



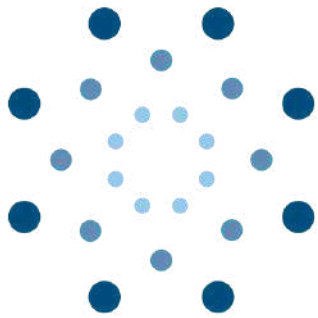
Baking **SEASONAL TREATS**

BAKERguide Vol. 2-3





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INTRODUCTION

As the holiday season approaches, the aroma of gingerbread, peppermint sugar cookies, and warm pumpkin bread fills the air, evoking memories of family gatherings and festive celebrations. These nostalgic treats satisfy our sweet cravings and set the tone for the most wonderful time of the year. Seasonal treats, with their unique flavors and spices, are more than just baked goods—they are a beloved tradition, each one marking the essence of the season. From the warmth of cinnamon in fall to the refreshing coolness of peppermint in winter, these delightful confections bring the spirit of the holidays to life as we dive into the festive shopping season.

Fall is associated with warm flavors like pumpkin spice, apple crisp, nuts, and gingerbread. Flavors like peppermint, gingerbread, cinnamon, nutmeg, cranberries, and oranges characterize winter. Spring is usually associated with fresh and citric flavors such as lemon, berries, and citric fruits in general. Finally, summer is usually characterized by fruity, tropical flavors such as blueberry, coconut, pineapple, peach, and lime.

The seasonal treats market was valued at USD 78.96 billion in 2023, and is expected to grow with a compound annual growth rate of 1.62% in the 2024 - 2029 period. By 2029, it's projected to reach a value of USD 86.93 billion.

Current health trends push forward novel bakery trends like keto, gluten-free, and clean labels. Novel technologies in encapsulation and flavor release are being developed to improve the overall sensory properties of this type of bakery product.

Seasonal Treats Market Opportunities

- ▶ The seasonal treats market was valued at **USD 78.96 billion in 2023**, and is expected to grow with a compound annual growth rate of **1.62% in the 2024 - 2029 period**.
- ▶ Novel health trends like gluten-free, keto, and clean-label have caused the source of novel ingredient technology to satisfy consumers' demands.
- ▶ Novel current trends are surging due to the consumer's interest in healthier baked goods.

Arizton Advisory & Intelligence. "U.S. Bakery Products Market Size, Growth, Trends Forecast." Arizton Advisory & Intelligence, www.arizton.com/market-reports/us-bakery-products-market. Accessed 11 Aug. 2024.

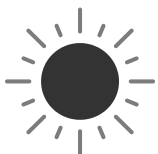
WHAT ARE SEASONAL TREATS?

Seasonal treats are bakery products that are traditionally manufactured and consumed during specific seasons of the year. They are usually characterized by the use of seasonal ingredients of each season, or produced by flavors associated with certain holidays of each season like Thanksgiving, Christmas, Halloween, Easter, Valentine's Day, and St. Patrick's Day, among others.

Classification is usually characterized by seasonal fruits, vegetables, and nuts. Spices, herbs, and flowers are also the inspiration for the development of seasonal treats.

The Wonderful World of Seasonal Treats

Seasonal treats are classified by season as their name entails, the division can be followed by traditional western seasons of summer, autumn or fall, winter, and spring. Each season is characterized by certain flavors, spices, and fruits, among other ingredients.



SUMMER SEASON

Summer season treats are characterized by light, fruity, citric baked goods such as:

- **Peach Cobbler:** juicy, sweet peaches with a cinnamon-spiced topping, usually with a scoop of vanilla ice cream.
- **Blueberry Muffins:** bursting with blueberries, often with a crunchy sugar top.
- **Key Lime Pie:** tart and creamy lime filling with a graham cracker crust, offering a perfect balance of sweet and sour.
- **Coconut Macaroons:** chewy and sweet, with a strong coconut flavor, sometimes dipped in chocolate.
- **Sugar Cookies:** light and versatile, can be decorated with summery themes and colors.
- **Turnovers (Puff Pastry):** can also be filled with summer fruits like peaches or cherries for a refreshing dessert
- **Lemon Meringue Pie:** this pie is made with a shortened pastry filled with lemon curd and topped with meringue.

