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# **THE PROTEIN FLIP**

## **A DELICIOUS STRATEGY FOR CHANGE**

**TRANSFORMING PROTEIN MENU CONCEPTS**  
FOR THE HEALTH OF OUR CUSTOMERS AND OUR PLANET

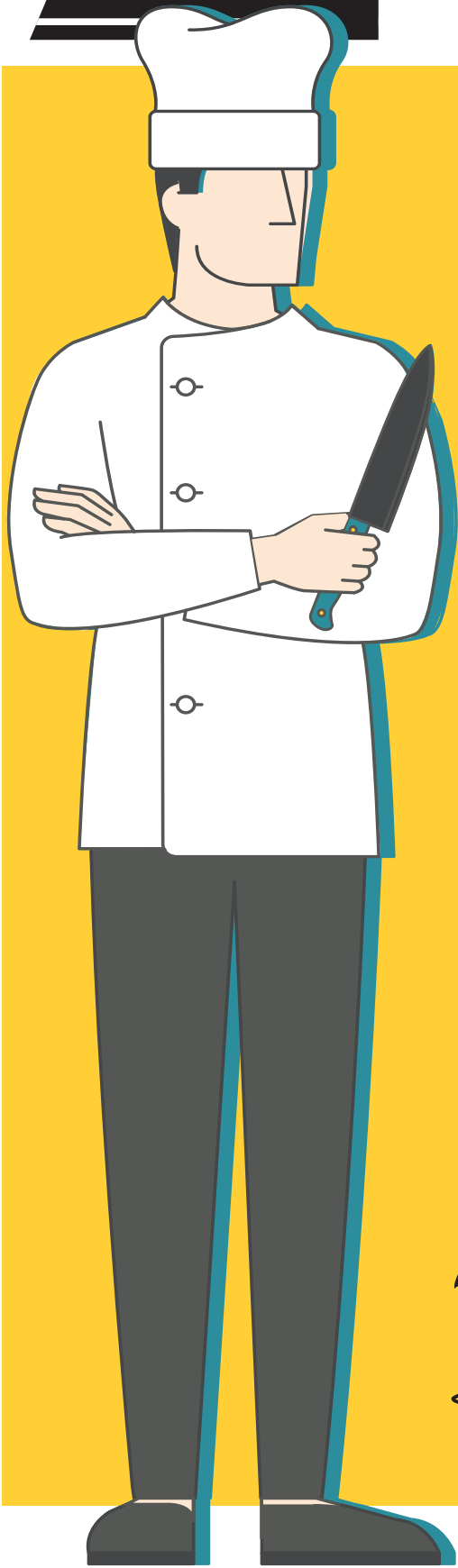
**MENUSOFCHANGE.ORG**

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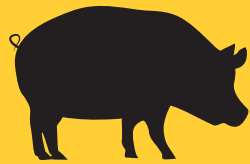
HOW CAN CHEFS INSPIRE STRATEGIES  
TO FEED A WORLD OF 9-10 BILLION?



**CHEFS CAN MAKE A TREMENDOUS  
IMPACT ON HUMAN AND PLANETARY  
HEALTH THROUGH THE PROTEIN FLIP.**



Instead of feeding plants and grains to animals, feed them directly to diners...with much smaller amounts of accompanying animal protein.



Ask: "What level of global animal agricultural production in 2050 supports optimal public health and is environmentally sustainable?"



And: "How do we enlist chefs, behavioral specialists, and visionaries in design thinking and marketing to create patterns of food choices, dishes, and menus that flip the role of protein and fully meet consumer acceptance?"



It's also time for chefs to leave behind the habit of using "protein" as a synonym for "meat." Cultural shifts like these in the chef community can help broaden the general mindset about protein in the U.S.

## PRINCIPLES OF HEALTHY, SUSTAINABLE MENUS

**MENUS *of* CHANGE**

The Business of Healthy, Sustainable, Delicious Food Choices

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**HARVARD  
T.H. CHAN**

SCHOOL OF PUBLIC HEALTH  
Department of Nutrition

This strategy document highlights why it is essential to re-imagine the role of protein in foodservice, and how to do so in inventive ways that appeal to diners.

This resource is part of a broader educational effort to help chefs and the foodservice industry stay ahead of health and environmental issues and trends that are reshaping our future. Read the [Menus of Change Principles of Healthy, Sustainable Menus](#) here.

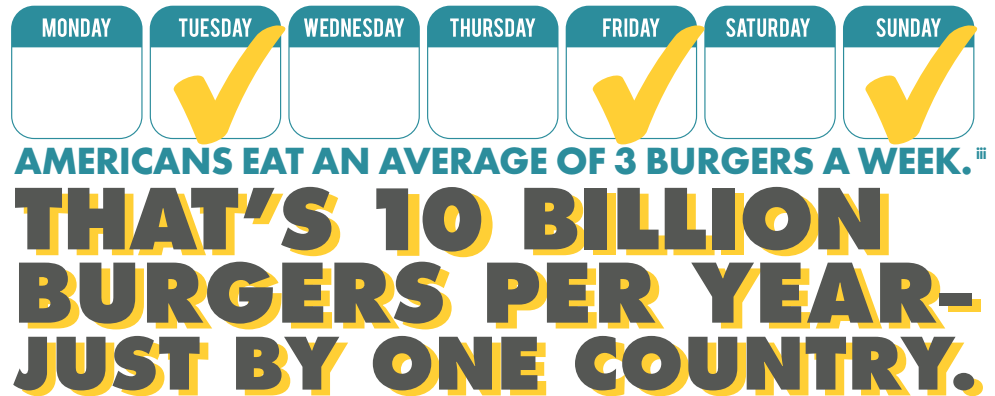
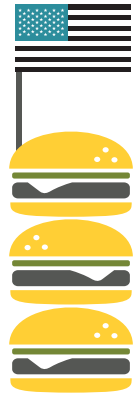
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Much attention is given to the increasing rates of meat consumption in the developing world – but Americans can be a big part of the solution:

