

Putting The Thrifty Food Plan Into Practice

Insights From Food Modeling Research

September 22, 2022



Welcome!



Opening Remarks From:

Kara Behlke-Ungerman, RDN
Director of Nutrition and Dietetics
National Pork Board



Learning Objectives

- Describe the significance of modeling research to inform the Thrifty Food Plan (TFP).
- Design recipes and sample menus that align with the TFP.
- Assess adequacy, need for reevaluation, and future considerations of the TFP.



The Thrifty Food Plan

- 1 of 4 USDA food plans.
- Basis for SNAP benefits allocation.
- 2018 Farm Bill introduces requirement.
- TFP was updated sporadically in the past but will now be reevaluated every 5 years.
- 2021 update was the first time in its history that the TFP update was not kept cost-neutral.



Our Speakers

Moderator:

Marven Cantave, MS, LD, RDN

Executive Director of The Food System



Adam Drewnowski, PhD

Professor of Epidemiology, Director,
Center for Public Health Nutrition at
the School of Public Health, University
of Washington



Shelley Maniscalco, MPH, RDN

Nutrition on Demand, former Director of the
Office of Nutrition Marketing and Promotion
at USDA's Center for Nutrition Policy



Ellen Vollinger, JD

SNAP Director, Food Research &
Action Center

Pork In Sustainable Healthy Diets: A Thrifty Food Plan Perspective

Adam Drewnowski, PhD

Professor of Epidemiology

Director, Center for Public Health

Nutrition at the School of Public Health

University of Washington



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Disclosures

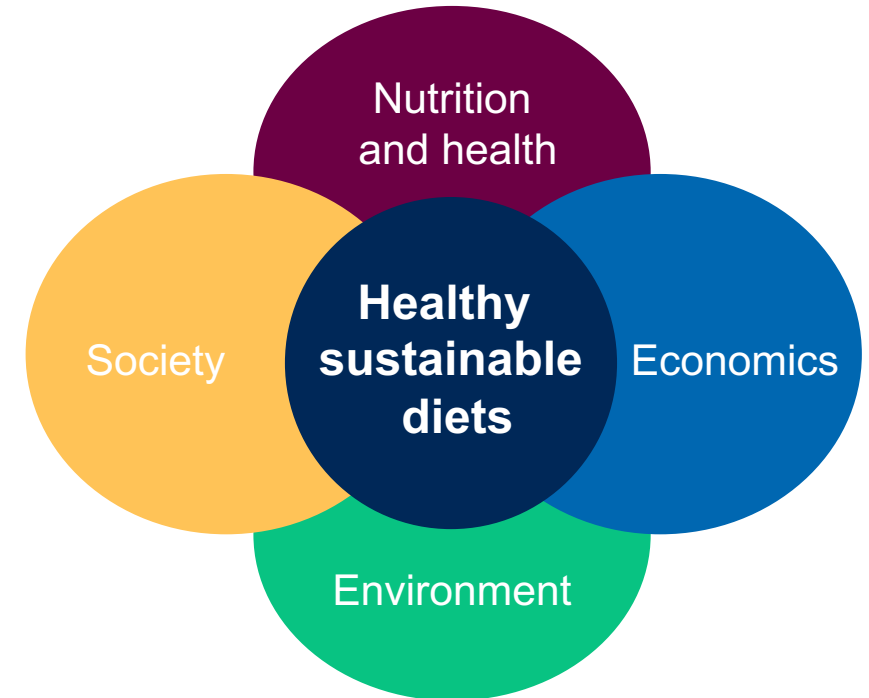
- I am the original developer of the Nutrient Rich Food (NRF) index, an early nutrient profiling model. That work was supported at the time by the Beef Checkoff Program through the National Cattlemen's Beef Association, California Avocado Commission, California Kiwifruit, California Strawberry Commission, Egg Nutrition Center, Florida Department of Citrus, Grain Foods Foundation, National Dairy Council, National Pork Board, United States Potato Board, Wheat Foods Council, and Wild Blueberry Association of North America.
- Since then, I have received grants, contracts, and honoraria from these and other entities both public and private with an interest in nutrient density and nutrient profiling of foods. I am a member of the Nestlé Scientific Advisory Board; invited member of the Quality Carbohydrate Coalition supported by APRE and Potatoes USA; and consultant to the National Pork Board.



