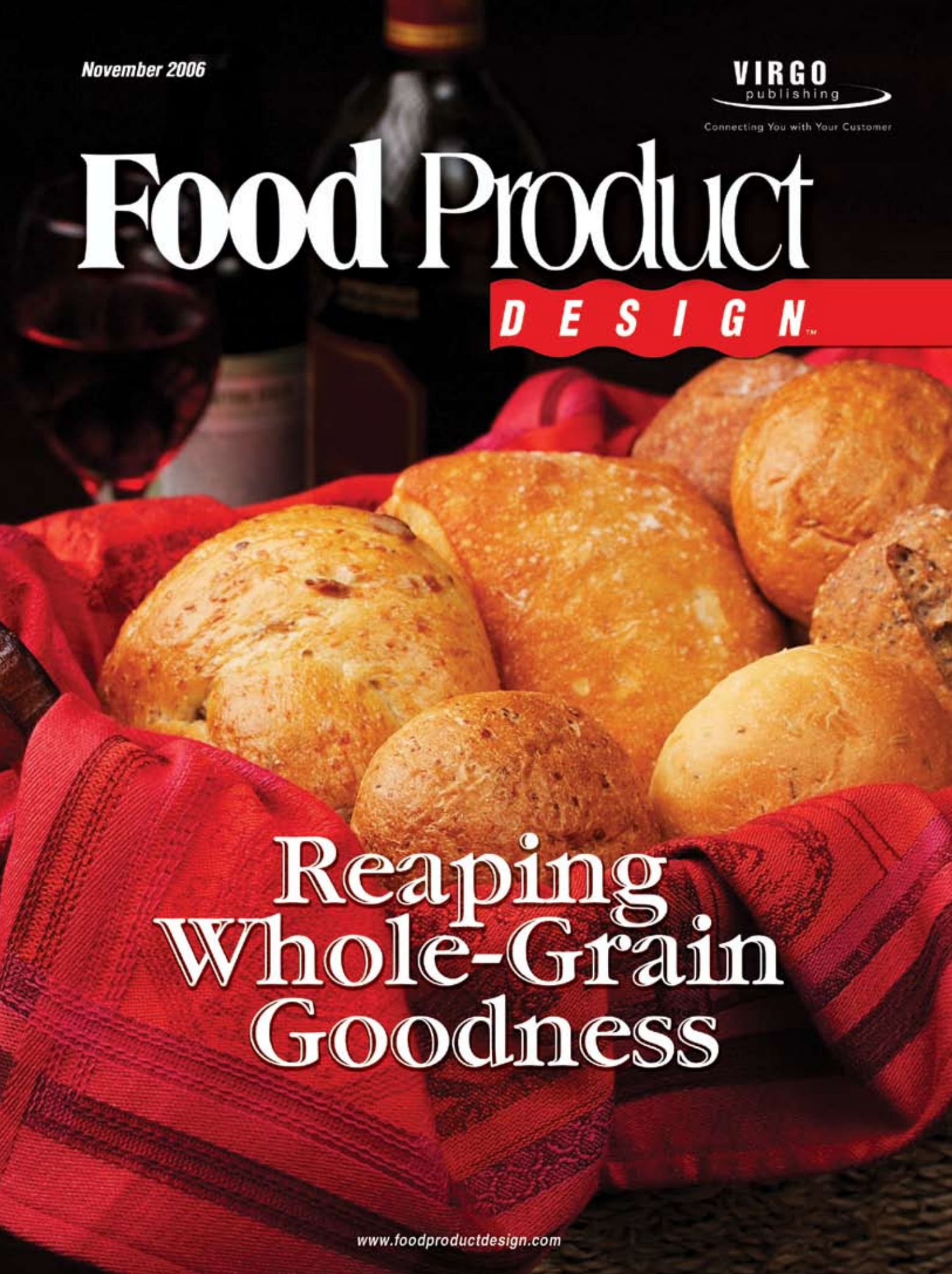


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A close-up photograph of a woven basket filled with several golden-brown, round whole-grain bread rolls. The rolls are resting on a vibrant red, textured cloth that is draped over the sides of the basket. The lighting is warm, highlighting the texture of the bread and the folds of the cloth. In the background, a dark glass bottle and a glass of red wine are partially visible, adding to the rustic and appetizing atmosphere.

