



what's RISING

how to develop a formula, part two



Didier Rosada

This is "Part Two" of my article on *How to Develop a Formula*. Please see our Winter 2007 newsletter for "Part One."

Choosing a Mixing Technique

Three main mixing techniques are available to the baker: *short mix*, *intensive mix* and *improved mix*. Different final product characteristics will be obtained depending on the technique you choose.

A. Short Mix

Using the *short mix* technique, the mixing of the dough generally happens only in first speed. Consequently, the gluten will be underdeveloped and a long fermentation time, with a few punch and folds, is required to achieve the proper strength necessary to shape and proof the dough. As a direct result of this combination (short mixing and long fermentation time) the bread will have very creamy color (very limited dough oxidation keeps the carotenoid pigments intact), highly complex flavor (long fermentation time) and an open and irregular crumb structure (short mixing time.)



"Good bread is the most fundamentally satisfying of all foods; and good bread with fresh butter, the greatest of feasts."

James Beard (1903-1985)

Volume will be somewhat penalized since the underdeveloped gluten won't be able to retain as much gas during final proofing. This technique can be used when the characteristics of a hand mix bread need to be duplicated. However, due to the lengthy fermentation process and the underdeveloped gluten (making machinability difficult) this technique is not suitable for high volume production.

B. Intensive Mix

With the *intensive mix* method, the dough is mixed to its full development creating a perfectly organized gluten structure. Because the dough is already strong enough, first fermentation time can be shortened, making the dough very suitable for high speed production. However, due to the long mixing time, the crumb of the bread will be whiter (more oxidation is created) and not as visually appealing. Because of the short first fermentation time, it is preferable to use a preferment in the formula or the flavor of the bread will be bland and the shelf life shortened. The intensive mix technique creates breads with larger volume, fine cell structure (due to the perfectly organized gluten structure, which allows for even gas distribution and expansion during proofing and baking) and thin crust.

C. Improved Mix

A combination of the *short* and *intensive* mix process, *improved mix technique* is probably the most common mixing technique used in artisan baking. The dough is mixed to the point where the gluten reaches about 75%-80% of its full development, leaving some space for fermentation activity to take place to complement the strength of the dough. The shorter mixing time (compared to intensive mix) preserves the creaminess of the crumb and the necessary fermentation time allows aroma production and good shelf life for the finished product.

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how to develop a formula ... 2007 class schedule ... baker's tip ... recipe of the season ... baking adventure in paris ... and more!

fight the trans fat free madness



Michel Suas
Founder

You see it everywhere in the news these days—it seems *trans fat* is the latest thing to fear. The FDA lists butter as a “dangerous” product to consume—in

the same category as industrial partially hydrogenated fat (an ingredient, I for one, would never put in my food.) Sadly, the bakery industry is now going through a confused rush to respond to the media panic and comply to the special requests of some large customers. The phrase “trans fat free” is appearing on more and more bakery products as some in the industry scramble to market to the trend.

What troubles me the most is that every time a new wave like this comes along, the baking industry is powerless

to resist. *Viennoiserie*, which was coming back in force with a revived quality, flavor and flakiness, is going down the drain again. The only authenticity remaining for the croissant these days is its shape. Most taste terrible ... and the texture? Let’s not go there.

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What happened to the times when artisan bakers stood up for the integrity of their products? I realize that in business it is difficult to lose a huge customer who is demanding adherence to the latest trend in food fear. But does this bring value to our bakery products? If the end consumer does not appreciate the fresh baked product, they will turn to packaged items such as power

bars, crackers, etc., and this always hits the independent retail bakeries the hardest. Let’s respect the customers who actually eat our products!

The fact is, research has shown that the trans fat from butter is good for your

health. If you want more information, you can find it under: *Conjugated Linoleic Acid (CLA)* at www.fda.gov. I wonder when the media and FDA will focus on artificial products or caffeine as the next health scare? Maybe we should get ready for the gluten-free wave? I don’t want to scare you with salt-free bakery product!

—Michel Suas

about sfbi

Since 1996, the San Francisco Baking Institute (SFBI) has trained thousands of professional and aspiring bakers from all over the world. We have acted as the unofficial training site for several award-winning Baking USA Teams and hosted a variety of international groups—from countries including Russia, China and Japan—interested in bringing artisan baking back to their homelands.

SFBI is recognized within the baking industry as a place where artisan baking is respected, appreciated and celebrated. We are passionate about sharing our knowledge and enthusiasm with students and clients in an effort to raise the level of the craft.



career opportunities

SFBI is looking for good people who are passionate about baking and pastry to fill the following positions:

Baking Instructor: Are you an experienced baker or baking instructor looking for an exciting new opportunity? SFBI is now hiring!

Paid Intern: Interns at SFBI assist instructors in the day to day operations of the school while working towards elevating their level of baking and pastry competence.

How to Apply:

To apply for the **Internship**, please send a resume, letter of interest, and contact information for three professional references to brian@sfbi.com To apply for the **Baking Instructor** position, please send a resume, letter of interest, and contact information for three professional references to michel@sfbi.com

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The cell structure of the crumb will be open and irregular (not as much as with the short mix technique, but much more than with the intensive mix technique.) Because of the better gluten development during mixing, the improved mix technique achieves dough with good machinability properties. For optimum dough and bread characteristics, this method can also be complemented with the use of a preferment.