AMERICANS EAT **3X AS MUCH MEAT** (RED MEAT AND POULTRY) AS THE GLOBAL AVERAGE. **OVER HALF IS RED MEAT.**<sup>ii</sup>



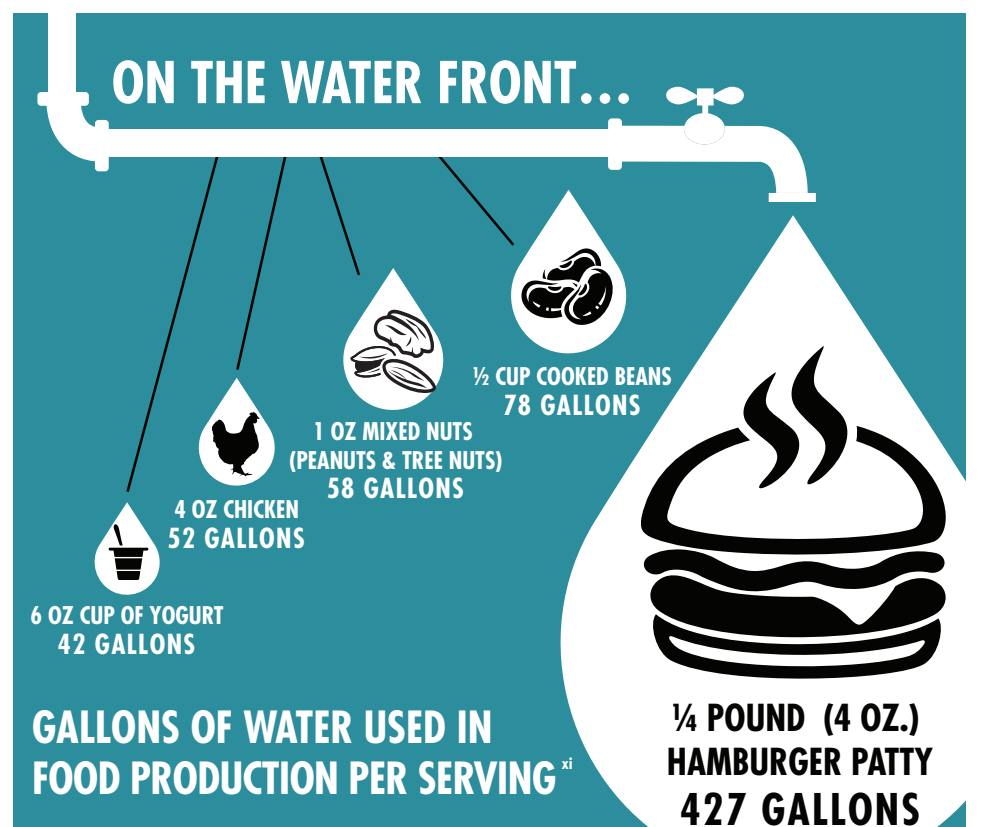
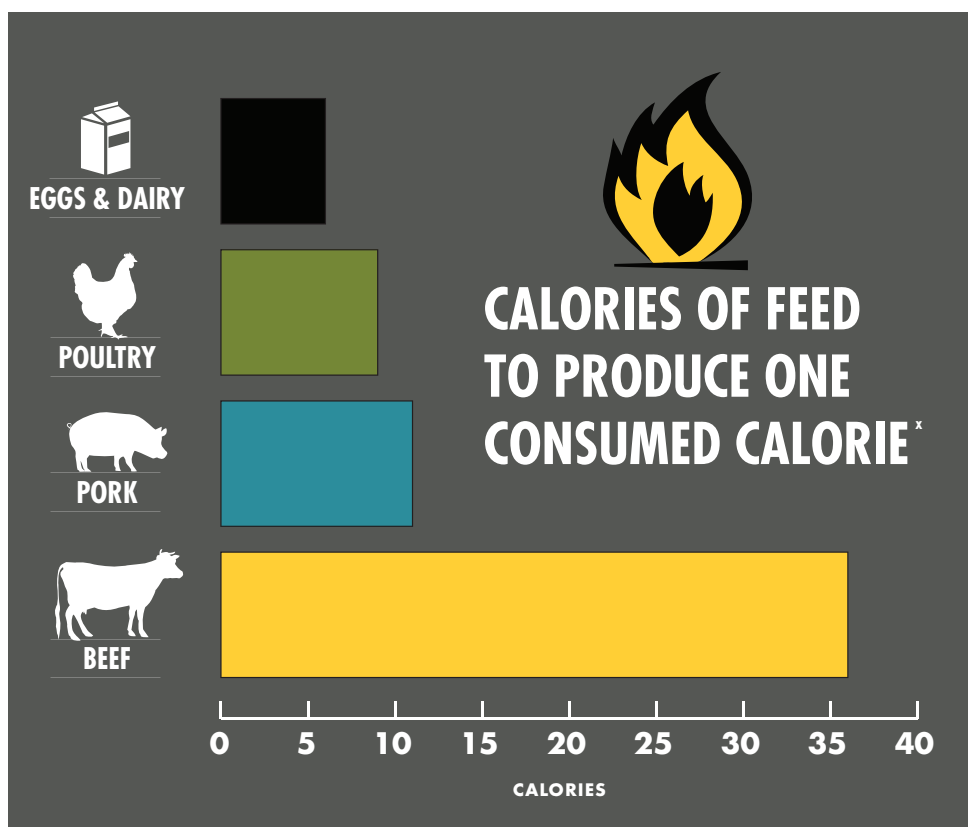
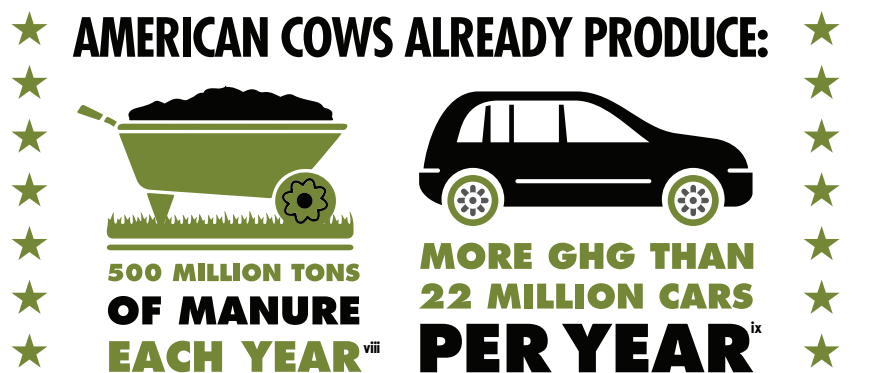
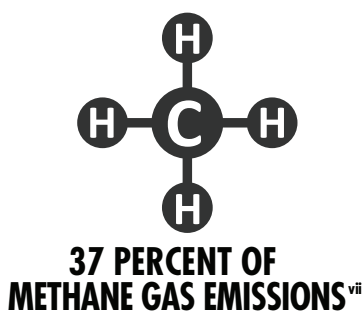
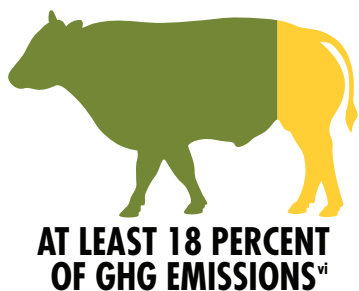
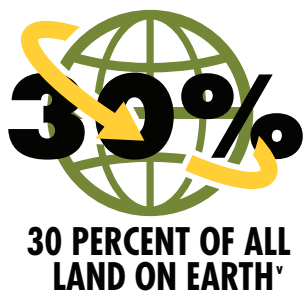
WHAT IF WE ALL ATE ONE LESS BURGER PER WEEK? OR A DIFFERENT KIND OF BURGER?

