) until golden brown, about 12 to 15 minutes. Cut into wedge-shaped pieces while still hot. Dust with fine confectioners' sugar.

Q: Can you provide us with an icing we can use for cookies as well as Danish pastries?
R.S., Westminster, Colo.

A: Below is a great alternative with a pineapple flavor profile.

Ingredients	Lbs.	Ozs.
Pineapple juice		8
Lemon juice		2.5
Butter		8
Confectioners' sugar	5	8
Total appr. wt.	**6**	**10.5**

Pineapple Danish icing

Method: Heat the pineapple and lemon juices to 200°F (93°C), and combine with the butter. Place in a mixer equipped with a paddle attachment, and add the sugar gradually to achieve the desired consistency.

Klaus Tenbergen *is certified as a Master Baker in Germany, South Africa and the United States. He is currently an assistant professor at California State University in Fresno, teaching classes in Culinology®-the blending of culinary arts and the science of food. For more information, call 559/278-2164 or contact Klaus Tenbergen at* **ktenbergen@csufresno.edu**.

Q: Do you know why in angel food cake formulas part of the sugar is sifted with the flour?
M.X., Scottsdale, Ariz.

A: Some of the sugar is sifted with the cake flour to reduce the tendency of the cake flour to roll into little balls of dry flour as it is folded into the egg foam. Thus, the flour can be distributed more easily throughout the foam and minimize the loss of air from the foam.

Q: Why is non-pasteurized milk usually heated to 158°F (70°C) or higher in bread production?
M.H., South Bend, Ind.

A: If milk is not scalded in bread production, the dough may soften during fermentation and the baked bread will have a decreased volume, open grain and coarse texture. The scalding process kills bacteria that might interfere with regeneration of the yeast. The heat also inactivates certain proteins that may have a negative effect on the yeast. Pasteurized and evaporated milk need only to be warmed, not scalded, as they have already been heat processed.

Q: Why do our cream puffs sometimes fail to rise?
Lawrence, via e-mail

A: Failure to rise may be attributed to the following:

- Too little water in the batter. This may occur when too much moisture is evaporated during the cooking of the paste. Either the fat and water are boiled too long or the flour, fat and water mixture is cooked too long. The resulting batter is too stiff and not enough free water is available to form steam to leaven the product.
- Too much water in the batter. The paste is too fluid to retain the steam.
- Too little fat results in a paste that cannot expand.
- Too much fat allows too much steam to escape.
- Insufficient oven temperature.

Q: Why are foam cakes usually baked in ungreased tube pans?
R.C., Eugene, Ore.

A: Foam cakes are baked in ungreased pans so as the batter rises, it can adhere to the sides of the pan until the structure sets. The tube in the center of the pan allows circulation of heat during baking and helps support the delicate structure of the rising cake. The method is thought to produce a cake of greater volume.

Q: When substituting one type of flour for another, should we go by the weight or the measurement?
D.R., Yorktown, N.Y.

A: Wheat flours should be substituted on the basis of weight to obtain the most accurate amount as differences in composition and milling procedures may cause variations in volume per weight of the different types of flour. Flours may vary in composition due to the particular strain of wheat, whether it is hard or soft wheat. For example, hard wheat has a higher protein content, which affects its weight per volume. Variations in composition results in the different types of flours having different densities. Bread flour is denser than all-purpose flour, which is denser than cake flour. Different milling methods also result in variations in weight per volume. The greater the degree of extraction, the greater the weight of the flour per cup.

Q: What is the purpose of soaking dried fruit before baking? When is the sugar added?
J.G., St. Ansgar, Iowa

A: Soaking dried fruit allows the rehydration of the fruit. Adequate rehydration can be obtained by soaking the fruit in 176°F (80°C) water for one hour. Cooking then softens the rehydrated fruit. Sugar

is added after the fruit has been cooked to the desired degree of softness. If the sugar were added before the fruit had softened, it would interfere with water absorption and toughen the cell wall.

Q: Can you explain how the presence of sugar in a frozen dessert mixture alters the freezing point?
Steven, via e-mail

A: The greater the amount of sugar in the mixture, the lower the freezing point of the mixture. Sugar acts as solute in a water solution and lowers the freezing point of that solution. As the mixture starts to freeze, some of the water changes to ice, leaving less free water to act as a solvent for the sugar molecules. The solution becomes more and more concentrated, thus lowering the freezing point even further. The result is a progressive decrease in freezing temperature that correlates with the increasing concentration of the frozen dessert mixture.

Q: I was taught never to use the leaves of the rhubarb, but don't remember why.
A.M., Las Vegas

A: Rhubarb contains toxic oxalic acid. While the rhubarb stalks are safe to eat in moderate amounts, the leaves must never be used in baking. Oxalic acid binds to vital nutrients, such as calcium, inhibiting its absorption by the human body. To weaken this effect, rhubarb is usually served with dairy product rich in calcium, like milk, cream or ice cream. However, the acid in rhubarb may cause some dairy products to curdle when served together.

Q: What kind of coconut should we use to make coconut macaroons, and can you provide a simple formula?
P.O., Las Vegas

A: For macaroons, I like to use desiccated coconut, which is unsweetened dried coconut with a moisture content of up to 5 percent. Combine one part granulated sugar with two parts egg whites, and blend over low heat until the sugar is dissolved. Do not heat the mixture over 100°F (38°C). Add enough desiccated coconut to form a batter of medium/stiff consistency. Deposit onto prepared sheet pans. The macaroons can be piped or spooned. Bake at 375°F (190°C) until golden brown, about 10 to 12 minutes.

Q: We operate a small retail bakery in Idaho where several of our local farmers are growing teff, a tiny, round grain. What is this grain used for?
Clint, via e-mail

A: Teff has been widely cultivated and used in Eritrea, Ethiopia, India and its colonies, Australia and now the U.S., especially Idaho. It has an attractive nutrition profile: high in dietary fiber and iron, and provides some protein and calcium. It contains no gluten, so it is appropriate for those with gluten intolerance or Celiac disease. Teff flour is used to produce Injera, a pancake-like bread that is used as an eating utensil to scoop up meat and vegetable stews. Injera compares to the French crepe, the South Indian dosa and the Mexican tortilla, as all are flatbreads cooked in a circle and used as a base for other foods. A short period of fermentation gives Injera an airy, bubbly texture, and also a slightly sour flavor.

Q: Do you have a formula for chocolate that we can form into decorations for our cakes?
C.S., Winston-Salem, N.C.

A: Here is one of the simplest formulas to get you started. Melt 2 lbs. of semi-sweet chocolate (no less than 55% cocoa) in either the microwave or over a bain marie. Add one cup of light corn syrup; mix with a rubber spatula until no more shinny spots are visible and the mixture forms a thick ball. Spread ½-in. thick onto parchment paper, and rest uncovered for two hours. Use as needed or store in an airtight container at room temperature for up to two weeks.

Q: Our cakes are pulling away from the sides of the cake pan during baking. What is causing this?
W.B., Bala Cynwyd, Pa.

A: The “shrinkage” of your cakes could be due to several factors: too little batter in pan, the cake pans are greased too heavily, the cake pans are too close together during baking, the batter is extremely over-mixed, too much liquid has been added to the batter, the cakes are over-baked, the oven temperature was too hot, or the cakes were baked too long. Try to eliminate one cause at a time.

Q: Why is “creaming” an important technique for quality-shortened cakes?
Melanie, via e-mail

A: Creaming is a process of working the fat and sugar to incorporate air bubbles and results in a heavy foam. Ideally, the air bubbles are uniform, small and surrounded by fat. These bits of fat are then dispersed throughout the liquid batter. The air bubbles contribute to the leavening of the cake and subsequent increase in volume, serving as cells where steam and carbon dioxide can collect and expand during baking.

Q: We added a small coffee shop to our bakery. While we trained our servers, we want to make them aware of allergy concerns. Do you have any trick we can use to remember the dishes we should caution our customers about?
A.G., McLean, Va.

A: Most allergies can be attributed to eight items: tree nuts, peanuts, dairy products, wheat, eggs, fish, shellfish and soybeans. A simple memory device will assist your staff in remembering the “big eight”.

Never (nuts)

Prepare (peanuts)

Menu's (milk)

Without (wheat)

Explaining (eggs)

Food (fish)

Components (crustaceans / shellfish)

to Servers (soybeans)

Q: We would love to use hazelnuts in our assortment of cookies and would appreciate a formula.
Jennifer, via e-mail

A: I've always found this formula to work well.

Hazelnut cookies

Ingredients	Lbs	Ozs.	Metric
Butter	1	1.5	500 g
Granulated sugar	0	10.5	300 g
Vanilla extract	0	0.5	15 ml
Egg yolks (10)	0	7	200 ml
Pastry flour	0	14	400 g
Baking powder	0	0.5	15 g
Ground hazelnuts	1	2.5	525 g
Whole hazelnuts, as needed for garnish			
Total appr. wt.	4	4.5	1.955 kg

Method: Cream the softened butter, sugar and vanilla extract until the mixture is pale and fluffy. Add the egg yolks, and beat until smooth. Combine the flour, baking powder and the ground nuts, and add to the butter mixture. Stir gently to mix. Divide the dough into about 0.5-oz. (15-g) pieces, and roll them into small balls. Place the balls on a baking sheet lined with parchment paper, leaving some space between them. Flatten the balls slightly using a wide palette knife or a spatula. Press one whole hazelnut in the center of each cookie. Bake the cookies at 435°F (225 °C) for about 6 minutes or until they are lightly browned. This formula yields about 10 dozen cookies.

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Tara, via e-mail

A: Below is a great formula from Scotland.

Scottish shortbread

Ingredients	Lbs	Ozs.	Metric
Pastry flour	3	12	1420 g
Almonds, ground	0	4	115 g
Margarine	1	0	450 g
Butter	1	0	450 g
Confectioners' sugar	1	8	680 g
Total appr. wt.	7	8	3.115 kg

Method: Sift the flour and combine with the ground almonds. Cream together fats and sugar, and add the sifted flour and almonds; blend thoroughly. Scale into 17-oz. pieces and roll out to 6 ins. diameter. Notch the edge and dock the center. Bake in rings moulds to prevent the edges from scorching. Bake at 375°F (190°C) until golden brown, about 12 to 15 minutes. Cut into wedge-shaped pieces while still hot. Dust with fine confectioners' sugar.

Q: We want to expend our menu by offering a light lemon mousse to use our locally grown lemons. Do you have a formula?
D.B., Huron Calif.

A: If the lemon juice is too acidic for your customers, increase the amount of water and decrease the amount of lemon juice. As long as there is 35 ozs. (1 L) of water and juice when combined, this formula will turn out beautifully.

Lemon mousse

Ingredients	Lbs	Ozs.	Metric
Egg yolks	0	7	200 ml
Granulated sugar	1	1.5	500 g
Corn starch	0	1.75	50 g
Lemon juice	1	1.5	500 ml
Water	1	1.5	500 ml
Lemon zest, 5 each			
Butter, unsalted	0	5.25	150 g
Egg white	0	5.25	150 ml
Total appr. wt.	4	7.75	2.05 kg

Method: Whisk together the egg yolks and the sugar until ribbons form. Add the cornstarch through a sieve and mix well. Place the lemon juice, the water and the lemon zest in a small saucepan, and heat slowly until it almost boils. Gradually pour the hot mixture into the egg-sugar mixture, whisking continually. Pour back into the saucepan, and bring to a boil rapidly, stirring continually. Cook until the mixture has thickened, stirring continually. Strain it into a bowl. Add the butter, and mix until it has melted. Place the bowl in a cold water bath, and whisk the batter until it has cooled down. Beat the egg whites to medium peak. Gently fold the egg whites into the lemon mixture a little at a time until somewhat smooth. Divide the mixture into individual serving dishes, cover with plastic and refrigerate for one to two hours, or until the mixture sets.

Q: We just returned from a trip to France and Italy where we ate nougat with nuts, which we now want to offer our bakery. Do you have a formula
Lizhu, via e-mail

A: Nougat is a traditional sweet in France, Italy (where it is called torrone), Spain (where it's called turrón) and the Middle East, where it's often made with rose water and pistachios. Some authorities say that the original recipe was brought to Europe via the Middle East, although others say it originated in Greece.

Nougat

Ingredients	Lbs	Ozs.	Metric
Honey	1	6	625 g
Egg whites	0	10.5	300 ml
Confectioners' sugar	1	6	625 g
Vanilla extract	0	0.35	10 ml
Almonds, whole and blanched	1	1.5	500 g
Hazelnuts	0	13.25	375 g
Pistachios	0	13.25	375 g
Total appr. wt.	6	2.85 oz	2810 g

Method: Toast all the nuts until lightly browned, and cool completely. Place the honey, sugar and egg whites in a large bowl; stir over a double boiler until it thickens and turns ivory white, about 20 minutes. To prevent the mixture from coagulating or burning, constantly stir the mixture with a heat-resistant rubber spatula. To test whether the nougat mixture has cooked sufficiently, drop a small amount of it into ice cold water — if it immediately hardens, the nougat is done. Remove the saucepan from heat, and quickly stir in the vanilla extract, almonds, hazelnuts and pistachios. Cover a work surface with confectioners' sugar, pour the nougat on to it and quickly form it into a ball. Then, press the nougat tightly into a sheet pan lined with lightly oiled parchment paper. Cover with another piece of parchment paper, weight it and cool completely. Cut the cold nougat into bars and sell tightly wrapped.

Q: What conversion should we use when using dry whole eggs to make liquid whole eggs?
Keryn, via e-mail

A: I normally use 25 percent dry whole eggs and 75 percent water to get the equivalent of liquid eggs.

Example: 250 g dry whole eggs and 750 ml water or 4 ozs. dry whole eggs and 12 ozs. water.

Q: What flour do you recommend we should use to for croissants?
D.A., Boston

A: I achieve very good results with unbleached, unbromated bread flour with 11.2% to 12.2% protein and around 0.5% ash content.

Q: How do you make Ceylon macaroons, and do they include ground rice?
L.B., Batavia, Ill.

A: Ceylon macaroons are not only made with ground rice, but also with coconut flour that contains loads of dietary fiber.

Ceylon macaroons

Ingredients	Lbs	Ozs.	Metric
Confectioners' sugar	4		1.815 kg
Coconut flour	4		1.815 kg
Ground rice	1		455 g
Whole eggs	2		0910 ml
Total appr. wt.	**11**		**4.995 kg**

Method: Combine the confectioners' sugar and whole eggs (pasteurized) in a large bowl and warm to 140°F (60°C). Stir in the ground rice and coconut flour, and mix until well combined. Pipe with large star tip on silicone mats, and air dry before baking at 350°F (177°C) until golden brown. Sandwich the cookies with buttercream when cool.

Q: Our bakery has very large ice cream sales. I am looking for an unusual way to serve fresh pineapple with our homemade vanilla ice cream.
C. A., Holualoa, Hawaii

A: How about peppered pineapples? The peppercorns will add a slightly fruity flavor to the dish and balance surprisingly well with the fresh pineapple.

Peppered pineapples

8 slices of fresh pineapple

½ - 1 Tbsp dry green peppercorns

½ - 2 Tbsp (brown) sugar

350 ml orange juice

½ - 1 Tbsp honey

100 ml rum

Method: Coarsely crush the peppercorns with a back of a spoon. Rub the pineapple slices with the pepper and sprinkle with sugar. Place the slices in a very hot skillet with the sugared side down. Cook until the sugar forms a caramel coating on the pineapple slices. Flip the slices over, and add the juice, honey and rum in the skillet. Cook until the pineapple slices are heated through. Place the slices on serving plates, and continue cooking the liquid in the pan briskly, until it is caramelized. Drizzle the sauce over the pineapple slices and serve with vanilla ice cream.

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Q: What varieties of apples are most suited to baking?
C.S., Minneapolis

A: Good baking apples hold their shape when baked. Some examples include Rome Beauty, Newton, Northern Spy, Winesap, Red and Gold Delicious, Granny Smith and Jonathon.

Q: I was looking at the ingredient label of baking powder. What is the function of the cornstarch?
J.S., Athens, Ga.

A: The functions of cornstarch in baking powder are:

- To act as an insert filler. It acts as a buffer between the active ingredients and prevents their going into reaction when exposed to moisture.
- To standardize the strength of the baking powder, so that different brands produce the same amount of CO2 per volume.
- To absorb moisture and help keep the powder dry.

Q: Do you know what causes the air holes in our baked custards?
N.W., Chapel Hill, N.C.

A: If baked custard is allowed to boil, air holes develop as steam is trapped in the custard. Lower the baking temperature by at least 25°F and always start with cold water when baking custards.

Q: We make our own ice cream and sometimes have problems with the way it feels on the tongue. Do you know what the cause of “sandiness” in ice cream is?
P. F., Madison, Wis.

A: “Sandiness” is due to the lactose (milk sugar) in the nonfat milk solids. Lactose is the least soluble of all the sugars, and it easily precipitates into large crystals that can be felt on the tongue.

Q: Do you know what Indian sugar is and how it is made?
C.H., Bartleville, Okla.

A: Indian sugar-sometimes called granulated maple sugar or stirred sugar-is made by heating maple syrup until the temperature is 45°F to 50 °F (7°C to 10 °C) above the boiling point of water. The temperature may vary around the country due to the differences in atmospheric pressure. Then, cool the syrup to about 200°F (93°C), and stir until it granulates into dry crumbs. Sift the sugar through a coarse screen to make a uniformly sized product.

Q: Do you know why in angel food cakes part of the sugar is usually sifted with the flour?
M.X., Scottsdale, Ariz.

A: Some of the sugar is sifted with the cake flour to reduce the tendency of the cake flour to roll into little balls of dry flour as it is folded into the egg foam. Thus, the flour can be distributed more easily throughout the foam and minimize the loss of air from the foam.

Q: We want to make almond paste from scratch for our Danish and cakes. Can you provide a formula?
M.M., Oklahoma City

A: This formula makes a great almond paste.

Ingredient	Lbs.	Ozs.	Metric
Blanched almonds	2	3.25	1 kg
Confectioners' sugar	2	3.25	1 kg
Egg white, pasteurized as needed			
Almond extract		0.75	20 ml
Total appr. wt.	**4**	**7.25**	**2.02 kg**

Almond paste

Method: Using an almond mill, grate the almonds finely, and mix with the sifted confectioners' sugar in a bowl. Mix in the egg whites, a little at a time, until you get a soft and kneadable mixture. Add the almond extract, and continue kneading with your hands. The resulting paste should be soft, but not sticky. If not used immediately, wrap the almond paste tightly in plastic and refrigerate. Almond paste may be colored and flavored with food colorings, cocoa powder and various liqueurs, spirits, essences and extracts, such as cognac, rum, peppermint oil, rose water, orange flower water, etc. Note that using larger quantities of liquid flavoring will make the paste softer and stickier, so add more confectioners' sugar in the mixture. Do not overwork the paste when shaping or rolling it out, as this will cause the oil in the mixture to separate, making the paste oily and unworkable.

Q: Do you have a formula for a simple pound cake icing?
N.G., Imperial, Mo.

A: This icing uses pasteurized egg whites.

Ingredients	Lbs.	Ozs.	Metric
Confectioners' sugar	8		3.63 kg
Egg whites		4	115 g
Cream of tartar		1 tsp	2 g
Water	1		455 g
Glycerin		1	30 g
Butter		4	115 g
Total appr. wt.	**9**	**9**	**4.347 kg**

Pound cake icing

Method: Combine 1 lb. of sifted confectioners' sugar, egg whites, cream of tartar and 8 ozs. of water. Beat together until blended. Add glycerin and softened butter; blend. Add the remaining sifted confectioners' sugar gradually, beating until smooth and light. Add some or all of the remaining water until the icing has the desired consistency for the application. Use as needed.

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½ - 1 Tbsp honey

100 ml rum

Method: Coarsely crush the peppercorns with a back of a spoon. Rub the pineapple slices with the pepper and sprinkle with sugar. Place the slices in a very hot skillet with the sugared side down. Cook until the sugar forms a caramel coating on the pineapple slices. Flip the slices over and add the juice, honey and rum in the skillet. Cook until the pineapple slices are heated through. Place the slices on serving plates and continue cooking the liquid in the pan briskly, until it is caramelized. Drizzle the sauce over the pineapple slices and serve with vanilla ice cream.

Q: How do you make Ceylon macaroons, and do they include ground rice?
L.B., Batavia, Ill.

A: Ceylon macaroons are not only made with ground rice, but also with coconut flour that contains loads of dietary fiber.

Ingredients	Lbs.	Ozs.	Metric
Confectioners' sugar	4	0	1.815 kg
Coconut flour	4	0	1.815 kg
Ground rice	1	0	455 g
Whole eggs	2	0	910 ml
Total appr. wt.	**11**	**0**	**4.995 kg**

Ceylon macaroons

Method: Combine the confectioners' sugar and whole eggs (pasteurized) in a large bowl and warm to 140°F (60°C). Stir in the ground rice and coconut flour, and mix until well combined. Pipe with large star tip on silicon mats and air dry well before baking them in a 350°F (177°C) oven until golden brown. Sandwich the cookies with buttercream when cool.

Klaus Tenbergen *is certified as a Master Baker in Germany, South Africa and the United States. He is currently an assistant professor at California State University in Fresno, teaching classes in Culinology®-the blending of culinary arts and the science of food. For more information, call 559/278-2164 or contact Klaus Tenbergen at* **ktenbergen@csufresno.edu**.

Butter up customers with croissants

May 1, 2008 12:00 PM, by Chef John Kraus

Croissants may be one of the best-known pastries, but finding a good one can be difficult. Boost your sales with this flaky, buttery version that is sure to draw customers to your bakery.

Croissants, crescent-shaped, buttery and flaky, are perhaps the most well known pastries in the world. You'll find them for sale across the globe from Chicago to Paris to Tokyo and from high-end pastry shops and restaurants to delis and fast food joints.

The croissant is categorized as a *viennoiserie* — a flaky or “feuilleté” pastry that may have originated in Vienna. No one knows for certain where the first croissant was baked, but everyone agrees that French bakers mastered the formula. The widely recognized croissant has several romantic accounts of its origin.

The most popular story is that one night in 1683, Turks attempted to invade Vienna by tunneling under the city walls. Bakers beginning their day's work heard the peculiar noise underground and sounded the alarm, preventing the Turks from overtaking the city. To celebrate, the Viennese bakers created bread in the shape of the Turkish flag's emblem, a crescent moon.

Other sources describe a similar story of a Turkish invasion thwarted by bakers in Budapest in 1686. It is possible that the croissant was popularized in Paris at the Universal Exposition in 1889 with Viennese bakers' participation; however, the flaky croissant we are accustomed to was described in French literature as early as 1853.

For more than a century, bakers have been laminating their bread dough with butter in order to obtain a flaky, buttery pastry. The basics of laminated dough are simple: fermentation and “feuilletage” or laminating the layers of dough with fat. The fat used for croissants is butter and constitutes 25 to 30 percent of the total weight of the dough. For example, 1 kg of dough requires 250 to 300 g of butter for laminating.

