

EXECUTIVE SUMMARY

MENUS^{of}CHANGE[®]

The Business of Healthy, Sustainable, Delicious Food Choices

2016 ANNUAL REPORT



**HARVARD
T.H. CHAN**

SCHOOL OF PUBLIC HEALTH
Department of Nutrition





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To read the full 2016 *Menus of Change Annual Report*, please visit: www.menusofchange.org/news-insights/annual-report

The Menu of Change® (MOC) Annual Report and Annual Leadership Summit are co-presented by The Culinary Institute of America (CIA) and Harvard T.H. Chan School of Public Health—Department of Nutrition. The Menu of Change Scientific and Technical Advisory Council composed of leading nutrition, environmental, and other scientists and scholars (menusofchange.org/advisory-councils/stac/), together with Harvard Chan School and CIA, are solely responsible for the nutrition and environmental guidance of the report and conference. The Menu of Change Sustainable Business Leadership Council (menusofchange.org/advisory-councils/sblc/) contributes insights to parts of the report and conference designed to help translate this guidance into industry change; highlights case studies in innovation (e.g. menu research and development, product sourcing, and supply chain management, etc.); and builds industry participation in supporting healthier, more sustainable menus. Project sponsors and other commercial interests are not permitted to influence the editorial independence of the Menu of Change initiative.

I. MENUS OF CHANGE IN 2016

This past year, environmental and nutrition science and public policy converged right at the center of our plates.

The scientific advisory committee for the 2015 Dietary Guidelines for Americans (DGAs) released its final report on the state of the American diet and what we should be eating, the basis for official dietary guidelines that are revised every five years. The report raised awareness among both policy makers and the general public about the same nutrition and environmental science that underpins Menus of Change, citing both the health benefits of plant-forward dietary patterns such as the Mediterranean diet and also the environmental benefits of eating a larger share of plant-based foods.

Also, the committee provided definitive answers about whether Americans are eating enough protein—we get more than we need—and what is an appropriate limit for added sugar. Based on their findings, the latest DGAs note for the first time that many Americans eat too much red meat and that adults should consume less sugar each day than is found in a typical can of regular soda. The *2016 Menu of Change Annual Report* provides executive briefings on protein as well as strategies for reducing meat and sugar in your menus and operations. And the menusofchange.org website provides more information about how to “flip” the role of protein on the plate to deliver delicious, healthy, sustainable, and profitable results.

The committee also found that Americans should nearly double the amount of fish and seafood we eat. Diners choose to eat more of their fish and seafood in restaurants than in any other place, and responsibly sourcing the right types can be a complex matter. This year's annual report provides an executive briefing on fish and seafood as well as guidance to help you choose wisely for your customers.

In Paris, the United Nations held its annual Conference of the Parties (COP), which brings the world's nations together to find ways to address climate change and greenhouse gas emissions. Remarkably, this 21st meeting resulted in the

first-ever global agreement on how to reduce greenhouse gas emissions and hold temperature increases to only 2° C, just below the level that would trigger the most challenging changes in our weather, water availability, and sea levels. That agreement set goals that nations can only achieve this if we change the way we grow food and the foods we choose to eat, and also committed to a plan that will address the risks that climate change and water scarcity pose for food companies. This year's report provides briefings on both water and climate issues as well as a set of **Principles of Healthy, Sustainable Menus** that can guide you in reducing the carbon footprint of the meals you serve.

Both the report of the DGAs scientific advisory committee and the COP21 agreement recognize the tremendous change needed in what we choose to serve and our customers choose to eat. As this year's Dashboard shows, changes in what we are eating continue to shift in the right direction, but the pace of change is modest. And in the past year, the foodservice industry has begun to fully recognize the rising cost from climate change, water scarcity, lack of visibility into supply chains, and other environmental factors. While change has been slow in the past, the stage is now set for substantial improvements. Investors already are pricing in the value of companies that pay attention to environmental concerns and actively manage their supply chains—and they are expecting all companies to do the same.

The Menu of Change initiative, a partnership of The Culinary Institute of America and the Harvard T.H. Chan School of Public Health, aims to help you do just this. It does the essential, difficult, and unprecedented work of integrating the latest findings from both nutrition and environmental science into a single set of recommendations to help foodservice and culinary professionals to make better choices and to successfully navigate the rapidly changing landscape.

This annual report is a part of that mission. It aims to advance a long-term, practical vision that integrates optimal nutrition, environmental stewardship and restoration, and social responsibility within the foodservice industry.

The CIA and Harvard Chan School invite businesses to use this report to measure their progress and to navigate new and complex challenges. Not all culinary professionals and foodservice companies will take the same path forward. But more and more have a similar goal: to lead successful businesses serving healthy, sustainable, and delicious food.





II. EXECUTIVE SUMMARY: A TASTE OF WHAT'S AHEAD

IN THE PAST YEAR, TERMS LIKE “PLANT-BASED,” “PLANT-CENTRIC,” AND “VEGETABLE-FORWARD” ALL STARTED TO ENTER THE MAINSTREAM OF THE NATIONAL LEXICON.