What if we did even more: reducing our consumption of red meat to a few ounces per week and switching to other animal and plant proteins with smaller environmental footprints?

**WHY IS THIS AN ISSUE?**

IF WORLDWIDE DEMAND FOR LIVESTOCK PRODUCTS CONTINUES ON ITS CURRENT COURSE, IT COULD INCREASE 70 PERCENT BY 2050.<sup>iv</sup>

LIVESTOCK PRODUCTION IS ALREADY ASSOCIATED WITH:



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## MEAT AND THE HEALTHCARE CRISIS



### CURRENT SITUATION:

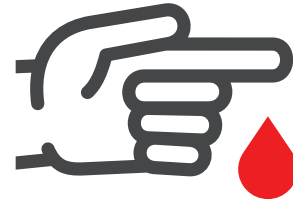
Higher intake of red meat, irrespective of its total fat content, increases risk of...



HEART DISEASE



STROKE



DIABETES

...when compared to poultry, fish, eggs, nuts, or legumes.<sup>xiii</sup>

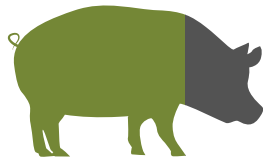
**BETTER SITUATION:** NEARLY ONE IN 10 PREMATURE DEATHS COULD BE PREVENTED IN THE U.S. IF AMERICAN ADULTS WERE TO CUT THEIR CURRENT RED MEAT CONSUMPTION TO LESS THAN HALF A SERVING PER DAY.<sup>xiv</sup>



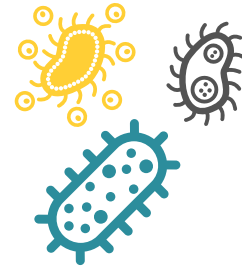
### CURRENT SITUATION:



In 2010, twice as many tons of antibiotics were used around the globe to raise cows, chickens, and pigs than to treat human infections.<sup>xv</sup>

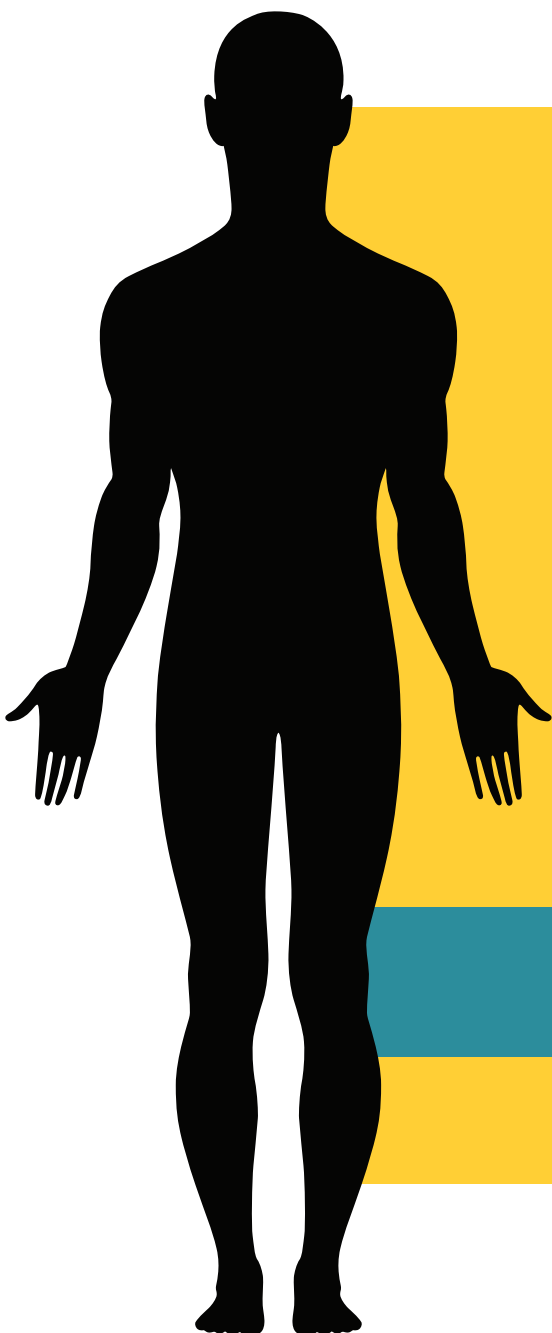


Researchers project a 2/3 increase in antibiotics consumption by humans by 2030 as a result of increased livestock consumption.<sup>xvi</sup>

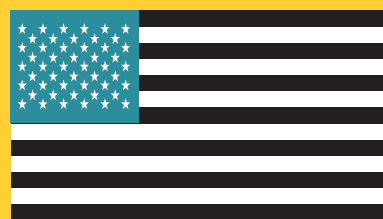


Increased antibiotic use in livestock production is partially behind the growth of drug-resistant pathogens.