While baking, the water and butter in the laminated dough turn into steam that tries to escape. The fat gives the dough the necessary strength and protection to withstand the pressure of the steam, and also encourages gluten development. The imprisoned steam causes the dough to inflate between the layers and gives volume to the product.

Making a successful croissant requires using cold and pliable butter. The dough and the fat should be as close to the same texture as possible. Three single turns produce an optimum product from this formula. Your customers may decide that yours are the best croissants they have ever had.

Step one: *Sheet the dough into a square. Place the square of softened, but still cold butter on the dough, and fold the dough over the butter. Return to the cooler.*
Step two: *Roll the dough into a rectangle and give two single folds. Refrigerate overnight before giving the dough a third single fold.*
Step three: *Sheet the dough into a rectangle. Divide it into two strips and cut into even triangles.*
Step four: *Make a small cut at the base of the triangle. Stretch each piece slightly prior to rolling the croissant.*
Step five: *Place the rolled croissants on sheet pan, four rows by five. Lightly egg wash the croissants, and proof. Egg wash again before baking.*
Step six:*Bake at 356°F for about 6 to 7 minutes.*
Chef John Kraus, *pastry chef and instructor at The French Pastry School at City Colleges of Chicago teaches his students the art of pastry that includes advanced bread techniques. In 2005 and 2006, Chef Kraus was named one of the Top Ten Pastry Chefs in the United States by a national magazine. For more information on The French Pastry School, visit***www.frenchpastryschool.com**.

Croissants

INGREDIENTS	LBS.	OZS.	METRIC
Poolish			
Water		7.4	210 g
Fresh yeast		0.9	25 g
Pastry flour		4.8	135 g
Dough			
Sea salt		0.3	8 g
Sugar		1.9	55 g
Soft butter		2.1	60 g
Whole milk		7.1	200 g
Pastry flour		5.6	160 g
Bread flour		14.8	420 g
Fold-in			
Butter	1		460 g
Total appr. weight	**3**	**13**	**1.733 kg**

Method: Create a liquid starter, a poolish, by mixing the water with the yeast. Cover the water and yeast mixture with the first amount of pastry flour (4.8 ozs.), and let it ferment until cracks form on the surface of the flour. The advantage of the poolish is to obtain a more natural fermentation, which results in a more developed flavor. It is important not to disturb the poolish. Mix the salt, sugar, soft butter and milk in a small bowl. Then, add the flours and the salt/sugar/butter mixture to the poolish. Mix with the hook in first speed for one minute. Do not over mix. Transfer the dough to another container, and cover with plastic wrap. Place in a 75°F (24°C) proofer, and let the dough rise for about 30 minutes until it doubles in volume.

Remove the dough from the proofer, and press out the first gasses. Then, place it in the cooler until very cold. Scale 1 lb. (460 g) of butter, shape it into a square, and place it in the cooler. Sheet the dough into a square with the middle thicker than the edges (about the same thickness as the butter). Place the dough in the freezer for about 30 minutes before laminating the butter. Place the square of softened, but still cold, butter on the dough. Fold the dough over the butter, and place it back in the cooler until both are the same temperature. Sheet the dough into a rectangle (three times as long as it is wide), and give two single folds. The key to this procedure is to make sure that the dough and the butter are cold yet still pliable. Butter that is too cold will crack and break in small lumps, and butter that is too soft will promote the lamination of a singular dough.

Place the dough in the freezer for 30 minutes or refrigerate overnight. Sheet the dough into a rectangle and give one single fold for a total of three single folds. Sheet lengthwise to a 1/8-in. thick rectangle. Divide the dough into two even strips with a knife. Cut uniform triangles (each at 1.75 ozs.

or 50 g) out of each strip. Stretch each piece slightly prior to rolling the croissant. Place 20 croissants on each sheet pan with the tips towards the center of the pan so they do not burn. Egg wash the croissants lightly, but not the edges. Place the croissants in the proofer at 82.4°F (28°C), 85 percent humidity until they double in volume. Take them out, and let rest for 15 minutes. Egg wash again. Bake at 356°F (180°C) for 6 to 7 minutes in a convection oven with the vent closed or for 6 to 7 minutes with the vent open.
Yields 24 croissants

Q: How much fat will a donut absorb during frying?
R.W., St. Louis

A: Various factors can affect how much fat dough or batter absorbs during frying. In general, a dozen donuts will pick up between 15 to 20 percent of the finished weight.

Q: We bake a lot of apple pies. Lately, some of our customers complain that the apples are turning pink. What is causing this?
Rile, via e-mail

A: I experience the same problem when I bake apple pies at too high of a temperature. The pink color is caused by the acidity of certain varieties of apples. The discoloration is due to the hydrolysis of leucoanthocyanins present in the cell tissue of the apples.

Q: We started baking Pullman loaves or sandwich-style bread. A fellow baker suggested panning the bread using the “four-pieced” method? What is the benefit of such a technique?
Linda, via e-mail

A: I have used several methods in the past: four-pieced, twisted or even the eight-pieced technique. These techniques improve the crumb's appearance, softness and resilience, which can help slicing and eating properties.

Q: Is there a guideline on how many pumpkin seeds can be added to yeast dough for a bundt cake?
Florence, via e-mail

A: Pumpkin seeds are a good source of iron, zinc, essestial fatty acids, potassium and magnesium. I would start with 30 percent of seeds based on the flour weight. You may want to work upwards from there.

Q: What is baking ammonia used for?
Claudia, via e-mail

A: Ammonium bicarbonate (NH_4HCO_3), also known as hartshorn, is used in baking as a leavening agent. It comes in powdered form and often was used before the introduction of baking soda. Today, many bakers still use it in Christmas baking and often for cream puff shells.

Q: When making fermented dough, we end up with bluish-black spots on the dough. What causes this?
Darlene, via e-mail

A: One of the possible causes is you have undispersed yeast colonies in the dough, which die and release ammonia that discolors the dough. Use some of the liquid to rehydrate and dissolve the yeast completely before adding it to the other ingredients. Also, you may want to increase the mixing time by a minute or two.

Q: We found a very interesting formula for pound cakes. It does not contain any chemical leavening agent. Is there something missing?
Stephen, via e-mail

A: Pound cake normally contains no added leavening agent. The leavening comes from the creaming of the fat and sugar as well as the incorporated eggs.

Q: What is used to dip pretzels in small retail bakeries?
Andrew, via e-mail

A: I like using 99 percent sodium hydroxide (NaOH) flaxes in a 3.5 percent saturated solution, which also is known as lye or caustic soda. Dissolve 35 g of caustic soda in 1 L water or 1 oz. of caustic soda in 2 pints of water. If caustic soda is not available, dissolve 1 oz. baking soda in 35 ozs. water. Dissolve in a non-aluminum pot and bring to a boil. Gently lower the pretzels into the brine for about a minute or until they float to the surface, at which point they are ready to be baked.

Q: When making meringues, it takes forever to whisk the egg whites. What are we doing wrong?
C.O., Vancouver, Canada

A: When it takes too long to whisk egg whites, several potential mistakes come to mind:

- The egg whites were too cold. They should be at room temperature before whisking.
- The bowl or whisk was slightly greasy. Both must be cleaned with hot water and soap and rinsed with cold water.
- A little of the egg yolk remains. The fat in the yolk inhibits the egg whites from producing good foam.

Q: We make an awesome cake with dried fruits, but most of the time all the fruit sinks to the bottom of the cake. What are we doing wrong?
C.W., Baltimore

A: If the fruit is wet or damp, toss it in a little flour. Also, if the cake batter is too soft, the batter will not support the weight of the fruit. Additionally, too much leavening agent will make the fruit sink to the bottom of the cake.

Q: What temperature adjustments do I have to make when I work at higher/different altitude?
C.V., Denver

A: Here are some general guidelines:

Altitude	Temperature
3,000 ft (900 m)	+ 25°F (5°C)
5,000 ft (1.5 km)	+ 50°F (10°C)
7,000 ft (2.1 km)	+ 50°F (10°C)
10,000 ft (3 km)	+ 50°F (10°C)

Q: We bought a bakery and the equipment is rather old. Many of our cookies burn on the bottom while baking. We tried adjusting the temperatures, but it did not make any difference. What else can we do to solve the problem?
Thomas, via e-mail

A: Simply put a second sheet pan under the first sheet. This will take some of the direct bottom heat away.

Q: Can you provide a formula for yeast dough made from mostly whole wheat flour?
C.W., Cincinnati

A: Below is a great yeast dough with a little twist.

Ingredients	Lbs.	Ozs.	Metric	Bakers %
Whole wheat flour	2		900 g	90
Bread flour		3.5	100 g	10
Butter		2	60 g	6
All-purpose shortening		2	60 g	6
Granulated sugar		2	60 g	6
Honey		2	60 g	6
Compressed yeast		3	80 g	8
Whole eggs		2	50 ml	5

Ingredients	Lbs.	Ozs.	Metric	Bakers %
Salt		0.5	12 g	1.2
Whole milk		10.5	300 ml	30
Water		10.5	300 ml	30
Raisins		5.5	160 g	16
Hazelnuts, ground and toasted		3	80 g	8
Total appr. wt.	**4**	**14.5**	**2.222 kg**	**222.2**

Whole wheat yeast dough

Method: Combine all the ingredients except the raisins and hazelnuts, and mix as you would any yeast dough that is not too stiff. Add the raisins and hazelnut at the end of the mixing process. Use as desired.

Q: We sell homemade ice cream in our bakery. How can we make fake ice cream displays to showcase our great combinations?
P.V., Chicago

A: This formula works great to make faux ice cream.

Ingredients	Lbs.	Ozs.
Corn syrup	1	
All-purpose shortening	1	
Confectioners' sugar	4	
Total appr. wt.	**6**	

Faux ice cream

Method: Blend the corn syrup and shortening until smooth. Gradually add the confectioners' sugar until a stiff dough forms. Knead in remaining confectioners' sugar by hand until the desired consistency is reached. Add food coloring as needed.

Q: Can you provide a formula for apple filling?
Velina, via e-mail

A: This one should work well for pies, Danish and pastries.

Ingredients	Lbs.	Ozs.	Metric
Apples, peeled and chopped	2	12	1.25 kg
Apple sauce	0	5.25	150 g
Granulated sugar	0	3.5	100 g
Cinnamon ground		dash	2 g
Black currants	0	1.75	50 g
Hazelnuts, chopped and toasted	0	1	30 g
Rum	0	0.5	15 ml
Sweet cake crumbs	0	1.75	50 g
Total appr. wt.	**3**	**9.75**	**1.647 kg**

Apple pie filling

Method: Combine all ingredients.

Klaus Tenbergen *is certified as a Master Baker in Germany, South Africa and the United States. He is currently an assistant professor at California State University in Fresno, teaching classes in Culinology®-the blending of culinary arts and the science of food. For more information, call 559/278-2164 or contact Klaus Tenbergen at* **ktenbergen@csu-fresno.edu**.

Q: We bake gingerbread throughout the year. The cookies rise beautifully in the beginning of the baking process, but sink in the center shortly thereafter. What are we doing wrong?
G.N., Minneapolis

A: I bake my gingerbread in a cool oven around 320°F (160°C) to compensate for the syrupy nature of the dough. If the oven is too hot, the cookies will rise too much and too fast during the first stage of the

baking process. They then sink in the middle as the center did not stabilize properly to hold the expansion. If you bake the gingerbread in an oven that is too hot, the final product also will be too dark.

Q: We are new to making wedding cakes. Can you give us some guidelines for baking times of the different cake sizes?
H.Z., Canton, Ga.

A: Below are some guidelines, however, you need to remember that many factors can affect baking times and the amount of filling needed for each cake.

Size	Filling	Baking Time
6-in.	2 lbs.	2 to 2.5 hours
8-in.	3 lbs. 8 ozs.	2.5 to 3 hours
10-in.	6 lbs.	3 to 3.5 hours
12-in.	9 lbs.	3.5 hours

Q: We make various styles of dessert pizza in our bakery. How much dough should we calculate for each 10-in. base?
S.M., Minneapolis

A: I use 8 ozs. of dough for a thin crust, 10 ozs. for a medium crust and 14 ozs. for a thick crust dessert pizza.

Q: We are making an 11-in. vol-au-vent case with a 1-in. edge, which is used for a fruit torte. At what temperature should we bake it to get moisture baked out thoroughly so it is really dry and not soggy?
A.A., Charlotte, N.C.

A: An oven temperature of 400°F (204°C) should solve your problem.

Q: What is the difference between a baba and a savarin?
P.A., Le Center, Minn.

A: The difference between a baba and a savarin is that a baba contains dried fruit and a savarin is plain dough but served with fruit once baked.

Q: What is the optimal proofer setting for donuts?
F.C., Lake Tahoe, Nev.

A: Your proofer should not exceed 105° F, but ideally the proofer should be between 95°F and 100°F with a humidity level of about 85 percent.

Q: How much compressed yeast should we use for bread with an 8- to 10-hour fermentation time?
P.V., Salem, N.C.

A: Try 42 g per liter or 1.5 ozs. compressed yeast for each quart of fluids.

Q: We make a great pound cake and want to sell an egg-free version. Can this be done?
Natalie, via e-mail

A: When taking out the aerating agent (eggs), you need to add or increase the chemical leavening agent. One pint of eggs can be replaced with one pint of milk and 1 oz. of baking powder.

Q: When making puff pastry turnovers, the filling spills out. What are we doing wrong?
Kathie, via e-mail

A: Several factors cause filling to spill out of turnovers. Here are some:

- Insufficient rest and cooling before baking
- Incorrect cutting/shaping
- Poor sealing
- Over-filling of pastries

Q: What is a simple method of checking if chocolate has been tempered properly?
P.O., South Plainfield, N.J.

A: Place a small quantity of chocolate on a piece of parchment paper or on the point of a pallet knife. If the chocolate has been correctly tempered, it will start hardening evenly and show a good gloss within five minutes.

Q: How much fat will a donut absorb during frying?
R.W., St. Louis

A: Various factors can affect how much fat a dough or batter absorbs during frying. In general, a dozen donuts will pick up between 15 to 20 percent of the finished weight.

Q: We bake a lot of apple pies. Lately, some of our customers complain that the apples are turning pink. What is causing this?
Rile, via e-mail

A: I experience the same problem when I bake apple pies at a temperature that is too high. The pink color is caused by the acidity of certain varieties of apples. The discoloration is due to the hydrolysis of leucoanthocyanins present in the cell tissue of the apples.

Q: We started baking Pullman loaves or sandwich-style bread. A fellow baker suggested panning the bread using the “four pieced” method? What is the benefit of such a technique?
Linda, via e-mail

A: I have used several methods in the past: four-pieced, twisted or even the eight-pieced technique. These techniques improve the crumb's appearance, softness and resilience, which can help slicing and eating properties.

Q: Can you provide a formula for yeast dough, made from mostly whole wheat flour?
C.W., Cincinnati

A: Below is a great yeast dough with a little twist.

Whole wheat yeast dough

Ingredients	Lbs.	Ozs.	Metric	Bakers %
Whole wheat flour	2	0	900 g	90
Bread flour	0	3.5	100 g	10
Butter	0	2	60 g	6
All-purpose shortening	0	2	60 g	6
Granulated sugar	0	2	60 g	6
Honey	0	2	60 g	6
Compressed yeast	0	3	80 g	8
Whole eggs	0	2	50 ml	5
Salt	0	0.5	12 g	1.2
Whole milk	0	10.5	300 ml	30
Water	0	10.5	300 ml	30
Raisins	0	5.5	160 g	16
Hazelnuts, ground and toasted	0	3	80 g	8
Total appr. wt.	4	14.5	2.222 kg	222.2

Method: Combine all the ingredients except the raisins and hazelnuts, and mix as you would any yeast dough, which is not too stiff. Add the raisins and hazelnut at the end of the mixing process. Use as desired.

Q: We sell homemade ice cream in our bakery. How can we make fake ice cream displays to showcase our great combinations?
P.V., Chicago

A: This formula works great to make faux ice-cream.

Faux ice cream

Ingredients	Lbs.	Ozs.
Corn syrup	1	0
All purpose shortening	1	0
Confectioners' sugar	4	0
Total appr. wt.	6	

Method: Blend the corn syrup and shortening until smooth. Gradually add the confectioners' sugar until a stiff dough forms. Knead in remaining confectioners' sugar by hand until the desired consistency is reached. Add food coloring as needed.

Q: Is there a guideline on how many pumpkin seeds can be added to yeast dough for a bundt cake?
Florence, via e-mail

A: Pumpkin seeds are a good source of iron, zinc, essestial fatty acids, potassium and magnesium. I would start with 30 percent of seeds based on the flour weight. You may want to work upwards from there. Add some raisins for additional flavor.

Q: Can you provide a formula for apple filling?
Velina, via e-mail

A: This one should work well for pies, Danish and pastries.

Apple pie filling

Ingredients	Lbs.	Ozs.	Metric
Apples, peeled and chopped	2	12	1.25 kg
Apple sauce	0	5.25	150 g
Granulated sugar	0	3.5	100 g
Cinnamon ground		dash	2 g
Black currants	0	1.75	50 g
Hazelnuts, chopped and toasted	0	1	30 g
Rum	0	0.5	15 ml
Sweet cake crumbs	0	1.75	50 g
Total appr. wt.	3	9.75	1.647 kg

Method: Combine all ingredients.

Q: We want to make taffy apples. Can you provide a formula?
Mike, via e-mail

A: I use the following formula with great success.

Taffy apples

Ingredients	Lbs.	Ozs.	Metric
Water	3		1.36 L
Sugar, granulated	8		3.63 kg
Glucose	3		1.36 kg
Total appr. wt.	**14**		**6.35 kg**

Method: Combine water, sugar and glucose, and cook until the mixture reaches 310°F (155°C). Add red or any other food coloring to achieve the desired shade. Dip the apples as desired.

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Equipment Ideas

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Q: We have heard that mashed potatoes or potato flakes can be used in bread dough to extend the shelf life. Do you have a formula for white bread using potatoes?
S.H., Pocatello, Idaho

A: This formula should meet your needs.

Ingredients	Lbs.	Ozs.	Metric	Baker's %
Potatoes *	6	9.7	3 kg	30
Water **	12	1.7	5.5 kg	55
Bread flour	22		10 kg	100
Compressed yeast		14.1	400 g	4
Salt		7.8	220 g	2.2
Dough conditioner		7.1	200 g	2
Total appr. wt.	**42**	**8.4**	**19.32 kg**	**193.2**

Method: * Cook 4 lbs. 6.5 ozs. (2 kg) of peeled raw potatoes in a good amount of water until they fall apart. Drain and reserve the water. Add 1 liter of tap water to the potatoes and mix until smooth. Allow the potatoes to cool.
** Use all of the reserved liquid from the potatoes as part of the total water.
Combine all the ingredients in a large mixing bowl in an upright mixer. With a dough hook, mix on first speed for three minutes (pick-up stage). Scrape down the sides of the bowl, and check the dough consistency. Mix in third speed for seven more minutes. Lightly dust the surface of a workbench, and place the dough on the workbench. Cover to prevent the dough from drying out. Bench rest for 10 minutes. Punch down the dough; fold the dough over to release the gases and supply the yeast with new food. Bench rest another 10 minutes. Divide into 32-oz. (900-g) pieces, round and cover. After 10 minutes bench rest, shape the dough pieces into ovals. Place the loaves, seam up, in prepared proofing baskets that have been dusted with rye flour. Proof at low humidity, 88°F to 95°F (30°C to 35°C), until the dough is doubled in size. Turn over onto a parchment paper-lined sheet pan. Dock and score five times. Bake in a 450°F (232°C) oven with two seconds of steam. Once the bread is placed into the oven, reduce the temperature to 375°F (190°C). Bake for about 30 minutes, or until an internal dough temperature reaches 180°F (82°C). Open the damper the last ten minutes of the bake to achieve a good crust.
Yields 21 2-lb. (900-g) loaves

Potato bread

Q: How much oil should we use when frying snack foods or donuts?
E.M., Washington, D.C.

A: My rule of thumb is to use at least six times the amount of oil as the product. For example, if I'm frying 1 lb. of donut batter at a time, I will use 6 lbs. of oil in the fryer.

Q: At what ambient temperature are we most sensitive to flavor? Is it true that baked products taste different at various temperatures?
S.B., Frederick, Colo.

A: We are most sensitive to flavor in the 72°F to 105°F temperature range. Sweet and sour sensations seem to be enhanced at the upper level of this temperature range. Salty and bitter flavors are more pronounced at the lower end of this temperature range. But, always keep in mind the time/temperature danger zones.

Source: Techniques of Healthy Cooking by Jennifer S. Armentrout and Graham Kerr, Wiley, John & Sons. Inc.

Q: Paprika is one of the most used spices in our bakery. However, after some time, the spice loses most of its color. Why does this happen?
T. S., Kodiak Island, Alaska

A: Keep paprika cool and dry. Cool means no higher that 68°F (20°C) and dry is no higher than 60 percent relative humidity. If possible, cold storage, 32°F to 45°F (0°C to 7°C), is highly recommended for paprika. At 70°F to 80°F (21°C to 27°C), paprika loses about 1 percent of its color every 10 days. At higher temperatures, losses are even more rapid. In cold storage, however, paprika's color loss is reduced to 0.5 percent every 10 days, and it can be held satisfactorily for up to 6 months. Paprika is light sensitive and needs to be protected against direct exposure to sunlight and florescent lights.

Q: We bake several breads using preferments, which we hold at room temperature for as long as 48 hours. With these long storage times, we seem to lose most of the preferments' effectiveness. Any recommendations on what we can do to solve this problem?
Steven, via e-mail

A: You should store prefermented dough at a low temperature, around 38°F (3°C) for up to 48 hours. Remove the prefermented dough from the refrigerated storage ahead of time to bring it back to room temperature before incorporating it into the final dough. When you use refrigerated preferment, you need to adjust the water temperature in the final dough to compensate for the cooler preferment.

Q: Conchas are one of our new items. However, we need some help with a formula for making the shell topping.
Margie, via e-mail

A: When making the conchas caps, I use the following formula.

Ingredients	Lbs.	Ozs.	Metric
Confectioners' sugar	6		2.72 kg
Shortening, all-purpose	6		2.72 kg
Pastry flour	9		4.08 kg
Total appr. wt.	**21**		**9.52 kg**

Method: Combine the sugar and shortening; add the flour and mix until smooth. Use as needed. The base can be colored if desired.

Conchas topping

Q: Every week we accumulate an excess amount of egg whites. Can you provide a basic meringue formula?
D.B., Cleveland

A: I've found this formula to work well.

