

# part I

## Serving Food in Quantity

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# Introduction to the Foodservice Industry

## CHAPTER OUTLINE

### Foodservice Segments

#### How to Use *Food for Fifty*

- A Basic Recipe Resource
- A Resource for Standardizing Recipes
- A Resource for Menu Planning
- A Resource for Planning Food Production and Foodservice Events
- A Resource for Education and Instruction on Quantity Food Production

### Key Information about *Food for Fifty* Recipes

- Yield
- Ingredients
- Weights and Measures
- Cooking Time and Temperature
- Critical Control Points
- Abbreviations Used in Recipes

According to the National Restaurant Association (NRA), the restaurant industry encompasses all meals and snacks prepared away from home, including all take-out meals and beverages. The NRA reports that the industry encompasses 1 million restaurant locations in the United States, employs more than 14 million people, and generates nearly \$710 billion in sales each year (90% commercial sales and 10% noncommercial and military sales). This complex multibillion-dollar industry has a large impact on our nation's economy and on job opportunities for its citizens. Nearly half of consumers say restaurants are an essential part of their lifestyle. The NRA reports that 72 percent of adults say their favorite restaurant foods provide flavors and taste sensations that cannot easily be duplicated at home. The increased demand for convenience, value, and socializing also makes eating away from home an attractive option. Creative menus, quality food, and good service are essential to the continued growth of the foodservice industry. Regardless of the industry segment, challenges are similar. Table 1.1 identifies some of the challenges foodservices are facing and some changes foodservices are making to address those challenges.

## FOODSERVICE SEGMENTS

The foodservice industry can be categorized into three segments, *commercial*, *noncommercial* or *on-site*, and *military*. The commercial segment includes establishments that are open to

the public and operate for the explicit purpose of making a profit. Contract or managed service providers are included in the commercial segment even though they provide services to some of the same entities as self-operated, noncommercial providers. The difference is that they operate for profit. Noncommercial or on-site foodservices may be expected to make a profit, but it is not the primary goal for their activity. Rarely are noncommercial or on-site foodservice providers subsidized; facility use fees are often levied, and in most cases funds must be generated for facility enhancements and equipment repair and replacement. These entities serve food principally to support the mission of the larger organization. For example, a university dining program may generate a profit, but its reason for operating is to provide foodservices to students, faculty, staff, and university guests and to provide college catering services. Table 1.2 identifies categories of foodservice operations in the commercial, noncommercial/on-site, and military sectors of the foodservice industry.

## HOW TO USE *FOOD FOR FIFTY*

*Food for Fifty* has many applications as a basic resource for students studying for professional careers in the foodservice industry and for foodservice operators needing a reliable food production resource. The book's value as a text for these basic functions is obvious. In this section, many ways to use *Food for Fifty* will be identified.