One of the biggest recent trends is not only menus but entire restaurant concepts that put plants first. Some of the shift revolves around a celebration of produce itself, which can be seen in the crop of decidedly plant-centric cookbooks that have emerged from top chefs in the past year. April Bloomfield—best known for her cookbook *A Girl and Her Pig*, as well as her Michelin-starred restaurant The Spotted Pig—authored *A Girl and Her Greens*, revealing her love of produce. Michael Anthony of Gramercy Tavern released *V Is for Vegetable*, which Anthony has emphasized is not a vegetarian or vegan cookbook but inspiration for “vegetable cookery.” The book (which won a 2016 James Beard Foundation book award) aims to help consumers think about re-proportioning their eating habits, with meat as a sometimes accompaniment to a plate filled with vegetables.

These trends are especially inspiring in light of data from the U.S. Department of Agriculture (USDA) showing that three quarters of Americans fail to meet the daily recommendations for fruit intake, and the same is true of fourth fifths of Americans for vegetable intake. One major issue is the discrepancy in marketing budgets between healthy foods and unhealthy foods. On the bright side, the National Fruit and Vegetable Alliance’s 2015 report card found that the restaurant sector was much better than other food sectors at increasing the availability of fruits and vegetables in recent years.

It’s not just vegetables that have earned higher status on menus, but a wider variety of whole grains and plant proteins. The United Nations declaring 2016 the International Year of Pulses has helped lentils, chickpeas, and beans leap into both the consumer and operator consciousness like never before. (Granted, they have been gaining ground for some time: According to Datassential, menuing of chickpeas has increased by 290 percent in the past decade.) These fiber-rich plant proteins offer numerous nutritional benefits, and also improve soil fertility through their symbiotic relationship with nitrogen-fixing bacteria that live in their roots.

A combination of factors is fueling this gradual transition to more plant-based diets. One is that consumers are starting to become more concerned about the health effects of frequent consumption of red and processed meat, in part due to the World Health Organization (WHO) announcement about the association with increased risk for certain types of cancer. (Unfortunately, as described in this report’s consumer attitudes issue brief, the way the WHO’s findings were explained in the press led to much confusion.) Second is a growing understanding of the environmental impacts of raising livestock.

Never before the past year has awareness been so strong about the connection between the health of our bodies and the health of the planet with regard to food choices. A national survey released in March by the Johns Hopkins Center for a Livable Future and Greenberg Quinlan Rosner Research found that 74 percent of American adults believe that the new dietary guidelines should include environmental implications and support sustainable agriculture practices. It also found that 70 percent of survey respondents felt that the agriculture industry has a responsibility to produce food sustainably. For context, only 30 percent of respondents felt the industry had a responsibility to provide food at low cost. Though encouraging that an agreement was reached among nearly 200 countries at the historic 2015 Paris Climate Conference (COP21), many experts were discouraged that greater emphasis was not placed on the role of global agriculture.

For these reasons and more, the 2015 Dietary Guidelines for Americans (DGAs), which were released in January 2016, proved a missed opportunity to include sustainability language in this country’s official guidance about what to eat. It was also a missed opportunity to provide a clear recommendation to reduce red meat consumption. Both had been advised by the scientific advisory committee’s report for the 2015 DGAs.

Given the complexities of change in order to benefit the triple bottom line of people, planet, and profit, the *Menus of Change Annual Report* is designed to give foodservice and culinary professionals the insights and the tools to make informed decisions about difficult issues. The report sifts through culinary trends and innovations to shed light on some of the most intriguing companies and projects happening around the country, all in the name of healthier, more sustainable food. The Menu of Change initiative also importantly provides comprehensive advice and strategies for menu design that support the triple bottom line with the Principles of Healthy, Sustainable Menus (see page 10). These guidelines outline culinary strategies, such as new focuses on portion size, calorie quality, and plant-based foods, which are needed to increase the success of new business models.

The centerpiece of Menu of Change is a concise analysis of 16 issues at the intersection of public health, the environment, and the business of food. These issue briefs synthesize the latest health and environmental data to provide a clear picture of the industry's challenges and opportunities, as well as practical next steps for foodservice operations. The report assigns each issue an annual score that rates the industry's efforts in these critical areas. Among these 16 issues are:

Diet and Health

Encouragingly, the overall quality of the U.S. diet has improved steadily as of 2012 compared to 2000 and since the Harvard T.H. Chan School of Public Health's last report based on data through 2010. By far, the greatest progress since 2000 was in reduction of trans fat, estimated to be about 80 percent, which accounted for about half of the overall improvement in diet quality. The next greatest improvement was reduced consumption of sugar-sweetened beverages, which decreased by about 25 percent. Modest increases were also seen for fruit, whole grains, polyunsaturated fatty acids, and nuts and legumes. A modest reduction was seen for red and processed meat, contributing to improved diet quality. However, the overall score remains poor: below 50 out of 100 possible points. The only dietary component that significantly worsened was sodium intake. This highlights a need for foodservice operators to address this issue more directly through culinary strategies.

Climate Change and Fish, Seafood, and Oceans

For the first time, the score for fish, seafood, and oceans decreased compared to the prior year. Major factors include: continued underconsumption of fish and seafood overall paired with an over-reliance on just three species (salmon, shrimp, and tuna); fraud, mislabeling, and other failures to ensure traceability; exposés of human trafficking throughout the Thailand fishing industry, which is linked to the farmed shrimp industry in the U.S.; and threats to oceanic ecosystems that are clearly tied to climate change. For instance, a Dungeness crab fishery in California—which typically brings in \$60 million per year—could not open last fall because record temperatures in the Pacific Ocean led to an algae bloom. The algae produced a neurotoxin called domoic acid, which made its way up the food chain to crabs. On the East Coast, the collapse of Atlantic cod stocks was found to be linked to climate change.