Ingredients	Lbs.	Ozs.	Metric
Egg whites	2	3.25	1 L
Granulated sugar, fine	2	10.25	1.2 kg
Confectioners' sugar	1	12.25	800 g
Salt	pinch		1 g
Vanilla	dash		5 ml
Total appr. wt.	**6**	**9.75**	**3.006 kg**

Method: Whip the egg whites with the salt and half of the granulated sugar. Gradually add the remaining granulated sugar until the batter is at full peak. Fold the flavoring and the confectioners' sugar into the batter. Pipe the batter onto a parchment-lined sheet pan. Dry overnight in a 265°F (130°C) oven, open damper, with the heat off. You may want to keep the oven doors apart, as too much heat will brown the meringues and the sugar will crystallize. For a twist, add 14 ozs. (400 g) of lightly toasted, ground hazelnuts. **Yields 80 1.25-oz. (37.5-g) pieces**

Meringue

Q: Do you recommend using pasteurized or ultra-pasteurized whipping cream?
L.B., Wolf Hole, Ariz.

A: The amount of butterfat, from 38 to 45 percent, contained in the cream determines how well cream will whip and how stable it will be. Whipping creams are generally labeled pasteurized or ultra-pasteurized. Ultra-pasteurized cream remains fresh longer, but pasteurized cream provides better flavor, whips fluffier and holds up longer.

Q: We want to use edible flowers to decorate some elaborate desserts. Which flowers do you recommend?
E.M., Omaha, Neb.

A: Daylilies — in case you've never nibbled one, daylilies taste like sweet lettuce, although a peach colored variety called Ethel Shepherd tastes like melon. What's great about daylilies is they don't have a lot of pests. Once you receive your delivery, pull the stamens, rinse the flowers to make sure no ants are hiding in them, and shake dry. Then, put them in a plastic bag or container and refrigerate until they're needed.

Q: Can we freeze eggs in the shell?
J.P., Medina, Ohio

A: In general, shell eggs should not be frozen. If an egg accidentally freezes and the shell cracks, discard the egg. Freezing causes the yolk to become thick and syrupy, so it will not flow like an unfrozen yolk or blend very well with the egg white or other ingredients.

Q: We are looking for an almond spread we can use for our Danish pastries.
C.P., Bala Cynwyd, Pa.

A: I have used this formula for many applications.

Ingredients	Lbs.	Ozs.	Metric
Almond paste	2		910 g
Whole eggs	1		450 ml
Sweet cake crumbs	12		5.45 kg
Water, hot	4		1.815 L
Brown sugar	6		2.72 kg
Shortening, vegetable	2		910 g
Salt		1	28 g
Almond emulsion/extract		4	112 g
Total appr. wt.	**27**	**5**	**12.395 kg**

Method: Combine the almond paste and shortening with the eggs, and mix until blended. Add the cake crumbs, sugar, salt and flavoring followed by the water. Mix until well combined and smooth. Use as needed for Danish pastries or other products.

Almond spread

Q: We make cream puffs once a week and use them as needed before filling and selling them. The shells lose their crispness over time. What can we do to solve the problem?
Florence, via e-mail

A: Cream puffs are not the best pastries to be stored for a long period of time. But if you have to do so, store the cream puffs at very low relative humidity or in airtight containers. Cool the baked cream puffs thoroughly, otherwise condensation may occur and cause the shells to soften.

Q: How much sugar should we add to whipping cream to achieve a balanced sweetness?
L.A., Mt. Shasta, Calif.

A: Whipping cream with milk fat ranging from 38 to 45 percent can be sweetened with not only granulated sugar, but also with confectioners' sugar, pure maple syrup, liquid honey or other sweeteners. As the judgment of taste is subjective, use the following as a guideline. Add 10 percent of sugar to your whipping cream. One pint of whipping cream requires 1.5 ozs. of sugar, or 1 liter of whipping cream requires 100 g of sugar.

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Q: Our local winery makes a great dessert wine. As we like to support other local businesses, we want to make cookies that contain this wine. Do you have any suggestions?
W.B., Overland Park, Kan.

A: I consulted Spencer Budros, chef/owner of Pistachio-a sweet kitchen, in Columbus, Ohio. He suggested this formula for cookies made with muscat, a sweet and fruity dessert wine made from muscat grapes. You can substitute the muscat with either equal parts of port, Riesling or Gewürztraminer. The formula calls for Ceylon cinnamon, which is less sweet with a more complex, citrus flavor than regular cinnamon. Ceylon cinnamon also is known as old-fashioned cinnamon, but regular cinnamon will work just fine.

Muscat cookies

Ingredients	Lbs.	Ozs.
Whole eggs		13.5
Orange zest, 3		
Lemon zest, 3		
Canola oil	2	
Muscat or dessert wine	1	
Pastry flour	5	
Granulated sugar	3	
Baking powder		1
Ceylon cinnamon		0.5
Anise seed, crushed		1
Semi-sweet	2	

chocolate, 56%, chopped	
Total appr. wt.	**14**

Method: Using a paddle attachment, mix the eggs, zests, oil and wine until well combined. Sift the flour with the spices and baking powder, add to the liquid mixture. Mix thoroughly, then add the chocolate, and mix again until well combined. Scoop dough into 1-oz. portions, cover and refrigerate for at least two hours. Round the portions, and toss in granulated sugar to coat. Place on prepared sheet pan. Bake at 350°F for 12 to 15 minutes. Yields about 230 1-oz. cookies.

Q: We want to replace granulated sugar with honey, molasses or maple syrup in some of our formulas. What conversions do we need to start with?
S.Y., Colorado Springs, Colo.

A: Start with straight weight exchange, and reduce the liquid by 25 percent. Additionally, you may need to make other minor adjustments while doing these “new” product developments.

Q: We are using fresh spinach as a topping and ingredient for our quiches and mini pizzas, which we serve during lunch. However, most of the spinach burns during baking. How can we prevent this?
A.A., Tulsa, Okla.

A: Most high-moisture, delicate vegetables like spinach burn easily when being baked. I would sauté these vegetables with a little garlic and olive oil before adding them to the quiche or pizza.

Q: What is a bierock sandwich?
S.M., Oakland, Calif.

A: Bierock sandwiches also are called runza sandwiches.They are yeast dough pockets filled with beef, cabbage or sauerkraut, onions and seasonings. They are baked in various shapes, such as half-moon, rectangle, round, square or triangle. The Nebraska runza is always baked in a rectangular shape, and the bierocks of Kansas are baked in the shape of a bun. Both the bierock and the runza sandwiches have German-Russian roots going back to the 18th century. Originally, bierocks were served to the field workers for lunch. Today, bierocks are enjoyed any time and can be found just about everywhere in Kansas and Nebraska.

Q: We like using herbs in some of our formulas. However, how do we convert from fresh to dried herbs?
S.S., Mesa, Ariz.

A: Dried herbs are stronger in flavor than fresh leaf herbs. When adding dried leaf herbs to a formula that calls for fresh, substitute 1/3 the amount called for in the formula. When using dried herbs, crush them in the palm of your hand or between your fingers. This will release the flavor quicker. Use only one strong-flavored herb (rosemary,
sage, winter savory, etc.) in a formula. A strong-flavored seasoning may be combined with several mild-flavored ones. Whole herb leaves are a better choice than ground or powdered herbs because they hold their flavor longer in storage and should be pulverized just before using.

Q: We have trouble releasing gelatin based desserts from their moulds. What can we do to make this process easier?
J.B., Albuquerque, N.M.

A: Here are several tips for releasing gelatin desserts:
• Allow gelatin to set until completely firm, several hours or overnight.
• Before un-moulding, dip a knife in warm water and run knife around edge of the mould to loosen the

gelatin.
• Dip mould in warm water, just to rim, for 10 seconds. Lift from the water, and gently pull gelatin from edge of mould with moist fingers. Place moistened serving plate on top of mould, and gently remove the mould.

Q: Is allspice a blend of spices? If so, what are the proportions?
A.G., Columbus, Ohio

A: Allspice, also called Jamaica pepper, Myrtle pepper, pimento or newspice, is the dried, unripened fruit of a small evergreen tree, the Pimenta dioica. The fruit is a pea-sized berry that is sundried to a reddish-brown color. The name “allspice” was coined by the British, who thought it combined the flavor of several spices, such as salt, chili powder, and garlic or cloves, cinnamon and nutmeg.

Q: How long can we store powdered gelatin? Does extended storage affect the gel strength?
R.A., Jacksonville, Fla.

A: Dry gelatin in powder form has an indefinite shelf life if stored under clean, dry and well ventilated conditions. During the first year after manufacture, it may lose up to 5 percent of its gel strength, and after four years, an additional five percent of strength is lost. After five years, the loss of strength ceases.

Q: Some baking books use oven terminology instead of degrees, such as bake in moderate oven. What temperature range is “moderate?”
Pete, via e-mail

A: Here are the relevant oven temperature ranges:
Very slow oven — 250°F to 275°F
Slow oven — 300°F to 325°F
Moderate oven — 350°F to 375°F
Hot oven — 400°F to 425°F
Very hot oven — 450°F to 475°F
Extremely hot oven — 500°F to 525°F

Q: What is the number engraved on the handles of portion control scoops?
M.S., Bellevue, Wash.

A: The number of the scoop indicates the number of level scoopfuls it takes to make one quart. The following gives an approximate measure for each scoop:

Scoop No.	Measure
6	2/3 cup
8	½ cup
10	3/8 cup
12	1/3 cup
16	¼ cup
20	3 1/3 Tbsp
24	2 ¾ Tbsp
30	2 Tbsp
40	1 2/3 Tbsp
50	3 ¾ tsp
60	3 ¼ tsp
70	2 ¾ tsp

Scoop No.	Measure
100	2 tsp

Healthful breads

Q: We are constantly looking for ingredients to incorporate into our healthful breads. Do you have any suggestions?
Tom, via e-mail

A: I have been experimenting with triticale, a grain that was created by crossing rye and durum wheat. Its kernels are longer than wheat seeds and are plumper than rye. Its color can range from the tan of wheat to the gray-brown color of rye. Triticale features the best qualities of both rye and durum wheat with better properties than both grains. I am successfully using equal part of triticale and bread flour with great results. Treat the dough with care as kneading it excessively can damage triticale's delicate gluten structure.

Q: We made a new dessert with fresh pineapple and gelatin, but it did not set up. What did we do wrong?
Sydney, via e-mail

A: Some fresh fruits, such as pineapple and papaya, contain proteolytic enzymes like bromelin, which hydrolyse gelatin and destroys its gelling ability. In such cases, it is essential that you cook the fruit to destroy the protease before adding it to gelatin.

Q: Many bakeries are using “fancy” or foreign words to describe their breads. What fancy word can we use for a small baguette?
P.S., Honolulu

A: The word bâtonnet, which literally means small stick in French, may be the best word for your purpose. In the language of food, it has several meanings—a loaf of bread that is shorter than a baguette, a vegetable or a pastry that is shaped similarly to a stubby stick, and vegetables that are cut into small sticks. Occasionally, I've also seen it simply as bâton.

Working with royal icing

Q: How can we prevent a crust from forming when making royal icing? We cover the icing, but what else can we do?
P.C. Boston, Mass.

A: To prevent a crust from forming on the icing's surface, add a few drops of glycerol/glycerin, a sugar alcohol and softening agent. Glycerol/glycerin is a sweet, odorless, clear and syrupy liquid, available from your supplier.

Q: We are trying to convert a formula, but don't know how to convert drops and dashes to larger units. Do you know how many drops are in a dash?
Teresa, via e-mail

A: I hope this helps:
6 drops = 1 dash
24 drops = 4 dashes = 1/4 tsp
48 drops = 8 dashes = 1/2 tsp
96 drops = 16 dashes = 1 tsp
73,728 drops = 12,288 dashes = 1 gallon

Q: Do you know what sweetener has the most calories per tablespoon?
M.A., Washington, D.C.

A: Granulated sugar has 46 calories, brown sugar has 50 calories, maple syrup has 53 calories, and honey has 64 calories.

Q: Every week we accumulate an excess amount of egg whites. Can you provide a basic meringue formula?
D.B., Cleveland

A: I've found this formula to work well.

Ingredients	Lbs.	Ozs.	Metric
Egg whites	2	3.25	1 L
Granulated sugar, fine	2	10.25	1.2 kg
Confectioners' sugar	1	12.25	800 g
Salt	pinch		1 g
Vanilla	dash		5 ml
Total appr. wt.	**6**	**9.75**	**3.006 kg**

Meringue

Method: Whip the egg whites with the salt and half of the granulated sugar. Gradually add the remaining granulated sugar until the batter is at full peak. Fold the flavoring and the confectioners' sugar into the batter. Pipe the batter onto a parchment-lined sheet pan. Dry overnight in a 265°F (130°C) oven, open damper, with the heat off. You may want to keep the oven doors apart, as too much heat will brown the meringues and the sugar will crystallize. For a twist, add 14 ozs. (400 g) of lightly toasted, ground hazelnuts. Yield: 80 1.25 oz. (37.5 g) pieces

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Q: How do I make caramelized bananas?
T.S., Naperville, Ill.
A: Simply slice a peeled banana diagonally into 1/4-in. thick slices. Dip one side into granulated sugar, and place the sugared side up on a heat resistant surface. Brown the sugar with a welding torch until the desired color is achieved. Use immediately.

Q: What is the difference between a one, two, three and four fold vanilla?
S.F., Scottsdale, Ariz.
A: A fold is the relative measure of strength of vanilla extract. Single fold vanilla is typically what you buy as a bakery operator. For food processing, two, three or four fold vanillas are typically used. A single fold vanilla contains the extractive matter of 13.35 ozs. of vanilla beans, containing less than 25 percent moisture in one gallon of 35 percent aqueous ethyl alcohol. Two fold uses 26.7 ozs. of vanilla beans, contains twice as much extractive matter and is twice as strong. Three fold and four fold are three or four times the content of one fold. This is a standard of identity set by the FDA for pure vanilla.

Q: What oil do you recommend for deep-frying beignets or other fried pastries?
K.R., El Paso, Texas
A: I like using oils with high smoke points of at least 455ºF (235ºC). The smoke point of oil is the temperature at which the oil begins to smoke. Safflower, sunflower, soybean, canola, corn or peanut oils all have smoke points above 455ºF (235ºC). Keep in mind that a number of factors will decrease the smoke point of any fat, such as the presence of foreign properties (batter), the presence of salt, the number of times oil is used and the storage of oil–exposure to oxygen, light, temperature–and many other factors.

Q: I was reading a trade magazine, and the article discussed a piece of equipment called an amylgraph. What is this equipment used for?
T.W., Portland, Ore.
A: An amylograph is an instrument which measures change in viscosity of a variety of materials, such as flour and water mixtures, when heat is increased at a constant rate or heated at a constant temperature over a definite period of time. The instrument also may be used for studying the effects of enzymes on various materials under varying conditions of temperature and time.

Some of our customers want baked products with dietary fiber added. What is it and how do we add it?
O.P., Houghton, Mich.
A: Dietary fiber is a common and important ingredient of a new generation of healthful food products in demand by many consumers. Dietary fiber–also known as roughage or bulk–includes all parts of plant foods that your body can't digest or absorb. Fiber is often classified into two categories: those that don't dissolve in water (insoluble fiber) and those that do (soluble fiber). One of the most versatile sources of dietary fiber is the husk (hull) of seeds. Dietary fiber increases the nutritional value of bread, but also alters rheological properties of dough and the quality and sensorial properties of bread. Dietary fiber additions, in general, have pronounced effects on dough properties, yielding higher water absorption, mixing tolerance and tenacity, as well as less extensibility. Regarding the effect on bread properties, the fiber enhances shelf life, as textural studies revealed. Sensory evaluations also revealed that dietary fibers generally can be added to flour at the level of 2 percent without deterioration of the bread's palatability in comparison with white flour bread.

Q: What conversions do we use when we replace fresh herbs with dried herbs?
N.W., Fairfield, Conn.
A: Dried herbs are stronger in flavor than fresh leaf herbs. When adding dried leaf herbs to a formula that calls for fresh ones, substitute 1/3 of the amount called for in the formula. When possible, grind whole spices in a grinder or mortar and pestle just prior to using. Toasting or dry roasting whole spices in a dry skillet over medium heat before grinding will bring out even more flavor.

Q: Do you know how to crystallize lavender flowers?
P.B., Fort Collins, Colo.
A: One of the easiest transformations for lavender is crystallizing its flowers to use as cake and pastry decorations or to be eaten like candy. Because of the fragrant oils contained in lavender flowers, each separate candied calyx with its corolla becomes, in effect, a tiny lavender flavored breath freshener. Leave the heads on the stems to make drying easier. You will need:

2 dozen fresh lavender flower heads
1 egg white
0.25 cup confectioners' or superfine sugar

Pick the flowering heads when they are about 50 percent open, leaving stems 4 to 6 ins. long. Let any surface moisture evaporate from the heads if they aren't already dry. Whisk the egg white lightly in a small bowl. Using a small watercolor brush, apply a thin coat of egg white to all surfaces of the flower heads, including between and around the individual calyxes. Gently tap a spoonful of sugar above the flower head as you rotate the stem between your index finger and thumb. Repeat once or twice to coat all flower surfaces evenly, but don't apply so much sugar that the color of the blossoms begins to fade. Set each flower stem upright in a piece of plastic foam to allow the egg whites to dry thoroughly. This

sugaring process will preserve the blossoms for years. Store the crystallized flower heads in a lidded jar.

Q: Can you give us some tips on how to properly freeze unbaked bread dough?
J.C., New York City

A: Here are a few tips to optimize bread quality using frozen dough. Use gentle freezing methods, such as blast freezing. Store the dough pieces at about -4°F, which is the optimal storage temperature for bread dough. Avoid uncontrolled temperature variations. A constant temperature during transportation and storage is essential for consistent bread quality from frozen doughs. Use a first-in, first-out (FIFO) scheme when using frozen dough pieces. Never refreeze frozen dough pieces once thawed. Thaw larger dough pieces overnight at about 35°F to 40°F. In case of an unexpectedly large demand, small dough pieces can be proofed without thawing. Extend final proof time to compensate for any loss in gas production of yeast during frozen storage.

Q: What is the composition of mixed spice?
X.T., Tucumari, N.M.

A: Mixed spice, made from freshly ground spices, can impart an interesting aroma to baked products. Mixed spice is a combination of spices and can include rice flour and sugar as well. The spices used are cinnamon, cassia, caraway, ginger, coriander, cloves, mace and nutmeg in varying proportions, with cinnamon predominating. As the amounts needed are rather small, I recommend weighing the spices in metric. The total yield of 3.5 ozs. goes a long way, and I also recommend making this mix from freshly ground spices, as ground spices lose their aroma and flavor over time. The following two options will give you a nice mix.

Mixed spice

	Option 1	*Option 2*
Ingredients	**Metric**	**Metric**
Rice flour	25 g	-
Cinnamon	25 g	32 g
Caraway	25 g	-
Coriander	3 g	32 g
Ground ginger	3 g	16 g
Mace	11 g	-
Nutmeg	5 g	16 g
Pepper	-	4 g
Total appr. wt.	100 g	100 g

Q: Our meringue shells crack during baking. What are we doing wrong?
Brad, via e-mail
A: Try decreasing the oven temperature. If the surface of the meringue coagulates too quickly and becomes hard and inflexible, it cannot move with the pressure created by the still expanding center causing the surface to crack. A sugar to albumen ratio of 2.5:1 also should help.

Q: What should we do to achieve consistent results when whipping heavy cream?
C.M., Fort Polk South, La.
A: Cream is an emulsion with a fat content of 35 to 40 percent. When you whip a bowl of heavy cream, the agitation adds air bubbles, causing the fat globules to begin to partially coalesce in chains and clusters around the air bubbles. Cream for whipping should be stored and used at 32ºF to 40ºF (2ºC to 5ºC). For best results, equipment used for whipping also should be kept at these temperatures.
Source: The Technology of Cake Making, Aspen Publishers Inc.

Q: How do I know if I tempered my chocolate correctly?
K.K.,Orange City, Iowa

A: A simple method of checking tempering is to apply a small quantity of chocolate to a piece of parchment paper or on a pallet knife. If the chocolate has been correctly tempered it will start to harden evenly and show a good gloss within five minutes.
Source: The Technology of Cake Making, Aspen Publishers Inc.

Q: Our puff pastry shrinks dramatically during baking. We make up the pastries and bake them in a moderate oven. What are we doing wrong?
P.B.,York, Neb.
A: The shrinkage is caused by a contraction of the dough layers. The gluten develops elasticity and toughness during preparation and sheeting of the dough. The gluten must be given time to rest and relax at various stages, so that during baking it will expand without shrinking. The answer to shrinking is therefore correct resting time. The higher the protein in the flour used, the longer the resting time required. The majority of puff pastry products should have a refrigerated resting time before baking of at least 30 minutes, depending on the thickness and make-up of the item. Baking the products between 420ºF to 450ºF (215ºC to 232ºC) also is recommended.
Source: The Technology of Cake Making, Aspen Publishers Inc.

Q: What are the qualities of a good pound cake?
H.T., McCook, Neb.
A: A good cake should show a multitude of evenly distributed cells without any large holes. It should have good color and sheen, be moist with good flavor and have an attractive appearance.
Source: The Technology of Cake Making, Aspen Publishers Inc.

Q: All our products made with cocoa powder tend to be rather dry. Do we have to add extra liquid when using cocoa powder?
J.M., Kodiak, Alaska
A: Cocoa powder requires extra liquid about equal in weight to the cocoa powder used in the formula.
Source: The Technology of Cake Making, Aspen Publishers Inc.

Q: What is the recommended level of salt in bread formulas?
P.A., Fort Bliss, Texas
A: I have seen salt levels as low as 1 percent and as high as 2.2 percent in bread baking. Salt confers many qualities, such as flavor, stabilizes flour protein and controls and influences fermentation. Due to its direct control on fermentation, it has a marked effect on crumb and crust color and assists in moisture retention.

Q: What can we do to upscale our pastries?
Carmen, via e-mail
A: Applying edible gold and silver leaves, flakes, or sprinkles is a centuries-old tradition of adorning food and drink as a symbol of respect and hospitality. Gold or silver used on food must never be touched by your hands and should not come in contact with humidity or steam. All of these products can be heated in the oven up to 480°F or frozen without affecting their appearance. A rather expensive, but cool, way to decorate.

Q: During last year's holiday season, we used a large amount of chestnuts. While baking them in the oven, most of them burst. How do we prevent this?
E.J., Olympia, Wash.
A: To bake chestnuts, cut a small X with a knife on the flat side of the shell. Spread the nuts on a

sheet pan, and bake them at 375ºF for 20 to 30 minutes. Remove them from the oven, and peel while they are still warm by “scrunching” the shell between your hands. This will help make the pellicle–the thin brown layer between the nut and the shell–easier to remove. Once the chestnuts are baked, you can freeze them.

Q: We are using “fresh” yeast for our bread production. What is the “real” name is for this kind of yeast?
S.H., Whalehead, N.C.
A: Compressed yeast, active fresh yeast, cake yeast, baker’s compressed yeast, wet yeast or fresh yeast are interchangeable and vary by manufacturer and region.
Source: Cookie and Cracker Technology by Samuel A. Matz, Springer Publishing Co.