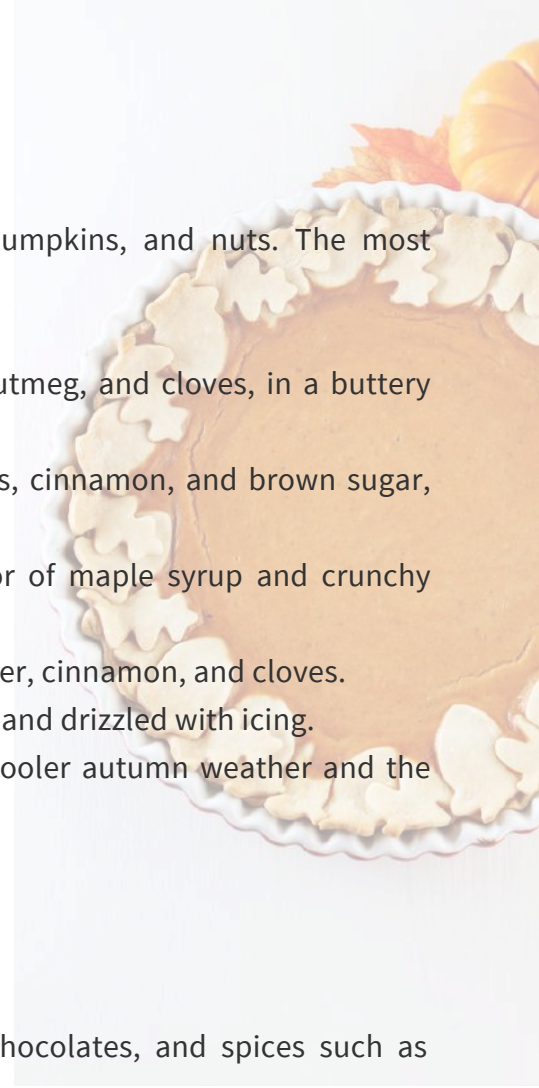




FALL OR AUTUMN SEASON

Fall or autumn treats are characterized by warm spices, apples, pumpkins, and nuts. The most commonly consumed baked goods of this season are:

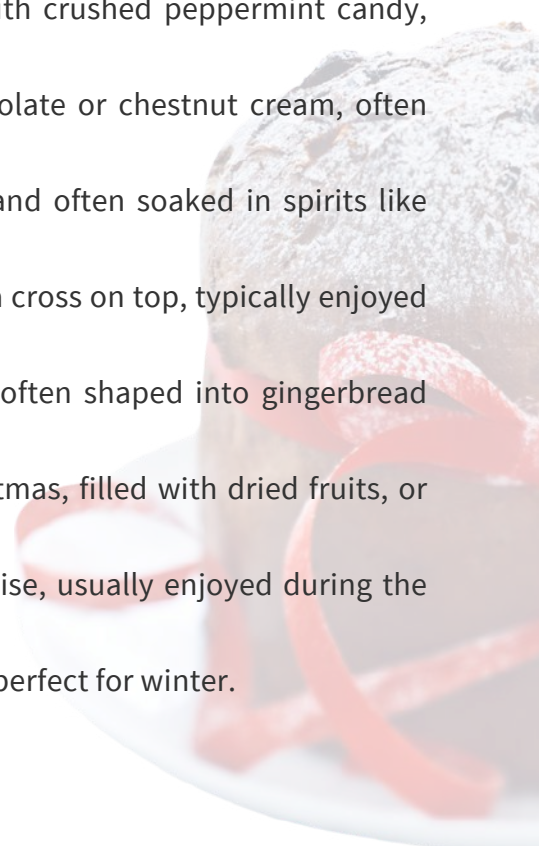
- **Pumpkin Pie:** creamy pumpkin filling flavored with cinnamon, nutmeg, and cloves, in a buttery crust.
- **Apple Crisp:** baked apples topped with a crumbly mixture of oats, cinnamon, and brown sugar, often served warm.
- **Maple Pecan Bars:** rich and buttery, with the deep, sweet flavor of maple syrup and crunchy pecans.
- **Gingerbread:** spicy and fragrant, with molasses and a blend of ginger, cinnamon, and cloves.
- **Pumpkin Scones:** a fall favorite, often flavored with pumpkin spice and drizzled with icing.
- **Cinnamon Rolls:** warm and comforting, they pair well with the cooler autumn weather and the flavors of cinnamon and sugar.



WINTER SEASON

Winter seasonal treats are characterized by rich decadent flavors, chocolates, and spices such as cinnamon and nutmeg.

- **Peppermint Bark:** layers of dark and white chocolate, topped with crushed peppermint candy, offering a refreshing minty flavor.
- **Yule Log (Bûche de Noël):** a rolled sponge cake filled with chocolate or chestnut cream, often decorated to resemble a log.
- **Fruitcake:** dense, rich cake studded with dried fruits, and nuts, and often soaked in spirits like brandy or rum.
- **Hot Cross Buns:** spiced sweet buns with dried fruits, marked with a cross on top, typically enjoyed around Christmas or Easter.
- **Gingerbread Cookies:** these spiced cookies are a winter classic, often shaped into gingerbread men or houses.
- **Panettone:** a traditional Italian sweet bread enjoyed during Christmas, filled with dried fruits, or chocolate.
- **Springerle Cookies:** a traditional German cookie flavored with anise, usually enjoyed during the Christmas season.
- **Molasses Cookies:** soft and chewy with deep, rich molasses flavor, perfect for winter.