Water

The picture for fresh water is no less troubling. The World Economic Forum has ranked water scarcity's impact on drinking water and global food security as the top threat facing the planet in the next decade. Severe drought conditions continued in much of the western U.S., and the impacts cost over 20,000 jobs and over \$2 billion in revenue to the California agricultural economy alone. Many agricultural leaders are rallying in response; for instance, the Almond Board of California started a new initiative to stimulate agricultural practices that manage water use more efficiently. However, most food companies have yet to fully engage in the pressing issues of water supply security, water quality protection, and water use reduction and reuse. A recent report found that only one-third of 37 large food companies consider water risks in their agricultural supply chain, and only two of those 37 were actively addressing the impacts of their operation on water quality. Clearly there is much to be done.

Overall, the industry is making slow but steady progress: 12 of 16 issues received a score of four (making good progress) or three (holding steady), and improvements were seen in improving diet quality, local food and the farm-to-table movement, supply chain resiliency and transparency, and healthy food versus healthcare spending and medical-culinary educational

alliances. Unfortunately, the industry took a step back with regard to fish, seafood, and oceans, and foodservice professionals continued to be underprepared for the impacts of climate change and water risks on their operations. Garnering the lowest scores of 1 and 2 respectively, these two areas remain of greatest concern.

STATE OF THE PLATE

How are we doing? Sometimes it's hard to tell. The Menu of Change Dashboard on the next page provides a snapshot of the foodservice industry's progress to improve nutrition, sustainability, and profitability. Its scores on critical issues that affect the foodservice industry are updated annually to show where progress is being made. It also creates a set of standards, which are designed to be used by businesses to judge their own efforts on health and sustainability.

Dashboard Score Key:

The score assigned to each issue indicates progress or lack thereof in the food industry and/or culinary profession over the last 12 months, as follows:

-  1: SIGNIFICANT DECLINE OR REGRESS
-  2: GETTING BETTER, BUT FAR FROM WHERE IT NEEDS TO BE
-  3. NO SIGNIFICANT PROGRESS
-  4. GOOD PROGRESS, WITH ROOM FOR MORE
-  5. SIGNIFICANT PROGRESS

METHODOLOGY

The scores were developed based on the expert opinions of the members of the Menu of Change Scientific and Technical Advisory Council, who considered new research findings and trend data as well as innovations and changes in business practices and policies. The information was then reviewed by members of the Menu of Change Sustainable Business Leadership Council to ensure they reflected new industry initiatives and practices.

ISSUE	SCORE 2016	SCORE 2015	SCORE 2014	SCORE 2013	JUSTIFICATION
INNOVATIONS IN THE FOOD INDUSTRY					Capital flows have increased into food and tech startups, with more focused on sustainability and health. The gap between the culinary and the tech worlds is narrowing.
SUPPLY CHAIN RESILIENCY AND TRANSPARENCY	+1/2				Supply chains remain vulnerable to fraud and contamination. More traceability is needed and leading companies are showing that higher standards can support customer, business, and environmental goals.
CHANGES IN INVESTMENT STANDARDS FOR THE FOOD INDUSTRY AMONG PROFESSIONAL INVESTORS					Investors in public companies now link stock performance with sustainability and rely on new disclosure tools and regulation. Investment is also increasing for newer companies that feature plant-forward concepts and sustainable supply chains.
CHEFS' INFLUENCE ON CONSUMER ATTITUDES					Many chefs and foodservice leaders are offering plant-forward options, including new full-service and fast-casual operations. Additional focus is needed on portion size, nutrition, and plant-based proteins.
CONSUMER ATTITUDES AND BEHAVIORS ABOUT HEALTHY AND SUSTAINABLE FOOD					Even consumers motivated to make healthier food choices can't help but be confused given the steady barrage of inconsistent advice and media coverage.
LOCAL FOOD AND THE FARM-TO-TABLE MOVEMENT	+1/2				Federal and local policies finally are supporting local and regional food. Hopefully, this will enable farmers, chefs (and other buyers), and consumers to accelerate growth in segments devoted to producing and consuming "good food."
ANIMAL WELFARE					Awareness is rising about animal welfare problems in the livestock industry. A growing group of producers is employing better practices, and both public and private sector policies are improving. But substantial room for improvement remains.
DIET AND HEALTH: RECENT TRENDS	+1/2				Modest improvements toward healthier diets include a large reduction in the intake of trans fats, an important reduction in sugar-sweetened beverages, modest reduction in red and processed meat, and a small increase in whole fruits, whole grains, healthy fats, and nuts and legumes.
PORTION SIZE AND CALORIC INTAKE				N/A	Public sentiment suggests a turning point, with interest in whole/minimally processed foods rising. The 2015 Dietary Guidelines for Americans includes a new emphasis on restricting sugar intake and lifting the upper limit on fat. Yet, a more fundamental focus on food (or calorie) quality, not just quantity, is still needed.
PROTEIN CONSUMPTION AND PRODUCTION					Red meat production and consumption in the U.S. is declining moderately. Exclusion of sustainability from the final Dietary Guidelines for Americans is a missed opportunity to better align human and environmental health aspects of our collective diet.
FRUIT AND VEGETABLE CONSUMPTION AND PRODUCTION			N/A	N/A	Though public interest and government initiatives have increased, long-term trends have not been reversed, and fruit and vegetable consumption still fails to meet recommended levels. Efforts have not yet achieved sufficient scale, and they are stalled by public policy and the associated high produce prices.
FISH, SEAFOOD, AND OCEANS	+1/2				There are multiple public and private efforts to improve seafood sustainability, and standards have emerged for both wild and farmed products. Work to lessen the environmental footprint of seafood is positive, but substantial exceptions persist, and issues of slavery and mislabeling are concerning.
CLIMATE CHANGE					Climate change continues to affect every aspect of the food system, through temperature and precipitation impacts on food production, transportation, refrigeration, and processing facilities. But the food sector continues to be a major contributor, and it will become only more difficult to adapt.
WATER SUSTAINABILITY				N/A	The food and foodservice industry is beginning to pay attention to water issues as drought and groundwater depletion affect profits and water scarcity is recognized as a global crisis. Consuming less meat and more hardier greens helps, but these trends do not yet reflect broad-ranging, conscious efforts by the industry as a whole.
AGRICULTURE, DRUGS, AND CHEMICALS USE				N/A	A growing number of mainstream foodservice companies are committing to reduce antibiotics in their supply chains and use "clean" ingredients. Although the regulatory progress has slowed, antibiotic resistance is gaining attention at the international level, including from the World Health Organization.
HEALTHY FOOD VS. HEALTHCARE SPENDING AND TRENDS IN MEDICAL-CULINARY EDUCATIONAL ALLIANCES					Innovative, interdisciplinary programs are being launched with increased frequency by high visibility organizations and institutions. Many of these are starting to link healthcare and healthy eating with culinary education.