Q: We are making a bread that uses a rather large amount of yellow cormmeal. The end product is great; however, we don’t like the crunchiness of the cornmeal. How can we solve the problem without changing the formula?
Pat, via e-mail
A: I have used the following guideline with great results. I divide the needed cornmeal in the formula into two equal portions. One portion I leave alone, and I make a soaker with the other half. I “soak” each pound of corn meal with 2.5 pints of boiling water. Combine the two portions, and cool for at least three hours. This will soften the cornmeal. The end result is baked products with a higher yield, a moister interior and a longer shelf life.

Q: What influences the shelf life of baked products?
H.S., Littleton, Colo.
A: Shelf life depends on many factors, among them the initial moisture content of the product, composition and water activity, enrobing, packaging material and integrity of seals, and ambient conditions. But other factors also need to be considered: distribution and storage, protection against light, refrigeration and absorption of external gasses (oxygen, water vapor or odorous fumes).
Source: Cookie and Cracker Technology by Samuel A. Matz, Springer Publishing Co.

Q: In many bread formulas, the amount of water is variable. Does the increase or decrease of water change the proportion of the formula?
J.Z., Ontario, Calif.
A: Water is considered variable when flour constitutes a substantial portion of the formula. This does not affect the stated proportions of other ingredients. Water will only change the consistency of the dough and the density of the baked bread.
Source: Cookie and Cracker Technology by Samuel A. Matz, Springer Publishing Co.

Q: How do I tint coconut or other ingredients without tinting my hands as well?
S.C., Red Bank, N.J.
A: Whenever I work with food color, I wear gloves. When tinting coconut, I recommend placing it in a re-sealable plastic bag, add the food color, normally combined with a few drops of water, and shake until the coconut is evenly coated.

Q: What is rope?
P.R., Providence, R.I.
A: Rope is a bread disease that is caused by the breakdown of starch and protein in the loaf, and it produces a discolored and sticky crumb with a disagreeable odor and flavor. Ropiness in bread is not noticeable immediately, but usually appears about 12 to 36 hours after baking. This bread disease usually occurs during hot, humid months and very rarely during cold months. For many years it has been customary to add lactic acid, acetic acid, or some other acid substance (vinegar 40 or 90 grain)

to the dough as a means of repressing the growth of the organism. Under favorable circumstances, this method of treatment is very satisfactory.

Q: How can we produce a light yellow pizza crust? Should we use cornmeal?
J.M., Montgomery, Ala.
A: Use a small amount of egg shade liquid food coloring. Add the coloring sparingly to the water as a little goes a long way, and too much coloring will result in an unnatural appearance of the finished product.

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Q: We want to duplicate the chocolate croissants you find in so many of the hotels in Las Vegas. We have a great formula for the dough, but can't figure out what kind of chocolate is used inside the croissants. Can you help?
Anneliese, via e-mail
A: I know that many pastry chefs in these hotels use special bake-resistant chocolate sticks, which allow bakers to produce the perfect chocolate croissant. The sticks are made from dark semisweet chocolate, containing 44 percent cocoa.

Q: Do you have a simple method to produce "fruit-filled" rolls?
Chris, via e-mail
A: Scale sweet dough into 1-oz. pieces, or any desired weight. Round the pieces, then egg wash and dip them in coarse
granulated sugar. Set them on sheet pans, and half proof. Then, make an indentation in the center of the roll, and fill it with jelly, fruit or cheese filling. Let the dough rise to three-quarter proof, and bake at 400ºF until golden brown. Brush with apricot glaze while still warm.

Q: What is the best way to store nuts?
D.R., Deerfield Valley, Vt.
A: Overall, it is best to follow the "first in, first out" rule with nuts. Here are a number of considerations for their storage:
• Buy shelled nuts only as needed, so you don't have to store them and run the risk of spoilage.
• Nuts have a tendency to absorb moisture, which can trigger a number of spoilage reactions very quickly.
• When you store them, use refrigeration or place them in a cool, dry area at less than 50ºF (10ºC) and less than 65 percent relative humidity.
• Be particularly careful with walnuts and pecans. These have high oil content and are more prone to rancidity, especially if stored in too-warm conditions.
• All nuts contain unsaturated fats and are magnets for any type of odor. Store all nuts in sealed containers and away from strong odors.
• Sealing under nitrogen or vacuum-packing protect nuts from insects and pests and from the damage of oxygen exposure.

Q: We accumulate several pounds of cake crumbs throughout the week. Can we use these crumbs to make Danish filling?
G.D., Madera, Calif.
A: Cake crumbs make a great filling. Try this formula.
Cake crumb filling

Ingredients	Lbs.	Ozs.

Granulated sugar	3	8
Ground cinnamon	0	1
Ground mace	0	0.5
Whole eggs	1	
Lemon juice and zest, two lemons		
Cake crumbs	10	
Milk, as needed		
Total appr. wt.	14	9.5

Method: Rub together sugar, cinnamon and mace. Add whole eggs and the juice and zest of two lemons. Add cake crumbs, and mix until well blended. Gradually add milk to make a spreadable paste. The amount of the milk depends on the moistness of the cake crumbs.

Q: We want to duplicate the chocolate croissants you find in so many of the hotels in Las Vegas. We have a great formula for the dough, but can't figure out what kind of chocolate is used inside the croissants. Can you help?
Anneliese, via e-mail
A: I know that many pastry chefs in these hotels use special bake-resistant chocolate sticks, which allow bakers to produce the perfect chocolate croissant. The sticks are made from dark semisweet chocolate, containing 44 percent cocoa.

Q: Do you have short dough formula to use as the topping for hot cross buns?
Nadia, via e-mail
A: I use the following formula with great success.

Short dough

Ingredients	Lbs.	Ozs.
Pastry flour	2	
All-purpose shortening	1	8
Confectioners' sugar	2	
Salt, pinch		
Water, as needed		
Total appr. wt.	3	10

Method: Combine the flour, shortening, sugar and salt with enough water to make a batter that is thin enough to pass through a pastry bag tip (3/16-in. opening). Apply as usual.

Q: What can you use cocoa nibs for?
Galin, via e-mail
A: Cocoa nibs are simply roasted cocoa beans separated from their husks and broken into small bits. The nibs are a new favorite and can be used in place of nuts on top of ice cream or in cookies and even eaten as a snack.

Q: What is BHA or BHT, and why is it in shortening?
K.V., Covina, Calif.
A: Butylated hydroxyanisole (BHA) and the related compound butylated hydroxytoluene (BHT) are phenolic compounds that are often added to foods to preserve fats. BHA and BHT are antioxidants. Oxygen reacts preferentially with BHA or BHT rather than oxidizing fats or oils, thereby protecting them from spoilage.

Q: We use ripe bananas to make banana bread, but the bread always turns out heavy. What are we doing wrong?
C.L., Laramie, Wyo.
A: Bakers often relegate bananas that are too ripe for eating to banana bread. They are sweet and full of flavor, but just too mushy to sell as a snack or used for pastries. The trouble is that as bananas ripen, their acidity decreases, so their reaction with baking soda weakens. A good banana bread formula ensures adequate leavening by using both baking powder and baking soda.

Q: When baking with waxed paper, the paper smokes and chars. Is waxed paper not the same as parchment paper?
W.A., High Point, N.C.
A: Parchment paper and waxed paper are not the same. Waxed paper is paraffin-coated tissue paper. The wax melts at low temperatures, the paper smokes and chars, and liquid breaks it down easily. Parchment paper, on the other hand, is made by running sheets of paper through a sulfuric acid bath, a process that makes the paper strong enough to withstand to heat and moisture. The surface of parchment is hard, smooth and impermeable, so it doesn't soak up grease or moisture. Many manufacturers also apply a silicone coating, making the paper entirely nonstick.

Q: With the cupcake craze continuing, we would like to add additional varieties. Do you have a unique formula?
- ***D.H., Manhattan, Kan.***
A: Try this variety.

Spiced cupcakes

Ingredients	Lbs.	Ozs.	Metric	Bakers %
Brown sugar	1		450 g	22.23
Vegetable shortening	1		450 g	22.23
Whole milk	2		450 ml	22.23
Molasses, light	2		450 ml	22.33
Pastry flour	4	8	2.025 kg	100
Baking soda		1	28 g	1.39
Eggs, whole (3)		3	85 ml	8.34
Cinnamon, ground		1	28 g	1.39
Ginger, ground		0.5	14 g	0.70
Cloves, ground		0.25	7 g	0.35
Mace, ground		0.5	14 g	0.70
Lemon, juice and rind		0.75	21 g	1.05
Golden raisins	2		900 g	44.46
Hazelnuts	1		450 g	22.33
	18		5.372 kg	269.53

Method: Cream the sugar and shortening. Add the juice and the rind of the lemon, then add the molasses in small increments. Dissolve the baking soda in the milk and add to the mixture. Sift the flour with the spices, add to the batter, and mix well. Add the eggs, then the raisins and the nuts. Deposit the batter in wellgreased cupcake tins or in corrugated paper cups. Baking time and temperature will vary depending on the size of your cupcakes.
Q: We baked a lot of gingerbread during the holidays. During baking, the dough rose, then sank in the center. What were doing wrong?
M.B., St. Hazelwood, Mo.
A: Bake the gingerbread in a cool oven, about 320°F (160°C). If the oven is too hot, the gingerbread rises too much, sinks in the middle after cooling and is too brown.

Q: We are having problems with our chocolate tempering. At what temperatures should we be tempering?

P.H., Kalamazoo, Mich.

A: The different tempering curves, which I have listed below, work well for me.

	White Chocolate	*Milk Chocolate*	*Dark Chocolate*
Temper to	104°F	104°F	113°F
Cool to	75°F	79°F	80°F
Temper to	85°F	84°F	90°F
Use at	68°F	68°F	68°F

Q: What is the best way to proof croissants to keep the butter from melting out?

A.L., New York City

A: Short- and medium-chain fatty acids are responsible for butter melting in the range of 82°F to 97°F (28°C to 36°C). To avoid butter from leaking out during proofing of the laminated dough, your proofer should not be above 86°F (30°C).

Q: We want to add a flourless cookie to our assortment. Would you please provide a formula?

E.C., Chicago

A: I scale these drop cookies to 4 ozs., and when baked, they are chewy yet crisp. This formula yields about 10 dozen cookies.

Flourless drop cookies

Ingredients	Lbs.	Ozs.	Metrics
Egg whites	3	12	1.7 L
Salt		2.5	70 g
Vanilla		2	55 ml
Cocoa Powder	1	14	850 g
Confectioner's sugar	14	5	6.5 kg
Hazelnuts	8	13	4 kg
Total appr. wt.	**29**	**0.5**	**13.175 kg**

Method: Combine all the ingredients, except the hazelnuts, in a mixer with a paddle attachment. Mix on medium speed for three minutes. Add the hazelnuts, and combine well. Deposit on sheet pans, allowing space for the cookies to spread, and bake at 375°F for 12 minutes or until the center is just set.

Q: What are the most common food allergies we have to be aware of in a bakery environment?

H.W., Alpharetta, Ga.

A: The top eight most common food allergies are: peanuts, tree nuts, milk (dairy), eggs, soy, wheat, fish and shellfish. These eight foods make up 90 percent of all food allergies.

Q: We make fruit filled pies once a week, freeze them and bake them off as needed. However, the tops of the pies are cracking. How can we avoid this?

D.M., Valley Stream, N.Y.

A: The cracking of the top is probably due to internal stresses during freezing. You can minimize this by avoiding long mix times of the pastry dough, creating minimal gluten development. Freeze the pies quickly in a blast freezer and use stronger flour in the pie dough.

Q: Do you know how many calories are in 50 lbs. of granulated sugar?

J.F., Urbandale, Iowa

A: Sugar has 15 calories per teaspoon, 90 calories per ounce, 1,440 calories per pound and 72,000 calories per 50-lb. bag.

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Q: We want to make krumkake. Krumkake is a large thin cookie made from batter poured into an embossed mould with hinged plates and is very popular in our region. Do you have a formula?

D.E., Gatlinburg, Tenn.

A: Scandinavian immigrants in the 19th century flocked to the Upper Midwest, and the English they learned was augmented by Scandinavian words for their native food and customs. Thus we have krumkake, a large, light, very thin Norwegian cookie made from an egg-based batter poured into an embossed hinged iron similar to a waffle iron. Peeled off the iron while warm and pliable, each krumkake is rolled around a cone-shaped metal tube to harden and is filled with sweetened whipped cream. Cookbooks have spread the popularity of krumkake beyond Wisconsin and Minnesota. Here is a great formula, which I use every year around New Year's.

Krumkake

Ingredients	**Lbs.**	**Ozs.**	**Metric**	**Bakers %**
Rock sugar* (Kandis sugar), white or brown		14	400 g	80
Water, boiling	1	1.5	500 ml	100
Eggs (2)		4	113 g	20
Butter, room temperature		7	200 g	40
Pastry flour	1	1.5	500 g	100
Lemon zest, 1 lemon				0.1
Ground cinnamon, pinch				0.01
Heavy cream		4.5	125 ml	25

Total appr. wt. 4 0.5 1.838 kg 365.11 Method: Dissolve the rock sugar in boiling water, and cool completely. Cream the butter and the eggs. Add the sugar solution and flour in four steps, while continuously mixing on low speed. Add the flavoring and the heavy cream. Scrape down the bowl while mixing. Store in a refrigerator for at least 12 hours. Drop about 1/2 oz. of batter onto the heated iron, and cook no longer than 30 seconds. Peel cake off the iron while still warm and pliable. Roll each krumkake around a cone-shaped metal tube so that it hardens in that shape. Store in a closed container for up to two weeks. This formula yields about 80 krumkakes.

** Rock sugar is a hardened variety of cane sugar that is formed into large crystals to be used as a sweetener. Hard in consistency, rock sugar is often used to flavor teas. It is sweet in flavor with no overtones of the caramel flavor often present in others sugars.*

Q: I'm trying to formulate new bread doughs. How much salt should be used?

P.J., Houston

A: Salt levels in bread dough varies between 1.7 percent and 2.5 percent, based on 100 percent flour.

Q: Could you explain the advantages of baking with soy products?

D.B., Berlin, Md.

A: As consumer demand grows for low-fat, healthful foods, the use of soybeans as a key ingredient has dramatically expanded.

Bakery products appear to be the best vehicle for soy-protein fortification for health-conscious consumers. Fortunately, the addition of soy in baked products requires very little change in bakery technology and no changes at all in bakery equipment. Soy protein also is a cost-effective way to reduce fat, increase protein content and improve the overall baking characteristics of baked products. Used in virtually every category of the baking industry, high-protein soy products provide functional properties, such as improved texture, moisture retention, crust color and shelf life. Among the soybean products that can be used
in baking are enzyme-active soy flour, full-fat or "natural flour", defatted soy flour, soy protein concentrates, soy protein isolates, soy fiber, soy lecithin and lecithinated soy flour.

Q: We are always looking for new dessert ideas. What do you think is the next trend?

H.D., Marshall, Minn.

A: I recently read about liquid desserts. The flavor profile of traditional desserts, such as tiramisu, apple pie and cheesecake, is served in a liquid form in martini glasses and sometimes enhanced with the addition of high percentage alcohol. However, time will tell if this is the newest dessert rage.

Q: We bake a lot of cookies with oats, however the cookies tend to dry out quickly. What can we do to increase the moisture content?

C.F., Richmond, Va.

A: Mix the oats with about 12.5 percent water by weight, and allow them to stand overnight. Some of the moisture in the cookies is lost during baking, and the additional water in the oats helps keep the cookies moist.

Q: We are looking for a “new” dried fruit to use as a base for our dessert sauces to keep our dessert menu mix interesting. What would you recommend?
C.M., Racine, Wis.
A: I recommend trying Goji berries. The Tibet Goji berry is a deep-red, dried fruit about the size of a raisin. The berry tastes like a cross between a cranberry and a cherry. They grow in protected valley areas of Inner Mongolia on bush-like plants with vines that stretch more than 15 feet. The berries are never touched by hand as they oxidize and turn black if touched while fresh. Instead, they are shaken onto mats, and dried in the shade. This dried fruit has great potential for use in sauces and baked products.

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Q: What are the seeds that are sprinkled on naan bread? I believe they are onion seeds, but my co-worker does not agree.
Andre, via e-mail
A: Nigella seeds, which are very similar to onion seeds, are normally sprinkled on naan bread before baking. Nigella seeds are small, matte-black grains with a rough surface and oily white interior. The seeds have little bouquet, though when they are rubbed they give off an aroma reminiscent of oregano. The flavor is slightly bitter and peppery with a crunchy texture and a 3 on the hotness scale.
Q: Why are so many wood work surfaces used in bakeries instead of stainless steel tables?
G.M., Sevierville, Tenn.
A: Wood tables are poor heat conductors, thus great surfaces to maintain optimal dough temperatures when making yeast breads. When properly maintained, the hardwood surfaces are a sanitary surface.
Q: Last week we ran out of baking powder. Can we make our own with other ingredients in the bakery?
Roxanna, via e-mail
A: You can make your own baking powder if you have baking soda and cream of tartar. Simply mix two parts cream of tartar with one part baking soda.
Q: Some formulas call for all-purpose flour, which we don’t use. What can we use instead?
L.B., Columbus, Ohio
A: Use equal amounts of cake flour and pastry flour if allpurpose flour is not available.
Q: Do you know how isomalt compares to the sweetness of sucrose?
K.G., East Greenville, Pa.
A: Isomalt’s sweetening power depends on its concentration, temperature and the product it is used in. When used alone, it contributes 45 percent to 65 percent of the sweetness that would result from the same amount of sucrose.
Q: Sometimes we find blood spots while cracking eggs. Do we need to dispose of the eggs?
J.K., Salem, Ky.
A: Blood spots are caused by tiny blood vessels in the oviduct that burst. The yoke brushes against them and carries the spot of blood along with it. The eggs are perfectly safe to eat. As the egg ages, the yolk soaks up the water from the albumen, which dilutes the blood spot. So actually, a blood spot is a sign that the egg is fresh. However, though the eggs are safe to eat, I discharge the blood spots.
Q: When making bread dough with a high percentage of oil, should we add the oil at the same time as the water and other liquids?
S.R., Harwich Port, Mass.
A: As the flour tends to pick up the oil before the water, I recommend adding the oil about three minutes into mixing, so the water can hydrate the flour first. This results in more consistent final dough.

Q: We are always looking for cookie formulas to address the diverse needs of our customer base. Do you have any suggestions on a cookie variety we can add?
D.M., Fresno, Calif.
A: Kourabiedes are traditional Greek shortbread cookies coated with confectioners' sugar. It is one of the two confections (the other is melomacarona) that are traditionally consumed in large quantities in Greece during the holiday season, but they are made for all festive occasions. Kourabiedes (pronounced kou-ra-bi-eth-es) are generally shaped as round "thumb print" cookies or crescents.

Kourabiedes

Ingredients	Lbs.	Ozs.	Metric	Bakers %
Butter, unsalted	16	8	7.493 kg	74.93
Confectioners' sugar	7	9	3.444 kg	34.44
Almonds, chopped	5	8	2.507 kg	25.07
Vanilla extract		1⁄3	11 g	0.11
Baking powder		1⁄2	154 g	1.54
Pastry flour	22	3⁄4	10 kg	100
Rosewater, as needed				
Confectioners' sugar for dusting, as needed				
Total appr. wt.	**51**	**10.5**	**23.609 kg**	**236.09**

Method: Cream the butter (room temperature), sugar and vanilla on second speed with a paddle attachment until light and fluffy. Sift the pastry flour with the baking powder. Add the pastry flour/baking powder and almonds, and mix on first speed until fully incorporated. Shape into 1-oz. round cookies, and place on a parchment paper-lined sheet pan. Press a thump print into each cookie. Bake at 375ºF until lightly brown, about 12 to 15 minutes. After baking, spray the cookies lightly with rosewater. Cool completely before dusting generously with confectioners' sugar. Cookies can be stacked, but use additional confectioners' sugar for each layer of cookies.

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Q: Our business is selling decorated and sculptured cakes. We sometimes run out of piping gel, and I would appreciate an easy formula for a small amount of gel to keep us decorating until we get our delivery.
K.P., Clifton Park, N.J.

A: Try this formula for piping gel.

Piping gel

Ingredients	Lbs.	Ozs.
Unflavored gelatin		8
Cold water		8
Light corn syrup	8	
Total appr. wt.	**9**	

Method: Bloom the gelatin in the cold water. Place over low heat until it is clear/dissolved, but do not allow it to boil.

Add the corn syrup, and heat completely. Remove from heat, cool and refrigerate. To color, add coloring paste/gel or food coloring drops.

Q: What is the difference between spices and herbs? We would like to know to give an appropriate description of our products.
M.D., Salem, N.C.

A: Historically, "spices" referred to the tropical aromatics only, while "herbs" meant specifically the leaves and seeds of certain temperate-zone plants. While those distinctions are still used, spice also has come to mean the whole family of dried plant seasonings, including spices, herbs, blends and dehydrated vegetables.

Q: What is the proper cleaning technique for silicone baking mats?
P.K., Maiza, Ariz.

A: After each use, wipe the mats with a damp, soft, clean cloth or sponge to remove any baked-on particles, then rinse with clean, hot water. Washing with a mild detergent only is recommended when necessary, but do not use any brushes or scrapers. Shake the mat to remove excess water and air-dry. If properly cared for, the mat can be used up to 300 times.

Q: How can I make our icing, which is made with butter or margarine, brighter and whiter?
Nicole, via e-mail

A: You may use titanium dioxide (E171). Add this liquid whitener to tinted icing to soften colors or to whiten icing made with butter or margarine. Titanium dioxide is the most widely used white pigment because of its brightness.

Q: We make our laminated dough with butter, but we are having difficulties working with it. Is there anything we can do to ease handling?
J.P. via e-mail

A: I always add 10 percent bread flour (based on the total amount of butter used as roll-in) to the roll-in butter. The addition of the flour makes the butter more pliable, absorbs some of the moisture and increases the melting point of the roll-in, which makes handling the laminated dough easier.

Q: We use a commercial stainless steel cleaner to wipe down our equipment. However, the spray leaves streaks and spots. Is this normal?
G.D, Norfolk, Va.

A: Do not spray the cleaner directly on the surface. Instead, spray a small amount of stainless steel cleaner on a dry cloth, and wipe the surface. This eliminates the spots.

Q: What is desiccated coconut? We currently use sweetened coconut and wonder what the applications of desiccated coconut could be.
Joshua, via e-mail

A: Desiccated coconut is the dehydrated form of white coconut meat from mature coconuts, available in granules, flakes, shreds or chips. Desiccated coconut is used when the natural exotic flavor of coconut is desired. It is unsweetened and contains no preservatives or additives. Use it for topping cakes and pastries, centers for buns, cake decoration, candy bars and chocolates.