- **Soft Chewy Cookies (from Balchem):** these can be flavored with warm spices or chocolate, making them a great winter treat.
- **Shortbread Cookies:** buttery and crumbly, often enjoyed during the holiday season.



SPRING SEASON

Spring seasonal treats are usually associated with floral, citric flavor, fresh berries, and light and sweet flavors. Among the most commonly consumed baked goods are:

- **Lemon Pound Cake:** zesty lemon flavor, often with a light glaze or dusting of powdered sugar.
- **Strawberry Shortcake:** sweet and tangy strawberries, typically paired with whipped cream and a soft, buttery cake or biscuit.
- **Lavender Scones:** subtle floral notes from lavender, with a slightly sweet and buttery crumb.
- **Rhubarb Pie:** tart and tangy rhubarb, often sweetened and baked in a flaky crust.
- **Hot Cross Buns:** traditionally enjoyed around Easter, these spiced sweet buns are filled with dried fruits.
- **Turnovers (Puff Pastry):** these can be filled with seasonal fruits like berries, making them a great spring treat.



INGREDIENTS

Flour

Flour is the main ingredient in sweet baked goods. It is the foundation upon which the structure is built for many baked goods. Wheat flour proteins, specifically gluten, provide the dough with its viscoelastic properties and aid in trapping gasses (e.g., carbon dioxide) from yeast fermentation or other leavening agents. The largest component of flour is starch. Starch, when gelatinized, contributes to the structure and texture, among other functions. Another critical role of flour is in the final product color due to its participation in the Maillard reaction.

Yeast

Yeast is a single-celled microorganism crucial for the rise of several baked goods. It provides the gasses required for leavening, contributing to the volume and texture of the finished product. When yeast is in the presence of water and a substrate (e.g., sugars), fermentation occurs, producing acids, aroma, and carbon dioxide. This causes the dough to rise and provides the characteristic aromatic, light, and airy texture. Another contribution of yeast in bread systems is in the activation of enzymes that break down wheat flour proteins, improving gluten development and final product texture and structure.

Water

Water is a medium for ingredients incorporation, and yeast fermentation, with the activation of yeast to carbon dioxide production. Ultimately, water influences microbial growth and product shelf life. Water availability or activity greatly impacts the ultimate product shelf life by providing the medium for microbial growth.

The amount of water used in baked goods can vary depending on factors such as the type of product, type of flour, the desired texture of the product, and the environmental conditions during baking.



Chemical leavening

Chemical leavening agents such as baking powder and baking soda are often used in baked goods to create a rise in carbon dioxide production. Chemical leavening systems are the key to high-quality products. The volume, density, cell structure, and texture of the baked goods are determined by the gas produced from the leavening system used in the formula. The speed of the reaction, or how fast the leavening system produces gas in batter, is affected by factors like acid type, temperature, water activity, and the type or ratio used. Encapsulated leavening systems help in the production of seasonal treats especially when used in frozen doughs and batters.



Fats (oil and butter)

Fats act as tenderizers by disrupting gluten network formation, preventing baked goods from becoming dry and crumbly. They also aid in moisturizing, flavor, and leavening in combination with sugar and color. They can be added in various forms, such as butter, ghee, vegetable oil, or shortening. They can add softness and richness giving it a more luxurious texture and flavor.

Additionally, fats and oils can help extend the shelf life by slowing down staling. They can affect the crumb structure, giving it a softer texture. The amount and type of fats and oil used in baked goods can vary depending on the desired texture and type of formulated product.



Eggs

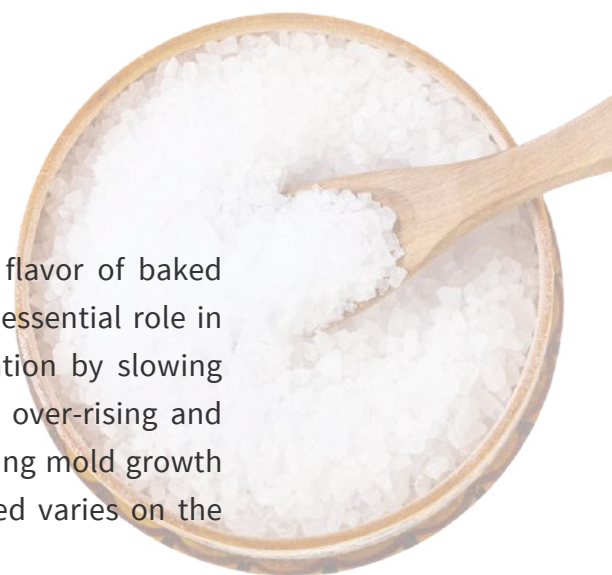
Eggs provide the foaming ability and structure of some baked goods like cake. They act as binding agents, helping the cake set during baking. They also provide moisture, contributing to the final product's softness and tenderness. Finally, eggs provide one of the substrates that intervene in the Maillard browning reaction and aid in leavening for many baked goods.