OUR VISION



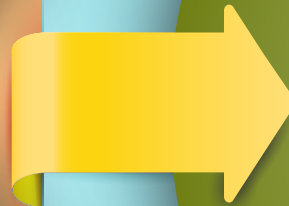
OUR VISION



HEALTHY, SUSTAINABLE,
AND DELICIOUS



BUSINESS MODELS
AND STRATEGIES



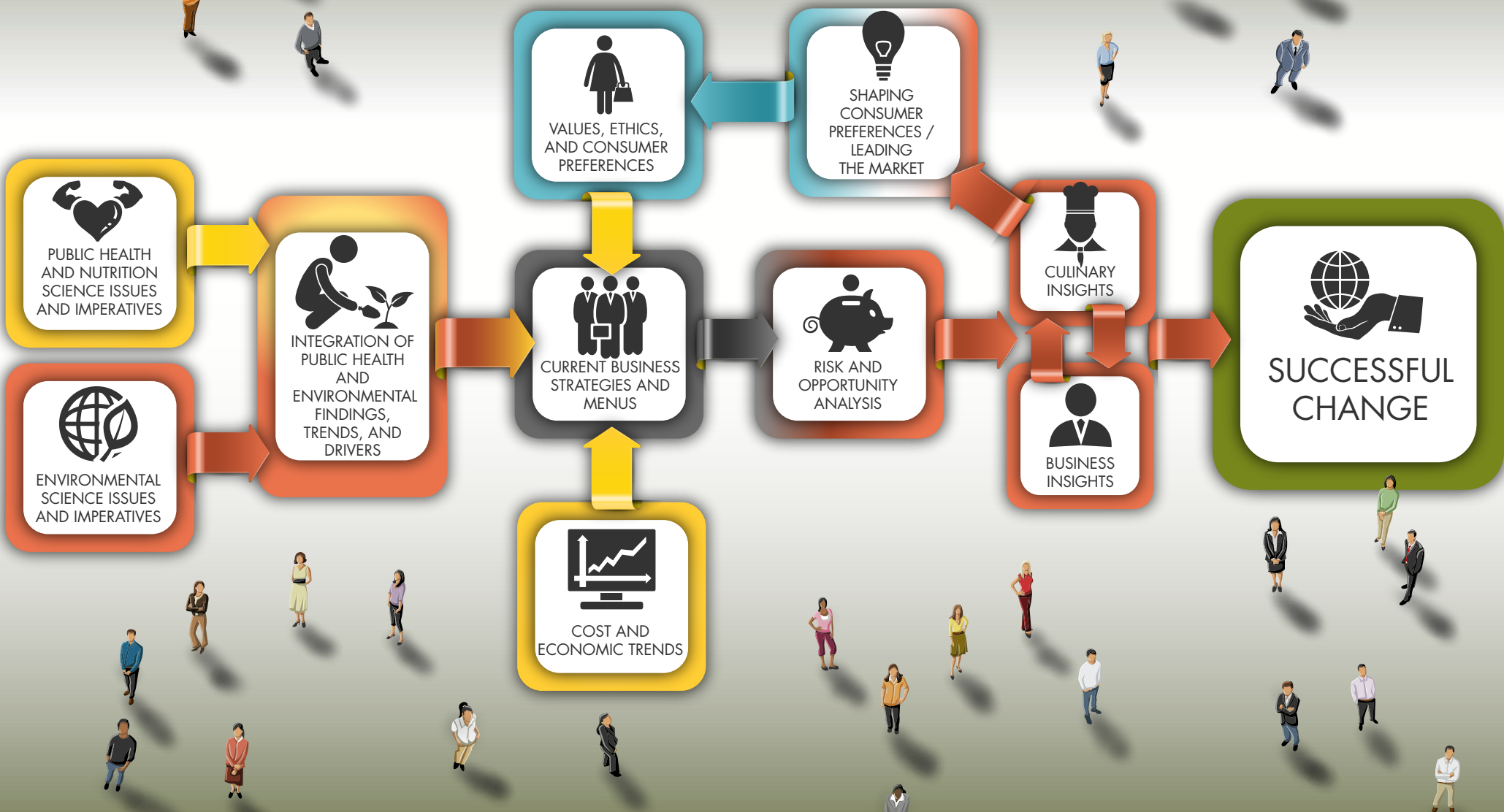
MENUS^{of} CHANGE[®]