Q: Can you recommend baking times for puff pastry sheets?
M.W., Providence, R.I.

A: Here are some general guidelines. Baking times will vary by piece size, oven type, and quantity of product in the oven. Adjust baking times if necessary to compensate for your oven's unique characteristics.

Q: I'm looking for an alternative, all-natural ingredient to extend the shelf life of our breads. Any suggestions?
P.B., Ontario, Canada

A: I recommend using either raisin juice concentrate or raisin paste, as both have great shelf-extension properties, and also inhibit staling and mold growth. The paste contains humectant, which is a substance that promotes retention of moisture. Both raisin products also are high in malic acid.

Q: Our butter quickly picks up "off" flavors during storage. What can we do to prevent this?
S.K., Austin, Texas

A: Once opened, refrigerate butter in its original wrapper in the coldest part of the refrigerator, not close to the refrigerator door. To further protect butter, store in a resealable plastic food bag. Fresh butter should have a delicate cream flavor and pale yellow color. Butter quickly picks up "off" flavors during storage and when exposed to oxygen. Store butter away from foods with strong odors, such as onions or garlic.

	Conventional oven 400°F	Rack oven 375°F	Convection oven 350°F
Piece size	Time range	Time range	Time range
2 ozs.	16 to 21 min.	13 to 18 min.	13 to 18 min.
4 ozs.	17 to 22 min.	14 to 19 min.	14 to 19 min.
10 ozs.	21 to 26 min.	18 to 23 min.	18 to 23 min.
16 ozs.	23 to 28 min.	20 to 25 min.	20 to 25 min.

Q: Have you ever heard of coconut ice? I would like to add this to our product line.
D.S., Fort Lauderdale, Fla.

A: This is a delicious and attractive candy snack for any coconut lover. Here is my simple version.

Coconut ice

Ingredients	Lbs.	Ozs.	Metric
Sweetened condensed milk	3	8	1.66 L
Confectioners' sugar	4	6.5	2 kg
Desiccated coconut	3	6.5	1.56 kg
Pink food coloring, as needed			
Total appr. wt.	**11**	**5**	**5.22 kg**

Method: Combine the sugar and coconut. Add the condensed milk, and mix well until no dry spots appear. Pour half of the mixture into a prepared pan, and level the surface with a spatula. Tint the other half of the mixture with food coloring. Pour the pink mixture on top of the first layer, and level the surface. Press firmly, and allow the coconut ice to harden. When firm, turn out of the pan, remove the paper and cut into 1-in. squares with a sharp knife.

Q: We make gingerbread cookies throughout the year, but we want to change the flavor profile. Can you provide us with a spice mixture?
V.G., Las Vegas

A: This gingerbread spice mixture is similar to apple pie spice mixture.

Gingerbread spice

Ingredients	Lbs.	Ozs.
Ground cinnamon	1	
Ground ginger	1	
Ground cloves	1	
Dried, ground orange peel		2.5
Total appr. wt.	**3**	**2.5**

Method: Place all spices in a closed container, and shake until thoroughly mixed.

Q: We produce a lot of mousse cakes for our wholesale business. We don't use anything on the inside of the cake rings to prevent the cakes from sticking to the rings. What material can we use for ring liners, and what band length do we need for a 9-in. round cake?
N.B., Minneapolis

A: I use acetate strips for lining our cakes, which makes the removal of the cakes from the rings much easier. Here are some of the needed lengths:

Cake size	Length of strip needed
6-in. round	20 ins.
8-in. round	27 ins.
9-in. round	30 ins.
10-in. round	33 ins.
12-in. round	40 ins.
14-in. round	46 ins.
Quarter sheet pan	48 ins.
Half sheet pan	64 ins.

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Q: How can we keep our showcases condensation-free?
Larry, via e-mail

A: Any refrigerated display case can produce condensation during high heat and humidity. Here are some suggestions for beating condensation.

- Keep refrigerated displays as far away as possible from doors, air conditioning and/or heating and exhaust vents. Note the temperature and humidity conditions that cases are designed to handle, usually 75°F and 55 percent relative humidity. A small, inexpensive and easy-to-use instrument called a hygrometer (sometimes called a humidity sensor or relative humidity indicator) measures the humidity level. Place it where the humidity symptoms are a concern, but not in a location where it is affected by direct heat. Hardware stores, department stores, building supply stores and electronics stores carry hygrometers. Ask how many square inches of cooling surface per square foot the refrigeration coils provide and up to what relative humidity.
- Insulated and tempered glass provides better resistance to condensation. Use built-in evaporation fans/defogging systems for defogging the outside of the glass when available.
- Properly balance the air inside your bakery. Exhaust fans in the baking area venting warm air back into the store contribute to condensation troubles. Work out optimal air balance in your bakery, taking into account the placement of areas that let in extremes of temperature. Positioning fans outside of the glass is a common way to move air to problem spots. Make this as unobtrusive as possible by clipping small fans to the track lighting in the ceiling. For interior condensation, use variable-speed evaporators instead of drip pans.

Q: Can you provide us with some general guidelines for baking in a convection oven?
Victoria, via e-mail

A: Here are some convection baking tips:

- Provide adequate space between products and shelves to maximize airflow around the product.
- A lower temperature, longer bake time will improve the end product as it allows the oven to recover sooner and begin cycling.
- Consistency in ingredients and procedures will promote a consistent result.
- The temperature should generally be 25 degrees lower than a conventional oven.

Q: Can we use or even serve a canned product beyond the "best by" date shown on the packaging?
P.T., Battle Creek, Mich.

A: The "best by" date on each product container is provided as a suggested period of time for the use of the product in order to allow for the maximum flavor and freshness. After the "best by" date has lapsed, a decline in flavor and quality can occur. Products packaged in cans are safe to use indefinitely, as long as the can seal remains intact, unbroken and securely attached to a can that has been well maintained. All canned products should be stored in a cool and dry environment to preserve flavor.

Q: How can I easily reconstruct frozen foods?
P.J., Washington, D.C.

A: The best way is to use a reconstituting machine. This European machine takes frozen food and restores it, ready to serve, in seconds. Use it for soups, sauces, mousses, gelato, sorbet, creams (sweet or savory), dressing, ice cream and more. Simply freeze the ingredients at 4°F (-20°C) in convenient packaging. As needed, remove them from the freezer, and place them in the machine. The high-speed blades mix, blend, aerate and skim the frozen product into a uniform, velvety liquid once again. The machine also can be used with fresh ingredients. When the food container is inserted, it is sealed airtight, and a pump supplies air under pressure. The motor rotates the blades at high speed. The blades cut thin portions and mix air into the ingredients at the same time. The result is creamy and velvety.

Q: Do you have a formula for pumpkin cookies?
J.W., Norman, Okla.

A: Here's a foumula you might find helpful.

Halloween pumpkin cookies

Ingredients	Metric	Lbs.	Ozs.	Baker's %
Butter, unsalted	4.535 kg	10		88.9
Sugar, granulated	4.535 kg	10		88.9
Salt, table	90 g		3.25	1.76
Vanilla extract	100 ml		3.5	1.96
Eggs, whole	1.02 L	2	4	20
Pastry flour	5.1 kg	11	4	100
Baking powder	85 g		3	1.67
Allspice	28 g		1	0.55
Cinnamon, ground	40 g		1.5	0.78
Baking soda	55 g		2	1.08
Pumpkin puree	4.535 kg	10		88.9
Walnuts	1.02kg	2	4	20
Raisins, golden	3.4 kg	7	8	66.g7
Total appr. wt.	**24.543 kg**	**54**	**2.25**	**481.17**

Method: Make sure all ingredients are at room temperature. Cream the butter, sugar, salt and vanilla on medium speed. Add the eggs slowly, making sure each addition is fully incorporated before adding more. Sift the flour, baking powder, allspice, cinnamon and baking soda. Add the dry ingredients in four increments to the pumpkin puree. Add the walnuts and raisins, and incorporate into the batter. Scoop cookies into desired sizes, and refrigerate for at least one hour. Bake at 365°F until golden brown. Baking times vary with size of cookies.

Klaus Tenbergen has been certified as a Master Baker in Germany, South Africa and the United States. He currently is the Program Chair of the Baking and Pastry Program at Kendall College in Chicago. For more information about Kendall College or the Baking and Pastry program, call 312/752-2308, or contact Chef Tenbergen via email at **ktenbergen@kendall.edu**.

Question: Can customers who are allergic to peanuts eat products made with peanut oil?
C.W., Oak Creek, Wis.

Answer: Peanut oil goes through a hot-solvent extraction process that takes out all the proteins, leaving pure peanut oil, which is generally non-allergenic. Only oil prepared by the hot solvent extraction process, which is commonly used in the United States, is known to be free of protein. But consult the manufacturer about any health concerns you may have.

Question: We want to improve our tiramisu cake and are looking for a new "soaking" liquid for the ladyfingers. Do you have a formula?
A.P., Irwindale, Calif.

Answer: Tiramisu also is known as Tuscan Trifle and Zuppa Inglese, and the Italian translation for tiramisu is "carry me up." I use the following formula for soaking my ladyfingers.

Ladyfinger soaker

Ingredients	Lbs.	Ozs.	Metric
Simple syrup	1	3	540 ml
Kahlua® coffee liqueur		4	120 ml
Coffee extract		1	30 ml
Vanilla extract		1	30 ml
Total appr. wt.	**1**	**9**	**720 ml**

Method: Combine all the ingredients. Generously soak each ladyfinger as needed.

Question: Do you know anything about the history of Fruit Charlotte cake? We always offer our customers a short printed history with our cakes.
Hubert, via e-mail

Answer: Some believe French chef Marie Antoine Careme (1784-1833) invented Fruit Charlotte in honor of his Russian employer, Czar Alexander. Other historians say that this sweet dish took its name from Queen Charlotte (1744-1818), wife of George III.

Question: Some of our formulas call for granulated or leaf gelatin. Is there any advantage in using leaf gelatin, which is more expensive and harder to find?
John, via e-mail

Answer: Unsweetened gelatin is an odorless, tasteless thickener derived from the bones, cartilage and connective tissue of animals. It comes in two basic forms–granulated and leaf (or sheet). Leaf or sheet gelatin is the same substance as granulated gelatin, just packaged and sold in a different form. It is more widely used in Europe (and shows up more in European formulas) than in the States. The gel-making ability of sheet gelatin is constant no matter its size. Leaf gelatin dissolves a little less readily than granulated gelatin, which is one reason why it is not as popular. If your formula calls for one and you want to use the other, one tablespoon equals one 0.25-oz. envelope of granulated gelatin or 3.5

(4-in. by 9-in.) sheets of leaf gelatin. Store gelatin in an airtight container and keep in a cool, dry place. Here are some additional tips:

- One 0.25-oz. envelope of granulated gelatin gels two cups of liquid. Too much gelatin creates a hard, rubbery texture.
- Soak gelatin in cold liquid for three to five minutes before dissolving. This soaking time softens and swells the gelatin granules, so they will dissolve smoothly when heated.
- To dissolve softened gelatin, add it to a hot mixture. Set that bowl inside another bowl or pan of very hot water, or heat it in a microwave on high for about 30 seconds. Stir the heated mixture until the gelatin is completely dissolved.
- Allowing gelatin to boil destroys its setting ability.
- Raw figs, guava, fresh ginger, kiwi fruit, papaya and pineapple contain an enzyme that prevents gelatin from setting properly. Such ingredients can be used only if they are cooked or canned because heat destroys the enzyme.
- Pieces of fruit or other food will not sink in gelatin if you wait until it is partially set (the consistency of egg whites) before stirring them in.
- Gelatin is easier to un-mold if you rinse the mold with cold water or coat the mold with cooking spray before pouring in the gelatin.
- To remove gelatin from a mold, release the vacuum by inserting a knife between the mold and the gelatin in several places. Then, dip the mold in hot water (up to the top) for five seconds (any longer and the gelatin could begin to melt). Position a plate over the top of the mold, hold both the plate and mold tightly, invert and give the mold a firm shake. The molded gelatin should drop onto the plate. Sometimes it takes a minute or so for gravity to work to help release the mold. If the mold will not release, dip it into hot water again for a few seconds, or drape it with a towel that was soaked in hot water and wrung out. Once the gelatin has been un-molded, refrigerate the gelatin for 20 minutes for it to firm up.
- Gelatin continues to stiffen the longer it is refrigerated.

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uestion: What is caster sugar and where can I find it in the U.S.?
R.P., Madison, Ind.

Answer: Castor or caster sugar is the name of very fine sugar in Great Britain, so named because the grains are small enough to fit though a sugar caster or sprinkler. It is sold as superfine sugar in the United States. Because it is so fine, it dissolves more quickly than regular granulated sugar, and is used in meringues and cold liquids. It is not as fine as confectioners' sugar, which has been crushed mechanically and mixed with starch to keep it from clumping.

Question: How many servings can I get out of a round, 2-in. thick cake?
S.B., Berkeley, Calif.

Answer: A serving size is anywhere from 2 ins. by 2 ins. to 4 ins. by 2 ins., and I use the following chart to calculate servings.

Size of round cake	Servings:
6 in.	6 -10
8 in.	12 - 18
9 in.	18 - 24
10 in.	20 - 30
12 in.	30 - 40
14 in.	40 - 50
16 in.	60 - 70
18 in.	80 - 90
20 in.	100 - 115

Question: We use a lot of flavors for our pastries and ice cream, but how much flavor should we add?
A.F., Plymouth, Mich.

Answer: Start with one percent to three percent of the total batch and increase or decrease to taste.

Question: What is seed chocolate?
L.S., Antioch, Ill.

Answer: Seed chocolate is any pure tempered chocolate that is used to begin the crystallization process during tempering. The chocolate (white, dark or milk) that you are using to melt also will be used to temper. Simply reserve a small portion of this chocolate and set it aside. When you are ready to temper, use this portion as your "seed".

Question: Can you define the differences between extracts and flavors and natural and artificial flavors?
Gerad, via e-mail.

Answer: Here are some definitions:
Flavor - a product that gives taste or enhances flavor in an existing product, other than flavor oils, essences and botanicals. It may contain water, propylene glycol, alcohol, etc.

Extract - a flavor whose predominant solvent is alcohol. *Natural* - a product in which all components come from natural sources *Artificial* - a product whose components are derived from synthetic process.

Artificial and natural - a blend that combines both synthetic and natural products by predominance. Also natural and artificial. *W.O.N.F. (With other natural flavors)* - a natural flavor that has been enhanced with other natural flavors.

Emulsion - a flavor whose components have been dispersed and encapsulated in either a gum or starch suspension. *Spray dried* - a uniform encapsulated flavor system that offers extended shelf stability.

Question: I want to add something interesting to our parfait cakes and was thinking about an additional layer to the base sponge. Any ideas?
P.J., New York, N.Y.

Answer: Combine 9 ozs. (250 g) of cornflakes or praline flakes with 14 ozs. (400 g) of Nutella∃, a creamy, chocolaty, hazelnut spread. Spread this mixture over your base layer. This combination adds an additional crunch and "surprise" to any cake.

Question: At a recent trade show, I found several companies offering Himalaya salt. Is this salt product-really better then ordinary table salt for baking?
P.V., Laurel, Md.

Answer: In last few years, this salt scam has emerged in Europe and is spreading worldwide. It is ordinary rock salt from Pakistan, but is marketed as "healing" or "luxurious" salt from Karakorum. However, no salt mines exist in this Himalayan region. Most of the salt is coming from the second largest salt mine in the world, located in Pakistan. Ordinary road salt also is being sold as Himalaya salt and marketed as the best alternative to conventional salt. I'm not sure if this salt, which is more expensive, is really worth buying, as it is simply a marketing scam.

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Question: I would like to bake whole wheat pie crusts and chocolate pie crusts. Do you have any formulas?
—H.J., Exton, Pa.

Answer: For chocolate pie dough, use your standard pie dough formula and replace 10 percent of the flour with cocoa powder. For whole wheat pie crust, try this formula.

Whole wheat pie crust

Ingredients	Metric	Lbs.	Ozs.	Bakers %
Whole wheat flour	4.08 kg	9		100
Vegetable shortening	2.04 kg	4	8	50
Water, ice cold	910 ml	2		22.3
Salt	55 g		2	1.35
Total appr. wt.	**7.085 kg**	**15**	**10**	**173.65**

Method: Cream the shortening with half of the flour and the salt. Add the remaining flour, and mix until combined. Add the water, and mix to a smooth paste. This makes a mealy, very short crust that shrinks very little and bakes to a nice brown color. This crust also may be made in the conventional way by flaking the shortening, salt and flour, and then adding the water. Chill the dough for at least one hour before use.

Question: We like to make our own almond filling and would appreciate a formula.
—C.H., East Lansing, Mich.

Answer: Almond filling, also known as frangipane, is used in numerous types of baked products. Use fresh almonds, not almond paste in this formula, and softened butter to produce a great filling.

Frangipane (almond filling)

Ingredients	Metric	Lbs.	Ozs.	
Almonds, blanched, slivered	1.135 kg	2	8	
Sugar, granulated	990 g	2	3	
Salt	5 g			1 tsp.
Whole eggs (10)	500 ml	1		
Egg whites (10)	300 ml		10	
Almond extract	15 ml			1 Tbsp.
Vanilla extract	15 ml			1 Tbsp.
Butter, unsalted, room temperature	850 g	1	14	
Total appr. wt.	**3.81 kg**	**8**	**3**	

Method: In a food processor, grind the almonds finely. Continue blending, and add the sugar, then the whole eggs and egg whites. Finally, add the softened butter. The mixture will be thick, but pourable.

Question: What makes the best egg wash?
—J.M., Kenosha, Wis.

Answer: Here is a basic egg wash formula. However, the exact formulation depends on your desired out-come.

Egg wash

Ingredients	Metric	Lbs.	Ozs.	
Whole eggs (5)	200 ml		8	
Milk	50 ml		2	
Salt	2 g			pinch
Total appr. wt.	**252 g**	**0**	**10**	

Egg Wash Effects
Whole eggs + salt = shiny surface
Whole eggs + milk = medium-shiny surface
Whole eggs + water = less intense shine, golden surface
Egg yolks + water = shiny golden surface
Egg yolks + cream = shiny brown surface

Egg whites = light-colored, crisp surface
Egg whites + milk = transparent, shiny surface

Question: We are looking for a great sauce to accompany our bread puddings.
—G.S., Southbury, Conn.

Answer: This sauce is my favorite topping for any bread pudding.

Kirsch sauce

Ingredients	Metric	Lbs.	Ozs.
Chocolate, white	3.4 kg	7	8
Heavy cream	1.7 k	3	12
Kirschwasser (Cherry brandy, 40-45% volume alcohol)	425 ml	1	
Total appr. wt.	**5.525 kg**	**12**	**4**

Method: Scald the heavy cream in a saucepan over heat. Place the white chocolate pieces in a bowl. Pour scalded heavy cream over the chocolate, and whisk together. Add liquor, and mix well. Serve the sauce warm.

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Question: Should we use rye flour or bread flour to make sourdough starter?
T.R., Kalamazoo, Mich.

Answer: The best sours are made using either a clear flour, a combination of 90 percent patent and 10 percent light rye flour or patent flour with added malt flour at 1 percent. This improves the bacterial fermentation and increases total acidity.

Question: How many 8-in. layers can I get per 50-lb. bag of cake mix?
Kim, via e-mail

Answer: Here are some suggested yields.

Cake size	Scaling weight	Yield per 50-lb. bag
7-in. layer	10 ozs.	121 layers
8-in. layer	13 ozs.	93 layers
Full sheet cake	7 lbs.	11 cakes
Cupcakes	1 oz.	100 to 110 dozen

Question: Our cheesecakes crack while cooling. What are we doing wrong?
D.R., Washington, D.C.

Answer: I bake cheesecake until an internal temperature of no more than 150°F to 160°F (66°C to 71°C) is reached. The cakes will shrink during cooling, due to the continuing evaporation of moisture. The cake clings to the side of the ring and may crack at the weakest point, the center. To prevent cracking, cool the cheesecake for about ten minutes, then loosen it from the sides of the pan with a wet knife before cooling completely.

Question: What is the difference between baker's cheese, cream cheese and Neufchâtel?
C.S., New York, N.Y.

Answer: All three cheeses are similar. Their curds form from the addition of enzymes and from lactic-acid bacteria, which convert the lactose in milk and cream into lactic acid. Often, gums are added to increase creaminess and firmness. Each has a soft smooth texture and mild, yet slightly acidic flavor from the lactic acid. Cream cheese is the highest in fat and must contain by law a minimum of 33 percent milkfat, almost as much as heavy cream. Neufchâtel is lower in fat, containing anywhere from 20 percent to 33 percent milkfat. In fact, most brands of Neufchâtel can be labeled low-fat cream cheese. Baker's cheese is essentially fat-free, and it is sometimes labeled fat-free cream cheese

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M.C., Medina, Ohio

Answer: To produce a superior corn muffin, a combination of 4 parts butter, 6 parts sour cream and 4 parts whole milk does the trick. A moist muffin requires fat and the tenderizing effect of acidity. A combination of chemical leaveners, usually 1.5 parts baking powder blended with 1 part baking soda, is the ideal combination to deliver the desired result and oven-spring. Bake the corn muffins at 400°F to get a finished product with a crunchy, golden crust.

Question: What are the protein contents in the different kind of flours?
N.S., Middletown, N.Y.

Answer: The protein content varies by brand and mill.

Type of Flour	Protein %	Recommended uses
high-gluten	14 to 15	bagels, pizza crusts, blending with other flours
whole-wheat	14	hearth breads, blending with other flours
bread	12 to 13	traditional breads, bread machine breads, pizza crusts
all-purpose	9 to 12	everyday baking or cooking, quick breads, pastries
self-rising	9 to 11	biscuits, quick breads, cookies
pastry	8 to 9	pie crusts, pastries, cookies, biscuits
cake	5 to 8	cakes, especially those with a high ratio of sugar to flour

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Question: We are experiencing excessive shrinking of our laminated dough products, and we don't know why. Do you have any advice?
P.J., Chatsworth, Calif.

Answer: You can minimize the shrinkage of your laminated dough by looking at the formula and processing procedures. Here are some common mistakes:

- Insufficient cooling before the product is baked.
- Too high levels of recycled trimmings.
- Too much sugar in the formula.
- The presence of oxidants in the dough or flour source.
- The flour is too high in protein.
- The pH of the dough is too low.

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Question: Some of our formulas call for blanched almonds, which we do not stock. How do I make my own?
John, *via e-mail*

Answer: Blanching means to make the nuts white by removing their skin. To make your own blanched almonds, you will need to boil the nuts. Select the size of the pan according to the quantity of almonds you want to prepare. Add water up to the middle of the pan. When the water starts to boil, add the almonds (washed, with their skin), lower the heat and bring them to a boil two to three times in an open pan. Strain them, and while the almonds are still warm, press the large end of each almond to pop it from its skin. Pat the almonds dry. You also can add a small amount of baking soda to the water to make this process even easier.