**BETTER SITUATION:** FEWER ANIMALS PACKED TIGHTLY TOGETHER IN CONFINED FEEDING OPERATIONS = FEWER DISEASES AND DECREASED NEED FOR ANTIBIOTICS.



PROTEIN PLAYS MANY CRITICAL ROLES IN OUR BIOLOGICAL FUNCTIONS, OPTIMAL PERFORMANCE, AND SATIETY. BUT HOW MUCH DO WE NEED?



THE AVERAGE AMERICAN CONSUMES AN ESTIMATED 111 GRAMS PER DAY.<sup>xvii</sup>

The **RECOMMENDED** dietary allowance (RDA) of protein for adults is:



46 GRAMS/DAY FOR WOMEN



58 GRAMS/DAY FOR MEN

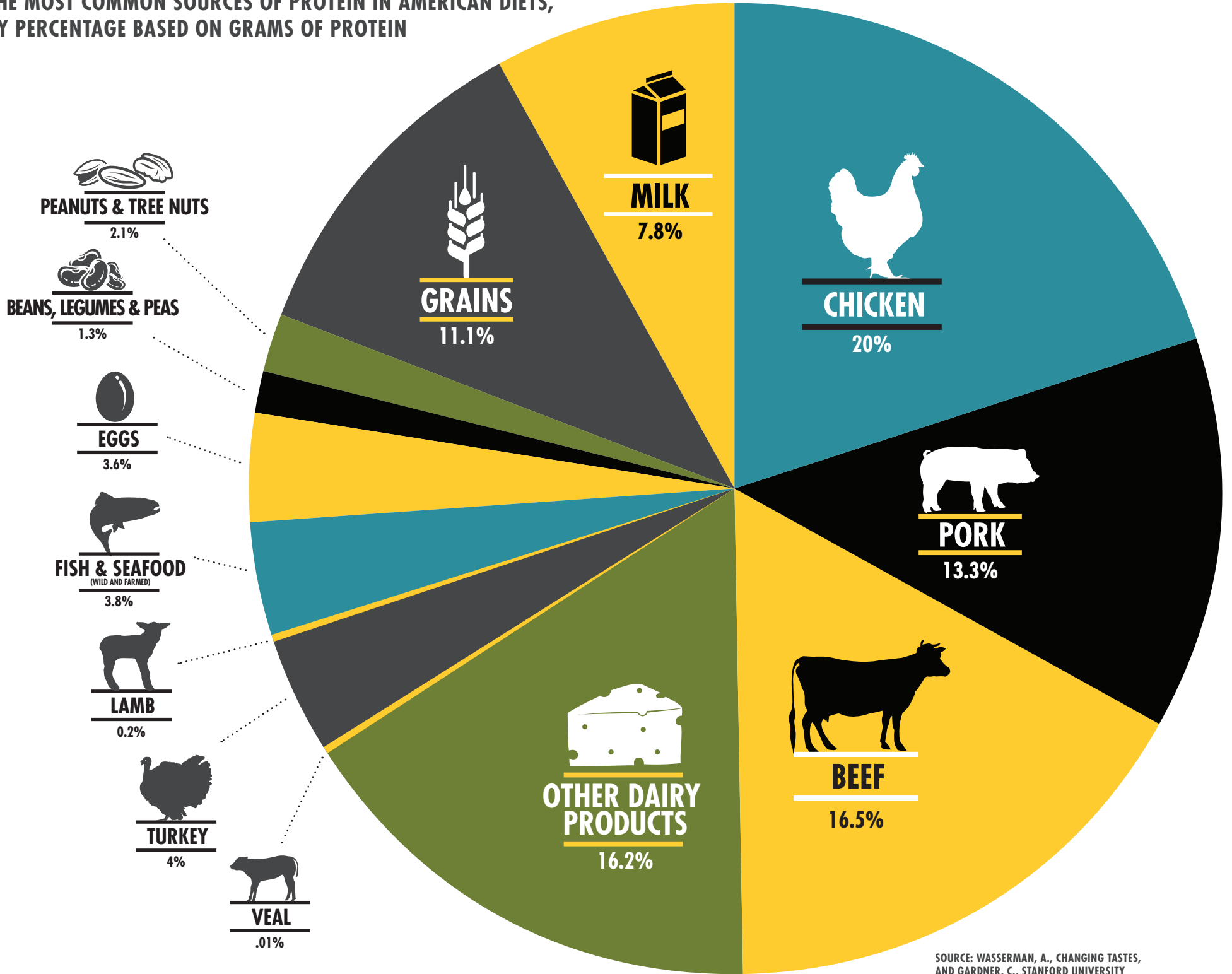
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**IN THE U.S., ANIMAL SOURCES ACCOUNT FOR AS MUCH AS 85% OF THE PROTEIN WE EAT<sup>xviii</sup>**

THE MOST COMMON SOURCES OF PROTEIN IN AMERICAN DIETS, BY PERCENTAGE BASED ON GRAMS OF PROTEIN



**WE LARGELY MISS OUT ON A WHOLE WORLD OF PLANT PROTEINS**



WHEN YOU REACH FOR PLANT PROTEIN CHOICES—BEANS, PEAS, AND OTHER LEGUMES, NUTS AND NUT BUTTERS, SEEDS, AND SOY FOODS—REMEMBER THAT MANY WHOLE GRAINS, VEGETABLES, AND FRUITS CAN ALSO MAKE MEANINGFUL CONTRIBUTIONS TO YOUR CUSTOMERS' DAILY PROTEIN NEEDS.