Reaping
Whole-Grain
Goodness

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Ever-Expanding Egg Opportunities

By Walter Zuromski, C.E.C., C.C.E.

Photo: American Egg Board

We all began our “eggperiences” when that first scrambled-egg dish hit the plate in the early years of our life. I always enjoyed working the griddle at my family’s diner, cooking eggs in the traditional forms we all know: fried, over light, sunny side up, cooked hard, hard boiled in the shell, soft boiled, poached, shirred or as the star ingredient of a delicious omelet.

There is something special about cracking an egg and cooking it up as a center-of-the-plate dish, or as a classic six-minute soft or coddled egg served over lettuce greens. These simple eggs add texture, flavor and mouthfeel to the finished dish.

The key to cooking an egg is perfection—it’s either right or wrong, no in between. As an executive chef, one of the many tests I gave my new-hire cooks was to

prepare an omelet and make a hollandaise. As simple a task as it may seem, it takes great skill to master these applications. Omelets should be fluffy, light and creamy in the center and yellow on the outside. This takes great skill in timing and managing the temperature of the omelet pan.

But nothing beats a great blended omelet, or a perfectly cooked egg. A scrambled egg cooked just right with some truffle-olive oil, tender, juicy lobster and a squeeze of fresh lemon is something I could eat any time of day.

The ageless egg

The egg is an everyday ingredient—and almost a way of life. Its versatile uses in formulations make it truly incredible. This multifunctional ingredient, available in many forms for both the industrial and culinary worlds, can be



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Savory Egg Ideation

Eggs are perfect as a center-of-the-plate item. I recently had the opportunity to develop some brunch and lunch egg dishes for a local restaurant group. To mention a few:

- Italian *Giambotta* with Focaccia—eggs cooked inside the bread on the grill and served with a vegetable *giambotta* containing tomato, zucchini, potato, mushrooms, and green and red pepper;
- Eggs Saltimbocca—fried or poached eggs served over prosciutto, accompanied by a tomato and olive caponata *crostini* served with warm roasted-potato salad and broccoli slaw;
- Grilled *Masa* with Smoked Salmon Chive Eggs—eggs scrambled, poached or fried, served with a sauce of sour cream, cracked pepper and chives, as well as broccoli slaw and warm potato salad;
- Huevos Rancheros—classic poached eggs served atop a spinach tortilla cup with ranchero sauce, *pico de gallo*, Spanish rice and refried beans.

used either as a center-of-the-plate item or as a small, but critical, part of a formulation.

The versatility of eggs, known to French culinarians as *les oeufs*, is reflected in history. Several centuries ago, the 100 pleats on a chef's hat represented the 100 ways to prepare eggs.

It is speculated that the first domesticated egg was recognized around 3200 B.C. in India. Records from Egypt and China trace evidence of fowl laying eggs for man back to 1400 B.C. Despite evidence of the Native American fowl, it is said that Christopher Columbus brought the first chickens to this country, and that those

birds are related to those used in egg production today.

However the egg came to rest in our society, the egg has come a long way since Columbus. It has been an effective and essential ingredient throughout the ages, as documented in history. Many traditional foods, such as custards, mayonnaise and sponge cake, just wouldn't be complete without the egg.

Cracking into functionality

As mentioned, eggs' unique versatility in applications makes them extremely functional. In addition to their functional attributes, eggs offer heightened flavor, color and mouthfeel to completed formulations.

In baking alone, besides adding a rich and distinctive flavor to custards, quiches or savory custard pies, eggs have more functional and critical roles. For instance, egg wash accelerates the Maillard reaction, or browning, of dough for an attractive finished color and sheen. In pound cake, whole eggs have many functions: they emulsify while adding color, tenderness and flavor. Meringue, the foam based on egg whites, and the famous and ever-so-popular *crème brûlée* have a large percentage of eggs, and most pastry formulations have egg ingredients in the dough. Whipped egg whites provide a light and airy finish.