Question: We have problems with our cocoa and cocoa products. Our chocolate gets a whitish/grayish-"film" during storage. What causes this?
D.H., *Racine, Wis.*

Answer: Cocoa and cocoa products are very sensitive to light, humidity, heat and strong odor. The best way to store these products is in temperatures around 59°F (15°C) and a relative humidity of about 65 percent. If the product is stored at higher temperatures, part of the cocoa butter will move to the surface and eventually seize-up, resulting in a grayish "film". At higher humidity levels, cocoa powder lumps easily and is receptive to mold growth. I suggest storing milk chocolate no longer than 6 months and dark chocolate no longer than one year.

Question: How do I convert between Fahrenheit and Celsius?
P.R., *Seattle, W.A.*

Answer: Here is an easy way to convert Fahrenheit and Celsius.

From °F to °C:
- subtract 32
- multiply by 5
- divide by 9

From °C to °F:
- multiple by 9
- divide by 5
- add 32

Question: Do you have a formula for a European pound cake? Is there a difference from an American version?
L.P., *Winona, Minn.*

Answer: European pound cakes, known as "Sandkuchen" are much dryer in mouth-feel than their American counterparts, but are very enjoyable and will add to your product variety. I have had good luck with this formula.

Question: How can I make icing decorations and flowers with a different color on the edge of the piping?
I.S., *Franklin Park, Ill.*

Answer: Simply coat the inside of an empty piping bag with your favorite paste color before filling it with icing. This will give you a nice, deep color on the outside of your decoration or flowers.

Question: Have you ever deep-fried pâte à choux or choux paste?
M.L., *Cherry Hill, N.J.*

Answer: Add 3.5 ozs. of rum-soaked raisins, 1 oz. of candied orange peel and 0.5 oz. of baking powder to 3 lbs. of batter. Heat the fryer filled with peanut oil to 350°F. Use a portion control scoop to deposit the batter into the fryer, and fry until golden brown. Then, roll in cinnamon sugar.

European pound cake

Ingredients	Metric	Lbs.	Ozs.	Bakers %
Margarine	5 kg	11		200
Sugar	5 kg	11		200
Cornstarch (1)	2 kg	4	6.5	80
Baking powder	100 g		3.5	4
Eggs, whole	5 L	11		200

Cake flour	2.5 kg	5	8	100
Cornstarch (2)	500 g	1	1.5	20
Salt, to taste				
Vanilla, to taste				
Bitter almond extract, to taste				
Total appr. wt.	**20.1 kg**	**44**	**3.5**	**804**

Method: Bring all ingredients to room temperature. Cream the margarine, sugar, cornstarch (1), baking powder and spices until smooth. Slowly add 7 lbs. of the eggs, and cream until about double in volume. Add the remaining eggs, and the sifted flour/cornstarch (2) mixture. Mix until well combined. Fill prepared forms, and bake at 435°F (225°C) until a light brown crust is formed. With a wet knife, cut the top of the cakes lengthwise, and finish baking for an additional 25 minutes at 375°F (195°C) or until done. This formula yields 40 cakes at 17.5 ozs. (500 g) each.

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Question: What are the characteristics of the different vanilla beans?
E.L., Tucson, Ariz.

Answer: Bourbon vanilla is creamy, brown, haylike and sweet with a vanillin flavor. Mexican vanilla is creamy, woody, spicy and sweet, while Tahitian vanilla is fruity, sweet, anisic and has cherry-like characteristics.

Question: What can we do with day-old donuts?
S.A., Farmingdale, N.Y.

Answer: I don't recommend using day-old donuts as they have a distinctive fried flavor. You can donate them to a food bank, or sell them at half price.

Question: We just bought a new donut fryer. Can you share some general tips how to avoid potential problems.
B.B., Richmond, Va.

Answer: Following these guidelines will help you produce a superior product and extend the life of the shortening and equipment.

- Do not heat the shortening for a long period of time without use.
- During slack times, allow the fryer to cool.
- Look for any possible contact between the oil and copper or brass parts.
- Replace worn parts when necessary.
- Remember that both animal and vegetable fats are flammable compounds, and that careful usage will prevent accidental fire and possible injury.
- Never overload the fryer. Follow the guidelines of the fryer manufacturer. Adhere to the proper cooking times.
- Skim off and filter out any excess particles.
- Do not allow drip-back from the hood or fryer cover.
- Carefully prepare foods for the fryer. Remove excess fat, loose parts and blot away excess moisture.
- Do not salt or season foods over or around the fryer.

- Keep the fryer spotless. Clean it on a regular basis.
- Remove all gum formations and rinse all soap away before drying.
- Do not allow the oil to burn.
- Check for hot spots in your fryer.
- Check the thermostat of your fryer with a separate thermometer.

Question: Do you have a formula for old-fashioned ginger snaps?
H.S., Fairbanks, Alaska

Answer: This formula uses leftover cake to retain moisture and give extra flavor to the cookie. The cake crumbs also are a great way to reduce cost. Make the cake crumbs by thoroughly drying stale (dark) cake with no icing in the oven. Then, finely grind it and sift to make it uniform.

Ginger Snaps				
Ingredients	**Metric**	**Lbs.**	**Ozs.**	**Bakers %**
Granulated sugar	2.04 kg	4	8	18
Confectioners' sugar	2.04 kg	4	8	18
Vegetable shortening	2.27 kg	5		20
Molasses	5 L	11		44
Cake crumbs, dark	2.04 kg	4	8	18
Salt	85 g		3	0.75
Lemon flavor	30 g		1	0.25
Ground ginger	170 g		6	1.5
Baking soda	140 g		5	1.25
Cake flour	5.67 kg	12	8	50
Pastry flour	5.67 kg	12	8	50
Water	1.135 kg	2	8	10
Total appr. wt.	**26.29 kg**	**57**	**15**	**231.75**

Method: Cream both sugars and shortening. Slightly warm the molasses, and add to the creamed mixture. Mix well, then add the cake crumbs and incorporate. Add the salt and lemon flavor. Sift the ground ginger and baking soda with the flour, and add to the mixture. Add the water to the mixture, and mix thoroughly. Roll the dough to about 2/8 ins., and cut with a 2-in. round cutter. Bake with little steam at 350°F.

Question: I would like to make a graham cracker cake. Do you have a formula?
A.D., Pigeon Forge, Tenn.

Answer: Try this formula. I have found it to work well.

Graham cracker cake				
Ingredients	**Metric**	**Lbs.**	**Ozs.**	**Bakers %**
Honey	285 g	10		29.5
Whole milk	910 ml	2		94.3
Graham crackers	910 g	2		94.3
Granulated sugar	1.755 kg	3	14	181.9
Vegetable shortening	625 g	1	6	64.8
Cake flour	965 g	2	2	100
Whole eggs	1.36 L	2	8	140.9
Baking powder	56 g		2	5.8
Salt	28 g		1	2.9
Total appr. wt.	**6.894 kg**	**14**	**11**	**714.4**

Method: Stir the honey into the milk, add the graham crackers and let stand until soft. Cream the sugar and shortening, and gradually add the eggs. Blend the flour, baking powder and salt, and add to the creamed mass. Then introduce the softened crackers, and mix until uniform. Divide evenly on two prepared full sheet pans, and bake at 375°F for 35 minutes or until done. Cool, and assemble with apple jelly and butterscotch icing. Various icings may be used to finish the cake in accordance with regional preferences.

Question: I have heard that there is a Class K fire extinguisher for bakery oil fires. Would you recommend this extinguisher for the bakery?
G.L., Upper Saddle River, N.J.

Answer: Due to changes in commercial cooking methods, certain fire suppression systems currently installed in bakeries may not provide adequate fire protection. The use of vegetable oils has helped lower the fat and cholesterol content of food, but they burn at a higher temperature than animal fats and create fires that are more difficult to extinguish. The Class K extinguisher was developed to combat this new hazard. This extinguisher uses wet potassium acetate, a low pH agent that has a greater fire-fighting and cooling effect for this type of oil. Most of these extinguishers can be safely

used on Class A, B, and C fires also. When using these extinguishers, be sure to check the label first. Their range is 10 to 12 feet and last for about 40 seconds. Class K extinguishers should be placed where deep fat fryers are in use.

Question: We always have excess egg whites. Do you have a cookie formula using egg whites?
D.M., Athens, Ga.

Answer: Walnut kisses are a great way to use egg whites.

Walnut kisses			
Ingredients	**Metric**	**Lbs.**	**Ozs.**
Egg whites	1.815 L	4	
Granulated sugar	3.63 kg	8	
Cream of tartar	14 g		0.5
Vanilla extract	14 g		0.5
Cornstarch	113 g		4
Chopped walnuts	1.815 kg		4
Total appr. wt.	**7.401 kg**	**16**	**5**
Method: Beat the egg whites until they begin to foam, then gradually add half of the sugar, cream of tartar and vanilla extract. Sift the cornstarch with the remaining sugar twice, and fold this into the beaten meringue. Carefully fold in the nuts. Deposit through a large star tube and bake in a very moderate oven, about 250°F, with the damper open until the cookies are dry, about 20 minutes, depending on size.			

Question: Can you explain how induction cooking works? I want to replace our gas stove with this technology.
Fred, via e-mail

Answer: Induction works by creating a magnetic field that extends just a few inches above a flat cook top. This magnetic field excites the molecules in a pan, thereby-heating the pan. The pan itself, rather than a flame, then becomes the source of heat. Induction is a highly energy efficient method of cooking, with temperatures reaching more than 600°F. Only pans made with ferrous metals, such as stainless steel and cast iron, can be used in induction cooking. Specially designed induction-ready pans are strongly recommended because they produce the most even heat and most efficient cooking.

Question: Some of our formulas call for blanched almonds, which we do not stock. How do I make my own?
John, via e-mail

Answer: Blanching means to make the nuts white by removing their skin. To make your own blanched almonds, you will need to boil the nuts. Select the size of the pan according to the quantity of almonds you want to prepare. Add water up to the middle of the pan. When the water starts to boil, add the almonds (washed, with their skin), lower the heat and bring them to a boil two to three times in an open pan. Strain them. While the almonds are still warm, press the large end of each almond to pop it from its skin, and pat the almonds dry. You can add a small amount of baking soda to make this process even easier.

Question: We have problems with our cocoa and cocoa products. Our chocolate gets a whitish/grayish-"film" during storage. What causes this?
D.H., Racine Wis.

Answer: Cocoa and cocoa products are very sensitive to light, humidity, heat and strong odor. The best way to store these products is in temperatures around 59°F (15°C) and a relative humidity of about 65 percent. If the product is stored at higher temperatures, part of the cocoa butter will move to the surface and eventually seize-up, resulting in a grayish "film". At higher humidity levels, cocoa powder lumps easily and is receptive to mold growth. I suggest storing milk chocolate no longer than 6 months and dark chocolate no longer than one year.

KLAUS TENBERGEN is a Bäckermeister (Germany), Certified Master Baker (USA), Master Baker (South Africa) and Chef Instructor at Kendall College-"The School of Culinary Arts" in Chicago. For more information about Kendall College, call toll free 877/588-8860. You can contact Chef Klaus Tenbergen via e-mail at: **btenbergen@wi.rr.com**.

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Question: We are using a lot of crème fraîche, but want to make our own. Can you help?

J.G., via e-mail

Answer: To make crème fraîche, you need heavy cream that is not ultra-pasteurized and buttermilk with active cultures. Heat 1 gal. of heavy cream to about 100°F, remove it from heat and stir in 8 ozs. of buttermilk. Cover the mixture loosely and store for about 24 hours in a warm place or until it thickens. Refrigerate thoroughly before using. Crème fraîche will last for about one week when kept chilled.

Question: We are using a lot of aluminum foil containers in the bakery. Can we use them in the microwave oven to heat ingredients?

D.S., Hingham, Mass.

Answer: Yes, you can use aluminum foil containers in the microwave if the microwave oven was manufactured after 1980. Food heats more thoroughly in aluminum containers than in plastic and retains more of its original texture and flavor.

Question: We produce and sell a lot of éclairs, however, the chocolate coating falls off after several hours. Why does this occur and what can we do to prevent it?

P.B., Huntington Beach, Calif.

Answer: Heat the chocolate coating to about 128°F (53°C), and allow it to cool to about 105°F (40°C) before you apply it to the éclairs. This will avoid variations in how quickly the chocolate sets. If the chocolate sets too quickly, it will shrink and fall off. Also, make sure that the surface of the éclairs is dry, as moisture on the surface could cause lack of adhesion.

Question: We cover a lot of wedding cakes with marzipan, but the marzipan hardens after a short period of time. How can we avoid this problem?

M.B., Hudson, Wis.

Answer: Adding additional moisture to the marzipan in the form of equal parts water and glucose is a good start to prevent moisture loss. I'm also very successful with a solution of 32 ozs. of water, 32 ozs. of granulated sugar and 8 ozs. of glucose, which is boiled and cooled before adding to the marzipan. Be careful not to add too much liquid, or the marzipan can become unmanageable.

Question: Our apple pies are great, but the shelf life is only two days. What can we do to extend the shelf life?

S.S., Fairfield, N.J.

Answer: Mix a large 10 kg batch of granulated sugar at slow speed with 10 g of potassium sorbate (100 ppm). Add the normal amount of sugar to your apple pie formula. The preservative potassium sorbate will increase the shelf life of the apple pie to about seven to eight days. Potassium sorbate is the potassium salt of sorbic acid. Potassium is the most widely used food preservative in the world. Potassium sorbate is effective against yeasts, molds, and certain bacteria, and it is widely used in bread, cakes, pies and fillings, baking mixes, doughs, icings, fudges, toppings, and confections. The maximum level allowable by law is 0.1%. If preservatives are used in a food, they must be declared in the list of ingredients on the label, along with a short explanation of intended use, such as "preservative," "mold inhibitor," or "to retard spoilage," etc.

Question: What temperature do you recommend for cake batters and why?

B.H., Easton, Pa.

Answer: By keeping the ingredients at an even temperature of 72°F (22°C), better aeration and a more thorough dispersion and hydration of ingredients is achieved, resulting in a finished product with great appearance, volume and texture when baked.

Question: Why are eggs so important in the production of baked products?

D.R., Minneapolis

Answer: Eggs have three primary attributes:

- Foaming: incorporating of air into the batter.
- Emulsification: stabilizing the suspension of one liquid in another.
- Coagulation: converting the liquid egg to a solid state, which binds together other ingredients.

Question: What is the optimal amount of sugar needed to sweeten heavy whipping cream?

Michael, via e-mail

Answer: I always add 10 percent of confectioners' sugar to the whipping cream, resulting in a nicely balanced, sweetened whipping cream.

Question: Do you know how to make pan coating? We have tried several variations with no luck. **-*K.V., via e-mail***

Answer: Use equal parts vegetable oil, all-purpose shortening and bread flour. Mix with a paddle attachment on low speed until smooth. Store it at room temperature.

Question: Many formulas call for clarified butter. What is the procedure to make clarified butter? **-*H.S., Baltimore***

Answer: Butter is clarified to increase its shelf life, to remove the water and milk solids and to increase the smoking point. To make clarified butter, warm the butter over low heat without boiling. As the butter melts, the milk solids rise to the top as a foam, and the water sinks to the bottom. Remove the milk solids from the top, and ladle the butterfat into a clean pan, leaving the water in the bottom of the pan. Clarified butter yields about 75 percent.

Question: Can you provide a formula for a German chocolate cake icing? ***-E.R., via e-mail***

Answer: This icing has always worked well for me.

Icing

Ingredients	Lbs.	Ozs.
Evaporated milk	2	
Granulated sugar	2	
Egg yolks		8
Unsalted butter	1	
Vanilla extract		0.5
Flaked coconut	1	
Pecans, chopped	1	

Total appr. wt.	**7**	**8.5**

Instructions: Combine the evaporated milk, sugar, egg yolks and unsalted butter in a saucepan over medium heat. Cook, stirring constantly, until the mixture thickens, about 15 to 20 minutes. Remove from heat, and add the vanilla extract, coconut and pecans. Mix with a paddle attachement until the icing is cool and spreadable.

Question: We would like to make our applesauce from scratch. Do you have a good formula?-***B.K., via e-mail***

Answer: Making applesauce from scratch is not only cost effective, but also tastes better than anything you can buy. Peel, core and slice 10 lbs. of Granny Smith apples. Combine the apples with 1 lb. 8 ozs. of granulated sugar, 12 ozs. of water, two vanilla beans (split and scraped), two cinnamon sticks and zest of two lemons. Bring it all to a boil, reduce the heat, and cook until the apples begin to disintegrate and the sauce thickens, stirring frequently. Cool to room temperature, and remove the vanilla, cinnamon and lemon.

Question: How do we calculate our scaling weight for bread dough to get a finished product of 16 ozs. and 24 ozs.? -***R.S., New York***

Answer: Your normal bake-out loss is between 10 to 15 percent depending on the size and shape of the bread. You don't want to sell under-weight products, so I suggest going higher rather than lower when scaling the dough.

Question: Do convection ovens have different baking temperatures than gas ovens? - ***J.G., Providence, R.I.***

Answer: Convection ovens, which include rack ovens, develop more intense heat than gas ovens when set at the same temperature. The optimum baking temperature in these forced air ovens is usually about 33°F lower than in gas ovens.

Question: We have several customers that have requested products with spelt flour. What is spelt? **-*J.S., Effingham, Ill.***

Answer: Spelt is one of the oldest cereal grains known to man. The unusual name is derived from the Latin name, *triticum spelta*. Spelt has a mild, nutty flavor, and many people with wheat allergies have found spelt to be a viable alternative. Spelt is grown in the United States, and is usually available from your suppliers.

Question: Soft garlic bread sticks are high in demand. Can you provide a formula?
P. Koratis, via e-mail

Answer: This formula works well.

Garlic sticks

Ingredients	**Metric**	**Lbs.**	**Ozs.**	**Bakers %**
Bread flour	10 kg	22		100
Water	5.5 L	12		55
Granulated sugar	500 g	1	1.5	5
Olive oil	2.2 L	4	13.5	22
Salt	200 g		7	2
Compressed yeast	700 g	1	8.5	7
Grated parmesan	500 g	1	1.5	5
Minced garlic	500 g	1	1.5	5
Total appr. wt.	**20.1 kg**	**44**	**1.5**	**201**

Instructions: Combine all ingredients except the parmesan and garlic. Make a well developed dough using the straight

dough method. Add the garlic and parmesan the last minute of the mixing process, and bulk ferment for 10 minutes. Divide into 4-lb. (2 kg) pieces, and shape into rectangles. Bench rest for five minutes, then roll the dough pieces into 0.25-in. thick rectangles. Cut into 48 equal pieces and roll each piece into a rope and twist. Brush with egg wash and top with sesame seeds. Bake at full proof for 12 minutes at 375°F or until golden brown.

Question: To what temperature should we cool ganache before pouring it over the cakes? -***J.S., Upper Saddle River, N.J.***

Answer: No matter what method you use to make ganache, you should cool the chocolate and cream mixture over an ice bath, stirring frequently. If you want to pour the ganache, cool the mixture to 95°F. If you want to whip the ganache, cool the ganache completely, then beat or whip the ganache to incorporate air into the mixture.

Question: Can we substitute granulated gelatin for sheet gelatin? -***F. Strauss, via e-mail***

Answer: Granulated gelatin should be softened in four times its weight of cold liquid for about ten minutes, then heated gently to dissolve. One ounce of granulated gelatin is enough to set four pints (2 L) of liquid. Leaf or sheet gelatin must be soaked for 20 minutes in ice water, then removed from the water, squeezed to remove excess moisture and added into hot liquid without melting it first. Sheet and granulated gelatin can be substituted weight for weight in any formula.

Question: When comparing formulas, I have noticed inconsistencies in what is considered flour when calculating baker's percent. Could you please explain what should be included in the total flour weight?***-Harlem, via e-mail***

Answer: There is no uniform rule in the baking industry for what should be included in the total flour weight. I include vital wheat gluten, other wheat products, rye products, all grains and seeds and high fiber ingredients as recommended by the book *Baking Technology* by Wulf Doerry.

Question: When should I use high-ratio shortenings? ***-J.R., San Diego***

Answer: High-ratio shortening also is known as emulsified shortening and should be used in the production of icings and cakes where the formula contains a large percentage of sugar. Avoid substituting any other fat as the product texture will suffer.

KLAUS TENBERGEN is a Bâckermeister (Germany), Certified Master Baker (USA), Master Baker (South Africa) and Chef Instructor at Kendall College-"The School of Culinary Arts" in Evanston, Illinois. For more information about Kendall College, call toll free 877/588-8860. You can contact Chef Klaus Tenbergen via e-mail at: btenbergen@wi.rr.com.

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Deck ovens: understanding your options

“The quality of the product that deck ovens produce was the bottom line in why we wanted to get them,” Rick Robbins says. “Still, there are a lot of other incentives, including fuel savings and control of the baking.”

For the volume of artisan bread being produced at Pittsfield Rye, Robbins says that he couldn't beat a deck oven. Not every variety of deck oven is created equal, though. Ovens and their peripheral loaders are a major expense, so do your research. The ovens use three main heating methods, and each has advantages and drawbacks that predispose them to different applications. For bakers considering adding deck ovens to their operation, an understanding of the three primary varieties — cyclothermic, steam tube and thermal-oil — is essential for determining which will be the best fit.

Michael Eggebrecht, a consultant with Artisan Baking Resources in Stevenson, Wash., has studied the differences among the ovens. The method of getting the heat into the baking chamber is what differentiates the ovens. “I arrived at the fact that for artisan bread, there is a type of deck oven heating system for each application,” he says. “It largely depends on what you're going to use your oven for and what you want from your product.”

Cyclothermic ovens

The cyclothermic oven, which uses air to move heat into the baking chamber, is an old and simple technology that is popular in Germany and Eastern Europe. Heat produced by combustion yields to the product on the deck in the baking chamber by way of air cycling through tubes or panels placed above and below the baking chamber.

An electric convection fan, located at the back of the oven, drives the hot air circulation. The ability to constantly recycle the heated air aids in keeping fuel consumption low. Ovens using this heating method have less mass than steam tube or thermal-oil ovens, so cyclothermic ovens need to use more energy and be preheated to a temperature higher than the actual baking temperature.

Cyclothermic oven-produced bread tends to have a large volume and a thin crust thanks to strong oven spring characteristics. The temperature drop at loading and subsequent recovery to baking temperature slightly delays crust formation. Eggebrecht says that versatility is the best characteristic of the cyclothermic oven. The temperature control allows bakers to use a baking curve and to adjust the temperature throughout the day.

Steam tube ovens

In a steam tube oven, tubes filled partially with water are placed above and below the baking surface. They run to a combustion chamber made of fire-resistant bricks beneath the oven. There, a burner heats the tubes, causing the trapped water to turn into steam that naturally circulates through the tubes into the oven. After releasing its heat, the steam condenses back to water and flows to the combustion chamber to be reheated.