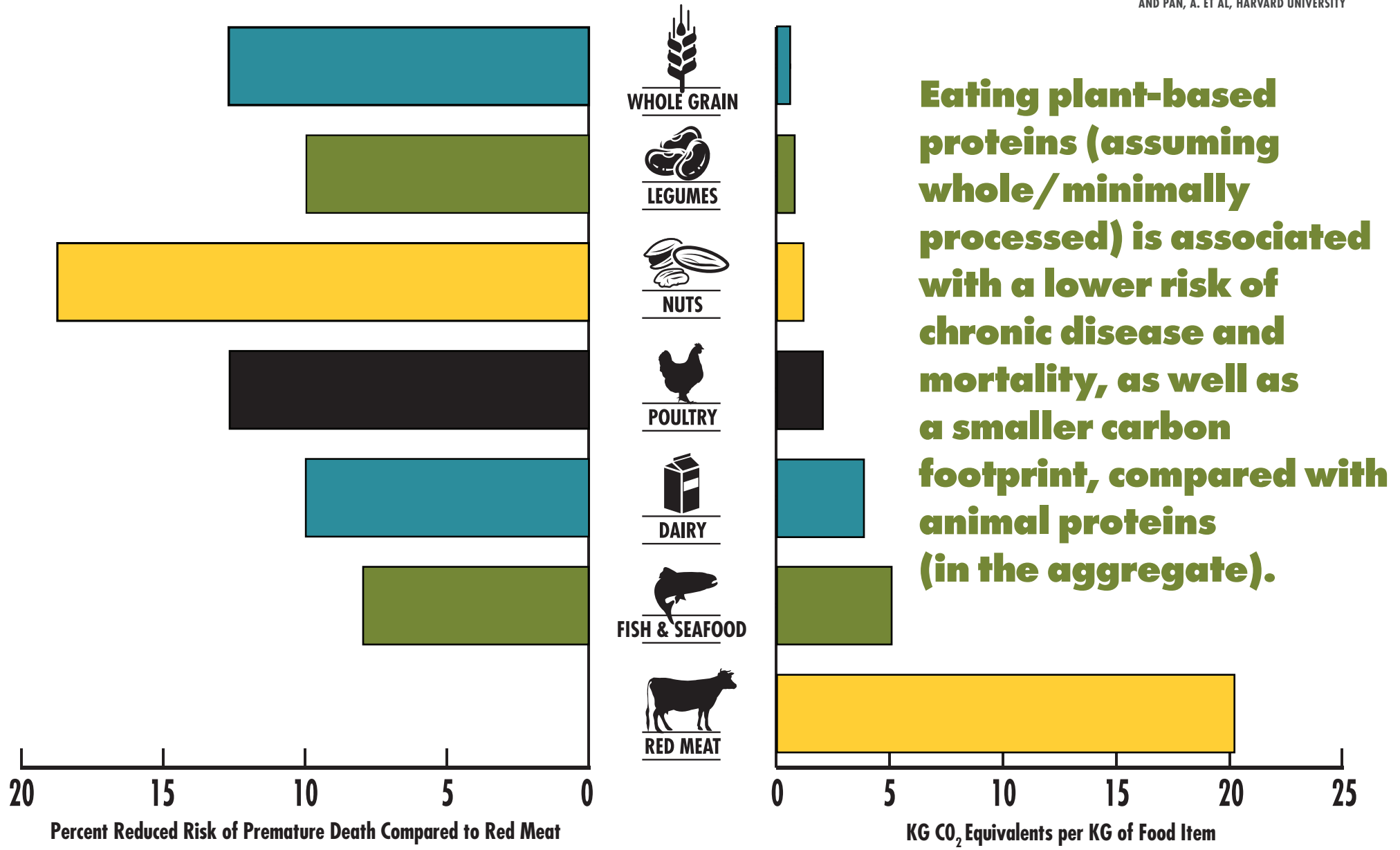
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## SOME PROTEINS\* ARE BETTER THAN OTHERS FOR THE HEALTH OF THE PLANET AND THE POPULATION

SOURCE: WASSERMAN, A., CHANGING TASTES, AND PAN, A. ET AL, HARVARD UNIVERSITY



**Eating plant-based proteins (assuming whole/minimally processed) is associated with a lower risk of chronic disease and mortality, as well as a smaller carbon footprint, compared with animal proteins (in the aggregate).**



**Some research suggests benefits of protein for satiety, weight management, and optimal performance at levels higher than indicated by the RDAs. The protein available in plant foods can satisfy such needs. If complementing a plant-centric diet with foods from animal sources, the best bets are moderate amounts of fish, poultry, yogurt, cheese, and eggs.**

\*WHEN WE SAY THAT SOME PROTEINS ARE BETTER (MORE HEALTHFUL, MORE ENVIRONMENTALLY FRIENDLY) THAN OTHERS, WE MEAN PROTEIN SOURCES—FOR EXAMPLE, NUTS, FISH, AND YOGURT (ALL BETTER) VERSUS RED MEAT (WORSE). “ANIMAL PROTEINS” AND “PLANT PROTEINS” ARE SHORT-HAND FOR ANIMAL AND PLANT FOODS CONTAINING THESE PROTEINS, FOODS THAT WHEN CONSIDERED AS A WHOLE EACH HAVE THEIR OWN, RESPECTIVE POSITIVE AND/OR NEGATIVE HEALTH IMPACTS. IN THESE INSTANCES, “BETTER” AND “WORSE” REFER IN LARGE PART TO THE NET POSITIVE OR NEGATIVE IMPACTS OF POTENTIAL SUBSTITUTIONS (E.G., NUT BUTTER FOR CHEESE SPREAD, LENTILS FOR HAMBURGER, FISH OR CHICKEN FOR STEAK, ETC.).