**TABLE 1.1 Foodservice industry challenges and responses to challenges**

<b>Challenges</b>	
<ul style="list-style-type: none"> <li>• The economy; less disposable income; slowdown in consumer spending</li> <li>• Labor availability; recruiting and retaining employees; availability of skilled labor; labor costs; benefit costs, including insurance costs; employee training costs</li> <li>• Energy costs</li> <li>• Fluctuations in food costs; increasing food costs</li> <li>• Food safety; food allergens; liability (food, alcohol)</li> <li>• Consumer expectations; customer satisfaction; addressing consumer trends; real food movement; consumers expecting a dining experience; food allergies and intolerances</li> <li>• Convenience</li> </ul>	<ul style="list-style-type: none"> <li>• Government regulations</li> <li>• Sourcing local and sustainable food; associating locally sourced ingredients with health; ethical sourcing of food; fair trade; genetically modified organism-free (GMO-free)</li> <li>• Environmental sustainability; supporting eco-initiatives (water conservation and waste management)</li> <li>• Competition; food trucks, grocery store foodservice</li> <li>• Attracting new customers; retaining customers; customer satisfaction; building repeat business; increasing sales volume</li> <li>• Capital expenditure needs for equipment replacement/upgrade, renovations</li> </ul>
<b>Responding to Challenges</b>	
<p><b>NUTRITION AND FOOD SAFETY</b></p> <ul style="list-style-type: none"> <li>• Healthful options for children’s meals; menu and food options to meet customer expectations; menu item options for clientele with food allergies and intolerances</li> <li>• Nutrition education materials and programs for customers</li> <li>• Staff education and recipe development for preparing healthy, high-quality, flavorful foods</li> <li>• Ingredient and sourcing transparency for foods products and recipes</li> <li>• Minimally processed foods; sourcing clean label foods and ingredients</li> <li>• Accurate nutrition labeling</li> <li>• Resources allocation for food safety</li> </ul> <p><b>SERVICES</b></p> <ul style="list-style-type: none"> <li>• Upscale grab-and-go options, meal replacement options; catering to consumer’s wants and needs; vending</li> <li>• Expanded children’s menu and activities for children</li> <li>• Customer participation in meal preparation; customer engagement and interaction with food preparation and service; action stations; communal tables</li> <li>• Expanded technology options for customers; self-service ordering systems; touch screen self-service beverage and food delivery systems; online ordering; mobile apps</li> </ul> <p><b>VALUE</b></p> <ul style="list-style-type: none"> <li>• Focus on value; value pricing</li> <li>• More food choices</li> <li>• More dining venues</li> <li>• More beverage choices (alcohol and nonalcoholic)</li> <li>• Speed and convenience services</li> </ul> <p><b>FOOD</b></p> <ul style="list-style-type: none"> <li>• Authentic ethnic and global cuisine options</li> <li>• Highly flavored and creatively seasoned foods; more sophisticated and flavorful kids’ meals</li> <li>• Increased variety of food options</li> <li>• Increased use of protein-rich grains and seeds</li> </ul> <p><b>DISCOUNTING</b></p> <ul style="list-style-type: none"> <li>• Loyalty programs; reduced off-peak pricing</li> <li>• Bundled meals</li> </ul>	<p><b>PORTION SIZING</b></p> <ul style="list-style-type: none"> <li>• Smaller portions for less cost; optional portion sizes; small plate menus</li> <li>• Food and drink specials, happy hours</li> <li>• Kids eat free offers</li> </ul> <p><b>SUSTAINABILITY/SOCIAL</b></p> <ul style="list-style-type: none"> <li>• Locally sourced foods; locally grown foods</li> <li>• Organic and environmentally friendly foods</li> <li>• Sustainable practices/green certified; choosing renewable resources</li> <li>• LEED certification for new and renovated spaces<sup>a</sup></li> <li>• Composting, waste management, recycling; reusable beverage containers</li> <li>• Trayless dining</li> </ul> <p><b>ATTENTION TO REVENUE AND EXPENSES</b></p> <ul style="list-style-type: none"> <li>• Increasing menu prices</li> <li>• Evaluating menu item prices considering both food and labor costs</li> <li>• Increasing energy-saving equipment and energy control systems</li> <li>• Evaluating purchasing practices and negotiating with suppliers</li> <li>• Purchasing on the secondary market<sup>b</sup>; seeking special purchase offers; participating in buyer group programs; purchasing products with rebates; purchasing locally; carefully shopping around for suppliers</li> <li>• Evaluating pre- and postconsumer food waste with an emphasis on waste reduction/management.</li> <li>• Adding or expanding home and office delivery programs</li> <li>• Expanding catering</li> <li>• Maximizing traffic throughout the day</li> </ul> <p><b>MARKETING</b></p> <ul style="list-style-type: none"> <li>• Electronic marketing, i.e., e-mail or text messages</li> <li>• Social media marketing, i.e., Facebook, Twitter, Foursquare</li> </ul> <p><b>OTHER</b></p> <ul style="list-style-type: none"> <li>• Developing standardized training manuals; engaging employees in solving problems;</li> </ul>

<sup>a</sup>Leadership in Energy and Environmental Design (LEED) certification is a nationally accepted benchmark for the design, construction, and operation of high-performance green buildings.

