



What's Rising

San Francisco Baking Institute Newsletter • Fall 2004

Check out our new Comprehensive Pastry Program on Page 6!

dough strength: evaluation & techniques

by Didier Rosada, Head Instructor



Didier Rosada

It is very important for bakers to have a clear understanding of dough strength. At the same time, it is one of the most difficult dough properties to assess. It is almost impossible to learn how to judge the strength of the dough by reading a technical book. Only much dedicated, practical work with dough at the bakery will educate a baker's hands. With continued practice and guidance, a baker can learn to evaluate the strength of the dough by feel, and learn how to make corrections when necessary to achieve appropriate bread quality.

Strength is responsible for many dough and bread characteristics. An improper balance of strength can result in dough that is difficult to work with or dough that has bad machinability properties. Improper strength balance can also lead to a mediocre final product quality.

Many variables can effect dough strength during the baking process. The goal of this article is to cover the main issues in order to help bakers understand what can go wrong; how to troubleshoot; and how to achieve more normal dough characteristics for optimum product consistency and quality.

“Baking”: *adjective:* Marked by much heat: ardent, blistering, boiling, broiling, burning, fiery, heated, red-hot, roasting, scalding, scorching, searing, sizzling, sultry, sweltering, torrid. See also: HOT.



Roget's II: *The New Thesaurus, 3rd Edition, 1995*

Definition of Strength

Strength is a balance among three physical dough characteristics: *extensibility, elasticity and tenacity.*

Extensibility

Extensibility is the stretching property of the dough. Dough with good extensibility is easy to stretch. This is a fairly important characteristic for manual shaping of long shapes like baguettes, and, to a lesser extent, for the production of laminated dough.

Elasticity

Elasticity is the property of the dough to return to its initial position after being stretched. Dough that noticeably springs back after being stretched is judged too elastic.

Tenacity

Tenacity is the property of the dough to resist, more or less, a stretching action. This property can have some influence during the elongation part of the shaping process. If the dough resists a lot when a baker tries to make it longer, it can be described as tenacity.

There is a very close relationship between elasticity and tenacity. Elastic dough naturally resists the stretching action; dough with a lot of tenacity has the tendency to retract to its initial position very quickly.

For this reason—at a bakery level—strength is often described as a balance between dough extensibility and dough elasticity. However, in a laboratory environment, all three characteristics (extensibility, elasticity and tenacity) are taken into consideration.



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what's inside: dough strength, new pastry program, 2004-05 class schedule, a week in the life of a 16-week training program student ...

about us: sfbi

Since 1996, the San Francisco Baking Institute (SFBI) has trained hundreds 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.



from michel: another inspiring graduation

Michel Suas, Founder/President



Michel Suas

We were happy to see our second class of graduates celebrate the completion of the 16 Week Professional Bread & Pastry Training Program last month. Once again, our graduates impressed their friends, relatives and instructors with an amazing presentation of breads and pastries at our 2004 Open House and Graduation.

One of the most satisfying aspects of our Professional Training Program is seeing the progress students make between the day they first join us at SFBI and graduation day. Students join us with every level of skill imaginable – some have baked very little, but are filled with curiosity and a commitment to learn; some have baked for many years and are passionate about refining and building confidence in their talents.

Our students also encompass a great diversity of ages, points of view, backgrounds and future goals. Some of our students are just starting to think about what they want to do with their lives and have discovered baking and pastry as a new passion. Other students have always enjoyed baking and are now finally ready to strike out on their own, planning to open new bakeries after graduation. Some students are in the midst of a career transition, choosing to do something they really love after many years working in jobs that were not as satisfying as they had hoped.

Wherever our students come from when they arrive at SFBI for the first day of the 16-Week Training, they all share one thing in common: they want to learn how to bake authentic artisan breads and pastries like a professional. They are all drawn to the unique satisfaction that comes from practicing a craft in the best, most high-quality way possible.

As the weeks progress, students are exposed to all aspects of baking and pastry, from the science of formulas, ingredients and equipment to the art of planning, shaping and decorating. In both hands-on classes and classroom instruction, they make mistakes and learn how to fix them; absorb knowledge and practice it at the ovens; ask lots of questions and get lots of answers.

Because of the small class size (less than 15), students really get to know each other and their instructors. Our class trip to *Institut National de la Boulangerie* in France, along with being a great experience for anyone who loves to bake, also helps to build camaraderie. Working together on practice production teams during training and in preparation for their major presentation at graduation, our diverse group of students, with many different backgrounds and goals, becomes a cohesive team—great preparation for what lies ahead in their baking careers.

Thank you to our talented team of instructors for once again inspiring a group of new students to go out and make their mark in the baking and pastry world, and the best of luck to our graduates as they pursue their dreams!

“One can never know too much; the more one learns, the more one sees the need to learn more ... study, as well as broadening the mind of the craftsman, provides an easy way of perfecting yourself in the practice of your art.”