Steam tube ovens tend to produce a drier bake than cyclothermic ovens, Eggebrecht says. The large surface area of exposed, superheated tubes in the baking chamber has a drying effect on the baking environment. This causes crust to form more quickly and oven spring to be comparatively diminished, so bread may exhibit smaller volume and thicker crust. The large thermal masses of steam tube ovens precipitate a better recovery time than cyclothermic ovens, providing a consistent temperature throughout a bake cycle.

Thermal-oil ovens

Thermal-oil deck ovens consist of two parts: the oven itself and a remote boiler. Oil is heated in the boiler and piped to the oven similar to the system in a steam tube oven. After the oil passes through the heating chamber and the heat is radiated, the oil returns to the boiler to be reheated.

Oil is a better conductor of heat than water, and combined with the considerable thermal mass, thermal-oil ovens possess the fastest recovery time of all deck ovens. These ovens are extremely energy efficient, Eggebrecht says, as one boiler can be used to heat a number of ovens. The oil requires pumps and controls that are non-existent in the steam tube oven, which increases the cost and complexity of the oven. Larger bakeries may even require a technician to be on hand to maintain the oven.

The fast recovery time gives the thermal-oil oven a consistent, even bake. The bread has comparable characteristics to the steam tube ovens. The ovens have less flexibility in temperature changes than steam tube ovens, and are not conducive to building temperature curves into the baking time.

“There are lots of things to think about when looking into those three ovens styles; you have to identify your products and your baking times,” Eggebrecht says. “A baker has to compile a list of products, baking times and temperatures, and must factor in variables like par-baking and how much product fits on a deck. A thorough analysis tells you what system best fits your particular bakery. You have to be especially thorough when you take the loader into consideration, because there is a lot of timing that goes into it, and you can't unload anything before you've finished loading.”

Loaders

Loaders vary in automation and cost. The price alone can be intimidating, but the fact remains that bakers need a way to get product into and out of the oven, and that can be the most labor intensive of bakery tasks. Robbins says when looking at loaders, it all boils down to volume and labor.

“You have to look at where you are in terms of production volume, and think about where you want to be. Basically, it's a cost/benefit analysis,” he says. “How much does labor cost now, and how much would it cost if you grew a little bit; would automation cut down labor enough to justify the increased cost? With deck ovens, you don't really need to turn product, so most of the labor is in the loading and unloading.”

Some artisan bread bakers doubted the benefits of oven loaders over traditiaonal peels. They feared quality would be sacrificed to convenience, and that increased automation would only add another degree of separation between a baker and his or her bread. The perception still exists, but oven loaders can actually improve bread handling.

“Typically, we are seeing that oven loaders can handle bread better than a human can,” Eggebrecht says. “Imagine a fully risen piece of ciabatta. Would you rather handle it by hand or use an automatic loader with a seamless transfer? If you're looking to automate, and you are concerned about product quality, loaders are a good place to look.”

Test the equipment

As is true with all new equipment, bakers can rely on other experienced bakers for advice when purchasing deck ovens. Set up appointments to watch the deck ovens in action at real bakeries, particularly bakeries with similar production schedules, methods and product lines. Better yet, try them out yourself.

Robbins, as a rule, takes notice of the bigger equipment items in every bakery he visits. While visiting other bakeries looking at silos, he also was keeping a close eye on the ovens in those bakeries. After a few years of seeing deck ovens in action, Robbins decided it was time to get more serious about them.

“Through the sales rep for the oven company, we set up a visit to another bakery using the model we were looking at. They basically gave us carte blanche to try everything out and actually use the equipment,” Robbins says. “They had an older, remodeled oven, too, and were using both. We could see the products side by side, and we could really see the difference; where one oven excelled and the other didn't.”

Robbins expected some improvement in energey efficiency with the new ovens. Other bakers told him to look for a nearly fifty percent savings on the gas bill, which was an unexpected incentive. Armed with an understanding of oven varieties and the advice of other bakers, Robbins was able to determine which deck ovens fit his bakery and his product line.

Q: How can we create a quick and easy velvet look on cakes?
James, via e-mail

A: Using a spray gun is a very economical way to apply velvet finish to several cakes at the same time. Make sure that the cakes are either frozen or very cold, so the chocolate sets up quickly when applied to the cakes. Here are some proportions used widely in the industry. All ratios are chocolate to cocoa butter. In general, as the cooca solid content decreases, less cocoa butter is required to thin the couverture.

	White spray (White couverture)	Milk spray (35% chocolate)	Dark spray (64% chocolate)
Chocolate	80%	65%	50%
Cocoa butter	20%	35%	50%

Combine the chocolate and cocoa butter in the proportion recommended above, and melt over a double boiler to no more than 120°F (49°C). Combine well before using. Keep the liquid warm when not in use.

Definition of German chocolate

Q: What exactly is German chocolate?
Doug, via e-mail

A: German chocolate contains a blend of chocolate liquor, sugar, cocoa butter, flavorings and lecithin, and is darker and sweeter than semi-sweet chocolate. German chocolate is the predecessor to bittersweet chocolate and is normally used in baking applications. It has no connection to Germany; it was developed by a gentleman named Samuel German, who thought it would be more convenient for bakers to have a chocolate where the sugar was already added.

Q: I have an icing formula that calls for meringue powder. Is this cream of tartar? I have never heard of it.
R.G., Bel Air, Md.

A: It is not cream of tartar, which is often added to egg whites as a stabilizer. Meringue powder is made of dried egg whites, sugar and gum. I am guessing that your formula calls for meringue powder and omits the egg whites entirely.

Q: If a formula calls for rum, can rum flavoring be used in place of the rum, and if so, in what ratio?
A.L., Mayfield, Ky.

A: If a formula calls for 8 ozs. of rum, you may use 1 oz. of rum extract for the equivalent flavor. Depending on the formula, you probably will need to add 7 ozs. of water to keep the ratio of liquid to the dry ingredients correct.

Q: Our cakes have very pale top crusts. What do we need to do to correct the problem?
S.P., Eagle, Idaho

A: Do not open the oven door more than necessary, as this will drop the oven temperature, and depending on the recovery time of your oven, this can be the cause of the pale top crust. Additionally, fill the cake pans with the appropriate amount of batter. Make sure the liquid in the formula is measured correctly, and you bake the cakes at the correct oven temperature.

Q: Our bakery has extremely soft water, which makes handling our bread doughs very difficult. How do we resolve this?
G.L., Burlington, Vt.

A: Soft water is treated water in which the only cation (positively charged ion) is sodium. Adding 0.25 percent (based on the flour weight) calcium sulfate or non-bromated mineral yeast food provides the necessary mineral supplement to the dough to correct the soft water condition.

Q: One of our customers asked us if we are supporters of locavore. What does this mean?
W.M., Deland, Fla.

A: Locavore or localvores are people who commit to eating locally grown food as much as possible. The great thing about eating local is that it's not an all-or-nothing venture. Any small step you take helps the environment, protects your family's health and supports small farmers in your area.

Differences in confectioners' sugar

Q: I recently bought the wrong kind of confectioners' sugar for my buttercream icing. What does the 6X/10X mean? How can I make the 6X have the same consistency as the 10X? I have heard that you can add corn starch, but I don't know the ratio.
L.B., Escanaba, Mich.

A: 6X confectioners' sugar has a small uniform particle size and is perfect for a wide range of products. It creates smooth textures and easy-to-spread properties for icings. 10X confectioners' sugar, also known as ultrafine, bakers, castor or bar sugar, is regular sugar that has been ground into a fine powder and contains about 3 percent cornstarch to prevent caking. 10X confectioners' sugar is more finely milled than 6X confectioners' sugar. You can add 3 percent cornstarch based on the total weight to 6X sugar to get the same properties as 10X sugar and to prevent caking, however, you need to grind the sugar much finer as well, which is nearly impossible without the appropriate commercial equipment.

Q: How much gelatin is needed to make marshmallows and jelly babies?
D.B., Derby, Kan.

A: Generally speaking, marshmallows require about 2.5 percent gelatin by weight and French jellies or jelly babies require 4 percent to 6 percent gelatin by weight.

Q: We are trying to convert an old family recipe for use in our bakery and ran across an unfamiliar term. What precisely is a knob of butter?
Susan. via e-mail

A: A knob of butter is a British term denoting some butter; a knob of butter usually means about a walnut-sized lump.

: Why is “creaming” an important technique for quality-shortened cakes?
Melanie, via e-mail

A: Creaming is a process of working the fat and sugar to incorporate air bubbles and results in a heavy foam. Ideally, the air bubbles are uniform, small and surrounded by fat. These bits of fat are then dispersed throughout the liquid batter. The air bubbles contribute to the leavening of the cake and subsequent increase in volume, serving as cells where steam and carbon dioxide can collect and expand during baking.

Ideal thickness of croissant dough

Q: To what thickness should croissant dough be sheeted?
C.D., Alma, Mich.

A: I have great success when sheeting croissant dough to 0.15 ins. or 3.5 to 4 mm.

Q: What is the difference between alkalized and non-alkalized processed cocoa powder? Do we need to make any changes when interchanging them?
R.P., Chicago

A: Dutch process cocoa powder is alkalized and other cocoa powders are non-alkalized. If your formula calls for Dutch process cocoa and you don't have any, you can use non-alkalized cocoa, but you must add a smidge of baking soda to even out the alkalinity and keep the cake from being coarse and dry. And vice versa-if you are baking a cake and it calls for regular cocoa and all you have is Dutch-processed cocoa, just leave out any baking soda in the formula. I would not recommend doing this on a regular basis, and use the above tip only in emergencies.

Q: What is the difference between an essence and an extract?
Bernard, via e-mail

A: An extract is a concentrated mixture of ethyl alcohol and flavoring oils, such as vanilla, lemon, almond, etc., and is made by distilling, steeping and pressing foods. An essence is a concentrated liquid usually made from an herb, spice or flower and used as a flavoring or aromatic. Essence also is the French word for a concentrated stock.

Q: We want to produce breads fortified with both soluble and insoluble fiber. How do we do this?
Geralyn, via e-mail

A: While breads with high levels of insoluble dietary fiber have been on the market for some time, some obstacles exist to developing breads that are fortified with both soluble and insoluble fiber. Several new gum blends have made it possible to create such a fiber-enhanced product. Used to replace up to 20 percent of the flour in bread dough, these products can deliver about 0.15 oz./4 g of soluble dietary fiber per slice (1.75 ozs./50 g). Some of these gum blends are specially designed to behave like bread flour when used with vital wheat gluten and do not interfere with gluten development and strength. These gums are cold water soluble, kosher and have a typical usage level of 1 percent to 20 percent as replacement of flour.

Prolonging oil life

Q: How can we prolong our frying oils' useful life?
Scott, via e-mail

A: The longer oil is heated, the more quickly it decomposes. Avoid preheating the oil any longer than necessary. If you're frying more than one batch, quickly add each new batch, unless time is needed to recover back to the desired frying temperature. Turn off the heat as soon as you have removed the last batch from the oil. Shake off loosely attached crumbs from food before adding it to the oil. Loose crumbs and other particles scorch quickly and will pollute any oil. Use a small strainer or slotted spoon to remove as many impurities as possible. When the oil has cooled enough that it is safe to handle, strain it through paper towels, coffee filters or cheesecloth into its original empty container. Do not mix it with unused oil. Store the oil, tightly sealed, in a cool, dark place or in the refrigerator. The oil may cloud in the refrigerator, but it should become clear again at room temperature with no ill effects.

Q: What is the definition of high-ratio cake flour?
M.C., Washington, D.C.

A: High-ratio cake flour is soft wheat flour with a protein content within the range of 7 percent to 9 percent, and is treated to render it particularly suitable for the production of high-ratio cakes. It is finely ground and chlorinated to a pH value of 5.2 or lower.

Q: What are pregelatinized flours, and what is their functionality?
B.T., Miami

A: Pregelatinized flours are substances with high water absorption ability that are also called stabilizers. Guar flour and carob gum are two of the best known pregelatinized flours. Pregelatinized flours are essentially used in improvers for interrupted fermentation. In this case, the part of free water in the dough is reduced, which means when the product is frozen, less crystals can be formed. These crystals lead to a deterioration of the gluten membranes and thereby to a deterioration of the product. Carob gum is extracted from the seeds of the carob tree that is found in Mediterranean countries. Guar gum is extracted from a type of bean that grows in India. The kernels of these beans are ground into flour.

Q: Recently we came across a formula that called for curled wheat. Can you tell us what this is?
Chris, via e-mail

A: Curled wheat is ground whole wheat containing about 11 percent protein that has been mixed with moisture and an edible acid to produce dough. The heated dough is then extruded through a die under particular conditions-from high to low pressure zones-to provide a high protein expanded curled wheat product which can be used as an ingredient.

Q: While reading the ingredient label of margarine, I wondered at the meaning of the E-numbers? Do you have an idea?
Michael, via e-mail

A: All food additives have E-numbers. The E stands for Europe. The E-numbers have been introduced in order to be able to clearly define the additives on an international level, because the names for the additives vary from country to country. Moreover, the E-number indicates the food additive is on the list of admissible additives, and therefore is not detrimental to health. Some examples are:

E 170 Acidulant calcium carbonate

E 263 Acidulant calcium acetate

E 300 Flour improver L-ascorbic acid (vitamin C)

E 322 Emulsifier lecithin

E 341 Acidulant calcium phosphate

E 410 Thickener carob gum

E 412 Thickener guar gum

E 450 Acidulant diphosphate

E 471 Emulsifier mono- and diglycerides of edible fatty acids

E 472e Emulsifier DATEM (diacetyl tartaric acid ester)

Q: We produce our signature banana bread almost every week. We buy bananas in bulk, and were hoping you knew a trick to lengthen the life of the bananas.
Nina, via e-mail

A: I place bananas in plastic grocery bags. Push out the air from the bag, and close it tightly. I have stored bananas up to five weeks in the refrigerator this way without the skins turning dark or the flavor

deteriorating quickly. One thing taking place is that the ethylene gas is still active but greatly slowed by the chill of the refrigerator. They still continue to ripen, but as a much slower rate. The bags shield the bananas from dehydration and oxygen.

Q: Is there an economical substitute for marzipan?
Gary, via e-mail

A: Persipan is an economical substitute for marzipan. Raw persipan paste is manufactured through the same process as marzipan, and consists of debittered apricot kernels and sugar. The moisture content does not exceed 20 percent, and a maximum of 35 percent sugar is added. Apart from this, the paste contains 0.5 percent potato starch, which is added to comply with food legislation. Persipan for forming is made by blending raw persipan with sugar. Up to one-and-one-half parts sugar may be added to one part raw persipan. It is recommended to add up to 5 percent glucose syrup and 5 percent sorbitol syrup, but these additions must be deducted from the sugar amount. Labeling is required.

Klaus Tenbergen *is certified as a Master Baker in Germany, South Africa and the United States. He is currently an assistant professor at California State University in Fresno, teaching classes in Culinology®-the blending of culinary arts and the science of food. For more information, call 559/278-2164 or contact Klaus Tenbergen at* **ktenbergen@csufresno.edu**.

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n-Ming Hsu been there, done that

Mar 1, 2009 12:00 PM

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How did you choose baking and pasty arts as a career?

For as long as I can remember, I enjoyed cooking and baking. While I studied at **Skidmore College** in upstate New York, I heard about a nearby culinary school, the **Culinary Institute of America** (CIA). I thought it would be interesting to attend. After I graduated with a B.A. in studio arts, I planned to get my masters degree in jewelry design. While I was working on my portfolio, I decided I really wanted to cook instead, so I went to work for a catering company to get some practical experience. That convinced me that I belonged in the kitchen, so not long after, I enrolled in the CIA.

What training/education have you received?

While I was at the CIA, the school began its baking and pastry program. I enjoyed cooking, but as soon as the baking program started, I knew I wanted to be a pastry chef, so I transferred into the new

program. I was the first student to graduate with a baking and pastry degree. One of my most valuable experiences was my school externship with Didier Schorner, owner of Café Didier in Washington, D.C. Didier was instrumental in my training. He ran a tight ship, and I learned a lot of fundamentals there. Didier is now a chef instructor at the CIA. I feel that each chef I worked under throughout the years helped provide the foundation that I built my career on. I supplemented that with stages and continuing education courses. Now, as an independent pastry chef, I work with chefs all over the world and find myself learning more than ever.

How would you describe your style or approach to baking?

My style is very much a reflection of my classical training. I am quite conservative, but I add modern touches (i.e. through technique), so the work is interesting. Because I want to reach a broad audience, I try to keep the recipes simple, so they can be practical for production. As far as the decorative work I do, my style applies to many of the design principles I learned as an art student. It tends to be interpretive with an emphasis on the organics.

What sets your style apart?

I'm not sure that I have a unique style-perhaps because I do not focus on a particular area. However, when I am working on a specific subject, I frequently find myself following the same path. For example, if I am creating a plated dessert with fruits, I gravitate toward similar concepts of flavors, textures, temperatures and presentation. I like to keep the components close together so they can be eaten at the same time. I find myself conscientiously trying to differ the style, but I end up sticking to the concepts that work well for me.

What drove you to compete?

I started to compete when I worked under Sebastien Canonne at the Ritz-Carlton Chicago, a Four Seasons Hotel. It was an interest for him, and he liked his staff to be exposed to it. The hotel encouraged it as well. I enjoyed the challenge because the work was different than what I did on a daily basis. Competition is not for everyone; it takes time and commitment. In our current economic climate, I think it is more difficult for chefs to get the support needed to enter competitions. Training for competition taught me a lot about organization, discipline and teamwork. I became a better chef because of that. I am still involved with competitions because I enjoy working with others and helping them to achieve their goals.

How did you approach your role as captain in 2001?

I was team captain for the Coupe du Monde de la Patisserie 2001, but I cannot take credit for being the leader of the group. There is an enormous amount of planning and preparation that goes into bringing a team to an international event. Ewald Notter, Michel Willaume and I worked with the Coupe du Monde organization that included pastry chefs Stanton Ho, Donald Wressel, Sylvain Leroy, Jody Klocko (our team alternate) and Keegan Gerhard. We relied on Stan, Donald and Sylvain's past experiences with the competition, which were instrumental in our success.

Did your life change after the gold medal?

After we won in 2001, I was asked that all the time. In other countries, particularly France, winning the Coupe du Monde de la Patisserie opens up the door for the future, almost like a launching pad. Many chefs go on to open their own pastry shop or business. I did not have the same goal in mind, so I looked at the experience differently. I certainly did not view it as life changing. Since 2001, I stayed involved with most subsequent teams, managing the most recent team, but I can see the impact of the competition on my career. I have lifelong friendships with the 2001 group, and I have built relationships with pastry chefs worldwide. Through these contacts, my business continues to develop and grow. I realize how small our pastry chef community is. It really is very special.

You have since judged competitions. How does it feel to be on the other side?

It is not easy being a judge. Every competition has different rules and requirements. The most difficult are the ones where the jury members must judge several categories. If the competition is more than one day, the judges must take good notes to remember from one day to the next. The goal is to always be consistent, fair and objective. As a judge, I always remember how it is to be in the booth (competing). When I'm a judge, I take the criteria and break it down according to the point system and the value I put in certain aspects. I look for things like work habit, teamwork and ethic, as well as technical skill, work quality and presentation. I prefer to see a small piece perfectly executed with all techniques mastered rather than a large piece, which, while impressive in size, is short on basic skills. Same with desserts. A simple, perfectly executed dessert using the best ingredients is hard to beat.

nd managing Team USA?

When I manage Team USA for the World Pastry Cup, my goal is to help the team with all the details, so they can focus on what they need to do. No matter how much the team does to prepare, nothing counts except competition day. Because this is an international event, there are a lot of logistics involved. Over the years, we have put together a system that works well. We have the entire year prior to the competition scheduled for official deadlines, packing, shipping, etc. I coordinate the sponsors, practices and all necessary plans for the stay in Lyon. We were very fortunate to have established L'Academie de Cuisine in Gaithersburg, Md., as a home base for Team USA. The team owes a lot to the sponsors. With out them, they would not be able to participate.

Do you consider anyone to be a mentor?

I still stay in touch with my chef instructors from the CIA, as well as chefs like Didier Schorner and Sebastien Canonne. Sebastien and Jacquy Pfeiffer now co-own the French Pastry School in Chicago. I joined them this year as a chef instructor. Our business as pastry chefs is very difficult. Pastry cooks and students need guidance to help them to be successful. I admire established pastry chefs who take the time and see the value in mentoring others. We need to share our knowledge with each other.

What challenges do pastry chefs currently face?

One of the biggest challenges that I see now for pastry chefs is the economy. Many pastry chefs are being forced to lay off staff and find other ways (like ordering products from outside) to get their job done. They have fewer opportunities to participate in extra curricular activities like competitions. I find myself thinking a little differently now when I develop my programs or classes. I keep the kitchen situations in mind and try to make the recipes adaptable to the clients' needs.

What do you do when you aren't working?

I love to garden. My husband and I bought a house in Las Vegas with a large backyard specifically to grow edibles. It is a challenge to grow in the desert, but not impossible. I have a huge interest in fruits, so we planted several fruit trees — apples, fig, plum, peach, apricot, pomegranate. We also grow several varieties of wine and table grapes, citruses and nuts (almonds and pistachios). My travel schedule makes it hard to keep up sometimes. I lost last year's almond harvest (all 2 lbs.) because I was away when it was time to pick. I volunteer for the University of Nevada's Cooperative Extension Orchard Project. I have learned a great deal about growing through this program. We also have recently taken up fly-fishing. Soon, I plan to be an expert fly tyer.

See any good movies lately?

I just watched the new (maybe not so new because it was on a plane) James Bond movie,*Quantum of Solace*. I only watch movies on airplanes these days. I saw *Bottle Shock*, too recently, about Napa Valley in the 1970s. My all time favorite is *Babette's Feast*.

What's on your I-Pod?

I carry my I-pod everywhere and listen to French music — it's supposed to help me learn the language.

Q: How much salt is in salted butter, and does it make a difference if I use salted or unsalted butter in a formula?
L.K., Cincinnati

A: The amount of salt in salted butter can vary, but it generally contains up to 3 percent salt. That is 15 g of salt per 500 g of butter or 0.5 oz. of salt per 16 ozs. of butter. If you create something with a high percentage of butter, I recommend using unsalted butter because it gives you more control over the amount of salt in the formula. But if the butter is only a small percentage of the total formulation, then the additional salt in the butter becomes insignificant.

Q: I found a great formula in an old cookbook, and it calls for an ingredient I'm unfamiliar with — castor sugar. What is castor sugar?
Roy, via e-mail

A: Castor or caster sugar is the name of a very fine sugar in Great Britain, so named because the grains are small enough to fit though a sugar “caster” or sprinkler. It is sold as “superfine” sugar in the United States, and it is readily available through your supplier.

Q: How many cuts should a French bread/baguette have?
A.K., Sanger, Calif.