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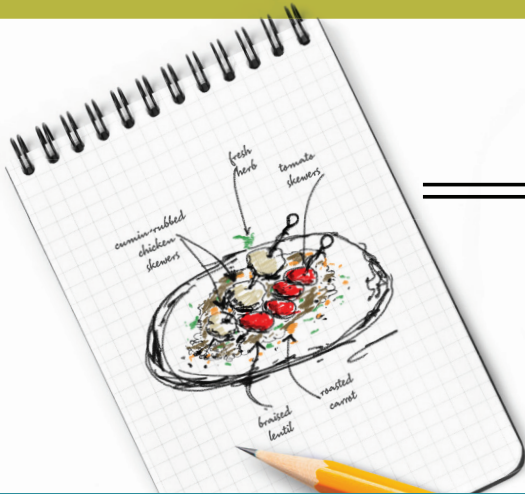
IT'S TIME TO **REBALANCE** THE PROTEIN PORTFOLIO IN YOUR MENU **MIX**

IS RED MEAT **OVERREPRESENTED** ON YOUR MENU?



—SERVE LESS—  
**RED MEAT,**  
**LESS OFTEN**

For more:  
[www.menusofchange.org](http://www.menusofchange.org)

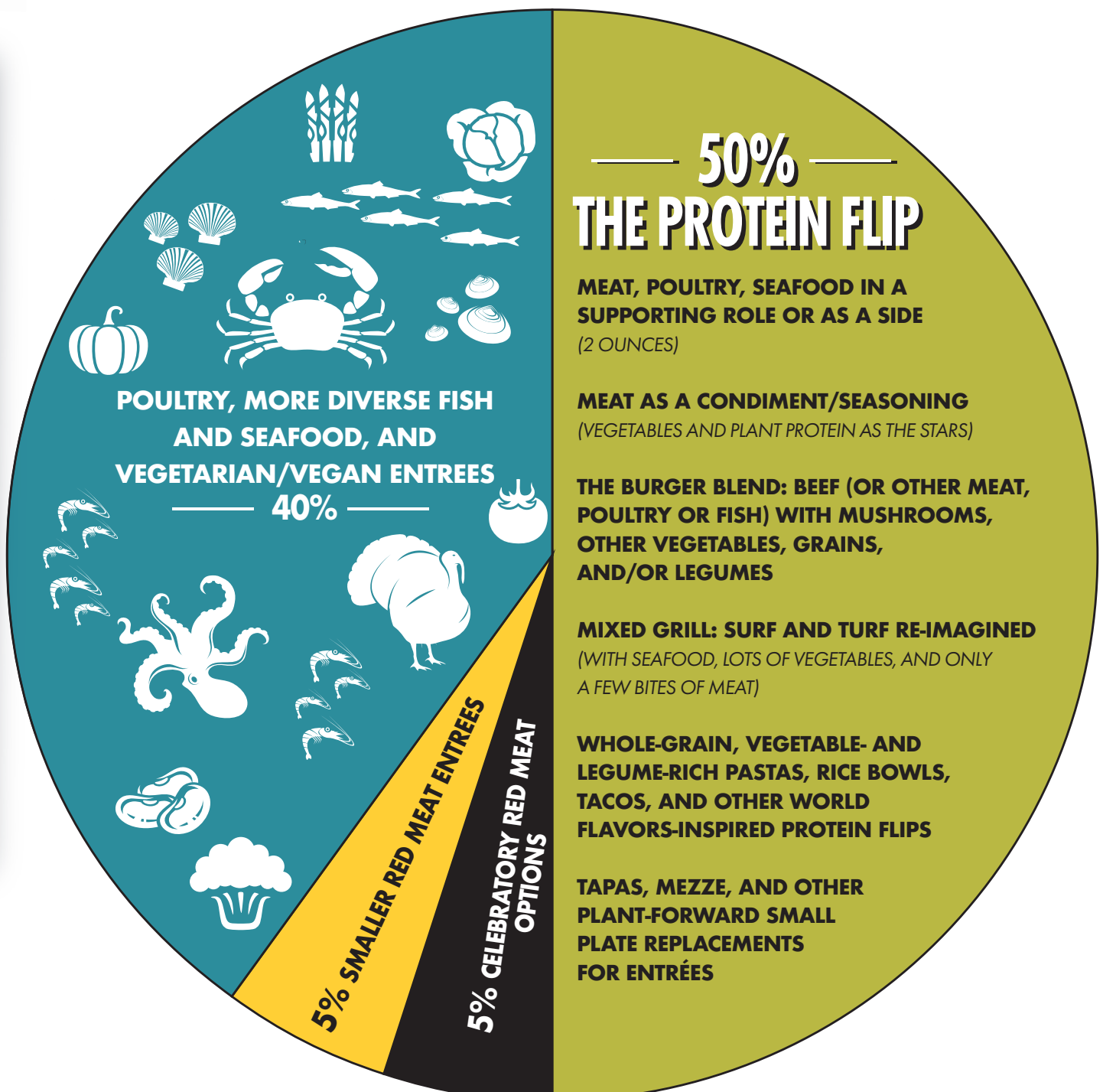


**ARE OTHER DELICIOUS, PLANT-FORWARD APPROACHES TO INNOVATION UNDERREPRESENTED ON YOUR MENU?**

Leveraging the Protein Flip concept on menus doesn't mean denying your customers a steak for a special occasion, or going full-on vegetarian (unless you want to). Rather, like all good portfolio management, it's about proportion and percentages, balance, and diversification.

## REBALANCE YOUR PROTEINS

HERE'S ONE APPROACH TO SHIFTING YOUR PROTEIN SOURCES AND ENTRÉE STRATEGIES AS PART OF A NEXT-GENERATION MENU MIX. HOW MIGHT YOU CRAFT THIS MIX FOR YOUR OPERATION?