The Business of Healthy, Sustainable, Delicious Food Choices

THE FUTURE OF FOOD

INTEGRATED GUIDANCE FOR
BUSINESS AND CULINARY LEADERS

GPS: A MODEL FOR CHANGE





VII. PRINCIPLES OF HEALTHY, SUSTAINABLE MENUS

Consumers say they want food that is healthier, sustainable, and ethically sourced, but figuring out which foods to eat is often not easy. As a result, the dining public is looking to chefs and food industry leaders to help them make the “right” choices. Culinary professionals are responding. But giving people what they want isn’t always easy either. Some diners believe that foods advertised as “farm-to-table” or certified with sustainability labels are also healthier. While customers don’t always purchase what they say they want, these trends are profoundly changing the landscape of the foodservice business.

The **Principles of Healthy, Sustainable Menus** represent unique guidance for the foodservice industry. They incorporate findings from nutrition and environmental science perspectives on optimal food choices, trends in consumer preferences, and impacts of projected demographic shifts in order to provide culinary insight and menu strategies that build on promising innovation already occurring in the sector.

The principles anticipate that fast-moving, mid- and long-term global trends—from continued population growth and increasing resource shortages to commodity price spikes and food security issues—will increasingly reframe how we think about food and foodservice in the United States. They also consider that the rise in diet-related chronic diseases suggests that many of today’s food and foodservice business models cannot remain unchanged for the long term. They outline pivotal culinary strategies designed to increase the odds that customers will reward pioneering and innovative restaurants and other industry operations with their business.

In short, the Menus of Change Principles offer a guide to optimal menu design and innovations for future culinary development to promote the foodservice industry’s abundant creativity and entrepreneurial dynamism in support of a future of tremendous opportunity.

Collectively, these principles and strategies also speak to our most vulnerable members of society. Chefs who are inspired by the possibility of delicious, healthy, and sustainable foods are working to make these flavors more accessible across America, in K-12 schools, in hospitals, and in low-income neighborhoods. Without the benefit of culinary expertise and insight, a focus on inexpensive ingredients can often be a recipe for failure, whether the customer is a child or an adult, middle-class or economically disadvantaged, healthy or sick.

Finally, the Menus of Change Principles have not been chiseled in stone; rather, they are designed to be part of an interactive, cooperative, and evolving process. As science progresses, trends shift, and new opportunities and challenges come to light, we will revisit and revise this document annually. Please join the conversation at the annual Menus of Change Leadership Summit or online to help us further strengthen this essential guidance for the foodservice sector. You can reach us at info@menusofchange.org.

For additional guidance on sustainability and nutrition science-based dietary advice, consult the CIA-Harvard Chan School Menus of Change website, menusofchange.org and Harvard Chan School’s Nutrition Source website, nutritionsource.org, which includes additional CIA-Harvard Chan School integrated dietary information and culinary strategies.

OUR APPROACH: DIVERSITY OF STRATEGIES

Any approach to providing guidance on nutrition, the environment, and culinary insight to business leaders must recognize that America’s \$780 billion foodservice industry is as diverse as it is large and omnipresent in our culture. Customers, quite apart from their interest in health, sustainability, or food ethics, look to different kinds of operations to fill a variety of needs and interests. Appetites and preferences vary, depending on whether the meal is a workplace lunch, a mid-week dinner with the family, a snack on the run, or a celebratory occasion. What a diner or a family chooses to eat and order in a single instance is

less important for their health and the environment than the aggregate pattern over days and weeks. Chefs and the foodservice industry have an enormous opportunity to embrace change, while still preserving a wide range of options for an American public that often wants someone else to do the cooking. These principles and strategies, together with the *Menus of Change Annual Report*, are intended to support innovation on the part of operators and entrepreneurs wherever they are positioned in the industry, and help connect them with their aspirations and their unique views of imperatives and opportunities.



MENU CONCEPTS AND GENERAL OPERATIONS

1. Be transparent about sourcing and preparation.

Providing customers with abundant information about food production methods, sourcing strategies, calorie and nutrient values, labor practices, animal welfare, and environmental impacts is a necessity in our technology-driven and networked era. Consumer engagement is driven by the rise in food safety and fraud alerts, a growing interest in sustainability and food ethics, and a hyper-connectivity that yields instant access to information such as impending crop failures or the latest farm-labor conditions across global supply chains. Consumers can learn about what they eat regardless of what chefs and businesses share. Given that, food operators can build trust by learning about environmental and social issues in the food system and sharing information about their own practices. Identifying the farms that grow key ingredients, for example, is a strategy that creates value and brand identity and one that is quickly becoming a standard practice. Going further and explaining how food is produced and the rationale for sourcing decisions are the next steps, while limiting or restricting information on hot-button consumer issues such as calories, trans fats, genetically modified ingredients, or processing methods are approaches not likely to survive over the long term. Operators who do not adjust business models and strategies to anticipate the impacts of this accelerating trend risk disappointing the dining public and having to play costly catch-up as such issues assume greater urgency with the public.