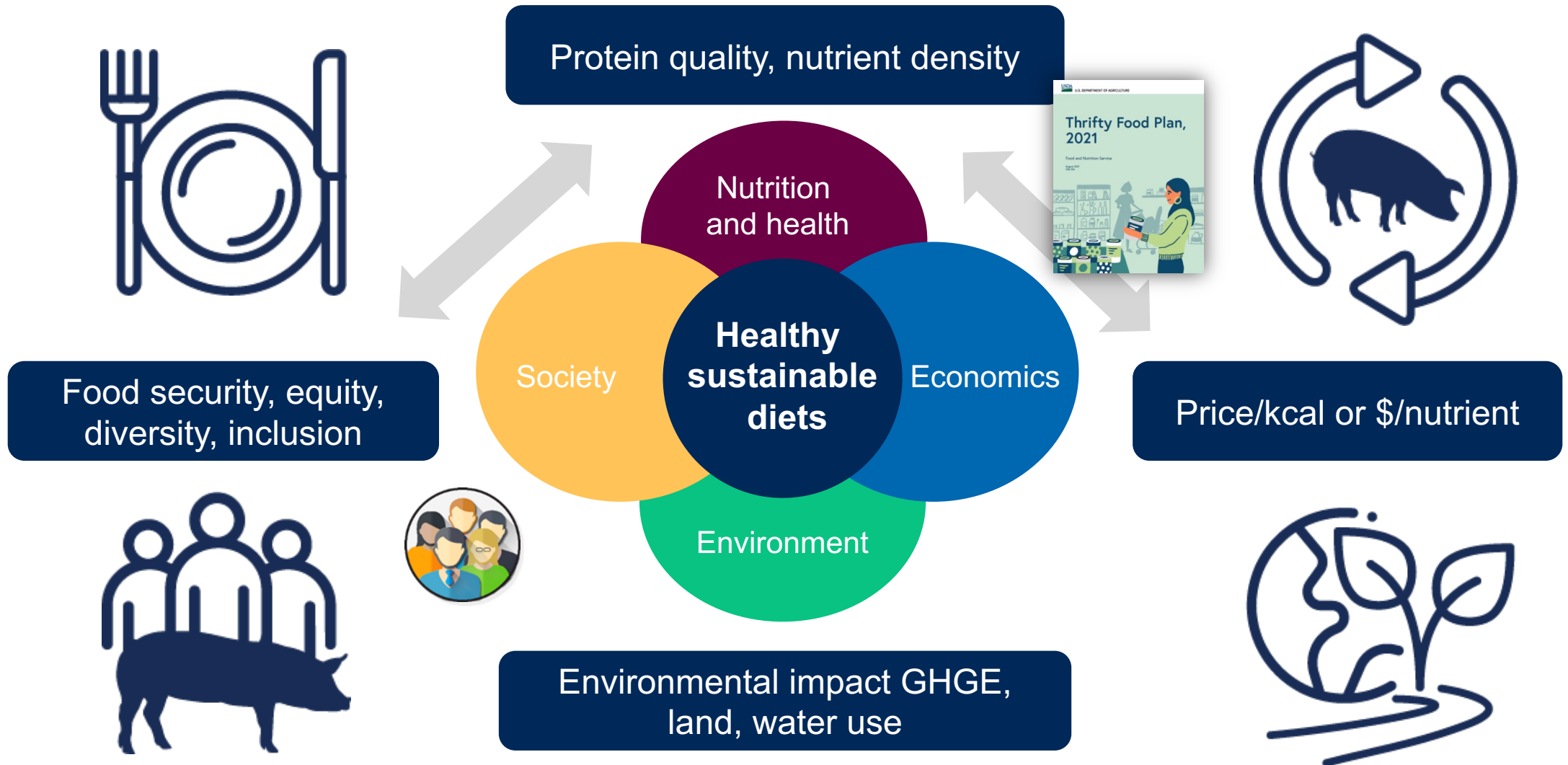
Pork In Sustainable Healthy Diets

- The four dimensions of sustainability are nutrition, economics, environment and society.
- Foods need to be safe and healthy, affordable, socially and culturally acceptable, and with low impact on the environment.
 - Definition developed by AD and FAO.
- **Where does pork fit in?**

Sustainability	Pork relevant metrics and measures
Nutrition/health	Nutrient profiling, protein quality (PDCAAS)
Economics	Food prices: TFP 2021 database
Society	Acceptability, taste, pleasure, culture
Environment	GHGEs per 100g protein; nutrition Functional Unit (nFU)