Auguste Escoffier

dough strength: evaluation & techniques

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Strong Dough vs. Weak Dough

It is very common to hear in bakeries the terms *elastic dough*, *extensible dough*, *strong dough* or *weak dough*. Quite often, there is confusion about these important dough descriptions. We will now focus on the exact definitions of *strong* and *weak* dough.

Strong dough can be defined as dough with a lack of extensibility and an excess of elasticity. This translates into dough the baker will find difficult to stretch during hand or machine shaping. Also, once the desired length is achieved, the dough will have the tendency to retract from its original length.

Strong dough can result in shorter breads with rounder cross sections and inferior cut openings. These defaults can easily be explained by the lack of gluten extensibility, inhibiting the development of the bread during proofing and/or oven spring.

Weak dough will be very easy to stretch (excessive extensibility), and won't spring back at all (lack of elasticity) during the shaping stage. Despite a good machinability because of its lack of strength, the gluten will be too weak to retain a lot of gas during the proofing and the baking of the bread. As a result, finished products have a very low volume, flat cross sections, dense crumb structure and poorly developed cut openings.

It is critical for the baker to maintain a good balance between dough elasticity and dough extensibility in order to achieve adequate dough and final product characteristics. In baking, it is important to understand that the ingredients and process used can have a direct impact on the strength of the dough.

Factors Affecting the Strength of Dough

Ingredients

Flour, being the main ingredient, has a direct impact on the strength of the dough. Protein quantity and quality is, of course, a key factor in the strength of the dough. Flour with a high level of protein will provide a higher amount of gluten in the final dough, resulting in dough with a tendency to be very elastic and not very extensible. On the



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other hand, low protein flour will result in more extensible and less elastic dough. Very low protein flour will generate dough with a lack of strength.

Protein quality also has a direct impact on the dough. An easy way to understand this is to compare flour made with soft wheat—pastry flour, for example—and flour made with hard wheat, such as bread flour. Proteins from soft wheat don't have the same gluten forming ability compared to the proteins naturally found in hard wheat, leading to dough with poor strength and poor gas retention. But even when comparing hard wheats—depending on their protein quality—dough and final products can have very different characteristics.

The quality of the protein is a very important factor to take into consideration and, because of that, it is difficult to give an exact desirable amount of protein. However, on average, flour between 10.5% and 12% protein should provide a good ratio between extensibility and elasticity.

Ash content also has an impact on the strength of the dough. A lot of bran left in the flour after the milling process will interfere with gluten formation and generally lead to dough with lower strength. A good way to illustrate this is to compare whole-wheat flour and regular bread flour. Whole-wheat flours create doughs that are always more extensible and with lower gas retention. Conversely, low ash content flour (such as patent flour) will generate dough with the tendency to develop a light excess of strength. Again, it is difficult to give precise ash content, but, in general, ash content around .5% is desirable to achieve good strength properties.

Some flour treatments can also have a direct effect on the strength of the dough. For example, adding an oxidizer like Ascorbic Acid or Potassium Bromate to the flour will automatically generate an increase in strength.

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Benzoyl Peroxide (bleaching agent) won't have much impact on the strength, but can effect the color of the crumb in the finished product.

ADA or Azodicarbonamide (maturing agent) will also increase dough strength. Malt or fungal amylase has a secondary effect on the strength by promoting enzyme activity and fermentation activity.

Natural maturation, directly related to the natural oxidation of the flour, also has an impact on the strength of the dough. Fresh flour has the tendency to lack strength, while properly matured flour will be more balanced. This is why it is always a good idea to allow the flour to mature two to three weeks before using it in baking.

Water quality and quantity used in the final dough may also effect dough characteristics. The hardness or softness of the water is due to the level of minerals that it contains. These minerals in a dough system are used as nutrients by the yeast and play an important role during fermentation activity. Hard water, because of its higher mineral content, generates dough with higher fermentation activity, which leads to dough with higher strength compared to dough made with soft water (lower mineral content).

The hydration of the dough (in direct relation to the amount of water used in the formula) also affects the strength. Under-hydrated proteins create gluten with a lack of extensibility and an excess of elasticity. Overly hydrated proteins create very extensible dough with a lack of elasticity, requiring some changes in the baking process (such as longer mixing time, stretch and fold or longer fermentation time) to achieve good final product quality.

Ingredients added to formulas may also have some effects on the dough. For example, butter will increase dough extensibility, as will a high level of sugar (15% and up). When seeds or other chunky ingredients like nuts, chocolate chips, fruits, etc., are added to the dough, the gluten is weakened, creating a negative impact on the strength of the dough.

Some precautions must be taken during the baking process (such as longer mixing, stretch and fold) to bring the dough back to a good balance. Also, remember that these ingredients must be added at the end of the mixing time to avoid any damage to the gluten and preserve the structure and strength of the dough as much as possible.

Mixing

This very important step in the baking process can also effect the strength of the dough. When using an autolyse process, a baker automatically changes the characteristics of the gluten. By allowing the incorporated flour and water to rest for a certain period of time (from an average of twenty minutes to one hour), proteins will have more time to absorb the water and create better bonds that will improve the structure of the gluten network. At the same time, some flours' enzymes will be activated by the water and start their degradation action.