**OPERATORS: IS YOUR PROTEIN PORTFOLIO READY FOR THE FUTURE?**

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## WHEN IT COMES TO PLANT AND ANIMAL PROTEINS, IT'S NOT EITHER/OR

Address the health and environmental impacts of red meat consumption with the Protein Flip: rebalance the foods on our plates, re-imagine the value proposition of what we menu, and draw inspiration from global cuisines.



...TO A FARRO BOWL WITH CORN, SUMMER SQUASH, TOMATOES, AND A TWO-OUNCE STEAK...



FROM A T-BONE...



...OR A WHOLE-WHEAT PENNE BOLOGNESE WITH 2 OZ. OF GROUND BEEF, TOPPED WITH SMOKED CHERRY TOMATOES AND GRILLED ZUCCHINI...



...OR SHREDDED CHICKEN-BEEF BLEND TACOS WITH AVOCADO, CREMA, AND PURPLE CABBAGE...



...OR A BROCCOLI STIR-FRY WITH A FEW SMALL PIECES OF BEEF...



...OR A VEGETABLE-FORWARD BEEF SALAD...



Think about culinary ideas from traditional, plant-forward food cultures in the Mediterranean, Asia, Latin America, and elsewhere around the world.

## THE POWER OF THE BLEND

Top 3 reasons for offering meat blends (mixing meat or poultry together with vegetables in burgers, tacos, sausages, and more):



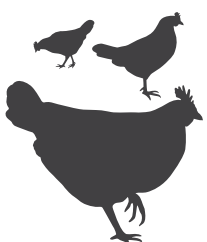
1 OFFERING HEALTHIER ENTREES



2 INCREASING FLAVOR AND JUICINESS



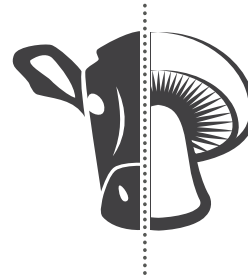
3 REDUCING OVERALL COSTS



**CHICKEN, FOLLOWED BY BEEF, IS THE MOST COMMON ANIMAL PROTEIN TO BE BLENDED.\***



**MUSHROOMS, FOLLOWED BY LEAFY GREENS, ARE THE MOST COMMON PLANT TO BE BLENDED.\***



**THE BLEND BEYOND BURGERS:** The CIA and UC Davis found that substituting 50 or even 80 percent of the beef with ground white mushrooms could enhance the overall flavor of a beef taco blend.\*

\*According to a 2015 CIA-Datassential survey of more than 700 foodservice operators nationwide.



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## THE BETTER BURGER



### THE ICONIC AMERICAN BURGER: NEW FRONTIERS IN FLAVOR DISCOVERY

CHEFS AND OPERATORS EVERYWHERE ARE EXPERIMENTING WITH PLANT-FORWARD BURGER INNOVATION. THESE PHOTOS ILLUSTRATE A VARIETY OF FLIP STRATEGIES.

### THE BLEND...



PB&J (PORTOBELLO, BEEF, AND JALAPEÑO) BURGER, FROM SODEXO



TURKEY BURGER WITH MUSHROOM DUXELLE, FROM YALE DINING



MOROCCAN LAMB-EGGPLANT BURGER WITH MINTED YOGURT AND CARAMELIZED PEPPERS AND ONIONS



ROASTED SHIITAKE MUSHROOM AND BEEF BURGER WITH PASILLA PEPPERS, PEPPER JACK CHEESE, AND CILANTRO LIME AIOLI

### ...AND VEGETARIAN VERSIONS



WHITE BEAN PATTY, GOAT CHEESE, AVOCADO, SPROUTS, LEMON AIOLI, FROM RI RA IRISH PUB



PEANUT, MUSHROOM, AND FARRO BURGER WITH ARUGULA AND TOMATO CHUTNEY WITH CRISPY SWEET POTATO CHAAT, FROM CHEF SUVIR SARAN



LENTIL, BARLEY, AND BLACK BEAN BURGER WITH MANGO CHUTNEY, FROM DAVIDSON HOTELS & RESORTS



WILD RICE POLENTA BURGER INCLUDING MUSHROOMS, CARROTS, AND LEEKS, FROM RESTAURANT 301 AT THE SHERATON DULUTH HOTEL

**IT'S THE NEW NORM:** 77% have a burger on the menu with a significant percentage of the patty from plant or vegetable components, either blended with meat or strictly vegetarian.

**IT'S THE SAME PRICE:** 60% said their non-traditional burger was the same price as other burgers or sandwiches.

**IT WORKS:** 70% saw success from putting a vegetarian or meat-blended burger on their menu



\*According to a CIA-Datassential survey of over 600 foodservice operators conducted in spring 2015; percentages are of operators surveyed.

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## PLANT-FORWARD MENUS: NEW APPROACHES TO PLATING, VISUAL APPEAL, AND VALUE

IF YOU START WITH A HOME-RUN VEGETABLE-BASED MENU CONCEPT THAT CAN STAND ON ITS OWN, YOU CAN ALWAYS SUPPLEMENT WITH A SMALL PORTION OF ANIMAL PROTEIN (EVEN AS A CONDIMENT) IF DESIRED. HERE ARE JUST A FEW EXAMPLES:



**GRILLED AND SMOKED BROCCOLI DOGS WITH BROCCOLI KRAUT AND MUSTARD BARBECUE SAUCE**  
FROM DIRT CANDY IN NEW YORK, NY



**CARROT CUTLET WITH PORK BOLOGNESE**  
FROM BLUE HILL AT STONE BARNES  
IN POCANTICO HILLS, NY



**CAULIFLOWER STEAK, TAHINI, GOLDEN RAISINS, AND PICKLED THAI CHILI**  
FROM CHALK POINT KITCHEN IN NEW YORK, NY



**PICKLED VERRILL FARM CORN PANCAKES, BUTTERMILK, MAPLE, SHISHITOS, POPCORN**  
FROM ALDEN & HARLOW IN CAMBRIDGE, MA



**EGGPLANT BRACIOLE WITH SICILIAN SALSA VERDE AND BLACK OLIVE BAGNA CAUDA**  
FROM VEDGE IN PHILADELPHIA, PA



**CLAM POZOLE VERDE WITH HOMINY, POBLANO, SCALLION, RADISH, AND TORTILLA**  
FROM RUSTIC CANYON IN SANTA MONICA, CA



## THE QUEST FOR VALUE AND EXPERIENCE:

We cannot simply take something away from diners and hope to be successful. We have to rethink the dining experience, our culinary approaches and assumptions, and related business strategies and opportunities. Much of this is a value play: both in how we can create an added sense of financial value to offset, in this case, a reduction in animal protein portion size, as well as in how we connect with our customers about what we value.