The Thrifty Food Plan 2021



1. Nutritional Value Of Fresh Pork

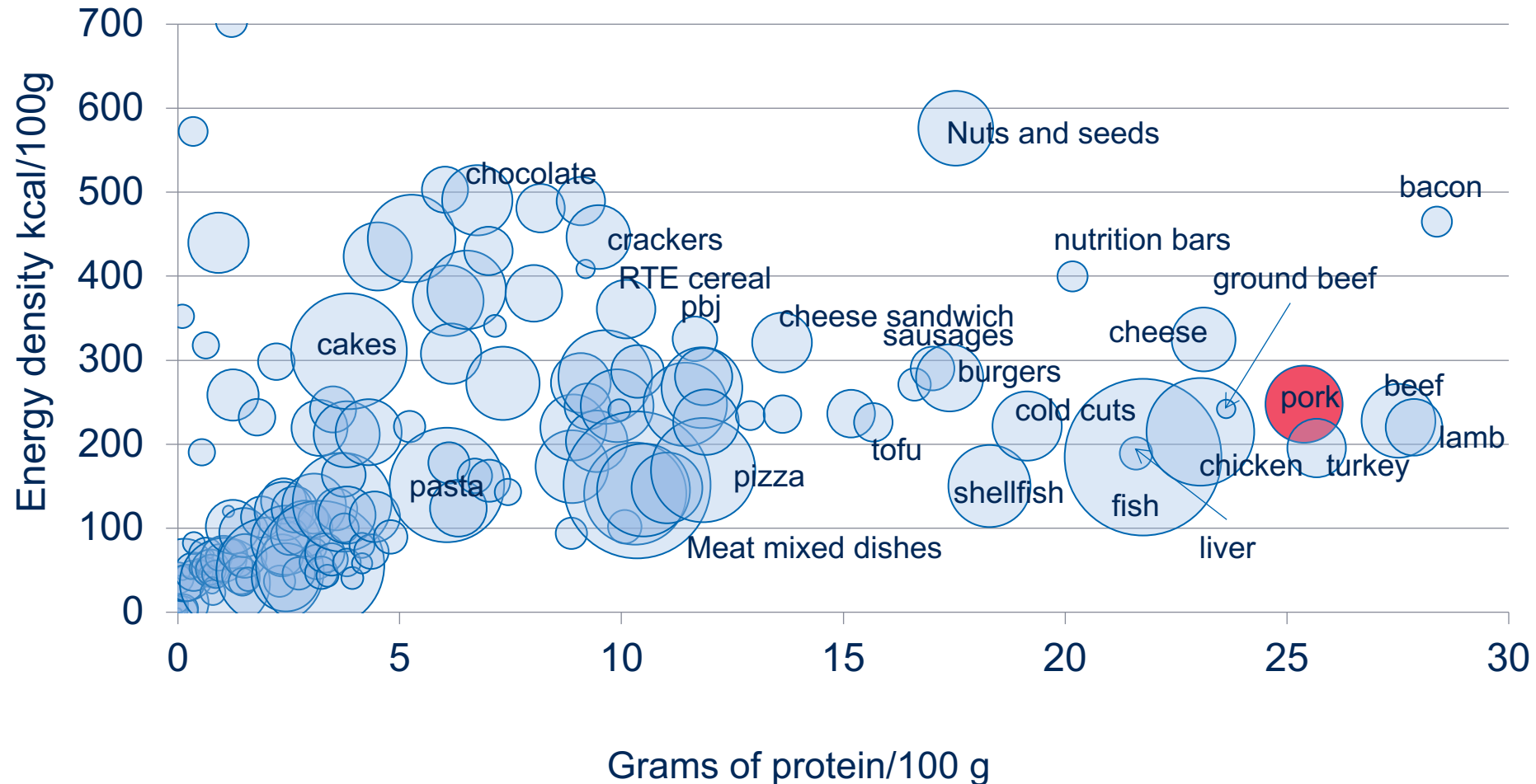
USDA nutrient composition database FNDDS 2015-16 (n=6581)

- **Pork is rich in high quality protein per 100 g of food and per RACC**
 - Metrics of protein in grams per 100 g, grams per RACC, grams per 100 kcal from USDA databases
 - RACC values from the Food and Drug Administration
- **Pork has very favorable PDCAAS and DIAAS values**
 - Meat and eggs > plant-based proteins and nuts
- **Pork nutrient density is assessed in different ways**
 - TFP high nutrient density meats < 4.5 g/100 g saturated fat
 - Nutrient profiling model NRFn.3 applied to pork