At this stage of the process, the protease will degrade some of the chains of proteins. This slight weakening of the gluten structure has a positive effect on the extensibility of the dough. Mixing time can then be reduced, since the more extensible gluten organizes faster under the mechanical action of the mixer's hook.

Working characteristics and machinability of the dough will be improved. Breads will have a better crumb cell structure (more open and creamier due to lower mixing time), slightly larger volume and better cut openings (because more extensible gluten can expand better during the first stage of baking).

To improve dough extensibility without using an autolyse, deactivated yeast can also be used. It will increase dough extensibility, improving dough and bread characteristics. Because deactivated yeast is a natural product (therefore maintaining a "clean" label) it is used more often in laminated dough and formulas of "long-shaped" breads like baguettes. It is important to remember that this type of yeast won't generate any fermentation activity.

Mixing time also effects the strength of the dough. Longer mixing time mechanically stretches and folds the gluten strands for a longer period of time. As a result, the chains of gluten will be longer and more bonded together, creating a more organized gluten structure. Because of the extra bonds created by a longer mixing time, the gluten network will be stronger. As a result, the dough will be more elastic and less extensible.

On the other hand, shorter mixing times generate weaker gluten structure (fewer bonds are created). The dough obtained will have a lack of elasticity and, most of the time, an excess of extensibility. The baker must compensate by increasing first fermentation time and using one or several stretch and folds to improve the strength of the dough.

Dough temperature has an indirect impact on dough strength. Warmer dough temperature generates more fermentation activity; cooler dough temperature generates lower fermentation activity. As we will see in the next section, more fermentation creates stronger dough, while less fermentation produces weaker dough.



“God made yeast, as well as dough, and loves fermentation just as dearly as he loves vegetation.”

Ralph Waldo Emerson
(1803–1882), American poet, essayist

This is a common mistake found in some bakeries. Many bakers think about preferment only in terms of flavor, and forget that preferments also have an effect on the strength of the dough.

Fermentation

In a dough system, fermentation is responsible for the production of gas, alcohol, and—in advanced stages—acidity. Acidity is responsible for three important reactions for the properties of the dough and the quality of the breads. Some types of acids, such as *organoleptic acids*, will participate in the flavor of the final products by creating aromas. In addition, acids, by lowering the pH of the dough, slow down staling and inhibit mold growth, increasing the shelf life of the bread. Lastly, acidity will physically and chemically reinforce the gluten bonds, reinforcing the elasticity of the dough while decreasing its extensibility.

Bakers must remember that fermentation produces all of these reactions at the same time. For example, we can't use fermentation for aroma production only, without taking the strength factor into consideration. This means that bakers who want to get good flavor characteristics by fermenting dough a long time will also automatically get stronger dough. To avoid that, some adjustments must be made in the baking process. Longer first fermentation time means shorter mixing time and higher hydration used in the formula (to achieve a soft dough consistency, therefore more extensibility).

When “no-time” doughs are made (no first fermentation is involved in the process), longer mixing time and, sometimes, dough oxidizer are needed. This is necessary to build up enough strength in the dough to compensate for the fact that no acidity will be produced after mixing (and therefore no strength will be developed).

The quantity or “mass” of dough that is allowed to ferment also plays a role in the strength of the dough. A larger piece of dough has the tendency to increase in strength faster compared to a smaller piece of dough. This is due to the fact that in larger masses of dough, all the chemical reactions happen faster and a better environment is created with conditions more favorable for microorganism activity: temperature, availability of nutrients, etc.



This is what we refer to in the baking industry as the *mass effect*. This mass effect is particularly important to take into consideration when applying formulas developed for home baking to production or vice versa. For smaller batches of dough (up to 6 lbs.), longer fermentation time might be necessary, while larger batches (50 lbs. and up) might require shorter fermentation time.

Using preferment in the final dough will also effect its strength properties. As a general rule, anytime a preferment is added, the strength will increase. During the pre-fermentation, some acidity is produced, increasing dough strength. However, other factors concerning preferments must also be taken into consideration: the type of preferment, the quantity used in the final dough and their degree of maturation when incorporated in the final dough.

Type of Preferment

Consistency of the preferment will have an effect on the dough extensibility. Because of the large amount of water involved in their formulas, liquid preferments, such as poolish, will develop more enzymatic activity during the pre-fermentation time.

Protease activity is particularly interesting for its ability to make the gluten more extensible, delivering all the advantages of the autolyse listed previously. Preferment allowed to ferment at room temperature and without salt also creates some protease activity (like sponge). If consistency is stiff, then less enzyme activity is generated, but still enough to see positive effects in the final dough.

When a sourdough process is used to make the final product, the dough automatically develops more strength, due to the higher level of acidity produced by these preferments (because of the activity of the bacteria present in the culture). This increase in strength can be an advantage for the baker who decides to retard some dough (stronger dough will retard better).