Eggs can be replaced by aquafaba, vital wheat gluten yogurt, or flax seed for vegan or allergy-friendly baked goods. A combination of several egg replacement ingredients or even the addition of emulsifiers is commonly used to substitute the variety of functions of eggs in some bakery systems.



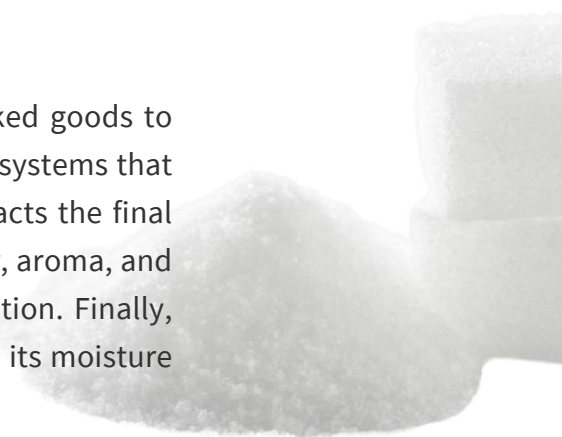
Salt

Salt has several functions in baked goods from enhancing the flavor of baked products to strengthening the gluten structure. Salt also has an essential role in yeast fermentation by helping to regulate the rate of fermentation by slowing down the activity of yeasts, which can prevent the dough from over-rising and collapsing. Finally, it can improve the bread's shelf life by inhibiting mold growth and other deteriorating microorganisms. The amount of salt used varies on the type of formulation.



Sugar

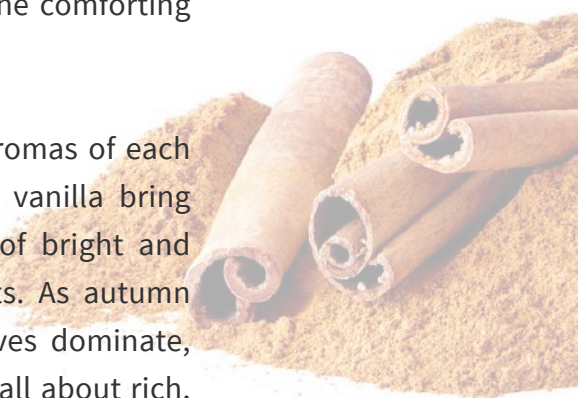
Sugar has a few key roles, starting from providing sweetness to baked goods to helping yeast fermentation. It is the substrate for yeast in the bakery systems that allows the production of carbon dioxide for leavening and thus impacts the final volume and texture. Another function of sugar is enhancing the flavor, aroma, and color due to its involvement in the Maillard and caramelization reaction. Finally, sugar also contributes to an improvement in product shelf life due to its moisture retention capacity and lower water activity.



Spices

Spices are essential in baked goods, adding flavor, aroma, and cultural significance. They enhance the taste, providing warmth and depth, as seen with cinnamon in cookies or nutmeg in pies. Spices also balance sweetness without extra sugar, and their scents evoke memories and emotions, like the comforting smell of gingerbread during the holidays.

Spices play a seasonal role in baking, enhancing the flavors and aromas of each season of the year. In spring, lighter spices like cardamom and vanilla bring freshness to delicate pastries and cakes. Summer sees the use of bright and citrusy spices like ginger and mint, perfect for refreshing desserts. As autumn arrives, warm and earthy spices like cinnamon, nutmeg, and cloves dominate, infusing pies, cookies, and cakes with comforting flavors. Winter is all about rich, robust spices like ginger, allspice, and anise, adding depth and warmth to holiday treats like gingerbread, fruitcakes, and spiced cookies.



Emulsifiers

Emulsifiers like lecithin and mono- and diglycerides are often added to baked goods to improve their texture and extend their shelf life. The ones most commonly used are:

- **Propylene Glycol Monoesters (PGME):** are emulsifiers used in the baking industry to stabilize water-in-oil systems due to their capacity to form a crystalline film capable of preventing the coalescence of dispersed droplets.
- **Polyglycerol Esters (PGE):** are emulsifiers used in the baking industry to reduce the interfacial tension between different ingredients present in cake batters. They are commonly used in cake batters with low or no fat content to aid in the stabilization of the foam that provides structure.
- **Polysorbate 60:** emulsifiers used to improve the volume, crumb color, and strength, i.e. The number 60 represents the fatty acid associated with the polyoxyethylene sorbitan component of the molecule. A higher number indicates a higher lipophilic property.
- **Alpha Cyclodextrins (α -CD):** are hexasaccharides derived from glucose that is commonly used as an emulsifier and stabilizer in the baking industry (e.g. icings, cake batter, and sponge cakes). They aid in the stabilization of oil-in-water emulsions, controlling the solubility of liquids, and stabilizing compounds from light and heat oxidation.