Pork Is Rich In Protein Per 100 Grams Of Food

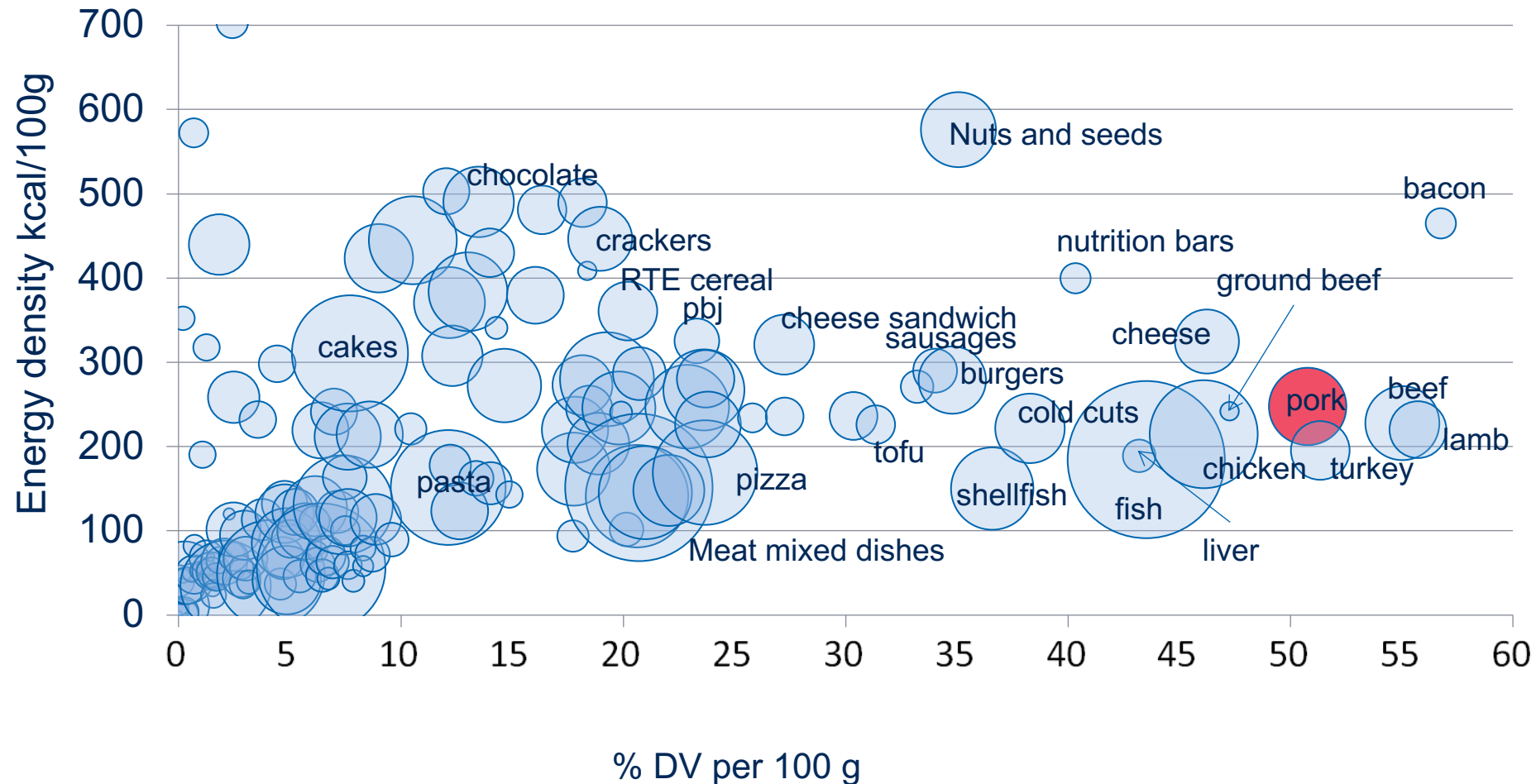
Data for 6581 foods from USDA FNDDS 2015-16