As explained previously, liquid sourdough promotes dough with better extensibility. Its use in the production of “long-shaped” breads like baguettes is recommended.

Quantity Used in the Final Dough

The increase in strength brought about by the use of preferment is proportional to the quantity of preferment used in the final dough. A higher percentage of fermented flour causes more acidity and, therefore, an increase in strength. This is a factor that bakers must take into consideration when developing formulas.

It is well known that higher amounts of preferments improve flavor, but it is important to remember that strength will also be increased and the rest of the baking process will have to be adjusted accordingly.

The amount of preferment is, in general, related to the length of the first fermentation. When only a short first fermentation time is possible, a larger amount of preferment can, and should, be used. If a long first fermentation time can be achieved, then the amount of preferment should be lowered to avoid an excess of strength.

This is a common mistake found in some bakeries. Many bakers think about preferment only in terms of flavor and forget that preferments also have an effect on the strength of the dough.

The addition of preferment in formulas can also be used for troubleshooting. For example, flour with a lack of fermentation tolerance, or flour with a lack of maturation benefits from a higher percentage of fermented flour in the formulas (more acidity brought to the final dough).

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Artisan I: Baking Fundamentals	Artisan II: Mastering Sourdough	Advanced Artisan Breads
<p>2004 Remaining Schedule: October 11 - October 15 December 6 - December 10</p> <p>2005 Schedule: January 10 - January 14 February 28 - March 4 June 13 - June 17 July 11 - July 15 September 26 - September 30 December 5 - December 9</p>	<p>2004 Remaining Schedule: October 18 - October 22 December 13 - December 17</p> <p>2005 Schedule: January 17 - January 21 March 7 - March 11 June 20 - June 24 July 18 - July 22 October 3 - October 7 December 12 - December 16</p>	<p>2004 Schedule: February 9 - February 13 August 2 - August 6</p> <p>2005 Schedule: February 14 - February 18 August 22 - August 26</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 preferences 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 I 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 miches using high ash flour and 230% (1) 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!

NEW COMPREHENSIVE PASTRY WORKSHOP SERIES!

Pastry I: Introduction to Basic Cakes & Pastries	Pastry II: Building on the Basics	Pastry III: Advanced Pastries
<p>2005 Schedule: February 21 - February 25</p>	<p>2005 Schedule: May 16 - May 20</p>	<p>2005 Schedule: November 7 - November 11</p>

In this introductory class, students will learn the techniques and processes that are the foundation on which both modern and classic desserts are built. Through demonstration, discussion and hands-on participation, we will cover the mixing methods and ingredient functionality of cakes such as Angel Food, Genoise, Chiffon, Sponge and the basic Pound Cake. Students will also learn the secrets of making flaky pie dough and perfectly tender tart dough. The class will survey Pate a Choux, Puff Pastry, and various meringue bases, such as Pate a Dacquoise and Japonaise, known for their versatility as non-cake bases. The skills you gain in this class will ably prepare you for work in today's pastry kitchens.

Building on the basics learned in Pastry I, students in Pastry II will become familiar with the creams, fillings and finishing techniques used to produce the confections found in many of today's pastry shops. Students will learn to understand and control the timing and temperature of processes to produce everything from Pastry Cream, Crème Anglaise, and Bavarian creams to various buttercreams and mousses. You will also find out how to lighten up the basics to create Diplomat Cream, Chiboust and Fruit Curds. With the skills and bases learned in Pastry I, combined with the fillings and icings learned in Pastry II, you will be able to create a wide variety of pastry case offerings, such as Napoleons and Eclairs; Lemon Tarts and simple Mousse Cakes.

This class is designed for professionals in the pastry industry, or students who have completed Pastry I and Pastry II, who are interested in learning the finishing techniques and flavor trends that will bring their current line to a new level. You will explore cream infusions, herbal and spice accents and seasonality, which you will learn to balance with different textures to create superior products that will separate you from your competitors. With focus on the importance of presentation in product design and development, students will learn the techniques needed to make eye-catching chocolate, sugar, tulip paste and marzipan garnishes, through demonstration and hands-on participation. Once you have mastered these techniques, you will be able to beautifully accent desserts that can be sold individually, or dressed up with exciting plating methods that will satisfy any pastry environment or clientele.

quick class facts

- All courses run from Monday-Friday. Courses begin at 9:30am on Monday and 8:00am for the remainder of the week. Classes end at approximately 4:00pm each day.
- Acceptable attire is a baker's uniform of checked pants and a white shirt and/or jacket. Hat optional. Wear comfortable non-skid shoes.
- Students should bring a notebook, writing utensils, and a calculator to class. Cameras are optional.
- 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. Please see our website www.sfbi.com for a complete list or call us at 650.589.5784 for details.