<sup>b</sup>Foods available on the secondary market may be from overproduction of items from major manufacturers; oversupply of products produced for high-volume users, such as chain restaurants; or availability of products not meeting exact specifications, such as French fry length, breading color, or flavor profiles. Many high-quality products can be purchased at significant savings.

**TABLE 1.2 Commercial, noncommercial/on-site, and military segments****COMMERCIAL SEGMENT<sup>1</sup>****EATING PLACES**

- Tableservice restaurants—waiter/waitress service. Order taken while patron is seated and payment made after meal is consumed
- Quickservice and fast-casual restaurants—patrons generally order at a cash register or select items from a food bar and pay before they eat
- Cafeterias, buffets
- Bars and taverns

**MANAGED SERVICES (FOOD CONTRACTORS)**

- Manufacturing and industrial plants
- Commercial and office buildings
- Hospitals and nursing/long-term care facilities
- Colleges and universities
- Elementary and secondary schools
- In-transit services (airlines)
- Recreation and sports centers

**LODGING PLACES**

- Hotel restaurants and other accommodation restaurants
- Retail-host restaurants (health and personal care restaurants, grocery store restaurants, salad bars, etc.)

- Recreation and sports (include movies, bowling lanes, recreation, and sports centers)
- Mobile caterers
- Vending and nonstore retailers (include sales of hot food, sandwiches, pastries, coffee, and other hot beverages)

**NONCOMMERCIAL SEGMENT/ON-SITE<sup>2</sup>**

- Employee restaurant services (industrial and commercial organizations)
- Public and parochial elementary, secondary schools
- Colleges and universities
- Transportation
- Hospitals
- Nursing homes, long-term care, etc.
- Clubs, sporting and recreational camps
- Community centers

**MILITARY SEGMENT<sup>3</sup>**

- Officers' and NCO clubs (Open mess)
- Military exchanges

<sup>1</sup>Establishments with a payroll<sup>2</sup>Business, educational, governmental, or institutional organizations that operate their own restaurant services<sup>3</sup>Continental United States only

Table compiled using data from the NRA 2015 Restaurant Industry Forecast.

## A Basic Recipe Resource

- *Food for Fifty* recipes are written to provide step-by-step guidelines for producing standard-quality products. *Food for Fifty* recipes may be substituted, adapted, and combined to produce dishes similar to the creative and visually attractive food presentations seen in the trade and popular magazines and industry websites listed in Appendix B. *Food for Fifty* recipes may also be varied by changing plating presentations and making use of the garnishes suggested in Appendix A. Table 1.3 provides suggestions for using *Food for Fifty* recipes as the foundation for recipe development and menu planning activities. Adapting or making small changes to reliable quantity recipes will simplify recipe development and standardization efforts. Substantial changes to *Food for Fifty* recipes may affect quality and should be tested carefully before being used for quantity food production.
- There are few new dishes, but there are unlimited ways to prepare and present foods in new and interesting ways. Dishes are modernized by changing flavor profiles, presentation styles, and cooking techniques, and by adding sauces, garnishes, and accompaniments. The wide variety of recipes in *Food for Fifty* provides a recipe development resource for changing menus to reflect the latest food and menu trends. *Food for Fifty* provides a comprehensive file of recipes that can be used directly or as the building blocks for new recipes and menu development initiatives.

- Changing the name of a *Food for Fifty* recipe to reflect ingredient adaptations can update a recipe. For example, a simple grilled chicken breast can be renamed Jamaican Jerk Chicken when a Jamaican jerk spice rub, p. 774, is used to season the chicken in the Grilled Chicken Breast recipe, p. 513. Numerous recipes can be made from adaptations to the Grilled Chicken Breast recipe in *Food for Fifty*. A recipe for Gaucho Beef Steak with Chimichurri Sauce can be developed from two *Food for Fifty* recipes: Grilled Tampico Steak (cooking procedures only, without the Tampico seasonings), p. 466, and Chimichurri Sauce, p. 755. Appendix B identifies resources for keeping up-to-date about contemporary recipes, modern recipe names, and current flavor profiles. These resources will be helpful for adapting *Food for Fifty* recipes in order to respond to the expectations customers have of foodservice providers.