2. Buy fresh and seasonal, local and global.

For chefs, peak-of-season fruits and vegetables can help create unbeatable flavors—and marketing opportunities. When designing menus, draw ideas and inspiration from local farmers and their crops during your growing season as well as the varieties and growing seasons of more distant regions. The advantages of local sourcing include working with smaller producers who may be more willing to experiment with varieties that bring interest and greater flavor to the table. A focus on local foods also can play an important role in building community by encouraging school children, retailers, media, and others to learn how to grow food, steward the land, and adopt healthier eating habits. But designing menus to draw on in-season fruits and vegetables from more distant farms also is a key strategy for bringing fresh flavors to menus throughout the year.

3. Reward better agricultural practices.

Sourcing sustainably grown foods is complex, but there is one important rule of thumb. The environmental cost of food is largely determined by how it is produced. The best farms and ranches protect and restore natural systems through effective management practices, such as choosing crops well-suited for their local growing conditions, minimizing use of synthetic pesticides and fertilizers, and avoiding the use of groundwater for irrigation. Better-managed farms sometimes qualify for organic or other sustainable-farming certifications. But many—including smaller farms—simply adopt better practices. The most powerful strategies for supporting better farms include aligning menus to emphasize fresh foods during the peak of their local growing season and shifting purchases toward farms that have responsible management programs.

4. Leverage globally inspired, plant-based culinary strategies.

Scientific research suggests that the most effective way to help diners make healthy, sustainable food choices is to shift our collective diets to mostly plant-based foods. Growing plants for food generally has less of a negative impact on the environment than raising livestock, as livestock have to eat lots of plants to produce a smaller amount of food. In fact, no other single decision in the professional kitchen—or in the boardrooms of foodservice companies—can compare in terms of the benefits of advancing global environmental sustainability. From the well-researched Mediterranean diet to the cuisines of Asia and Latin America, traditional food cultures offer a myriad of flavor strategies to support innovation around healthy, delicious, even craveable cooking that rebalances ratios between foods from animal and plant sources.

5. Focus on whole, minimally processed foods.

In general, consumers and chefs should first focus on whole, minimally processed foods. Such foods are typically higher in micronutrient value and less likely to contain high levels of added sugars, saturated or trans fats, and sodium. (Indeed, nearly three-quarters of the sodium in the U.S. food supply is estimated to come from processed foods.) Whole, minimally processed foods are also typically slowly metabolized, preventing sharp increases in blood sugar that over time may lead to insulin resistance.

That said, some minimally processed foods—low-sodium tomato paste, wine, nut butters, frozen fruits and vegetables, mayonnaise, dark chocolate, canned low-sodium beans, 100 percent whole-grain crackers, fresh-cut vegetables, spice mixtures, yogurt, reduced sodium sauces, many kinds of canned fish and shellfish, among other things—can be incorporated into healthy meals. Processing can also be used to extend the season of local and sustainably grown produce and to make use of cosmetically imperfect foods, especially produce.

6. Grow everyday options, while honoring special occasion traditions.

The foodservice industry historically developed around special occasion dining. Today's industry, however, is increasingly responsible for providing everyday food choices to a substantial segment of the U.S. population. From a health and environmental perspective, there will always be room in the industry for indulgence and special occasion foods. However, the real opportunity in menu and concept development is the expansion of everyday food and menu choices that embrace current nutrition and environmental science, as well as emerging consumer values about how food is produced.

7. Lead with menu messaging around flavor.

To sell healthy and sustainable food choices, lead with messages about flavor, rather than actively marketing health attributes. Research shows that taste trumps nearly all, even if customers want chefs, on some level, to help them avoid foods that increase their risk of chronic disease. Messages that chefs care and are paying attention to how and from whom they are sourcing their ingredients—such as by naming specific farms and growing practices (e.g., organic)—can enhance perceptions of healthier food choices (if, in fact, these choices are healthier—i.e., that they are also consistent with guidance for optimal nutrition).

8. Reduce portions, emphasizing calorie quality over quantity.

Moderating portion size is one of the biggest steps foodservice operators can take towards reversing obesity trends and reducing food waste. This is different than offering

multiple portion sizes, as many diners “trade up” to bigger portions, which they see as offering greater value.

Consider menu concepts that change the value proposition for customers from an overemphasis on quantity to a focus on flavor, nutrient quality, culinary adventure, new menu formats, and the total culinary and dining experience (thereby mitigating potential downward pressure on check averages). Calorie quality is also important. Dishes should feature slowly metabolized whole grains, plant proteins including nuts and legumes, and healthy oils that promote lasting satiety and create great flavors.

9. Celebrate cultural diversity and discovery.

Our respect for cultural diversity and the savoring and preservation of family traditions and centuries-old food cultures are as vital as our public health and environmental sustainability. Fortunately, these imperatives are compatible with the Principles of Healthy, Sustainable Menus. Chefs collaborating with nutrition experts and public policy leaders need to reimagine the role of less healthy, culturally based food traditions by limiting portion size, rebalancing ingredient proportions, or offering them less often. At the same time, many chefs are reporting greater success from introducing new, healthier and more sustainable menu items instead of reconfiguring existing items. Emerging demographic changes and greater global connectivity are making the American palate more adventurous, giving foodservice leaders a long-term opportunity for creative menu R & D.