course schedule

All About Chocolate	Cakes & Creams	Classic American Pastry	Fruit Desserts	German Breads
2004 Schedule: January 26 - January 30	2004 Schedule: April 12 - April 16	new course! see 2005 schedule below	2004 Schedule: August 2 - August 6	2004 Schedule: June 21 - June 25
2005 Schedule: no class scheduled for 2005... Check out our website throughout the year for updates!	no class scheduled for 2005... Check out our new Pastry Workshops on page 6 as an alternative.	2005 Schedule: January 31 - February 4 October 10 - October 14	no class scheduled for 2005... Check out our website throughout the year for updates!	2005 Schedule: March 14 - March 18 October 31 - November 4
Chocolate desserts of every variety are always a favorite with customers! Learn everything you need to know about this alluring ingredient: how beans are harvested; what really defines a chocolate and classifies it as "quality," and the basic principles of tempering. We will use the best of the hands-on techniques and mediums. You will create small "melt-in-your-mouth" Truffles, decadent Chocolate Cakes and silky smooth Mousses. This essential class gives you the foundation and stepping stones you need to create satisfying, exciting products that will have your customers coming back for more!	Our comprehensive cakes and creams class will add new layers of competence to your range of skills. Start with the basics: Chiffon Cakes and classic Buttercreams, and then watch your abilities grow and strengthen enough to create some very complex and high-end desserts. From a Pate a Dacquoise to Chiffon Genoise, from Frozen Inserts to Cold Fruit Glazes, you will practice the many components of today's most stunning cakes.	Comfort foods and desserts that inspire nostalgia are sure bets for encouraging repeat customers. In this class you will learn to create the most popular American classics with a level of sophistication that will set you apart from your competitors. We will explore seasonality and regional favorites, while producing a variety of Fruit and Cream Pies, Shortcakes and Crumbles. Students will learn the secrets for creating perfect Chocolate Chip Cookies, rich and creamy New York-style Cheesecakes that won't crack, melt-in-your-mouth Scones, and Muffins with those perfectly domed tops that elude so many!	From summer's sun-drenched strawberries to autumn's clean, crisp apples, there are fruits available year-round to inspire desserts for every occasion. Learn how to work with the seasons to transform the simplest fruit into the most memorable dessert. You will create the well-known Fresh Fruit Tart, a classically French Tart Tatin and modern day Fruit Mousse Cakes. This class will open your eyes to a world of flavor and texture that will prevent you from ever viewing fresh produce the same way again!	This exciting seminar focused on 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.

VISIT www.sfbf.com FOR SCHEDULE UPDATES AND MORE DETAILED CLASS DESCRIPTIONS!

Holiday Pastries	Par Baked Breads	Sweet Doughs for Breakfast Pastry	Bake with a Wood Fired Oven	<h2>how to register</h2> <ul style="list-style-type: none"> • Register on line at www.sfbf.com • Call 650.589.5784 to register over the phone • Tuition for all classes is \$950; 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 \$1805. • 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.
2004 Schedule: September 13 - September 17	2004 Schedule: August 9 - August 13	2004 Schedule: February 2 - February 6 October 25 - October 29	new course! see 2005 schedule below	
2005 Schedule: October 19 - October 23	no class scheduled for 2005... Check out our website throughout the year for updates!	2005 Schedule: February 7 - February 11 May 2 - May 6 October 17 - October 21	2005 Schedule: August 15 - August 19	
Holidays are steeped in tradition and associated with warm memories. The pastries and desserts that we each 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 cakes, cookies and tarts that are rich in culture, tradition and flavor. A wide variety of holiday specialties will be covered, including Panettone, Amaretto Cake, and Chocolate Truffle Cake. Discover why these beautiful desserts and pastries have remained holiday favorites for generations and introduce your customers to a wealth of traditional and appealing flavors!	This timely workshop will show you how you can boost sales in your bakery by starting a par baked or frozen dough line. We will demonstrate techniques for par baking that will allow you to partially bake breads, freeze them and finish them after freezing. Our instructors will show you what characteristics to look for before removing the bread from the oven and what precautions to take to ensure that the baked-off loaf is as good as a loaf that never hit the freezer. This class is recommended for experienced baking professionals who are interested in these specific techniques. This class does not cover the fundamental baking process.	American palates are becoming more and more sophisticated and the traditional donut isn't enough to keep up with changing tastes. Take advantage of the opportunity to market finer, more profitable alternatives to the muffin and donut. This class will teach you the basic doughs used in every pastry shop. Whether you are a professional baker or you are just getting your feet wet, you will leave this class with a solid foundation for creating world-class breakfast pastry.	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.	

a week in the life: a bread & pastry training student shares his experience

by Michael Marrot, 2004 Graduate

My name is Michael Marrot. Early last year I came to the conclusion that my work life needed a change, and that change should involve some aspect of the culinary field instead of the high volume electronics manufacturing management I had worked in for fifteen years. Research back home led me to visit two “name” culinary schools, neither of which left me with the feeling I had found my calling. A respected executive pastry chef recommended SFBI to me and I soon found myself visiting SFBI during a graduation day of the professional training program. I was tremendously impressed with the breads and cakes produced by that group. Without any experience or second thoughts, I dove into SFBI’s 2004 Bread & Pastry Training Program. Here are a few of my observations (some highs, lows and failures, too) of activities during the seventh week of training.