Inclusions

Inclusions in baked goods refer to the added ingredients that are mixed into doughs or batters to enhance flavor, texture, and appearance. These can range from sweet to savory and are often what makes a baked item unique and delicious. Among the most commonly used inclusions added to baked goods are:

- Chocolate
- Nuts
- Dried fruits
- Coconut flakes
- Sprinkles
- Caramel

BakeShure® encapsulated leavening systems allow for novel textures to be delivered in freezer-to-oven and refrigerator-to-oven products. BakeShure® preservation technology, optimize production capabilities, prevent the degradation of protein, improve yeast activity, boost product consistency, extend shelf life, and launch new products previously thought impossible. Contact us: HNH-info@balchem.com

Encapsulation

Encapsulation involves enclosing food ingredients, enzymes, or other ingredients within small capsules to enhance stability, protect sensitive components, and control the release of flavors and nutrients. This technique serves several key functions:

1. **Protection:** Encapsulation shields sensitive ingredients from moisture, heat, and other environmental factors, thereby extending shelf life.
2. **Controlled Release:** Encapsulation allows for targeted or time-controlled release of ingredients, which can be triggered by changes in pH, temperature, or other conditions, ensuring that active components are released at the right moment in the digestive system.
3. **Incorporation of Functional Ingredients:** This process facilitates the addition of vitamins, antioxidants, and probiotics, which may be unstable in their free form.

Common techniques for encapsulation include spray drying, coacervation, fluidized bed coating, extrusion coating, and liposome entrapment.



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Freeze-Thaw of Seasonal Treats

Freezing baked goods effectively requires adherence to specific protocols to preserve their quality and extend shelf life. The process begins with ensuring that baked items are completely cooled to prevent moisture condensation, which can lead to sogginess upon thawing. Optimal freezing conditions dictate that the freezer temperature should be maintained at $-18\text{ }^{\circ}\text{C}$ ($0\text{ }^{\circ}\text{F}$) or lower. Baked goods should be wrapped in moisture-proof and vapor-proof materials, such as heavy-duty foil, freezer-safe plastic bags, or airtight containers, to mitigate freezer burn. For items like cakes and cookies, double-wrapping is recommended, and it is crucial to remove as much air as possible from the packaging to prevent oxidation and dehydration.

Recent advancements in freezing technology have introduced novel methods that enhance the preservation of baked goods. Techniques such as cryogenic freezing utilize liquid nitrogen to rapidly lower the temperature of food items, minimizing the formation of ice crystals that can compromise texture and flavor. Additionally, vacuum sealing has gained popularity as it removes air from the packaging, creating a barrier against moisture and odors while extending shelf life. Innovations in smart freezing systems also allow for precise temperature control and monitoring, ensuring that baked goods remain at optimal conditions throughout the freezing process. These technologies not only improve the quality of frozen baked goods but also enhance operational efficiency in commercial baking environments, where large volumes of products are prepared and stored



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FORMULATION AND PROCESSING

Gingerbread Cookie

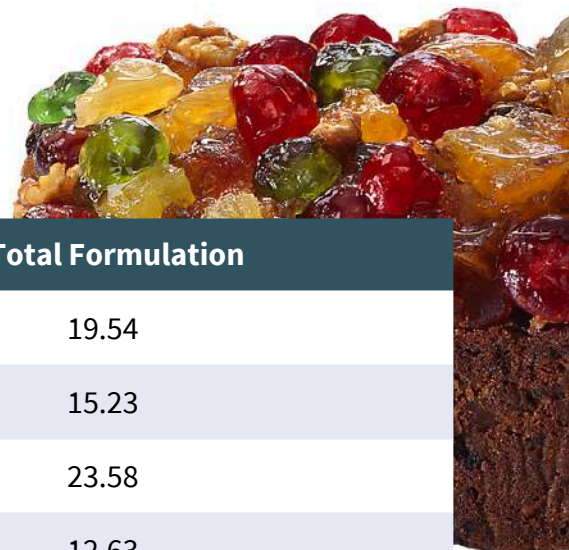


Ingredients	% Total Formulation
Butter	17.34
Brown Sugar	27.69
Eggs	3.04
Molasses	10.35
Bread Flour	38.83
Baking Soda	0.97
Salt	0.43
Ground Clove	0.24
Ground Cinnamon	0.36
Ground Ginger	0.36
Ground Nutmeg	0.36

Table 1: Gingerbread Cookie Formulation



Fruitcake



Ingredients	% Total Formulation
Eggs	19.54
Butter	15.23
Sugar	23.58
Flour	12.63
Baking Powder	0.16
Candied Cherries	0.03
Candied Pineapple	0.03
Pecans	26.95
Vanilla	0.88
Lemon Extract	0.97