The first step in adapting a *Food for Fifty* recipe to resemble a recipe from another source is to identify a recipe in *Food for Fifty* that is similar. Adaptations are easier, and less testing is needed, when the recipes are comparable in ingredients, preparation instructions, and cooking procedures. The next step is to rewrite the *Food for Fifty* recipe to incorporate the changes that will make the recipes more similar. For example, the rewritten recipe may include such changes to the *Food for Fifty* recipe as changing the flavor profile by using a different seasoning, adding or changing a sauce, altering a procedure, or changing ingredients. It is important to make only adaptations

**TABLE 1.3** Examples of adaptations to *Food for Fifty* recipes

Contemporary Name	Adaptation Suggestions <sup>a</sup>
<b>EGGS AND CHEESE</b>	
Smoked Salmon and Goat Cheese Crepes	[Base recipe p. 277] Substitute smoked salmon and goat cheese for the chicken mixture.
California Omelet with Tomatillo Salsa	[Base recipes p. 386] Use fresh avocados and shredded Monterey Jack cheese in the filling. Ladle Tomatillo Sauce [p. 754] on the omelet.
<b>FISH</b>	
Grilled Salmon with Mustard Caper Butter	[Base recipe p. 430] Serve grilled salmon with 1 tsp Mustard-Caper Butter [p. 765] on top.
Grilled Salmon with Dill Mashed Potatoes	[Base recipes pp. 430, 850] Serve grilled salmon on top of mashed potatoes that have had fresh dill added to them. Garnish with fresh dill and lemon wedge. For potatoes with added tang, substitute buttermilk or sour cream for part of the milk.
<b>MEATS</b>	
Roast Pork Loin with Moroccan Charmoula Marinade	[Base recipe p. 493] Marinate Roast Pork Loin in Moroccan Charmoula Marinade [p. 756] before roasting.
Lamb Chops with Black Bean Pico de Gallo	[Base recipe p. 492] Serve lamb chops on top of Black Bean Pico de Gallo [p. 749].
Chicken Fajita Nachos	[Base recipe p. 227] Serve Nachos topped with Chicken Fajita meat [p. 673], fresh diced tomatoes, fresh sliced jalapeño peppers, and guacamole [p. 226].
Southwestern Beef Tenderloin with Chipotle Mashed Potatoes	[Timetable for direct grilling steak p. 458] Season beef with Southwest Steak Rub [p. 776]. Served cooked tenderloin leaned against a mound of Chipotle Sweet Potatoes [p. 860]. Garnish with one or two baked tomato halves [p. 867].
<b>SALADS</b>	
Frisée and Winter Pear Salad with Gorgonzola and Toasted Walnuts	[Base recipe p. 634] Substitute frisée for greens and thinly sliced winter pears for the fruit. Sprinkle with crumbled Gorgonzola and toasted walnuts [p. 649].
<b>SANDWICHES</b>	
Rustic Turkey Quesadillas	[Base recipe p. 672] Caramelize onions (procedure, p. 416) and use them in place of the corn-onion mixture. Substitute smoked Gouda for the cojack cheese and add shredded turkey to the quesadillas before grilling.
Tuscan Eggplant on Focaccia	[Base recipe p. 706] Placed grilled eggplant [p. 842] on Focaccia [p. 290] and top with Tomato, Olive, and Fennel Ragout [p. 767] or Tomato Pesto [p. 748].
Thinly Sliced Prime Rib of Beef on Sourdough with Blue Cheese Aioli	[Base recipe p. 461] Thinly slice prime rib and serve on Sourdough spread with Blue Cheese Mayo [p. 779].
<b>VEGETABLES/OTHER</b>	
Ginger-Roasted Parsnips	[Base recipe p. 821] Mix 1 Tbsp fresh minced ginger per pound of quartered parsnips before roasting.
Cauliflower Persillade	[Base recipe p. 838] Season cauliflower with Persillade [p. 757].
Orange-Scented Orzo	[Base recipe p. 542] Substitute grated orange zest and orange juice for the lemon zest and juice.
Ginger Barley and Edamame	[Base recipe p. 601] Substitute 4 lb steamed edamame for the green peas. Sauté 4 oz minced ginger root and 12 oz shiitake mushrooms along with the carrots. Reduce the salt and stir in soy sauce or another Asian condiment of choice.