D. Double Hydration Technique

The growing demand for breads that are moist and dense inside with large and open cell structure (such as Ciabatta) has triggered the development of the double hydration technique. “Ciabatta-style” bread characteristics are usually achieved



is not particularly suitable for high volume production since folding large amounts of dough is not very efficient.

The newer technique—double hydration—is to add the water two times into the dough. The main advantage of this process is to create very soft dough with well-developed gluten structure, great machinability properties and good strength, with minimum mixing time to avoid over-oxidation of the dough. First the dough is mixed with only a

As with butter in brioche dough, properly developed gluten can very easily take an extra “load” of ingredients or water. The final result is a dough with a very soft consistency but not sticky, and a well-developed gluten that won’t require any folding during the first fermentation time. However, because of the soft consistency, the dough after mixing has an excess of extensibility, and requires some fermentation time to reestablish a good balance in strength. Obviously, this fermentation time is a positive thing for the quality of the bread as some gas and acidity will be developed, improving the cell structure of the finished product as well as its flavor and shelf life. After the first fermentation, because of its strength and its property of not being

The growing demand for breads that are moist and dense inside with large and open cell structure (such as Ciabatta) has triggered the development of the double hydration technique.

by mixing highly hydrated and well developed soft dough. The mixing of this type of dough can be obtained using two techniques.

The first technique is to add all the water at once at the beginning of the mixing process, and mix the dough to complete development. But in this case, to obtain a well-developed gluten structure, the mixing must be sufficiently long, as the extra water will interfere with proper gluten formation. Another option is to keep the mixing time short and achieve dough development with a series of punch and fold.

The first option is not ideal for product quality since long mixing time generates a lot of oxidation (therefore, a loss of flavor) and the second option

portion of the total water of the formula to reach a medium/soft consistency. Depending on the flour and the type of preferment used, the water proportion usually represents 60% to 70% of the flour in the final dough.

The goal is to properly hydrate the flour components without getting an excess of “free” water or water not fixed by any flour components. Molecules of free water impede gluten bonding and gluten structure formation, leading to longer mixing time and more dough oxidation. Once the medium/soft consistency has been reached, the dough is mixed to obtain an improved mix gluten structure. Then, the remaining part of the water is added and the mixing continues until the water is perfectly incorporated into the dough.

sticky, the dough can be processed by hand, and also has the characteristics required to run perfectly through a stress-free dividing and molding line.

Once bakers have mastered these well-established mixing techniques, they can easily create their own mixing process according to the desired type of bread, the equipment available at the bakery, or production requirements.

For example, a compromise between short mix and improved mix technique could be developed. To achieve this, it becomes important to modify the formula. If the mixing time is reduced, the first fermentation time must be increased to complement the development of the gluten structure.

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At this point, it becomes necessary to decrease the amount of yeast in the formula to control the fermentation activity. Water content should also be increased to counter the fact that acidity increases strength and penalizes extensibility of the dough after the first fermentation. Starting with a well-hydrated dough, which is adequately extensible, is necessary or machinability will be penalized. The possibilities are endless, but the baker must keep in mind that formula and process are very interconnected and should be balanced carefully.

How long should the first fermentation last?

The first fermentation time depends on the mixing technique used, and also on the type and proportion of preferment used in the formula. Intensive mixing generates dough with fully developed gluten structure. This type of technique is necessary when tight and even cell structure is required. As a result of the long mixing time, the dough is strong enough after mixing. Allowing the dough to ferment after mixing would add some strength (due to the acidity production) and might create dough very difficult to work with (lack of extensibility.) However, not having sufficient fermentation time will penalize flavor and shelf life. The only way to compensate is the use of preferment in the final dough.

Short mixing time will automatically require longer first fermentation time to achieve proper dough development. The carbon dioxide naturally generated during the first fermentation will stretch the gluten, while the acidity will reinforce the bounding of the structure. These two combined actions will improve the strength of the dough.



The possibilities are endless, but the baker must keep in mind that formula and process are very interconnected and should be balanced carefully.

Some folds might be necessary if the gluten is deliberately left very underdeveloped at the end of mixing time. The folding will also improve the gluten structure by creating more bonds (a little bit like the hook of the mixer will do but in a much more gentle way.) The very positive aspect of having a long first fermentation is the aroma development and increase in shelf life. Both of these qualities are obtained by some specific acids developed during advanced stages of the fermentation time.

When a production process doesn't allow much time for a long first fermentation, the formula must be modified. To avoid penalizing final product quality by shortening the first fermentation, the baker must do before mixing what can't be done after: a portion of the flour is incorporated into a preferment to allow acidity production to happen before mixing. Once this portion of pre-fermented flour is returned to the final mix, it will bring most of the benefits of the fermentation (strength of the dough,

flavor and shelf life.) First fermentation can then be reduced without compromising final product quality.

When formulating, very precise numbers are difficult to calculate, but as an average, involving 20% of the flour weight into a preferment could allow the baker to cut down his first fermentation from two hours to one hour. The amount of yeast would have to be adjusted in order to get the same amount of gas production.