Table 2: Fruitcake Formulation

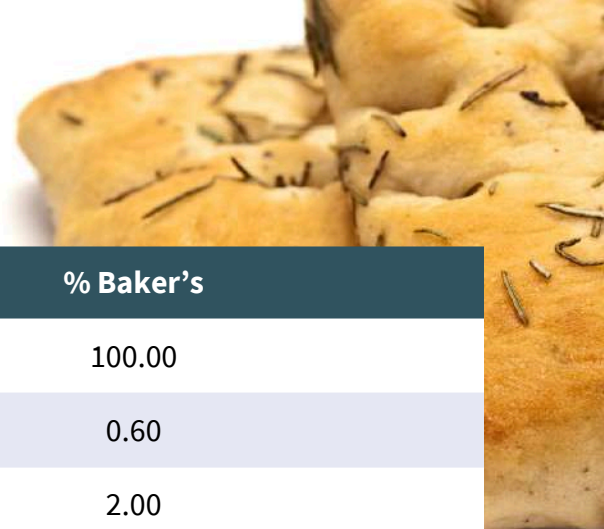
Soft Chewy Cookie



Ingredients	% Total Formulation
Butter	17.26
Sugar	30.62
Eggs	8.14
Vanilla	0.65
Patent Flour	32.57
Baking Powder (MCP/SAPP)	0.65
Salt	0.33
Pumpkin Inclusions INhance™	9.77

Table 3: Soft Chewy Cookie Formulation

Sweet Potato Focaccia



Ingredients	% Baker's
Bread Flour	100.00
Yeast	0.60
Salt	2.00
Mono & Diglycerides	0.40
Sodium Stearoyl Lactylate (SSL)	0.50
Encap Calcium Propionate	0.28
Encapsulated Sorbic Acid (BS 250)	0.25
Amylase Enzyme	0.50
Inclusions INhance™	5.00
Water	80.00
Total	189.53

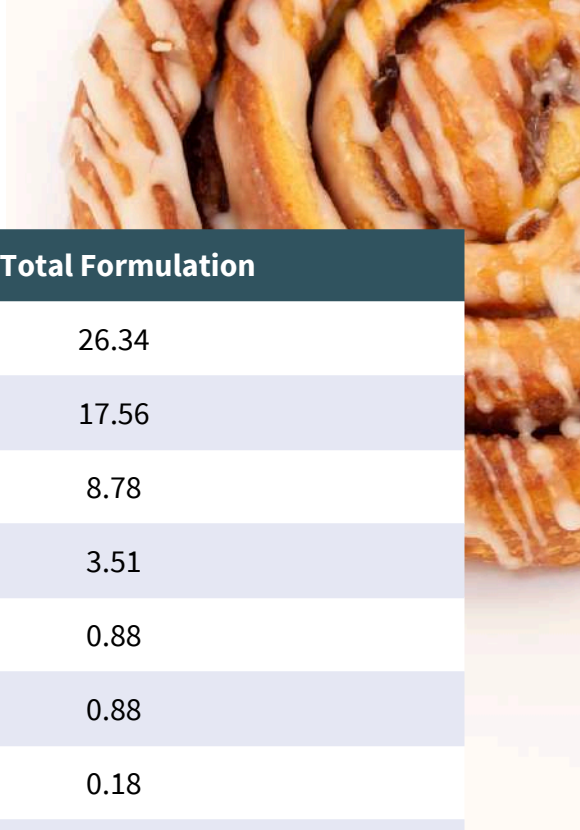
Table 4: Sweet Potato Focaccia Formulation

Flavored Bars

Ingredients	% Total Formulation
Butter (melted)	11.87
Sugar	35.60
Baking Powder	0.44
Eggs (room temp)	7.42
Flavor Base	8.90
Salt	0.18
Patent Flour	29.66
Inclusions INhance™	5.93

Table 5: Flavored Bars Formulation

Sweet Cinnamon Rolls



Ingredients	% Total Formulation
Hi Gluten Flour	26.34
Patent Flour	17.56
Sugar	8.78
NFDM	3.51
Salt	0.88
Yeast	0.88
Mono & Diglycerides	0.18
Sodium Stearoyl Lactylate (SSL)	0.18
Amylase Enzyme	0.22
Calcium Propionate (BS 419)	0.13
Encapsulated Sorbic Acid (BS 255)	0.09
Butter (Softened)	6.15
Water	26.34
Inclusions INhance™	8.78

Table 6: Sweet Cinnamon Rolls Formulation



Basic Muffins

Ingredients	% Total Formulation
Patent Flour	31.81
Sugar	14.31
Salt	0.35
Baking Powder	1.59
Mono & Diglycerides	0.13
Sodium Stearoyl Lactylate (SSL)	0.13
Hydroxypropyl Methylcellulose (HPMC)	0.64
Carboxymethyl Cellulose (CMC)	0.32
Amylase Enzyme	0.32
Calcium Propionate (BS 419)	0.10
Encapsulated Sorbic Acid (BS 255)	0.06
Inclusions INhance™	6.36
Milk	27.04
Vegetable Oil	6.36
Eggs	9.54
Vanilla	0.95