## CASE STUDIES



### MUSHROOMS: A CASE STUDY IN INNOVATION FROM THE CIA

The CIA's Healthy Menus R&D Collaborative (HMC) is a working group of high-volume foodservice culinary and nutrition leaders and suppliers who collectively feed 100 million Americans a day; small changes in their menus have a big impact on public health. In collaboration with its founding corporate member, Mushroom Council, the CIA asked this group to test if burgers might be ripe for "the flip" concept. Could umami-rich mushrooms replace a third or more of the meat and satisfy customers? The answer was a resounding yes, and a new generation of blended meat-mushroom burgers—"The Blend"—is sprouting up on menus coast to coast. The innovation is spreading, with new blend concepts using other vegetables and plant-based ingredients.

### HARVARD UNIVERSITY DINING SERVICES: THE BLEND IN ACTION

HARVARD UNIVERSITY DINING SERVICES (HUDS) partnered with Mushroom Council to make 10 beef-based dishes healthier for both people and the planet, with no compromise on taste and quality, by replacing some of the meat with mushrooms. Drawing from HUDS' existing residential dining selections, the recipes included beef chili, shepherd's pie, beef lasagna, meatloaf, and filling for both tacos and burritos. After experimenting with a number of mushroom varieties and preparations, the chefs settled on recipe reformulations that, on average, reduced saturated fat by 31 percent and calories by 20 percent. What's more, in a single five-pound meatloaf

recipe, replacing beef with mushrooms reduced CO<sub>2</sub>-equivalent GHG by 44 pounds. By their estimate, with just a single meal service to 6,600 undergraduates, the impact is equivalent to taking a car off the road for six months. As for the metric that's most on any chef's mind—customer satisfaction—the Harvard team reports: "Students love these recipes—so much so, for example, that we've made our meat/mushroom blend chili a feature of the daily lunch menu. And one-quarter of our burgers are now blended turkey with brown rice and vegetables, both reducing meat consumption and moving to a healthier protein that's better for the environment."



### RE-IMAGINING THE SALAD BAR WITH GOOGLE FOOD

#### A Flip in Operations

In a partnership between the CIA and Google, chefs from CIA, Google, and Bon Appétit Management Company are re-imagining the old paradigm of corporate cafeteria layouts. Much of the produce in corporate lunch settings is aggregated around salad bar concepts. What if we didn't have to decide between a cold vegetable/salad station and a hot station of animal protein entrees with all their tantalizing smells? What if we introduced "the flip" strategy and brought a grill into the salad station, to add two ounces of just-grilled shrimp or chicken on a salad? What if we introduced a wood-fired bread oven, to have a warm, whole-grain pita with those vegetables? Or how about adding a live-action station of Chinese greens being wok-fried with ginger and garlic, with the addition of just two ounces of pork or lemongrass marinated tofu? Now where do you think our noses would take us at noon?

# THE PROTEIN FLIP



## WHAT'S NEXT?



As an industry, what do we need to know that we don't yet know to be successful in accelerating engagement with the Protein Flip concept?

What should we be seeking to discover? How do we break through silos and create cross-sector, interdisciplinary innovation?

What should we be testing with our next-generation customers that could push us out of our comfort zones, but into business models that are more financially sustainable for the future?

What should be guiding new research, new pilot programs, and new and existing collaborations?

Chefs, scientists, business leaders, and researchers need to work together on answering these questions.



## JOIN THE CONVERSATION

SHARE YOUR IDEAS FOR NEW BUSINESS MODELS ON TWITTER USING [#CIAPROTEINFLIP](https://twitter.com/CIAProteinFlip) OR ON OUR CIA INDUSTRY LEADERSHIP FACEBOOK PAGE.

## LEARN MORE:

Separating myth from fact: To find out why Paleo and other meat-centered diets and many other beliefs about protein are not supported by the consensus around scientific evidence, read the CIA/Harvard Chan School white paper, [Protein Plays](#).

Read the paper "[Flavor-Enhancing Properties of Mushrooms](#)," published in the *Journal of Food Science*.

Compass Group USA has committed to reducing red meat on plates across its portfolio. [Read more about it here](#).

[WWW.MENUSOFCHANGE.ORG](http://WWW.MENUSOFCHANGE.ORG)

VISIT [MENUSOFCHANGE.ORG](http://MENUSOFCHANGE.ORG) TO STAY UP TO DATE WITH THIS AND OTHER INDUSTRY EFFORTS AROUND PROTEIN AND OTHER HEALTH AND SUSTAINABILITY ISSUES.

GET THE REFERENCES: [www.menusofchange.org/site-information/citations](http://www.menusofchange.org/site-information/citations)

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Page 8: Turkey Burger: Yale Dining; White Bean Patty: Ryan Costello; Lentil Burger: Davidson Hotels & Resorts; Wild Rice Polenta Burger: Josh Nickila; Moroccan lamb-eggplant burger: Kristen Loken

Page 9: Broccoli Dogs: Evan Sung; Beet Filet: ESquared Hospitality; Clam Pozole Verde: Jeremy Fox; Cauliflower Steak: Chalk Point Kitchen; Corn Pancakes: Kristin Teig; Eggplant Braciolo: Michael Spain Smith