10. Design health and sustainability into operations and dining spaces.

Food and menu design are not the only ways to advance sustainability in foodservice. Choices that affect the way restaurants and other foodservice operations are designed, built, and operated are also important. These include imagining kitchens that support the optimal preparation of fresh, healthy foods and selecting energy- and water-efficient equipment and environmentally friendly building materials. As behavioral economics studies have shown, dining-room operations and foodservice eating spaces also deserve more attention: design, set-up, service, and communication strategies can all lead consumers towards healthier, more sustainable choices.

FOODS AND INGREDIENTS

1. Think produce first. Focus on fruits and vegetables first—with great diversity across all meals and snacks. Recognize that customers aren't eating nearly enough, when instead they should be filling half their plates with produce. Menus should feature green leafy vegetables and a mix of colorful fruits and vegetables daily. Fruit is best consumed whole or cut, fresh and in season, or frozen and preserved without added sugar or salt. Fruit juice often contains healthy micronutrients, but it also packs a large amount of fast-metabolizing sugar and should be limited to one small glass per day. Dried, unsweetened fruit is also a good choice; though it contains natural sugars, it also contains fiber, which can mitigate negative blood sugar response.

2. Make whole, intact grains the new norm. Menus should offer and highlight slow-metabolizing, whole and intact grains, such as 100 percent whole-grain bread, brown rice, and whole grain/higher protein pasta. Use white flour and other refined carbohydrates sparingly, as their impacts on health are similar to those of sugar and saturated fats. Ideally, new menu items should emphasize whole, intact, or cut—not milled—cooked grains, from wheat berries and oats to quinoa, which can be used creatively in salads, soups, side dishes, breakfast dishes, and more. In baking, blend milled whole grains with intact or cut whole grains to achieve good results.

3. Limit potatoes. Potatoes have rapid metabolizing impacts on blood sugar, which is of special concern as they are regularly used as a starch to fill plates. Chefs can limit their use of potatoes by combining small portions of them with other, non-starchy vegetables or featuring them as an occasional vegetable, as they do green beans, broccoli, carrots, and peppers. Chefs should also consider healthier alternatives including sweet potatoes, which are rich in beta-carotene and other vitamins, and healthier side dishes that highlight fruits, vegetables, whole grains, legumes, and nuts.

4. Move nuts and legumes to the center of the plate. Nuts and legumes are full of flavor, contain plant protein, and are associated with increased satiety. Nuts contain beneficial fats, while legume crops contain fiber and slowly metabolized

carbohydrates. Legumes also are renowned for helping to replace nitrogen in the soil and produce impressive quantities of protein per acre. Nuts (including nut butters, flours, and milks) and legumes (including soy foods and legume flours) are an excellent replacement for animal protein. They also are a marketable way to serve and leverage smaller amounts of meat and animal proteins.

5. Choose healthier oils. Using plant oils and other ingredients that contain unsaturated fats, such as canola, soy, peanut, and olive oils, as well as featuring fish, nuts, seeds, avocados, and whole grains, are simple ways to create healthier menus. Research shows that reducing saturated fat is good for health if replaced with “good” fats, especially polyunsaturated fats, instead of refined carbohydrates such as white bread, white rice, mashed potatoes, and sugary drinks. High-flavor fats and oils that contain more saturated fat—including butter, cream, lard, and coconut oil—can have a place in healthy cooking if used only occasionally in limited, strategic applications. Trans fats from partially hydrogenated vegetable oils, now labeled a “metabolic poison” by leading medical scientists, have no place in foodservice kitchens.

6. Go “good fat,” not “low fat.” Current nutrition science reverses the mistaken belief that we need to limit all fat. Moderate and even high levels of beneficial fats in the diet—from (most) non-hydrogenated plant oils, nuts, nut butters, avocados, and fish—are associated with optimal nutrition and healthy weight. Beneficial fats paired with an abundance of vegetables, whole grains, legumes, and nuts can give our diets a baseline of slow-metabolizing, healthy foods, which are associated with increased satiety. A more liberal usage of healthy fats, offering the potential to deliver high-impact flavors, might represent the difference between consumers liking—or not liking—healthier and more environmentally friendly foods. Even small, occasional servings of deep-fried foods and condiments are appropriate offerings if operators use healthy, non-hydrogenated oils, and avoid potatoes, breadings, and other refined carbohydrates in favor of fish, vegetables, legumes, and legume flour. Research confirms that the vast majority of people report better adherence to a moderate- or higher-fat, healthy diet.

7. Serve more kinds of seafood, more often. Seafood is an important part of a healthy diet, and most Americans don't eat the recommended one to two servings per week of fatty fish, which contain higher levels of health-promoting omega-3s. However, the focus on just a few species is emptying parts of the oceans of popular types of seafood such as cod and tuna and now also fish like menhaden that are a key ingredient in feed for some types of farm-raised fish. Scientific studies have found that the benefits of eating seafood greatly outweigh the risks and that removing or reducing seafood from the diet can have negative effects on health. Serving more seafood more often from responsibly managed sources is the priority. Chefs can have a positive impact on the environment and public health by expanding their understanding of how to source and use a greater variety of responsibly managed and underutilized wild-caught and farm-raised fish and shellfish.