The dough can also be placed at lower temperature (around 40°F to 50°F) after mixing. This technique allows the baker to delay the first fermentation time to accommodate production requirements. For example, the baker may mix the dough at the end of the production day and place it in the cooler until the next day. The dough is then ready to be divided as soon as the baker arrives at the bakery. This technique allows the baker to reduce night shift hours and still have some bread ready to bake early in the morning. The other advantage is that some of the dough can be divided first thing in the morning and the rest later in the day to offer fresh bread to customers without having to mix several times during the day. When using this technique, a very low amount of preferment is generally used in the formula.

The long first fermentation at low temperature naturally develops enough acidity to improve dough characteristics and bread qualities. Using too much preferment can negatively affect the gluten structure, as too much enzymatic activity and dough degradation can happen during the pre-fermentation process and the long first fermentation.

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Also, only a very limited amount of levain can be used in the final dough or the acidity level may become too high and deteriorate the gluten structure of the dough. This can lead to dough which is difficult to work with and bread with smaller volume and acidic flavor.

What weight for the dough?

The weight of the piece of dough depends on the desired appearance of the loaf, but technical characteristics must also be taken into consideration, depending on the nature of the dough.

When working with dense dough (such as rye, heavy whole grain, or dough with a lot of extra ingredients) it is best to scale the dough to a minimum of 12 oz. to 1 lb. (350g to 450g). Smaller weight generates lower oven kick at the beginning of the bake and denser final products. Highly hydrated dough will have the tendency to “jump” better in the oven, so smaller pieces of dough work well. A high level of water improves dough extensibility but also triggers faster chemical reactions (sugar degradation, yeast activity and heat transfer.)

Breads made with a short mix technique will have a smaller volume (an under-developed gluten won't be able to trap and retain a lot of gas.) It is better to scale the loaves on the heavy side to obtain breads with attractive volume.

The use of dough conditioner also affects the weight of the dough. In some countries where the bread is sold by piece and not by weight, it is not uncommon to see formulas with a lot of dough conditioners to increase volume, reduce dough weight and get a better yield per batch of dough. Obviously, quality of the final product is decreased (higher volume facilitates the drying of the bread and reduces the shelf life.)

What shape for the dough?

From the traditional boule or batard to more elaborate shapes such as triangles, daisies or crowns, only the imagination limits the shapes that can be achieved with dough. One idea is to create shapes that highlight a significant ingredient in the dough—for example, a pear shape for bread with dried pears, or a kernel of corn shape for a yeast-leavened corn bread. Shapes are often created for special occasions, such as a dove shape for Easter or a skull shape with crossed bones to celebrate “*The Day of the Dead*.” Some dough maintains its shape better than others. Denser dough maintains its shape well but won't develop much in the oven. Soft dough has the opposite effect: volume will be great, but shape will be lost. Dough with a medium

One idea is to create shapes that highlight an interesting ingredient in the dough ... a pear shape for bread with dried pears, or a kernel of corn shape for a yeast-leavened corn bread.

stiff consistency and preferment (to add some strength) works best. Adding 10% to 15% of rye or whole wheat flour helps increase extensibility and promote better shaping.

At the shaping stage, the use of wooden baskets (sometimes called *German baskets*) or linen covered baskets (sometimes called *French style*) is also a possibility. Generally the dough is placed seam-up to proof, as it will be inverted during its

transfer from the baskets to the loader or oven peel. The dough can also be placed in the basket seam-down, to become seam-up in the oven, creating a natural cracking (or opening) during baking.

Dough can also be proofed seam-up on slightly dusted linen. This naturally duplicates the effect of using a linen



coated basket. The additional benefit of this technique is to obtain a thicker crust after baking (the linen absorbs some moisture out of the surface of the dough while proofing) that has some of the characteristics of the crust of a bread baked in a brick oven.

When dusting the linen, it is important to sift the flour as uniformly as possible and without excess for a final product with a rustic but appealing appearance.

How long should the final proof be?

Final proof will depend on the baking process used to elaborate the dough. Obviously, a formula involving a high percentage of yeast will proof faster compared to a formula using a lower amount of yeast.

Under-mixed dough (short mixing process) with a long first fermentation time has a shorter final proof, as its more fragile gluten already has trapped a lot of gas and will reach its saturation point earlier in the process.

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STYL 2007

Artisan I: Baking Fundamentals	Artisan II: Mastering Sourdough	Advanced Artisan Breads
<p>2007 Schedule: February 5 - February 9 March 5 - March 9 April 2 - April 6 May 7 - May 11 July 16 - July 20 August 6 - August 10 September 10 - September 14 October 15 - October 19 November 5 - November 9 December 3 - December 7</p>	<p>2007 Schedule: February 12 - February 16 March 12 - March 16 April 9 - April 13 May 14 - May 18 July 23 - July 27 August 13 - August 17 September 17 - September 24 October 22 - October 26 November 12 - November 16 December 10 - December 14</p>	<p>2007 Schedule: August 20 - August 24</p> <p><i>with Guest Instructor, Didier Rosada</i></p>

As a student in Artisan I, you will become familiar with the terms short mix, improved mix and intensive mix while learning what types of flour you should be using and the proper mixing techniques for every bread imaginable. You will gain an understanding of the relationship between mixing and fermentation; learn how you can completely change the profile of bread by adding an additional ingredient; acquire overall knowledge about the most common preferments used in bakeries today and much more. We use the classic Baguette to teach the fundamentals, but you will also learn to make Rye Bread, Whole Wheat Bread, Multigrain Bread, Pan Bread and Braided Egg Bread. The skills you learn in this class are directly applicable for a position in a professional bakery or for a serious home baker. This class, limited to 15 to allow for personal instruction, fills up quickly, so reserve your spot early. **Be sure to consider the dates for our Artisan II workshop, scheduled to allow you two consecutive weeks of intensive training.**