Size of bubble denotes number of foods in each USDA WWEIA category

Pork Provides >50% DV Of Protein Per 100 Grams Of Food

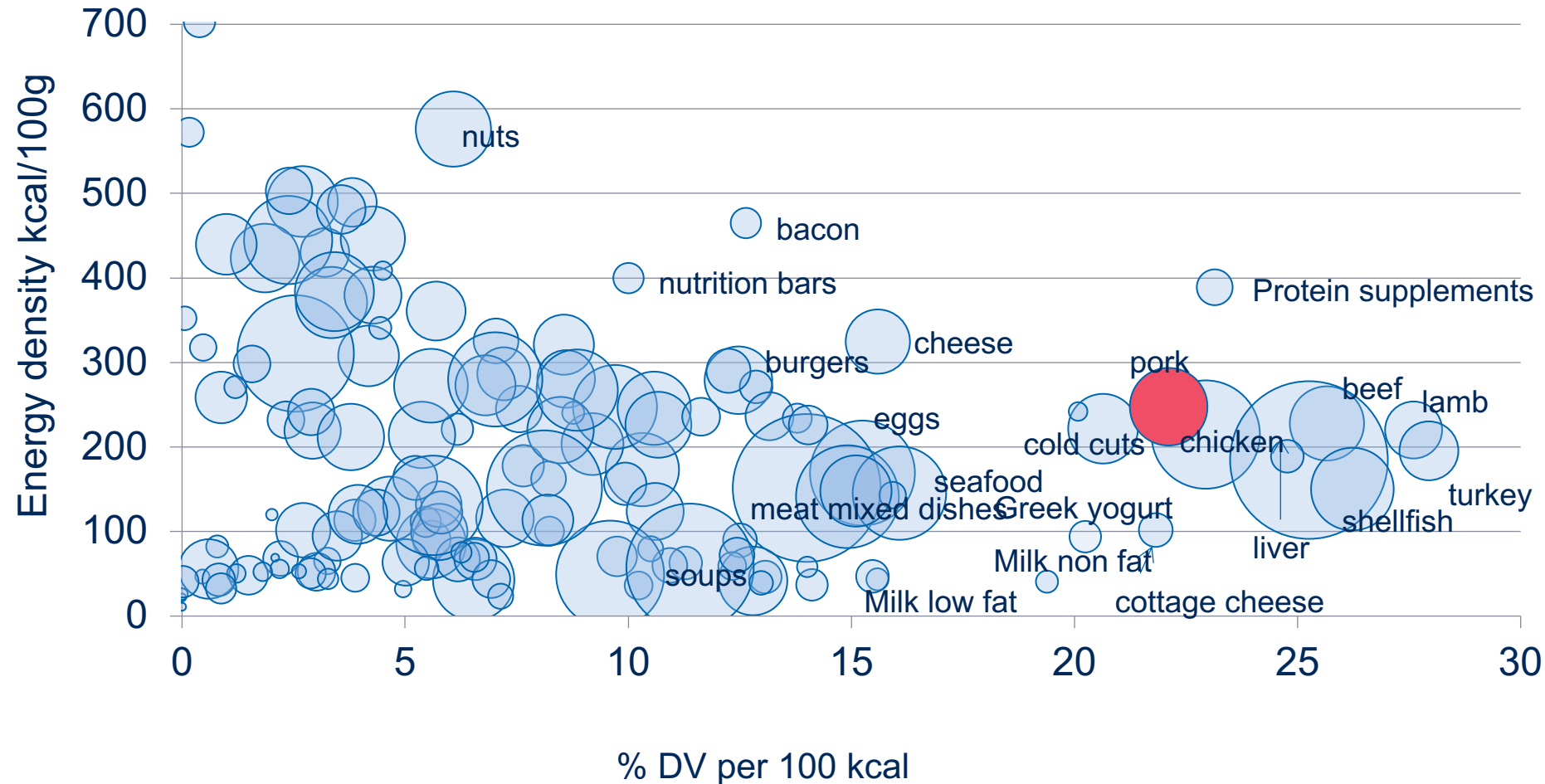
Data for 6581 foods from USDA FNDDS 2015-16



Size of bubble denotes number of foods in each USDA WWEIA category

Pork Is Rich In Protein (% DV Per 100 Calories)