<sup>a</sup>Adaptations are suggestions for how *Food for Fifty* recipes can be used to develop new recipes and menu items. The adaptations are not intended to be stand-alone recipes and may require testing and standardization.

that are feasible and within the scope of the *Food for Fifty* recipe. When recipe differences are substantial and changes will fundamentally alter a recipe, the steps to develop a new recipe should be followed, p. 13. Changes should not require the use

of equipment that is not available, procedures that are unrealistic for the foodservice facility, or ingredients that are unavailable. Extensive changes to the *Food for Fifty* recipe will require more testing than when only minor changes are made.

## A Resource for Standardizing Recipes

- Recipes should be carefully tested to ensure that a consistent product is produced each time the recipe is made in a specific food production facility. The term *standardized recipe* is often used to describe the recipes that produce these consistent results. Facility-specific requirements to consider when standardizing a recipe for one's facility include such things as large and small equipment, procedural needs, portion sizes, employee skills, and food inventory or ingredients. For recipes to make a standard product each time, recipes must consider facility requirements. *Food for Fifty* recipes and guidelines for recipe development, construction, and adjustment (see Chapter 2) will be useful for formatting home-sized and other recipes and for beginning the recipe standardization process. Having examples of recipes formatted in a consistent manner will guide recipe developers and help them establish recipe formatting and content standards for their facilities' recipe files.
- The tables and charts in Chapter 4 will be useful when assigning weights to measures or measures to weights (Table 4.8) and for making other recipe calculations and ingredient substitutions. Edible portion/as purchased (EP/AP) conversion data for meats and produce and accurate count/weight information will be useful when standardizing recipes. For example, home-sized recipes usually specify count or volume measure for fresh produce such as diced carrots. Carrots by weight is a more accurate measure than volume or count and should be specified in a standardized recipe. Table 4.2 provides information on weight per cup of diced carrots.

## A Resource for Menu Planning

- Menu planning implies that recipes are available to produce the food being planned. *Food for Fifty* is a valuable resource for the menu planner because of its comprehensive cache of recipes in all menu categories. The lists of recipes in the index and in Appendix A are also helpful to the menu planner because they provide lists of food options that are linked to a recipe. For example, a menu planner may go to Appendix A or the recipe index and choose from a list of options for a specific soup to add to the menu.
- The recipes in *Food for Fifty* will help the menu writer incorporate the contemporary menu ideas shown in trade publications, popular magazines, and trendy cookbooks. See Appendix B for resources. Examples for how *Food for Fifty* recipes can be adapted to easily produce new menu items are shown in Table 1.3.
- Knowing the nutritional content of food items is increasingly important in menu planning. The recipes in *Food for Fifty* provide nutrition information helpful for writing menus that meet the nutritional requirements of the clientele whom they are serving. The guidelines for making healthful recipe changes will be useful for food produc-

tion staff. For example, customers regularly ask for low-fat preparation methods to be used. Information on p. 14 identifies low-fat cooking methods and ways to decrease fat in entrées.

## A Resource for Purchasing and Accurate Forecasting, Recipe Costing, and Pricing

- Accurately calculating the amount of food needed to produce recipes is critical to costing, food quality, and customer satisfaction. *Food for Fifty* recipes and supporting tables in Chapter 4 provide the information for yields and portion sizes that are necessary for accurately determining the amount of food to purchase.
- Documenting quality expectations and cost comparisons for convenience and value-added foods before purchasing may be necessary. Similar products made using *Food for Fifty* recipes can help identify the desired sensory characteristics useful for establishing purchasing specifications and quality standards for convenience and value-added foods. For example, *Food for Fifty's* blueberry muffin recipe may be produced and analyzed before writing a specification for or an evaluation of frozen muffin batters. The amount of blueberries, the muffin size, muffin flavor, and cost are some comparison points.
- *Food for Fifty* recipe yields and portion sizes are accurately coordinated. Production staff can make recipes with confidence that recipes will yield correctly. Forecasting is easier when recipe yields are certain. Financial success is linked to knowing the menu item cost and being able to establish a correct selling price. *Food for Fifty* recipes provide the accuracy needed for these functions.
- *Food for Fifty* recipes yield approximately 50 servings but can be adjusted easily for other yields by using the recipe extension procedures in Chapter 2.