Building on the skills you gained in Artisan I, Artisan II takes you full speed ahead into the world of sourdough bread. To become a truly skilled baker, you must learn how to control sourdough and not let the sourdough control you! Unravel the complex world of wild yeast and bacteria as you learn how to start your own sourdough starter, adjust the feeding schedule to maximize the quality of the bread and take your own version of the starter home. Experiment with different styles of starters and fermentation to achieve the flavors and characteristics you desire. The extensive hands-on portion of this class includes Sourdough Breads made with liquid and stiff starters, Olive Bread, Raisin Bread, Ciabatta with a poolish and many other favorites. On the last day, you will mix a batch of sourdough by hand using the starter you created on the first day of class. If you are serious about becoming a better baker, this is a class that you do not want to miss! We encourage you to take Artisan I before enrolling in Artisan II unless you already have a thorough understanding of baking fundamentals. **Artisan I and Artisan II sell out quickly, so please be sure to register early!**

Advanced Artisan Breads is designed for experienced bakers interested in refining their skills and deepening their overall knowledge to become even better at their craft. During this illuminating workshop for those who love their profession, you will learn about and practice a variety of interesting breads using advanced methods. You will experiment with ways to fit new breads into an existing product line with fresh techniques such as sourdough to make sweet breads and miche using high ash flour and 230% (!) starter. Whole grain breads will be produced using whole grain starters and no white flour. You will work with difficult flours such as rye and spelt. Retarding techniques will be demonstrated with Baguettes and Ciabatta - retarded before shaping, and Whole Wheat - retarded after shaping. Because this more advanced class is not designed for beginning bakers, students need to have taken Artisan I and Artisan II or have extensive experience and a thorough understanding of the baking process, including science and terminology. Experienced bakers will be inspired by the newfound understanding and marketable skills they take away from this seminar!

BREAD AND PASTRY PROFESSIONAL TRAINING PROGRAM: MAY 30 - OCTOBER 3

Pastry I: Cake Bases, Creams and Assembly	Pastry II: Exploring Creams, Mousses and Glazes	Pastry III: Advanced Cakes and Pastries
<p>2007 Schedule: March 5 - March 9 June 11 - June 15 November 12 - November 16</p>	<p>2007 Schedule: March 12 - March 16 June 18 - June 22</p>	<p>2007 Schedule: March 19 - March 23 June 25 - June 29</p>

In this introductory class, students will learn the formulas, techniques and processes that are the foundation on which both modern and classic desserts are built. Through lecture, demonstration and hands-on participation, you will learn about ingredient functionality, cake mixing methods, pastry doughs and batters, creams and icing preparation, and layer cake assembly. Students will make a variety of base products such as Angel Food cake, Chiffon cake, Genoise, Devil's Food cake, Japonais and Paté a Choux. The cake and pastry bases will then be finished with a variety of creams and icings such as pastry cream, fruit curd, Italian butter cream and fondant. Special emphasis will be placed on learning the procedures for making cake and pastry bases, proper creams and icing preparation and assembling and icing layer cakes. Some of the finished products will include Chocolate Hazelnut Cake, Lemon Curd Cake, Black Forest Cake, Napoleon Cake, Éclairs and Paris-Brest.

In Pastry II students will explore in-depth the techniques and processes that make up the desserts and pastries which are found in many of today's pastry shops. Cake mixing will continue with sponge cakes including Roulade (Jelly Roll) and Almond Sponge Cake. These versatile cakes will be used to finish several of the desserts using Crème Anglaise, Pastry Cream, Diplomat Cream, Bavarian Cream, Mousseline Cream and Crèmeux. In addition, students will also learn the fundamental principles for creating light fruit mousse cakes and rich chocolate mousse cakes. Several mediums for finishing cakes such as Italian butter cream, various chocolate glazes, ganache, fruit glazes, mirror glazes and marzipan will also be implemented. Some of the final products produced in Pastry II include Opera Cake, Baba Savarin, Crèmeux Tarts, Bavarian Cakes, Fraisier Cake, Charlotte Russe, as well as Fruit and Chocolate Mousse Cakes.

This class is designed for professionals in the industry or students who have completed Pastry I and Pastry II and are interested in learning more about product composition, advanced mousse preparation, chocolate and advanced finishing techniques. Students will learn how to add flavor and flair to their products by creating infused creams, frozen inserts, textured cake bases and seasonal fruit preparations that can complement the natural flavors and textures of any dessert. Expanding on the formulas and processes learned in Pastry I and Pastry II, students will produce dessert offerings that reflect today's pastry trends. Special emphasis will be placed on understanding the balance between flavor, texture and visual elements to create eye catching and flavorful desserts. Through demonstration and hands-on participation, students will learn how to temper and work with chocolate in order to create sophisticated garnishes to highlight any pastry or dessert.