Monday

The topic for this week was in an area of personal fascination for me: taming the mysterious nuances of working with croissants and morning pastries. Introduction to breakfast pastries started with mixing croissant with preferment dough, whole-wheat croissant with preferment dough and straight croissant dough. Our water temperatures are coming from the history logs we’ve created over the past six weeks of training. Mixing processes are improved today and we are following Jeff’s direction for first fermentation and rest guidelines.

In the classroom, we were shown diagrams illustrating how laminating is performed. Jeff also presented croissant shaping techniques (triangles with notches and the rectangular shapes that result in chocolate and almond variations). We learned why we were using different dry instant yeast than we used in bread production.

Back in the bakery, when shaping our croissants, I quickly realized that my “sizing by eye” skill (targeted to 8” x 4”) was not only inconsistent croissant to croissant, but also not

The knowledge assessment culminated in our planning and filling fictitious orders for various quantities of thirteen different breads.



on pace with the journeyman bakers we witnessed at Boudin in San Francisco while on a tour there last week. Additionally, my product shaping was inconsistent piece to piece and exhibited poor “tip” placement on the baking pan for each of the triangular and rectangular products. We tasted the bakes at the end of the day and I certainly appreciated trying to count the eighty-one layers of flakiness of the various croissants fresh out of the rack ovens.

Tuesday

Comparison day: croissant with straight dough, croissant retarded overnight and croissant with poolish. Effects of preferment dough on the final product. Laminating, including a discussion of butter composition, i.e., butterfat content, sources, logistics, etc.

Good demonstration of the two sheeters, manual and automatic. Not nearly as intimidating as it seemed a few weeks back while making crackers and lavash on the same equipment. We each had multiple opportunities to practice and demonstrate the laminating three single fold process presented.

Key points reiterated: baking is a precise science (accurate scaling necessary) but also important is the feel of the process development. Case in point is the time between folds of the laminating process (purpose includes keeping the dough/butter cold and relaxing the dough). Significant improvement with regard to croissant shaping today!

Example of the finer details communicated today: the butter was exhibiting a “mealy” quality while plasticizing, leading Jeff to comment that this butter likely was frozen somewhere along the line. Additionally, since yesterday’s product had a lighter color after baking, today Jeff modified the oven process and increased malt percentage.

Wednesday

Many shapes: cinnamon “twists” used to make snail shape, pockets, half-pockets, pinwheels, dutchman’s pan, bearclaws, and twice baked almond croissants. Made fillings, including almond paste, cream cheese, apple, pastry cream and lemon curd, and apricot glaze.

Filling creation process reinforced my election to take up “baking” versus “cooking” (i.e. peeling, coring, cubing and cooking apples) for the apple filling as well as pushing the cream cheese mixture through a sieve after mixing to eliminate lumpiness. Deborah Gray (a local student and a very strong home baker) noted the volcanic effects experienced while cooking the pastry cream. Various fruits were used both before baking and after: fresh blackberries and raspberries, frozen blueberries and canned apricots and pears.

Examples of the finer details communicated today: when fresh fruit has been washed, the lifespan is shortened. Eggwash after shaping and after final proof. The benefit of a pinch of salt in the eggwash and much more. This was a rather intensive day with the multitude of shapes, but very rewarding.

Thursday

Mixes included laminated brioche and cinnamon rolls (fun to work with: holding back 50% of sugar and the butter and understanding why).

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a week, continued

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Many shapes again: bowties, diamonds, two pear shapes, demisphere (square and cornered - excellent "upscale" shape), torsad and turnovers utilizing suprapomme. Same fillings used from yesterday but some real nice traditional shapes, very rewarding to produce! Seems all of us have most definitely mastered the shapes presented so far this week! Utilized various sugars: sanding and pearl used prior to baking and powder following baking and cooling.

Friday

Fillings, including praline with chocolate chips, dried apricot and chocolate chips. Made sticky buns (and the requisite smear mixture). Icing topping (mixed with powdered sugar and water) and how to drizzle on by hand.

Lunettes with praline paste and pastry cream, lunettes with apricot and chocolate chips, ruis raisin rolls with currants and dark and golden raisins, and sticky buns to make the most devout scream!

Real enjoyable this week to compare (and learn) with the various sponge, biga, old dough preferments, and their usage creating various breakfast pastry shapes. Equally rewarding was practicing the retarding techniques that we can utilize in our own environments (most of the class members are already key players in a sole proprietorship or are anticipating one of their own not too far down the road). The shapes presented have been mastered and sources presented for further exploration.

Overall this was a very, very good week! We continued with utilizing preferment doughs and delved into retardation practices. The learned fundamental activity in creating production quantity croissants is one that I look forward to repeating during the simulated production activities of the final two weeks segment.