## A Resource for Planning Food Production and Foodservice Events

- Producing food in quantity requires an understanding of how food goes from its raw state to a finished product. The recipes in *Food for Fifty* clearly list the production steps and can be a resource for food production managers to establish mise en place activities; write production worksheets; and assign tasks related to product storage, thawing time, pre-preparation, preparation, assembly, and product holding.
- *Food for Fifty* can be used to plan special functions as receptions, brunches, and buffet meals. Chapter 3 includes information on menu planning, table and space arrangement, food presentation, and service. This information, along with the recipes, will be helpful when planning events for large and small numbers of diners.

## A Resource for Education and Instruction on Quantity Food Production

- Recipes are at the center of all food production activities, and a well-written recipe that is organized correctly and written clearly can be useful for learning about food production principles. Well-written recipes help identify *mise en place* tasks (p. 163), provide information for accurate production scheduling (p. 164), identify efficient work procedures, and show-case correct cooking methods. They also help communicate the techniques necessary for producing a quality product.
- Efficient labor procedures were considered in writing *Food for Fifty* recipes. Recipes may serve as a model for making products using the minimum amount of labor. *Food for Fifty* can be used also for learning about knife skills, food safety procedures, and cooking methods appropriate for specific foods.
- Producing quality food requires a reference or goal for what the end-product attributes should be. *Food for Fifty* has information for writing quality standards and for evaluating food products. Because *Food for Fifty* recipes are written to consistently produce a quality product, they are useful for teaching food preparers what is required to achieve quality results. For example, *Food for Fifty* recipes identify many procedures that help ensure quality, such as preparation steps and procedures, cooking methods, and endpoint cooking temperatures.
- *Food for Fifty* recipes are written to be useful for planning food production, making staffing assignments, and organizing food production processes. Instructions for developing cooking methods, learning terminology, troubleshooting quality problems, and evaluating food quality can be developed using information in *Food for Fifty*.

## KEY INFORMATION ABOUT FOOD FOR FIFTY RECIPES

### Yield

The recipes in this book produce servings for 50 people unless otherwise stated. Factors that may affect yield include portioning, ingredient weighing error, mistakes in calculating increased or decreased quantities, abnormal handling loss, and variation in the edible portion (EP) and as purchased (AP) factors for food products such as fresh produce and meats.

A standard 12 × 20-inch counter pan has been indicated for many recipes. For baked desserts and some bread products, either a 12 × 18-inch or 18 × 26-inch pan is specified, as these are standard bakeware sizes. Weight of product per pan may need to be changed if pans other than those specified in the recipe are used. Care should be taken to scale products so that portion weight will be accurate and recipe yield remains correct. Tables 7.16 and 7.17 give capacities of baking and counter pans.

The number of servings per pan will depend on the portion size desired. Many standard-sized baking or counter pans will yield 24–32 servings per pan; when these size pans are indicated,

the recipes generally are calculated for 48 or 64 servings. Yield adjustments may be made by cutting the servings into sizes that will yield the desired number of portions. Portion size is included in each recipe, and the yield is given in number of portions, volume produced, and/or number of pans. Some foodservices may wish to adjust the yield based on the clientele to be served.

### Ingredients

In most cases, the type of ingredient used in testing the recipes has been specified—for example, granulated, brown, or powdered sugar and all-purpose or cake flour. Hydrogenated shortening was used in cake and pastry recipes; margarine or butter was used in cookies, some quick breads, and most sauce recipes. Solid fats such as margarine, butter, and hydrogenated fats were used interchangeably in recipes that specify “shortening.” Canola, corn, soybean, or cottonseed oil was used in recipes that specify salad or vegetable oil. Sodium aluminum sulfate–type baking powder (double acting) and active dry yeast were used for leavening.