COURSES

Fundamentals of Pastry	German Breads	Holiday Pastries
<p>2007 Schedule: February 19 - February 23 April 30 - May 4 November 5 - November 9</p>	<p>2007 Schedule: tba: check our website for updates <i>with Guest Instructor, Thorsten Phillipe</i></p>	<p>2007 Schedule: October 29 - November 2</p>
<p>Learn the fundamental formulas and processes for creating today's most popular and appealing pastries as we cover the mixing and baking of a number of products—from quick breads, to cookies, to puff pastry. Students will learn to make Financiers, Madeleines, Muffins, Pound Cake, an assortment of Cookies, Brownies, Pies, Coffee Cakes and more. Savory items will also be explored as a way to build a diverse product line by using a few base pastry formulas such as pate a choux and puff pastry. The main focal points of this class are the understanding of ingredient functions and the mixing, handling and baking guidelines for the pastry doughs and batters covered. Students will obtain the knowledge and skill necessary to produce, manipulate and troubleshoot a wide variety of baked goods.</p>	<p>This exciting seminar dedicated to whole grain and German breads will show you how easy it can be to add these unique products to an existing bread line. If you have worked with doughs containing a high percentage of rye or whole grains, you know how difficult they can be to handle. Learn how to adjust your mixing times and fermentation to get exceptional results, even when using 100% rye! You will make traditional breads including Sourdough Rye, Whole Grain Spelt Bread, and the traditional Pumpernickel, which bakes for 36 hours! You will also learn how to make traditional Bavarian Pretzels and Kaiser Rolls.</p>	<p>Holidays are steeped in tradition and associated with warm memories. The pastries and desserts we identify with are modern day reminders of a forgotten art. In this class, you will finally learn the time honored secrets and techniques for producing an array of holiday breads, cookies, cakes and tarts that are rich in culture, tradition and flavor. A wide variety of specialty items will be covered, including Stollen, Pannetone, Buche de Noel, Holiday Mousse Cakes and seasonal cookies, pies and tarts. Through lecture, demonstration and hands-on participation, student will learn the formulas and processes for a wide variety of items. Discover why these beautiful desserts and pastries are holiday favorites and introduce your customers or family to a wealth of traditional and exciting flavors.</p>

VISIT www.sfbi.com FOR THE 2008 CLASS SCHEDULE ... COMING SOON!

Viennoiserie (Breakfast Pastry)	Whole Grain Breads and Specialty Flours	Baking with a Wood Fired Oven (Four a Bois)
<p>2007 Schedule: February 12 - February 16 April 16 - April 20 October 22 - October 26 December 3 - December 7</p>	<p>2007 Schedule February 19 - February 23 April 16 - April 20 September 24 - September 28 <i>with Guest Instructor, Didier Rosada</i></p>	<p>2007 Schedule July 30 - August 3 NEW! August 27 - August 31</p>
<p>Viennoiserie is the term used to describe sweet yeasted dough—laminated or non-laminated. The interest in laminated dough such as Croissant, Danish and Brioche is rising considerably and the quality of Viennoiserie in America is finally starting to catch up to the quality of well-crafted artisan breads. Through lecture, demonstration and hands-on production, students will learn about ingredient functions, dough mixing technology, laminating technology, the preparation of fillings and make-up and baking processes. Students will learn to add visual appeal to their pastries using glazes, fresh fruits, nuts and highlights of powdered sugar. Serious bakers and pastry enthusiasts alike will gain knowledge about various fermentation techniques as a way to accommodate production, build flavor and add shelf-life. A selection of non-laminated dough will include items such as Pan d' Oro, Pannetone, Stollen and Brioche.</p>	<p>During this intensive, hands-on workshop, students will learn how to bake with whole grains and specialty flours. Technical characteristics of specialty flours such as buckwheat, spelt, and semolina will be covered, along with precautions to take when using them. A variety of breads will be baked each day, including Flax Seed Bread and Pear-Buckwheat Bread. Students will learn how to consistently work with whole grain breads in a bakery environment to satisfy the growing customer demand for these products. The class will discover whole grain yeasted preferments and how to work with sprouted wheat. In addition, each student will build a sourdough culture using whole grain flours to be used in final dough by the end of the week. Beginners and experienced bakers alike will be inspired as they learn an array of new breads and different shapes.</p>	<p>Don't miss this rare chance to experience baking the way it was done in days past! You will learn about the large selection of products that are well-suited to being baked in a wood fired oven, including breads and sweet and savory items such as pizza and rustic tarts. Instruction will also include the fundamentals of designing and building a wood-fired oven. Most of this class will be hands-on, but some products will be demonstration only. Please note: Due to the size limitations of the wood fired oven, a sampling of each product will be baked in the wood-fired oven; the remainder will be baked in the gas fired deck oven. <i>NOTE: Due to the size limitations of the wood fired oven, only a sampling of each product will be baked in this oven; the remainder will be baked in the gas fired deck oven.</i></p>

how to register

- Register online at www.sfbi.com or call 650.589.5784 to register over the phone.
- Tuition for all classes is \$980; tuition includes daily lunch. Sign up for 2 classes within a 12 month period and receive a 10% discount on the second class: total price is \$1,862.
- A 50% deposit is required to reserve your space in class payable by check, cash or credit card (MasterCard, VISA, American Express). The remaining amount is due on the first day of class.

quick class facts

- All courses run from Monday-Friday.
- Courses begin at 8:30am on Monday and 8:00am for the rest of the week. Classes end at approximately 4:00pm each day.
- Acceptable attire is a white chef's coat or white shirt and checked pants. Hat optional. Wear comfortable non-skid shoes.
- Bring a notebook, writing utensils and a calculator to class.
- As a courtesy to our instructors and fellow students, mobile phones must be shut off or left on "vibrate" mode during class.
- SFBI offers special rates at select hotels near our campus. Most of these hotels offer direct shuttle service to and from our school. Visit www.sfbi.com or call us at 650.589.5784 for details.