Many thanks to Michael for taking the time to provide this personal account of his experience in our Bread & Pastry Training Program. Some of the content has been edited because of space constraints. You can read a complete, unedited version of his story on line at www.sfbf.com

graduation: reflections

by Juliette Lelchuk, 2004 Graduate

Graduation for the 16 Week Program took hours of hard work, as well as exhaustion and occasional frustration, but the payoff was enormous. The sense of accomplishment on Friday afternoon was clear as soon as we all stood back and saw the final product of our efforts displayed. Collectively we put in hundreds of hours to make this day happen, and aside from being a display of all we had learned, it was also a tremendous representation of the team work that took four months to build. Witnessing nine individuals from separate walks of life working as one whole towards such a task was an incredible thing to be a part of.

The final two production weeks were not easy, but they were a welcome reminder that without use, information is forgotten. Hands will forget how to shape a baguette, mix a cake, form a simple pastry. *What is the fermentation time? How long do you mix? How long do you bake?* These questions were only the beginning of what we asked at first. And then we realized ... we knew. Our hands knew, and if they were unsure, our notes guided us in the right direction. And if those weren't enough, Didier filled in the blanks. I think one of the most valuable tools SFBI tried to give us was confidence in ourselves to not only trust our instincts but also to ask for advice when in doubt. I feel like SFBI has given me a solid foundation of knowledge in a short span of time upon which to build as I gain more experience.

Four months have passed and graduation is over, faster than many of us had anticipated. Now the challenge and excitement lies in seeking a future in baking. For some it is a continuation, for others, a new career. For me, graduation was not only about displaying to friends and family some of the skills I acquired in my short time at SFBI, but also about reminding myself that this is only the very beginning of the path.

Didier, Jeff, Erin, Brian ... Thanks for having the knowledge, patience, organization and skill to help us along. We couldn't have done it without you, and hopefully you'll see us go far with what you've given us.



what:

16-Week Bread & Pastry Professional Training Program

when:

Our next session begins April 25, 2005; The application deadline is February 11, 2005

where:

Train at SFBI's facility, just a few minutes from the one of the most beautiful cities in the world, plus spend 2 weeks training in France. Learn in a production-sized environment, with small class sizes, spacious bakery classrooms and technologically advanced equipment.

who:

- Head Instructor, Didier Rosada
- Baking & Pastry Instructors: Jeffrey Yankellow and Erin Quinn

why:

The only school in the United States dedicated exclusively to artisan baking, SFBI offers you the unique opportunity to be fully trained in just 16 weeks, in an environment where baking never takes a backseat to other culinary learning.

how:

Apply on line at www.sfbf.com or call us for more information at 650.589.5784.

dough strength: evaluation & techniques

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Degree of Maturation

In order to get the maximum benefits from preferments, bakers needs to use them when they are properly matured and will bring a good balance of strength to the final dough, improving flavor and shelf life in the finished product.

The extra level of acidity developed by an over-matured preferment can lead to dough with excessive strength, making the dough more difficult to handle and producing breads with lower volume, inferior cut openings and tighter cell structure. Off-tastes can also be noticeable.

When preferments are *very* over-matured, the acidity level can get so high that it starts to deteriorate the gluten. Dough takes a longer time to mix and starts to break down during the first fermentation, resulting in very low final product quality (almost no gas retention is left in the dough).

Under-matured preferment can result in dough with less strength than usual and breads with a flatter cross-section, with a flavor less complex than usual (lower acidity brought to the dough by the preferment).

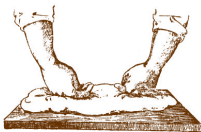
If preferment becomes over mature, it is necessary to decrease the percentage in the final dough to avoid an excessive amount of acidity. Baker's percent of the final dough should be recalculated to take into consideration the lower proportion of fermented flour.

The use of under-matured preferments requires longer first fermentation time to compensate for the lack of acidity usually produced by a properly matured preferment.

Handling of the Dough

The way the dough will be worked (by hand or with machinery) also has a direct effect on the strength of the dough. Tight preshaping and shaping will increase dough elasticity and decrease dough extensibility, resulting in dough that is difficult to work with. Light preshaping and shaping will preserve dough extensibility, but might penalize dough elasticity, creating bread with a flat cross section and lower volume.

We find that the ability to accurately judge dough strength and evaluate the feeling of the dough may be one of the most difficult skills to learn in the baking profession.



Bakers must learn how to evaluate the strength of the dough in order to handle it properly. Preshaping and shaping shouldn't be done by habit or routine but more as a function of the dough characteristics. Dough with a lack of strength requires tighter preshaping and shaping, while dough with an excess of strength requires a lighter preshaping and shaping.

We find that the ability to accurately judge dough strength and evaluate the feeling of the dough may be one of the most difficult skills to learn in the baking profession. Experience and practice, i.e., spending a lot of time working with the dough in the bakery, is the best way to master this important technique. Once the skill is acquired, bakers are able to properly adjust hand-shaping or molder settings according to dough characteristics and have much better success at making consistent bread with optimum appearance.