Even though eggs are most

critical in baking applications, they have functions everywhere in the culinary field. Let's take a closer look at a few of the egg's many merits.

Flavor. To me, there is no substitute for the rich flavor the egg delivers to a preparation, particularly in a dish like *crêpes*, where eggs add both function and notable flavor. The egg itself has over 100 volatile flavor components that are not easily duplicated. The egg's flavor is subtle, and the natural fat in the egg acts as the perfect carrier of flavor, either simple or complex.

Color. Carotenoids in the lipid portion of the lipoproteins found in the egg yolk impart the rich, yellow color, which provides the yellow hue found in many dishes that contain egg yolks. Furthermore, the proteins and alkaline nature of eggs contribute to browning in food, even in acidic products that normally wouldn't brown, by increasing pH.

Clarification. In items such as *consommé*, the albumin found in egg whites contributes to the clarification of the product.

Foaming. Whipping eggs creates foam, as the egg albumins trap air bubbles, forming an insoluble film around them. When heated, the air cells expand and egg proteins coagulate, holding the foam structure in place to create a light and airy *soufflé* or *meringue*. Egg-white foam can increase volume

Processed versions of egg-rich hollandaise sauce help end users reduce the level of potential error involved in preparing eggs Benedict. This is an important factor in a culture where convenience increasingly reigns supreme.

by eight times in products such as those with meringue or angel food cake. Yolks, although less effective, are also used to make foams in applications such as zabaglione or soufflés.

Adhesion. Eggs are great for adhesion, such as in a breading process.

Viscosity and gelling. In many culinary preparations, eggs coagulate and thicken food preparations. This can be done with either egg whites or yolks. In custard, eggs can suspend ingredients, and in tarts they contribute to gelling. Dessert fillings are often thickened by adding egg products, as well.

Emulsification. One of the most-unique capabilities of eggs is their ability to emulsify. Egg yolks are critical in emulsified oil-and-water products, including mayonnaise, hollandaise and béarnaise sauces, and Caesar dressings. The egg phospholipids, such as lecithin and cephalin, enable fat to be dispersed in water, or drops of water to be dispersed in fat. Egg-yolk emulsions affect the texture of food in two ways: by coating liquids with fats to create a smooth, creamy texture in products, from custards to chocolate truffles, and they thicken.



Photo: Po' Boys Creole Café

Deviling the details

Egg products are processed into convenient forms specially tailored for commercial, foodservice and consumer use. Egg-ingredient forms, including refrigerated, frozen, dried and specialty egg products, provide convenient alternatives for purchasing, storing and utilizing eggs.

To ensure that eggs are free of pathogen contamination—i.e. *Salmonella*—commercially pro-

cessed egg products are certified through a mandatory USDA inspection. These standards are enforced for consumer safety and quality assurance of processed egg products. Packaging of all egg products is designed to meet all needs, from industrial totes of 2,500 lbs. to smaller units for convenient use by consumers. Egg processors provide options ranging from 100% eggs to egg products that contain additives such as

sugar, salt, whipping agents or other ingredients for enhanced product functionality.

For industrial use, after breaking the eggs and before packaging them, processors pasteurize eggs to ensure a stable refrigerated shelf life and safety. Ultra-pasteurized liquid eggs are also available; they can remain refrigerated up to 12 weeks or more, as compared to the 4- to 7-day shelf life of regular liquid eggs. Following are some common forms of available egg products:

- Refrigerated forms include whole eggs, hard-boiled eggs, egg yolks and egg whites. These can come as sugared yolks, salted whole eggs or yolks, or as a scrambled-egg mix.
- Frozen options include whole eggs, whites, yolks, salted whole eggs, salted yolks, sugared yolks and blends of whole eggs and yolks or whole eggs and milk, some of which might include added yolks. Salt or carbohydrates—sugar or corn syrup—are added to yolks to prevent gelation during freezing. In addition, processors can add citric acid also to whole eggs to prevent greening when scrambled and held in foodservice settings.
- Powdered egg products can replace liquid eggs to overcome processing limitations related to handling, among other issues. This ingredient form has the advantage of a longer shelf

life and stability than liquid egg products. They are easily mixed with other dry ingredients such as sugar and flour or seasonings, or used in dehydrated and intermediate-moisture products, such as dry instant mixes and grain-based products.