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Intensively mixed dough with short first fermentation will proof longer, as its more organized gluten can trap a larger amount of gas.

Temperature also has a major effect on the length of the proofing time. Dough proofed at higher temperature will proof faster compared to dough proofed at a lower temperature. If properly equipped, the baker has many options in terms of proofing time and temperature. After shaping, the loaves can be placed at a lower temperature to delay their fermentation. The lower the temperature, the longer the fermentation time. It is important to mention that the yeast activity will be almost stopped when dough temperature reaches 38°F to 40°F (3°C to 4°C) but any temperatures higher than that still allow some fermentation activity to happen and, therefore, some gas production. Once the gluten has trapped the right amount of gas and the dough is properly proofed, it can be loaded into the oven even if it is coming directly from the retarder.

However, it is better to make sure that the inside dough temperature is at least 50°F (10°C) to avoid very long and powerful oven kick that can create some cracking on the surface of the bread.

In a production environment, it is better to proof the dough at a lower temperature. The fermentation tolerance of the dough will automatically be improved. This will avoid any potential bottleneck at the oven. On the other hand, it is difficult—if not impossible—to stop the yeast activity in dough allowed to ferment at high temperature and the window of opportunity to bake the bread is very short. Production can then easily become subject to over-proofing problems.



Regardless of the final proofing temperature, the moisture level in the proofer or retarder should always be kept under control or the surface of the dough will get crusty, leading to bread with very dull and thick crust. If no humidity control is available, the dough should be protected (using rack covers) from any potential drafts that could create dry skin on the surface of the dough.

How to score?

After the bread is properly proofed, scoring is performed. Here also, the baker has a few options. Traditional cuts are popular for baguettes or batards but other scoring techniques can also be used. “Sausage” cut, “Chevron” cut or “Polka” cut are just a few examples.

Most of the time, scoring is done using a sharp razor blade but scissors are also used (to make *epis*, for example).

In addition to improving the aesthetics of the bread, the different types of cuts have some effect on the final shape of the bread. *Perpendicular* cuts on the sides of the loaf will create a final product with a rounder cross section and are better for weak dough that will have the tendency to sag during baking. In contrast, cuts made *parallel* to the sides of the loaf will create a more pronounced weakness that will lead to a flatter cross section. These types of cuts should be applied only on dough that has enough strength to develop during the oven kick and preserve a nice cross section.

When scoring boules, in order to preserve the roundness of the final shape, it is important to score the dough in all directions. Cuts made only in one direction (two or more parallel cuts for example) will create a final loaf with an oval cross section.

Weak dough, such as heavy rye, should be cut after shaping. Its gluten structure is so fragile that it might collapse if cut after the final proof. Scoring these types of dough after shaping also brings a nicer definition to the cuts after baking. Because of its weaker oven kick, denser dough will keep the cut definition well. Many designs can be created, from the initials of a bakery’s name to flowers or flames, to name just a few.

Stronger dough has the tendency to lose the cut design as it will expand much more at the beginning of the bake. Simpler cuts will help avoid a messy appearance in the finished product. At this stage of the process, stencils are sometimes used.

The dough still needs to be scored (usually around the stencil to avoid damaging the design.) The cuts allow controlling the expansion of the bread during baking. Without cuts, the large amount of gas produced during baking will try to escape once the pressure gets too intense and can create cracks on the loaf that will compromise the design of the stencil.

When flour is used (for stencils or not), the amount should always be controlled. Not enough, and the visual effect will be lost; too much could penalize the proper formation and caramelization of the crust, negatively affecting the texture and flavor of the finished product.

continued on page 10

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baker's tip: getting your peaks stiff

Meringue is one of the main components of numerous pastry preparations. The formation of a stable foam depends on the purity of the ingredients used, as well as the method of preparation.

First, the egg whites and equipment used must be free of any fat. Next, the sugar must be free of any foreign materials, such as flour or seeds.

Any common meringue can be whipped to stiff peaks, but some people encounter problems with meringues containing larger quantities of sugar. For this, the sugar to egg white ratio will determine when the sugar is added to the whites. For ratios which are 1:1, sugar to whites, only 1/3 of the sugar should be added at the beginning of mixing.

Mixing should be done at a medium speed initially to encourage the development of the foam. Once there is volume, the speed may be increased until the desired peak is reached. At this point, the remainder of the sugar is added and the machine is turned off.

Variations on the 1:1 ratio:

If the sugar is 1/3:1 (Su/EW) or less, the sugar may be added all at once in the beginning and the meringue can be whipped to the desired stage.

If the meringue is to contain more sugar than egg white, follow the procedure for the 1:1 ratio until the final addition of the sugar (which equals the weight of the whites) and then fold in the remaining sugar by hand or mix it.

—Brian Wood



how to develop a formula, cont.

continued from page 8

It is not very pleasant to have a mouthful of flour when eating bread, plus it can be very messy!