In a lot of bakeries, it is still a common belief that the harder or stronger we work with the dough, the better it is. As described earlier, if a judicious balance between formula (proportion of the ingredients), mixing and fermentation has correctly achieved the

strength of the dough, it is not necessary to tightly shape the loaves. A gentle preshaping and shaping will guarantee final product with the desired characteristics.

Scoring also has some importance in the strength of the dough. Cuts perpendicular to the side of the loaves will favor an upright expansion of the bread during the oven kick and are more suitable for weaker dough (like rye or whole wheat). The upright expansion naturally favors the cross-section of the bread and, therefore, its volume and final appearance.

Cuts parallel to the side of the loaves favor a sideways expansion of the bread. These cuts create great cut-openings and are more suitable for stronger dough like baguettes or sourdough.

In Conclusion

As mentioned at the beginning of this article, controlling the strength of the dough is crucial to obtaining proper dough characteristics and final product quality. Many factors can effect dough strength; understanding them will make bakers better able to troubleshoot when problems arise.

It is important to remember that all the steps of the baking process are connected. Therefore, there are many opportunities for the baker to troubleshoot and return to normal dough characteristics if the strength is off balance.

It is important to remember that all the steps of the baking process are connected.

Dough strength can't be learned in books. Lots of work with dough, under good supervision, is the only way to teach our hands how to assess dough strength properly and adjust our handling of the dough depending on its unique characteristics.

recipe of the season: filone (“long stick”)

Filone (“long stick” in Italian) can be a great alternative to a regular baguette using only white flour. The use of rye and whole wheat adds a rustic note to this flavorful, versatile bread. Try our recipe over the summer and remind your customers of “the old days,” when refined white flour was not as available as it is now, and when flours used at the local bakery were often a blend of rye and wheat combined.

The “spicy” aromas developed by the rye poolish, combined with the more sour aromas of the levain, create a unique blend of flavors that your customers will surely enjoy. This bread works with many dishes, but is best appreciated with foods such as smoked fish and soft cheeses.

Simply cut in two or shaped as a demi-baguette, the filone is a great bread for sandwiches that use Charcuterie like Paté or dry sausages as a garnish. The dough can also be used for the fabrication of dinner rolls (shaped or free-formed).

Ingredients, Poolish		
	Baker's %	Weight
Flour	70	2.800
Rye Flour	30	1.200
Water*	100	4.000
Yeast (instant)	.1	.004
Total	200.1	8.000
Ingredients, Levain		
	Baker's %	Weight
Flour	100	1.000
Water*	50	.500
Starter**	50	.500
Total	200	2.000
Ingredients, Final Dough		
	Baker's %	Weight
Flour	90	9.000
Whole Wheat Flour	10	1.000
Water	60	6.000
Salt	3	.300
Yeast (dry instant)	.4	.040
Poolish	80	8.000
Levain	20	2.000
Total	263.4	26.340

* Water content depends on flour characteristics (Desired dough consistency should be medium soft.)

** If fresh yeast is used, adjust baker's % in final dough to 1%.

Procedure	
Poolish	
Mixing	Mix until ingredients are well incorporated
Fermentation	Ferment 12 hours at 75°F
Levain	
Mixing	Mix until ingredients are well incorporated
Fermentation	Ferment 12 hours at 75°F
Final Dough	
Mixing 1st speed	5 minutes
Mixing 2nd speed*	Improved Mix (gluten 2/3 developed)
Desired dough temperature	74° to 76°F
First fermentation	2 hours
Divide:	350 g for baguettes
Pre-shape:	Rectangle
Resting time:	30 minutes
Shape:	Baguette shape with pointed end
Proof:	1 to 1.5 hours at room temperature on dusted linen seam up
Bake:**	470°F (with steam) for 20-22 minutes

* Mixing time in second speed should be adjusted according to type and speed of the mixer.

** Baking time and temperature depend on type of oven.



“Happy and successful cooking doesn't rely only on know-how; it comes from the heart, makes great demands on the palate and needs enthusiasm and a deep love of food to bring it to life.”

Georges Blanc, *Ma Cuisine des Saisons* (1825-1888)

baker's tip: no time for an autolyse?

by Didier Rosada, Head Instructor

When you are faced with production constraints, such as a lack of time or mixers with no removable bowl, and an autolyse can't be made during the mixing of the final dough, you *do* have another option.

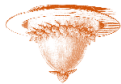
A portion of the formula flour (in general, around 20%) can be mixed the day before with a proportion of water corresponding to the final dough hydration. For example, if the final formula calls for 68% of water, the flour involved in the autolyse should be hydrated with 68% of water.

After the incorporation of flour and water, the dough obtained is placed in the cooler until the next day's production. Then, at the time of mixing the final dough, the “autolysed” dough is added to the rest of the ingredients, and

the mixing process resumes in its normal way. Water temperature should be adjusted to take into consideration the cold temperature of the “autolysed” dough.

Dough and final products will have similar characteristics as if an autolyse was made the same day with the totality of the flour, but some time will be saved in the mixing schedule.





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