Whichever form is most convenient and suitable for your application, there is an egg product out there to meet those needs. For the manufacturer, the inherent benefits of using specialty egg ingredients vs. shell eggs include: safety; ease of use and plant friendliness; economical for use in various applications; and minimal storage needs—all without loss of functionality, flavor, color, etc., when compared to fresh eggs.

Whipping up ideas

What many of us fail to recognize is that eggs are more than breakfast. They're brunch, lunch, dinner and dessert, with imagination. There is an endless list of uses for eggs and for applying them in recipes for tremendous culinary results, including quiches, soufflés, *tortas*, frittatas, sauces, soups and many more. The sky's the limit with these versatile products!

Eggs lend themselves to several great traditional dishes, such as quiche. A highly popular

item served as a center-of-the-plate meal, it starts with blending whole eggs with half & half and seasonings like roasted garlic, fresh or dry herbs, and salt and pepper. A basic pie crust—flour, butter or lard, water, eggs and salt—forms the base of the dish. Flavorful fillings, such as spinach and sautéed lobster, can add interest. Cooking the spinach with onion, Pernod and Parmesan cheese can take the flavor to another level. Add the cooled filling to the pie shell, top with the egg custard and bake.

When commercializing a quiche, the manufacturer generally replaces fresh whole eggs with frozen whole pasteurized eggs to optimize the ingredient's shelf life. A frozen baked quiche generally will need some stabilizers and preservatives to extend shelf life and manage water migration from the egg product and vegetables into the product's crust.

Making a soufflé can be a tricky process, as it requires proper timing, temperature and the perfect blend of whipped egg whites to form a meringue. Savory soufflés—made with varying combinations of meat, vegetables and cheese—can form the basis of a meal, while sweet types add a finishing touch.

For a dessert soufflé, a typical base mixture might include melted chocolate, cream, flour, egg yolks, sugar and brandy.

The egg whites are aerated to create a stiff, fluffy meringue and then folded into the chocolate base, placed into individual soufflé cup or a larger soufflé dish and baked to gain that famous rise. One way to commercialize this product would be in a dry-mix kit form that might contain cocoa powder, sugar, egg powder and modified food starch.

Some sauces, such as allemande and hollandaise, also make advantageous use of eggs. Allemande sauce is made by mixing velouté sauce—stock thickened with roux—with lemon juice, wine and eggs. Veal stock is used for a classic preparation, but chicken or fish stock can be used, as well. The sauce can add a rich finish over pan-seared chicken, fish or veal.

Hollandaise and all of its derivatives are one of the first skills

a saucier learns. Taking egg yolks and cooking them just right—not overcooked but just starting to thicken—and adding clarified butter and seasonings to form the famous emulsion of eggs, butter or other fat, and water. Hollandaise is manufactured as a “mock hollandaise” combining modified food starch, cream or milk-based sauce, and egg powder or another processed egg product.

Perfect little packages

With the myriad uses for eggs, they can’t help but find their way into many formulating decisions. Whether it’s for a functional outcome, flavor or textural attributes, eggs can be a unique and cost-effective addition to almost any meal.

We shouldn’t overlook taking eggs past the breakfast

applications that we’re all familiar with. Eggs can also find their way into salads, soups, appetizers, sandwiches or main-course preparations. They combine well with other proteins, vegetables, cheeses and many savory ingredients. Consumers today want simple-to-prepare, convenient, healthy and natural foods, and eggs continue to provide a viable option for these characteristics.

Whatever you need them for—from ethnic specialties like huevos rancheros to Caesar salad, French toast, or more-upscale offerings like brioche or fancy quiche—eggs just might provide the perfect package of nutrition, function and appeal. Eggs really are what they are cracked up to be—just incredible! ■