What kind of final baking process will be used?

The type of oven will influence the characteristics of the finished products, principally depending on what type of baking profile the oven provides. Baking mostly by *conduction* (when the dough is in direct contact with the stone, such as in deck ovens) will optimize oven kick and crust quality. Because of the direct contact with the deck of the oven, the temperature of the dough rapidly increases, generating

Oven temperature and baking time obviously need to be adjusted according to the type and size of the dough being baked. Generally, larger loaves require a longer baking time at lower temperature while smaller loaves benefit from a quicker bake at higher temperature. Decreasing temperature when possible is the best way to obtain perfect baking characteristics for larger loaves made with whole grain flour. When temperature regulation is not possible, opening the oven dampers or oven doors at the end of the bake will achieve similar results. Sweet dough should be baked at lower temperatures.

Conclusion

The key to developing a desirable formula is to start with a clear idea of the product you want to develop. Then, the choice of the baking process will depend on the desired final product characteristics. A combination of common sense and baking knowledge is necessary to make sure that flavor combinations between ingredients and fermentation aromas will work well and have the proper dough characteristics during shaping and baking.

Much experimenting is usually necessary, including playing with the percentage of the different flours in the formulas,

During the experimental phase, it is very important to keep track of all the changes and results in the development process.

a large amount of gas that develops the bread before the crust is completely formed. The crust of these breads is generally thicker and provides the best eating characteristic for traditional breads like baguettes, sourdough, Ciabatta or whole wheat.

Convection heat (the dough is baked by the very hot air blown in the bake chamber, such as in rack or convection ovens) somewhat inhibits the oven kick, as the heat transfer is not as intense at the beginning of the bake, but offers finished products with thinner and crispier crust. This type of baking is ideal for rolls, sweet breads or pan breads, as the more mellow heat transfer won't dry them out. Convection ovens are also ideal for laminated dough, such as croissants, Danish and puff pastry. The gentle air flow enhances the separation of the layers of dough, creating better flakiness and crispiness.

If baked in a deck oven, it should be placed on sheet pans to avoid too intense a coloration on the bread bottom that can lead to a bitter flavor in the final product.

Most breads benefit from steam. The steam allows a better expansion of the dough and crispier, nicely colored crust. Egg wash is sometimes used for sweet dough. The function of the egg wash is similar to that of steam. It is better to egg wash the product twice to insure a proper coating of the dough—once after shaping, and again at the end of the final proof to make sure that the surface of the dough exposed after the final proof is also covered with egg wash. To optimize the uniformity of the crust color and dough expansion it is also a good idea to steam (just for a few seconds and certainly much less compared to breads) the egg-washed products at the beginning of the bake. Shine is also enhanced using this method.

the percentage of flour used in the preferment or the percentage of extra ingredients used to flavor the dough. During the experimental phase, it is very important to keep track of all the changes and results in the development process. It is then easier to make adjustments and finalize the formulation and processes in the right direction.

For a bakery environment it is important to make sure that the formulation is adapted to efficient production. Making a lot of different preferments or having a lot of preparation work will naturally lead to increased costs.

But after all these efforts, the end result is very gratifying, something that you have created from the beginning to the end. Your bread could end up as an award-winner, or be a signature product that people can only find in your bakery, creating even more loyal customers

—Didier Rosada

reci pe of the season: fresh fruit charlotte

Components

- Lady Finger Sponge
- Kirschwasser Simple Syrup
- Vanilla Diplomat Cream
- Berry Compote
- Lemon Cr meux
- Chocolate D cor
- Fresh Fruit
- Powdered Sugar



Yield: 5, 8" cakes; Test: 1, 8" cake

Lady Finger Sponge

Ingredients	Baker's %	Kilogram	Lbs	Oz	Test
Egg Whites	142.00	0.749	1	10 3/8	5 1/4 oz
Egg White Powder	0.70	0.004	0	1/8	1/2 tsp
Sugar	89.00	0.470	1	5/8	3 3/8 oz
Egg Yolks	78.00	0.412	0	14 1/4	2 7/8 oz
Trimoline	7.00	0.037	0	1 1/4	1/4 oz
Pastry Flour	50.00	0.264	0	9 1/4	1 7/8 oz
Potato Starch	50.00	0.264	0	9 1/4	1 7/8 oz
Total	331.70	1.750	3	13 3/4	12 3/8 oz

Each cake will require 1-7" base and 1-24"x2.5" band of fingers.

Process

- Preheat oven to 175 C/350 F.
- Sift together the pastry flour and potato starch.
- Whip the egg whites and egg white powder in the bowl of a mixer fitted with the whip attachment to stiff peaks with the sugar.
- Combine the trimoline and egg yolk and add to the stiff peak meringue.
- Fold in the sifted flour/starch mixture and pipe desired sizes.
- Dust with powdered sugar and bake until cake is golden brown, approximately 7-10 min.

Kirschwasser Syrup

Ingredients	Baker's %	Kilogram	Lbs	Oz	Test
Water	100.00	0.258	0	9 1/8	1 oz
Sugar	84.08	0.217	0	7 5/8	7/8 oz
Kirschwasser	9.55	0.025	0	7/8	1/8 oz
Total	193.63	0.500	1	1 5/8	2 oz

Process

- Bring the water and sugar to boil and cool. Then add the alcohol and use as needed.