A: Before baking, bread should be scored with a bread slashing tool called a lamé, which creates incisions about 1/2 in. deep that overlap and run almost parallel to the center of the loaves. This prevents the formation of random breaks during the first minutes of baking. French bread is cut four times diagonally across the loaf, but the number of cuts may vary depending on the individual baker and the size of the loaf.

Q: What is the best way to package freshly baked artisan bread?
S.W., Calgary, Canada

A: In order to slow down the drying of freshly baked bread and to keep the crust crispy, bread is best stored and sold in waxed paper or in perforated plastic bags.

Q: Rather than boiling dried pears to reconstitute them, can you suggest another method to achieve the same results?
S.S., Pueblo, Colo.

A: Fruit reconstitutes faster in hot liquids. Pour an equal part of heated pear brandy and heated rosewater over the fruit; combine well, and leave covered for 12 to 18 hours. Use as needed.

Q: We use a terrific ganache for many things in our pastry kitchen, but it separates during storage. Is there a way to bring it back together?
Dave, via e-mail

A: Beating ganache with a small amount of heavy cream will re-emulsify the separated ingredients. Ganache should be whipped to soft peaks. Greater agitation only encourages the cocoa butter to crystallize, which will make the ganache stiff and grainy.

Q: We own a retail bakery in New Mexico where we deal with very hard water containing over 210 parts per million of calcium carbonate. Would installing a water softener help us make better artisan breads?
Nathan, via e-mail

A: In general, hard water helps strengthen the gluten in dough and also increases yeast activity as some of the mineral salts serve as yeast food. However, hard water makes bread dough overly strong and resistant to expansion. Medium water with around 75 parts per million of calcium carbonate is

considered best for fermentation and gluten development, so having softer water available in your bakery would be beneficial.

Q: What temperature should butter be so it incorporates air easily during creaming?
M.F., Lakeland, Fla.

A: You want to ensure that the butter is between 65°F to 75°F, so it will incorporate the air easily when creamed with sugar. I always use whole eggs at 80°F to achieve an optimal batter temperature.

Q: Does choux paste require water or milk?
S.S., Calgary, Canada

A: When you use all water in the formula, the puffs or éclairs will be crisp; using milk makes the puffs or éclairs tender. You may want to compromise and use half water and half milk.

Q: We sell brown sugar cookies, but want to increase the brown sugar flavor. We now roll the cookie balls in brown sugar before baking, but the brown sugar clumps in some spots. How we can eliminate this?
Marc, via e-mail

A: Cutting the brown sugar with granulated sugar will solve the clumping problem and give you a cookie with added crunch and flavor.

Q: Do you know how much protein is in AP flour?
Heather, via e-mail

A: AP (all-purpose) and H&R (hotel and restaurant) flour varies in protein by manufacturer and varies between 9 percent and 12 percent.

Q: We have been struggling to find a formula for the topping used on a Easter dove bread, also known as Colomba di Pasqua.

Annika, via e-mail

A: The topping consists of only three ingredients, all easily sourced.

Easter dove bread topping

Ingredients	Lbs.	Ozs.	Metric
Egg whites	2	5	1.05 kg
Granulated sugar		15	420 g
Hazelnuts, finely ground	1	14	840 g
Total appr. wt.	**5**	**2**	**2.31 kg**

Method: Combine ingredients and mix well. Apply to bread before baking.

Q: Can you provide us with a formula for a “brown” Danish filling?
Alyssa, via e-mail

A: The following “brown” Danish filling has always worked well for me.

“Brown” Danish filling

Ingredients	Lbs.	Ozs.	Metric
Hazelnuts, lightly roasted, ground	2	3.25	1 k g
Granulated sugar	1	12.25	800 g
Glucose		7	200 g
Cinnamon, ground		0.35	10 g
Water	1	1.5	500 ml
Total appr. wt.	**5**	**8.35**	**2.51 kg**

Method: Combine all ingredients until well blended. Use as desired.

treusel

Q: We like to use a high quality streusel, but need a simple formula.
M.M., San Luis Obispo, Calif.

A: In baking and pastry terminology, the term streusel, a German word meaning “something scattered or sprinkled,” from the verb streuen, akin to the English verb “strew,” refers to a crumb topping of butter, flour and sugar that is baked on top of muffins, breads and cakes (e.g. Streuselkuchen). Some modern recipes add various spices and occasionally chopped nutmeats. Although the topping is of German origin, it is used all over the world.

Ingredients	Lbs.	Ozs.	Metric
Cake flour	3	5	1.5 kg
Granulated sugar	3	5	1.5 kg
Butter	2	12	1.25 kg
Total appr. wt.	**9**	**6**	**4.25 kg**

Method: Cream together the sugar and butter; add the flour, and mix until small clusters form. Do not overmix. You may replace 50 percent of the flour with nutmeats.

Rasberry Truffles

Q: We want to make raspberry truffles, but need a simple, small formula.
Kent Petersen, via e-mail

A: I really enjoy this formula, which creates a high quality product. The formula makes about two dozen truffles and only takes around 35 minutes to make. If you are happy with the outcome, the formula can easily be scaled up.

Ingredients	Lbs.	Ozs.	Metric
Chocolate, bittersweet 1	6	625 g	
Butter, unsalted	0	3	85 g
Raspberry jam, seedless	0	2.5	70 g
Raspberry brandy	0	1	30 ml
Total appr. wt.	**1**	**12.5**	**810 g**

Method: Combine 10 ozs. (285 g) of chocolate with the butter. Heat in a microwave for one minute or until melted and smooth when stirred. Stir in the jam and liqueur until well blended. Cover and refrigerate until firm, about four hours or overnight. Using a melon baller, scoop the mixture into 1-in. balls. If the mixture is too hard, let it stand at room temperature for 30 minutes before shaping. Then, freeze until firm. Heat the remaining 12 ozs. (340 g) of chocolate in a microwave on medium, stirring often, until melted, smooth and warm. Using a fork, dip the truffles quickly, one at a time, into the chocolate, tapping off the excess. Place on a parchment paper-lined sheet pan. Repeat the dipping process, stirring the melted chocolate often and scraping down sides of dish, if necessary, to prevent chocolate from hardening. Refrigerate the truffles until the chocolate is set. Sell in paper candy cups. The truffles also can be rolled in finely chopped toasted nuts or sifted cocoa powder immediately after shaping.

Stollen Spice Mixture

Q: Can you share a simple spice mixture for Christmas stollen?
Andrew, via e-mail

A: I've always liked this mixture. Yes, I use ground white pepper in my spice mix. Try it, you'll like it.

Ingredients	Lbs.	Ozs.	Metric
Vanilla sugar	1	5	600 g
Nutmeg, ground		5.25	150 g
Cardamom, ground		15.75	450 g
Pepper, white		5.25	150 g
Total appr. wt.	**2**	**15.25**	**1.35 kg**

Method: Blend these ingredients well, and use at 1 percent based on the flour weight.

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Part II: Adjust your bakery business

Aug 1, 2008 12:00 PM, by Edward M. Lee, editor emeritus

In the wake of volatile bakery ingredient prices, bakers have raised their retail prices–often multiple times–to stay in business during the year. Part two in *Modern Baking'*sspecial series explores how bakers are handling their customers, relating to bakery distributors and preparing for the future.

Select images to enlarge.

Bakery operators only raise prices when they have to. Most bakers, from the smallest retailer to the largest wholesaler, have had to more often and by a greater percentage during the last 12 months than any other time in recent history. While the cost of most ingredients has seemingly peaked, all bakery ingredient prices are up, and those prices likely will not go down to the level they once were.

In this article, the second in a special series on the topic, *Modern Baking* explores how bakery operators are adjusting business to manage relations with their customers and suppliers in the new era of volatile ingredient prices.

Bakers explain increases

Consumer reaction to increase bakery foods prices has been muted, compared with complaints voiced during other price run-ups. The sudden price surges of the 1970s were especially jarring because they came after at least two decades of relatively stable prices. Consumers who had become accustomed to paying about 29 cents a gallon for gasoline suddenly saw prices increase by that amount in a matter of months.

By contrast, modern consumers are all too familiar with gyrating prices. They may grumble when prices soar. But, they do not regard each spike as an assault on the general sense of order.

“The run-up of commodities prices this time is different because it has generated so much media coverage,” observes bakery distributor Gary Gardner of B.H. Gardner & Son, Indianapolis. “Before, if soybean oil or eggs went up, no one noticed. This time, everything went up. Consumers see increases merely when shopping for groceries. So, they are not surprised.”

The nation's bakery operators also have communicated to customers the reasons for increasing retails. Randy McArthur, owner of McArthur's Party Cake Bakery, St. Louis, set up a display in his stores' sales areas, each with two bags of flour and a placard that explained that a wheat shortage was occurring and stated, “These bags of flour last March each cost $9.82. Today each costs $20.12.”

The display also encouraged customers to sign a petition calling on their congressional representatives and senators to pass farm legislation to release acreage without penalties to farmers to increase wheat production and to refocus grain production geared to food needs from biofuel uses. An accompanying map displayed congressional districts and contact information for customers.

Customers have not been too shocked by increased prices in the bakery because food costs everywhere are up, and the commodities struggle has garnered much media attention.

“Customers thanked us for informing them,” McArthur says. “They may be angry with the higher prices, but at least they're not angry with us. And, they see that we as bakers are trying to do something about them.”

In company-owned Panera Bread stores, managers posted counter cards, which explained that “because of escalating wheat, dairy and transportation costs, we have adjusted prices on some select items in order to maintain the quality standards our customers expect from us.”

Panera's CEO Ron Shaich notes that his company in some ways has benefitted from the media exposure of wheat prices. “Customers have heard so much about inflation in these products on the nightly news and have seen it in the grocery stores,” he says. “They are giving folks like us permission because they fully understand the necessity. They don't like it, but at least they understand.”

Dan (Klecko) McGleno, who operates a specialty wholesale bakery, St. Agnes Bread Co., in St. Paul, Minn. pursued another tack. Unable to personally meet with each of his 200 wholesale accounts, he contacted the business news department of the Minneapolis Star-Tribune. He provided information about the impact of higher ingredients costs on bakers and included market statistics and background from suppliers. He also offered bakers' names as sources to interview.

“The resulting article thoroughly covered the situation,” Klecko says. “The report helped to validate the price increases we've had to pass on to clients. Instead of personally contacting each account, I sent the article with the price increases to them. We didn't receive one complaint.”

Lynn Shurman of Cold Spring Bakery, Cold Spring, Minn., has sought to educate employees as well as customers. As a matter of practice, each employee pay envelope once a month contains a note regarding the bakery's operations. “The latest notes have explained the higher operational costs and increased retail prices to all employees because we want to ensure they understand what's happening,” Shurman explains.

Higher prices way of life

U.S. Department of Agriculture and other crop forecasts suggest that prices for major bakery ingredients have topped but that they will remain volatile and at high levels as the United States and other producing nations seek to rebuild stocks. Further, the U.N. Food and Agriculture Organization and the Organization for Economic Cooperation and Development in a joint report said they do not expect the current price levels to last.

But, the average of most agricultural commodity prices during the next 10 years will still exceed the average of the previous decade by 10 to 50 percent, depending on the commodity, the report states.

Compared with the previous decade, wheat and feed grains prices will rise 40 to 60 percent, vegetable oils more than 80 percent.

“The days of cheap commodities are over,” Gardner notes. “Long term, we'll never see commodities prices as inexpensive as they have been during the last decade just because of the world situation. The mid $20 per hundredweight could become the new benchmark for flour; and that assumes good crop years.”

He adds that commodity prices likely will fluctuate at the same time, rather than move individually. “The price of oil didn't affect grain prices; now it does,” he says.

Shurman and McArthur say they see little relief in higher ingredient costs until Congress establishes an energy policy that focuses more on food and less on fuel.

Bakery operators and distributors say higher operating costs and ingredient price volatility are setting up a scenario for a shake out of sorts in the industry.

Compared with their fathers and grandfathers, “bakers and distributors today are more in tune with what it takes to run their businesses. They are more educated,” observes an East Coast bakery distributor who asked not to be identified.

“Still, some distributors will go out of business,” he continues. “This won't happen quickly but over the next couple of years. The same thing will happen to marginal bakeries that lack staying power.

“They're paying their bills and running down inventories, but they're tapping their credit lines or using credit cards to get by. The closures will begin when their accountants say they lost money in 2008 or when a distributor refuses to ship ingredients.”

Bakery operators must understand that the business climate is completely different, and that they cannot continue to do business the same way as in the past, McArthur says.

“They must accurately determine how much money they're making and establish a profit level necessary to support a decent living,” he counsels, “and then decide what to do to achieve it. Move the store? Change from retail to wholesale? Wholesale to retail? Open another store?”

Adjust to new business climate

Distributors and their bakery operator customers are an adaptable lot, able to adjust quickly to changing conditions. The last nine months have tested them, and they have survived. Yet, challenges remain.

The successful operators will be those who continue to do what they have always done: offer customers the products and services they want, produce the best possible product quality and price the products to return a fair profit.

Part III: Manage Retail Prices For True Profit

Sep 1, 2008 12:00 PM, by Karl Schmitt and Modern Baking staff

While retail bakers increased prices this year to encounter skyrocketing commodities costs, did they raise them enough? Bakery owner Karl Schmitt shares his methods for answering this question and scrutinizing bakery P&Ls in this challenging economy.

When one or two ingredient prices go up, bakery operators can simply refigure retail prices to return a fair profit from their customers. But, when nearly every ingredient price increases at the same time, as they did this year, raising retails gets more complicated.

Deerfields' bookkeeper, Joy Foster, has worked for the bakery for 23 years and uses spreadsheet programs to track P&L statements.

Two key questions arise. First, how will your customers react to these price increases? And second, have you increased prices enough for true profitability?

Last month's article, Adjust Your Bakery Business, offered insight to the first question. Most bakery operators are finding little resistance to price increases from their customers because rising food costs are not exclusive to bakery items. And, consumers are more aware of the commodities crisis thanks to media attention and bakery trade associations joining forces to call attention to the problem.

"Our guests [customers] have been very understanding of the higher prices. We have heard few complaints," says Tammy Kampsula, bakery director for United Supermarkets, Lubbock, Texas.

Other bakers fear the low customer resistance to the price increases is actually a sign of fewer customers coming in the door. The price boundary between getting the sale and losing the customer can be fuzzy.

"Most bakers are reporting that customers aren't complaining because they aren't coming in to complain," says Karl Schmitt, co-owner, Deerfields Bakery, Buffalo Grove, Ill.

How retail prices affect customer counts is difficult to track and variable depending on the bakery. But, bakers can use a few cost accounting methods to determine how much to raise prices to return a profit.

To help retail bakers get a better handle on their retails, Schmitt shares his methods and attempts to help you answer two important questions: What impact have the commodity prices had on your business and have you increased your prices enough?

Part I: Raising retail prices

Bakery operators use several common methods to reconfigure retail prices. Although tedious, one option is to recalculate the ingredient cost of every formula and every product in order to increase your prices on a product-by-product basis. Another common method is to simply look over your profit and loss (P&L) statements and examine the percentage of ingredient expense relative to the sales and increase your prices appropriately. The second method works well if you either: perform a complete physical inventory of your ingredients at the beginning and end of the month while holding your retail prices unchanged; or compute the ingredient cost percentage using three consecutive months with unchanged retail prices, i.e. three months of data either before or after you change prices.

Schmitt offers another fairly simple method to help you estimate the impact of soaring prices on your P&L statement with just one month of data and you can use that information to icrease your retail prices. The first step is to enter all of the invoices from your ingredient suppliers for a current month into a spreadsheet program, like Microsoft Excel. Most bakery accountants separate commodity costs

from paper costs, so that should reduce the amount of work required. Initially, you need only four columns of data for each invoice:

Column A - units received

Column B - name of item purchased (with unit size)

Column C - most recent price of unit (price based on last invoice of the month)

Column D - extended price using a formula (A times C) [*See table p. 33*]

Now, go back and add two more columns of data for each row:

Column E - price paid for each product purchased this year using invoices for the same month last year

Column F - extended price using a formula (A times E). [*See table on this page*]

Here are a couple of helpful hints to follow while you perform this exercise:

- When an item is purchased more than once during the month, increase the number of units received in Column A rather than entering the same item again. Keeping the list sorted by Column B will make this easy to follow.
- When an item is purchased in different unit sizes, a separate row is needed for each product/unit size.
- Both Column C and Column E are the last price paid during the particular month in 2008 and 2007 respectively.
- If an item is purchased this year that wasn't purchased last year during the same month, then use an earlier month from 2007 to find a unit price. Don't leave Column E blank.

The increase in ingredient cost that you can expect from last year to this year can be computed by simply dividing the sum of Column D by the sum of Column F. Each bakery is likely to find the result to be slightly different because of its variety of products sold and prices paid for its raw materials. For Deerfields, the above calculation resulted in a value of 1.174.

It's extremely important to know exactly what that 1.174 represents. Deerfields' ingredient cost last year prior to increasing its retail prices was running about 28 percent. If retail prices remained the same as last year, then expect new ingredient cost to be 28 percent times 1.174, or 32.872 percent.

Part II: Evaluating your prices

Once you've raised your prices and determined the effect the increase in commodity prices had on your ingredient costs, the next question becomes even more critical. Have you increased your prices enough?

It's unlikely that in response to the soaring commodity prices you have raised all of your retail prices by the same percentage. Most bakers apply different percentage increases to varying groups of products. Consequently, it is necessary to compute the “average” increase for your entire product line. Calculating a simple average of all items wouldn't be accurate because some groups of products sell better than others. So, bakers need to determine a “weighted” average.

Accountants can use a number of methods to compute this weighted average. These three methods offer different degrees of accuracy:

1. Compare the average ticket size for a current week this year with the average ticket size for the same week last year.
2. Carefully monitor exactly what is sold for a current week, and recompute the sales for those products using last year's prices.
3. Compute the total value of all products produced using production reports (rather than actual amounts sold) in a current week with the current prices, and then recompute the value using last year's prices.

Method 1 is straightforward as long as your cash registers give you customer counts. Simply divide your retail sales for the week by the number of customers for the week. Then, do it again for the same week from last year. Take the result of these two average ticket sizes, and divide the 2008 average by the 2007 average. That should give you an amount like 1.127. This number is analogous to the number you computed for the increase in ingredient costs as outlined earlier, but this number is about

your price increase. To express the number as a percentage, just subtract 1 from it and multiply the result by 100. In the example of 1.127, the percentage would be 12.7 percent.

One of the problems with method 1 is that you likely have lost a significant number of customers due to the economy and your increase in prices. These “lost” customers also likely have something in common that makes a direct comparison of this year's average ticket size with last year's potentially invalid. It really depends on your bakery. Method 1 might be good for a donut shop, but not very good for a full-line retail bakery. It doesn't work for Deerfields full-line bakery as the percentage turned out to be different for each of its three locations.

Method 2 should be fairly self-explanatory as it is similar to the work done on the ingredient price comparison outlined earlier in this article. Here are a few hints:

- Group the product categories that have the same price, such as sweet rolls, donuts and breads, etc.
- If possible, use the reports generated by your point of sale (POS) software.
- Apply last year's prices to each group of products to compute the 2007 sales amount on the items actually sold in 2008.

If you have too many custom cakes to individually reprice using last year's prices, then use the average ticket size (for cake sales only) for this year and 2007. Multiply the 2008 sales of custom cakes by the ratio of the 2007 average cake ticket to the 2008 average cake ticket to get the total “repriced” sales for the 2007.

Method 2 is appropriate for a small retail bakery with only one location. Method 3 may be more appropriate for a multi-unit retailer (MUR), who may find it easier to use production reports exclusively or a combination of production reports and POS reports. Again, it depends upon your bakery.

The goal is to use a method that is reasonably accurate and not too time consuming. This doesn't have to be an exact science. Remember, three or four monthly P&L statements will eventually confirm the results computed and indicate whether or not your business is profitable. However, under the current state of soaring commodity prices, bakers need to react quickly. A one-month P&L statement is not reliable unless your accountant is accurately using the accrual method of accounting.

Let's assume for this discussion that you computed the weighted average increase in ingredient costs last month to be 17.4 percent. And, this month, you have increased prices by a weighted average of 12.7 percent over last year. Have you increased your prices sufficiently to cover the cost of the increase in commodity prices?

A superficial answer would be “no” because the 17.4 percent is higher than the 12.7 percent. You also may think you need to increase your prices by 17.4 minus 12.7 or 4.7 percent to bring your business “in line” with last year's results. These conclusions may be incorrect because when you increase your prices, you are increasing not only the portion of the price “ear-marked” for the ingredient cost, but also the amount ear-marked for labor, overhead and profit by the very same percentage.

Let's try to answer the original question with an easy example. Assume that prior to increasing your prices, you project annual sales to be $1 million. Further assume that in previous years your average ingredient cost has been 28 percent.

Using the method discussed in Part I, assume you computed the increase in ingredient costs to be 17.4 percent. Multiply $1 million by 28 percent to get $280,000 as your normal budget for ingredients. Now, multiply that by 17.4 percent to get $48,720. This represents the “extra” money needed to pay for the increase in commodity prices.

Assume that your weighted average increase in price was the 12.7 percent from above. The revenue the new prices will bring is one million times 12.7 precent, or $127,000. You should have “extra” revenue of $127,000 minus $48,720, or $78,280 that is available for the increase in future wages or other expenses that might also be on the rise.

In this case, the retail prices have been increased sufficiently to cover the expected increase in food costs, and the additional money will be needed to cover the wage inflation that is sure to come.

After raising your prices, you may have noticed that your labor percentage looks very good. Beware that the drop may mask a work slowdown. Next month's article will be devoted to unmasking this hidden loss of productivity with a new method to track labor.

A. Units	B. Product	C. 2008 Price	D. Extended
50	Flour Patent - 50#	22.83	1,141.50
6	Yeast - case	28.81	172.86
8	Drivert - 50#	36.71	293.68
12	Oil Soybean Salad - 35#	27.80	333.60
TOTAL			1,941.64

Multiply the number of units (Column A) by the 2008 price (Column C) to calculate the extended price (Column D).

Determine ingredient costs

A. Units	B. Product	C. 2008 Price	D. Extended	E. 2007 Price	F. Extended
20	Flour Patent - 50#	22.83	456.60	16.93	338.60
6	Yeast - case	38.81	232.86	26.83	160.98
8	Drivert - 50#	36.71	293.68	36.37	290.96
4	Oil Soybean Salad - 35#	27.80	111.20	16.46	65.84
Total			1,094.34		856.38

Divide the sum of Column D by the sum of Column F to calculate the price increase.

2008 Extended Price ÷ 2007 Extended Price = 1.277867

Compare costs to last year

About the author

Karl Schmitt is C.E.O. and treasurer of Deerfields, a family-run retail bakery in the Chicago area with three locations: Deerfield, Buffalo Grove and Schaumburg, Ill. His training in accounting is from his previous career as a pension consultant and actuary.