Table 7: Basic Muffins Formulation



Pumpkin Cookie

Ingredients	% Total Formulation
Patent Flour	24.76
Baking Powder (MCP/SAPP)	0.37
Baking Soda	0.30
Salt	0.27
Butter	18.57
Brown Sugar	9.91
Sugar	8.67
Eggs	12.38
Pumpkin Flavor Inclusion	12.38
Marshmallow (Gooley)	12.38

Table 8: Pumpkin Cookie Formulation



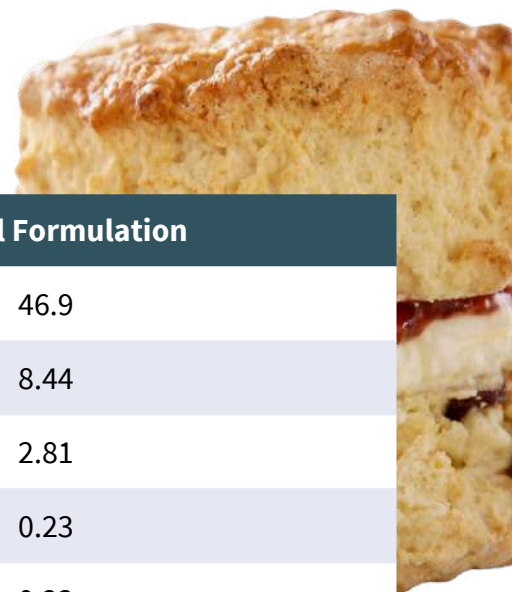
Pumpkin Pie

Ingredients	% Total Formulation
Crust	
Butter	43.19
Flour	45.86
Honey	4.01
Salt	0.29
Vanilla	0.80
Milk	5.85
Filling	
Pumpkin (Canned)	39.70
Sugar	14.01
Salt	0.28
Eggs	10.84
Evaporated Milk	34.47
Vanilla	0.39
Cinnamon	0.12
Ginger	0.06
Nutmeg	0.12

Table 9: Pumpkin Pie Formulation



Scones



Ingredients	% Total Formulation
Patent Flour	46.9
Sugar	8.44
Baking Powder	2.81
Salt	0.23
Amylase Enzyme	0.23
Mono & Diglycerides	0.19
Sodium Stearoyl Lactylate (SSL)	0.19
Calcium Propionate	0.09
Encapsulated Sorbic Acid	0.09
Butter (Cold Shredded)	7.5
Buttermilk	14.07
Eggs	9.85
Inclusions INhance™ (optional)	9.38

Table 10: Scones Formulation



QUALITY PARAMETERS

Keeping up with the quality of your seasonal treats is one of the most important challenges confronted by bakers worldwide. The wide variety of seasonal treats and baked goods available require a wide range of considerations of these quality parameters for each specific need. General guidelines and parameters for this type of goods are discussed below:

- **pH:** influences the rate of fermentation. Yeast activity peaks in acid environments of pH levels around 4-6. Texture and gluten behavior are also influenced by dough pH. A higher pH tends to favor the browning Maillard reaction, while lower pH values favor the production of flavor and aroma compounds that contribute to a more complex aroma profile. The final pH affects the microbial stability of the product (e.g., mold growth). The typical pH of baker's yeast bread lies between 5.3-5.8, and around 3.8-4.6 for sourdough bread.
- **Moisture content:** the product's water content affects the shelf life and sensorial acceptability of finished products. Moisture content is commonly measured by a direct method of evaporation (e.g., convection oven, vacuum, microwave ovens) or by indirect methods (e.g., spectroscopy or thermogravimetry).
- **Water activity:** it determines the product's microbial and chemical stability and impacts the product's staling rate.
- **Texture:** a wide variety of sub-parameters define bread texture; among the most relevant are hardness, cohesiveness, springiness, and resilience. Texture can be measured with a trained sensory panel or by instrumental methods like texture profile analysis (TPA).
- **Color:** produced during the baking process due to the browning reactions caused by the Maillard and caramelization process. This affects the acceptability of the product.
- **Dimensions:** multiple measurements of the basic dimensional characteristics of the bread, such as slice area, height, width, and packaging. It aids in the understanding of the final product's physical and visual properties.



TROUBLESHOOTING SEASONAL TREATS



How can I improve the shelf life of my handheld pecan pie?