Berry Compote

Ingredients	Baker's %	Kilogram	Lbs	Oz	Test
Raspberry	40.00	0.226	0	8	1 5/8 oz
Blackberry	20.00	0.113	0	4	3/4 oz
Blueberry	40.0	0.226	0	8	1 5/8 oz
Raspberry Puree	40.00	0.226	0	8	1 5/8 oz
Blackberry Puree	40.00	0.226	0	8	1 5/8 oz
Sugar	38.00	0.214	0	7 5/8	1 1/2 oz
Gelatin	3.00	0.017	0	5/8	1/8 oz
Vanilla Bean		0.000	0	0	1/5 ea
Total	221.00	1.247	2	12	8 3/4 oz

Process

- Bloom the gelatin in cold water. Combine and heat the berries, puree, vanilla bean and the sugar.
- Simmer the berry mixture for 1 minute. Discard the vanilla bean.
- Cool slightly and add the bloomed and melted gelatin.
- Stir well, deposit into 6" diameter fleximold and freeze.

Lemon Cr meux

Ingredients	Baker's %	Kilogram	Lbs	Oz	Test
Lemon Juice	100.00	0.367	0	13	2 5/8 oz
Egg Yolk	56.00	0.205	0	7 1/4	1 1/2 oz
Eggs	64.00	0.235	0	8 1/4	1 5/8 oz
Sugar	60.00	0.220	0	7 3/4	1 1/2 oz
Butter	60.00	0.220	0	7 3/4	1 1/2 oz
Total	340.00	1.247	2	12	8 3/4 oz

Process

- Bring the lemon juice to just below boil with half of the sugar.
- Combine the egg yolk, whole eggs and the remainder of the sugar.
- Pour 1/3 of the lemon juice over the egg mixture and stir with a spatula. Do not use a whisk, as it will incorporate air.
- Return the egg mixture to the pot and continue to stir constantly, agitating the bottom of the pot.
- Cook until the mixture is 82 C/180 F and thickened. Do not over cook.
- Strain through a fine chinois into a clean, dry container.
- Once mixture is at 35 C/95 F, add tepid butter using an immersion blender.
- Deposit into fleximold 6" diameter and freeze.

Pastry Cream for Diplomat Cream

Ingredients	Baker's %	Kilogram	Lbs	Oz	Test
Whole Milk	100.00	0.999	2	3 1/4	7 oz
Sugar	12.50	0.125	0	4 3/8	7/8 oz
Vanilla Bean		1	1		1/4 ea
Cornstarch	7.50	0.075	0	2 5/8	1/2 oz
Sugar	25.00	0.250	0	8 7/8	1 3/4 oz
Egg Yolks	16.25	0.162	0	5 3/4	1 1/8 oz
Butter	12.50	0.125	0	4 3/8	7/8 oz
Lemon Zest		1	1		1/4 lemon
Total	173.75	1.737	3	13 1/4	12 1/4 oz

Process

- Scale the whole milk and the first sugar into a stainless steel pot and bring to a boil.
- Meanwhile, scale the second sugar and cornstarch into a bowl and mix to combine.
- Scale the yolks into the sugar/starch mixture and whisk until combined.
- Once the milk comes to a boil, pour 1/3 of it onto the yolk mixture and stir to incorporate evenly. Return this mixture back to the pot, constantly stirring.
- Continue to cook the custard while stirring until it has boiled for two minutes.
- Off heat, add the butter and lemon zest. Stir until mixed in completely.
- Pour the pastry cream onto a clean, parchment lined sheet pan and cover the surface of the custard with plastic wrap. Refrigerate immediately until needed.

Diplomat Cream

Ingredients	Baker's %	Kilogram	Lbs	Oz	Test
Pastry Cream	100.00	1.737	3	13 1/4	12 1/4 oz
Whipped Cream	100.00	1.737	3	13 1/4	12 1/4 oz
Gelatin	1.60	0.028	0	1	1/4 oz
Total	201.60	3.501	7	11 1/2	1 lb; 8 3/4 oz

Process

- Whip cream to soft peaks and reserve in refrigerator. Meanwhile, bloom gelatin in cold water.
- Take pastry cream (5 times the weight of the gelatin), and warm to 120 F in the microwave.
- Melt the bloomed gelatin in microwave and add to the warmed pastry cream.
- Whip reserved pastry cream until smooth and then temper in the gelatin and pastry cream mix.
- Fold in the soft peak whipped cream.

Assembly

- Place a 7" diameter lady finger in an 8" cake ring with an acetate strip; line the perimeter of the cake with lady finger band.
- Brush the cake base with the cake syrup.
- Pour over 230g/8oz of diplomat cream.
- Place a disc of frozen berry compote insert.
- Pour over 230g/8oz of diplomat cream.
- Place a disc of frozen lemon cremeux insert.
- Fill the cake 1/4" below to the top of the lady fingers with diplomat cream and smooth top of cake with a pastry spatula.
- Reserve in refrigerator for at least 6 hours.

Finishing

- Transfer to a gold board and remove the ring mold.
- To finish, garnish the cake abundantly with fresh fruit and apply apricot glaze and powdered sugar as applicable.

photo by Frank Wing



Welcome summer with our Fresh Fruit Charlotte
recipe, inside this issue ...

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- recipe of the season
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