Fresh eggs, large size, weighing approximately 2 oz with shell ( $\frac{3}{4}$  oz shelled) were used in the preparation of the recipes. Eggs are specified by both number and weight. In many foodservices, frozen eggs are used, in which case the eggs are weighed or measured. If the eggs are to be measured, the number and weight may easily be converted to volume by referring to Table 4.2.

Nonfat dry milk is indicated in some recipes, but in those specifying fluid milk, dry milk may be substituted. Table 4.5 gives a formula for conversion. In most cases, it is not necessary to rehydrate the dry milk because it is mixed with other dry ingredients, and water is added in place of the fluid milk. The amount of fat in the recipe can be increased slightly to compensate for the fat content of the fluid milk (whole, 2%, 1%). Adding fat when substituting dry milk for a fluid milk with fat is generally not necessary but may improve slightly the texture and flavor of some baked products.

Nutritional values are identified for most *Food for Fifty* recipes. Unless stated otherwise, values are for the portion listed at the top of each recipe. Nutrient values for *Food for Fifty* recipes are approximate and are intended to be used as general guidelines. Values identified for recipes may vary from actual values if substitute ingredients are used. Differences may occur also if ingredient amounts are adjusted, portion sizes are different from those specified in the recipe, or production procedures are changed.

### Weights and Measures

Quantities of dry ingredients weighing more than 1 oz are given by weight in ounces (oz) and pounds (lb). Weights are for foods as purchased (AP) unless otherwise stated. Liquid ingredients are indicated by measure: teaspoons (tsp), tablespoons (Tbsp), cups (cups), quarts (qt), and gallons (gal).

Accurate weighing and measuring of ingredients are essential for a satisfactory product. Weighing is more accurate than measuring and is recommended whenever possible, but

reliable scales are essential. A table-model scale with a 15- to 20-lb capacity and ¼- to ½-ounce graduations (or an electronic digital readout scale with a 15- to 20-lb capacity) is suitable for weighing ingredients for 50 portions.

Standard measuring equipment should be used to ensure accuracy, and measurements should be level. Use the largest appropriate measure to reduce the possibility of error and to save time. For example, use a 1-gal measure once instead of a 1-qt measure four times. Flour is the exception: Use measures no larger than 1 qt for flour.

## Cooking Time and Temperature

The cooking time given in each recipe is based on the size of pan and the amount of food in the pan. If a smaller or larger pan is used, an adjustment in cooking time may be necessary. The number of pans placed in the oven at one time also may affect the length of baking time; the larger the number of pans or the colder a product, the longer the cooking time. Pan type may affect heat transfer and both cooking time and temperature. Different types of ovens heat differently. In convection ovens, the temperature as specified for a conventional oven should be reduced by 25–50°F and the total bake/roast time by 10 to 15 percent. High altitude baking will require some recipe adjustments. Increasing oven temperature by 15–25°F may improve results by setting the structure before leavening gases can overexpand the product prematurely.

## Critical Control Points

Monitoring cooking time and food temperature is an important step in the food production process because of their

relationship to food contamination and food-borne illness. Time and temperatures are designated as critical control points (CCPs) in all Hazard Analysis Critical Control Point (HACCP) plans. Recipes in this book provide production, service, and storage procedures that can prevent or reduce food safety hazards of time/temperature control for safety food (TCS). Standards for reducing food safety hazards may be found in Tables 7.1 and 7.9 (pp. 184, 191). Safe temperatures for cooked foods are shown in Table 7.6 (p. 187). Cooling procedures for hot foods are shown in Table 7.8 (p. 190). Examples of TCS foods can be found in Table 7.12 (p. 193). Recipes that contain TCS foods are identified in the recipe notes.

## Abbreviations Used in Recipes

AP	as purchased
EP	edible portion
°F	degrees Fahrenheit
fl oz	fluid ounce
gal	gallon
g	gram
lb	pound
mg	milligram
oz	ounce
psi	pounds per square inch
pt	pint
qt	quart
tsp	teaspoon
Tbsp	tablespoon