The shelf life of handheld pecan pie can be extended by controlling enzymes that contribute to texture degradation, incorporating antioxidants to prevent oxidative spoilage, and using anti-mold agents. The enzyme alpha-amylase, which breaks down starches into sugars, can lead to a crumbly texture over time. Emulsifiers like mono- and diglycerides can help maintain moisture and prevent the crust from becoming dry. Antioxidants are also important for freshness. Chelating agents like EDTA are effective at preventing oxidation. To inhibit mold growth, ingredients such as sorbic acid and potassium sorbate are commonly used. Adjusting the pH of the filling to below 5 creates an unfavorable environment for mold. Natural antimicrobials like rowanberry extract may also help extend shelf life. By controlling enzymes, using antioxidants, and incorporating antimicrobials, the quality and freshness of handheld pecan pie can be maintained for longer.



The water activity of my cookie is low, there is no mold, but why does it smell bad?

The low water activity of your cookie may be contributing to rancidity and off-flavors. While low water activity inhibits microbial growth, it can enhance oxidative reactions that lead to rancidity. Research indicates that as water activity declines below 0.4, lipid oxidation rates begin to increase again. This is because the low moisture environment promotes the concentration of pro-oxidants and reduces the effectiveness of antioxidants. To mitigate rancidity in low-water activity cookies, consider adding antioxidants like rosemary extract or tocopherols. Packaging in an inert atmosphere with nitrogen flushing can also help by removing oxygen. Storing the cookies at lower temperatures will slow down oxidation reactions as well. Adjusting the formulation to increase water activity slightly, while still maintaining a safe level below 0.6, may help dilute pro-oxidants and improve the cookie's shelf life. By understanding the complex relationship between water activity, oxidation, and rancidity, you can take targeted steps to preserve the fresh flavor of your low-moisture cookies.



How can I prevent my focaccia bread from molding?

Focaccia has a high water activity. To prevent your focaccia bread from molding, it is essential to manage the storage conditions and anti-mold ingredients effectively. Mold thrives in warm, humid environments, so storing focaccia in a cool, dry place is crucial. After baking, allow the bread to cool completely at room temperature until the interior of the bread reaches 37.8°C (100°F), then package immediately. Do not let it sit out longer or it will collect mold spores. Additionally, incorporating encapsulated sorbic acid, which has antimicrobial properties, can enhance the bread's shelf life.



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Why does my cookie change color over its shelf life?

The color change in cookies over their shelf life can be attributed to several factors, primarily involving chemical reactions such as lipid oxidation. Lipid oxidation can cause off-flavors and further alter the color, particularly in cookies with high-fat content. Research indicates that as water activity decreases, the rate of lipid oxidation can increase, leading to rancidity and color changes, especially when water activity falls below 0.4. Furthermore, storage conditions, such as exposure to light and temperature fluctuations, can exacerbate these changes, leading to a decline in sensory quality, including color acceptability. To mitigate these effects, proper packaging and storage techniques, such as using airtight containers and keeping cookies in a cool, dark place, can help maintain their color and overall quality throughout their shelf life.





I have already maxed out my potassium sorbate. What else can I do to increase my shelf life?

For maximum shelf-life it is recommended to reduce the pH of the finished product to at least less than 5.5, ideally less than 5.3. Encapsulated acids are very effective for this purpose and a selection of organic acids is available to fit your processing, labeling, and organoleptic needs. Once the pH is in the ideal range, using potassium sorbate (or Sorbic Acid, recommended encapsulated form) and calcium propionate in combination will result in the highest degree of protection. Reducing the pH enables these two ingredients to be significantly more effective than at higher pH due to their chemistry.



What ideas do you have for product extensions with flavor without increasing my ingredient inventory?

Ingredients like inclusions are greatly beneficial in line extensions or increasing product offerings with minimal formula or processing changes. These inclusions can be things like nuts, fruits, or chocolate, but can also be things like the lipid-based INhance™ Inclusions which have added benefits of consistent pricing throughout the year, high levels of flavor/aroma delivery, stable colors, and a variety of options that are easily swappable by the formulator



SUMMARY

Preparing for each of the season's bakings is crucial for bakeries worldwide. Keeping up with the latest trends and finding the right solutions for your baked goods is a challenge face by all bakers. We understand the challenges with inventory control, and we hope our formulas provide a solution. Remember, keeping a base formula and exchanging out the inclusions will give you more skus without more inventory. We hope this guide provides a starting place for your seasonal treats journey!

If you need additional technical support in seasonal treat formulation or an improvement of your production efficiencies, contact us.

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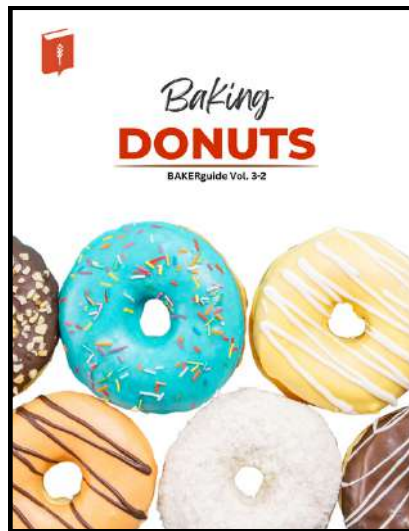
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