8. Reimagine dairy in a supporting role. While there is tremendous innovation underway to improve dairy production and its impact on the environment, the nutrition science on dairy is still unsettled and evolving. Current research suggests that it seems prudent for individuals to limit milk and dairy to one to two servings per day. Chefs should leverage the flavor of cheese (high in saturated fat and sodium) in smaller amounts and minimize the use of butter. Yogurt (without added sugar) is a good choice for professional kitchens, as its consumption is associated with healthy weight.

9. Use poultry and eggs in moderation. Chicken and other poultry in moderation is a good choice for healthier protein with a far lower environmental footprint than red meat. Chefs should avoid or minimize the use of processed poultry products, which are high in sodium, often as a result of sodium pumps and brining. Eggs in moderation—an average of one per day—can be part of a healthy diet for most people. Creative menu items that mix whole eggs and egg whites for omelets, and eggs with vegetables, are ideal.

10. Serve less red meat, less often. Red meat—beef, pork, and lamb—can be enjoyed occasionally and in small amounts. Current guidance from nutrition research recommends consuming a maximum of two 3-ounce servings per week. Chefs and menu developers can rethink how meat is used by featuring it in smaller, supporting roles to healthier plant-based choices, and experimenting with meat as a condiment. From at least some environmental perspectives (e.g., GHGE, feed efficiency ratio), pork is the better choice among red meats (though not distinguishable from a nutritional perspective). Saturated fat is one health concern associated with red-meat consumption, but it's not the only issue. Chefs should strive to limit bacon and other processed and cured meats, which are associated with even higher incidence of chronic disease than unprocessed red meats. Many diners choose to splurge on red meat when they eat out, and there will always be an appropriate place for meat-centered dishes. But chefs can help to shift eating patterns by building a sense of theater and value in menu concepts that don't rely so heavily on a starring role for animal protein. For example, they might offer delicious meat/vegetable and meat/legume blends, or smaller tasting portions of red meat as part of vegetable-rich, small-plate formats.

11. Reduce added sugar. Consumers crave sugar, and the foodservice industry responds by selling processed foods and sweets that are loaded with it. But sugar's role in spiking blood-sugar levels and increasing rates of Type 2 diabetes and other chronic diseases means that professional kitchens should substantially restrict its use. Various strategies include: choosing processed foods with little or no added sugar; favoring healthy oils over sugar in products such as salad dressings; featuring smaller portions of dessert augmented with fruit; and substituting whole, cut, and dried fruit for sugar in recipes. There is nothing wrong with an occasional dessert; but pastry chefs and dessert specialists need to take up the challenge to create sweets centered on whole grains, nuts, dark chocolate, coffee, fruit, healthy oils, yogurt, small amounts of other low-fat dairy and eggs, and, as appropriate, small amounts of beverage alcohol—with the addition of only small to minimal amounts of sugar and refined carbohydrates.

12. Cut the salt; rethink flavor development from the ground up. The foodservice and food-manufacturing sectors have long been too reliant on salt to do the heavy lifting to create high flavor impact and customer satisfaction. Single items, such as a sandwich or entrée, might contain more than 2,500 milligrams of sodium, well above the current maximum recommended intake of 1,500 milligrams to 2,300 milligrams for the entire day. Chefs should focus on a range of other strategies to deliver flavor including: sourcing the best-quality, high-flavor produce; working with spices, herbs, citrus, and other aromatics; and employing healthy sauces, seasonings, and other flavor-building techniques from around the world. Many chefs are finding success in focusing their innovation where they have the highest aggregation of sodium (e.g., processed meats, cheese, and bread) in a single menu item. Others are making progress in implementing an across-the-board incremental 10 to 20 percent sodium reduction in their preparations. Still others are focusing on collaborating with manufacturing partners to reduce sodium using alternative strategies to create desired flavors and textures.

13. Substantially reduce sugary beverages; innovate replacements. A drastic reduction in sugary beverages represents one of the biggest opportunities for foodservice operators to help reverse the national obesity and diabetes epidemics. Sugary beverages add no nutritional value and contribute negligible satiety. Yet they are a prime source of extra calories in the diet and a principal contributor to the development of Type 2 diabetes, heart disease, and other chronic conditions.

Smaller portion sizes and less frequent consumption are steps in the right direction, but nowhere in foodservice is there a greater need of creative, “disruptive” innovation than in the challenge to replace current soda and sugary beverage formulations with more healthful options. Operators should diligently research, support, and promote the products of entrepreneurs and emerging and established brands that are rapidly developing beverage solutions in this important area. Diet sodas and other diet beverages, though lower in calories, may reinforce an aggregate preference for sweet flavors, potentially driving down the appeal of vegetables and other healthy foods. As such, they should be consumed in smaller portions less frequently.

14. Drink healthy: from water, coffee, and tea to, with caveats, beverage alcohol. Water is the best choice to serve your customers, either plain or with the addition of cut-up fruit, herbs and aromatics, or other natural flavors—but no sugar. Served plain, coffee and tea are calorie-free beverages containing antioxidants, flavonoids, and other biologically active substances that may be good for health. Wine, beer, and other beverage alcohol present a more complicated story of benefits for many individuals, with some offsetting risks. Current nutrition guidance suggests a maximum of two drinks per day for men, and one drink per day for women.

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