Data for 6581 foods from USDA FNDDS 2015-16



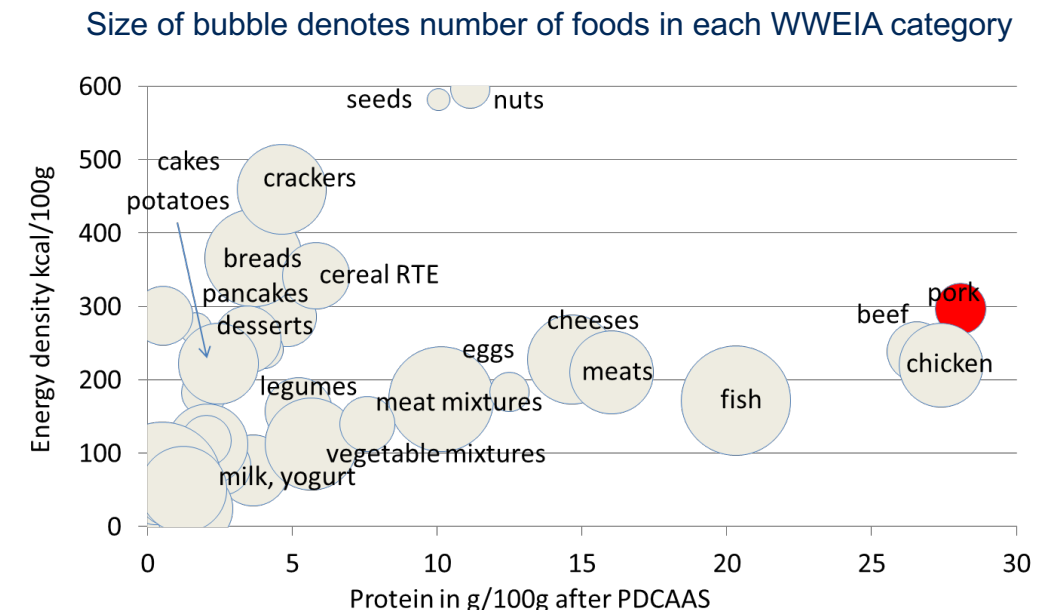
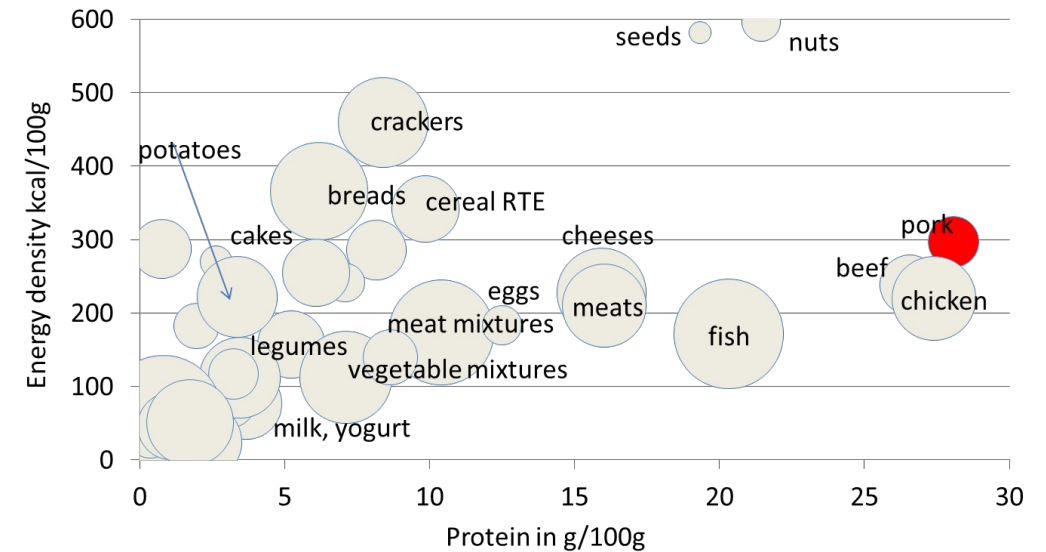
Size of bubble denotes number of foods in each USDA WWEIA category

PDCAAS Protein Quality Adjustment For NP

Protein Digestibility Corrected Amino Acid Score (PDCAAS)

Protein source	Factor	Protein source	Factor
Cow's milk, eggs	1.0	Peas/legumes	0.70
Casein, whey	1.0	Fruits, fresh	0.64
Pork	0.98	Cereals	0.59
Beef	0.92	Nuts (pecans)	0.71
Soy	0.91-1.0	Peanuts	0.52
Chickpeas, soybeans	0.78	Rice	0.50
Black beans	0.75	Dried fruit	0.48
Vegetables	0.73	Wheat	0.42

Pork is not affected by PDCAAS - compare e.g., relative places for nuts and seeds and grains after PDCAAS



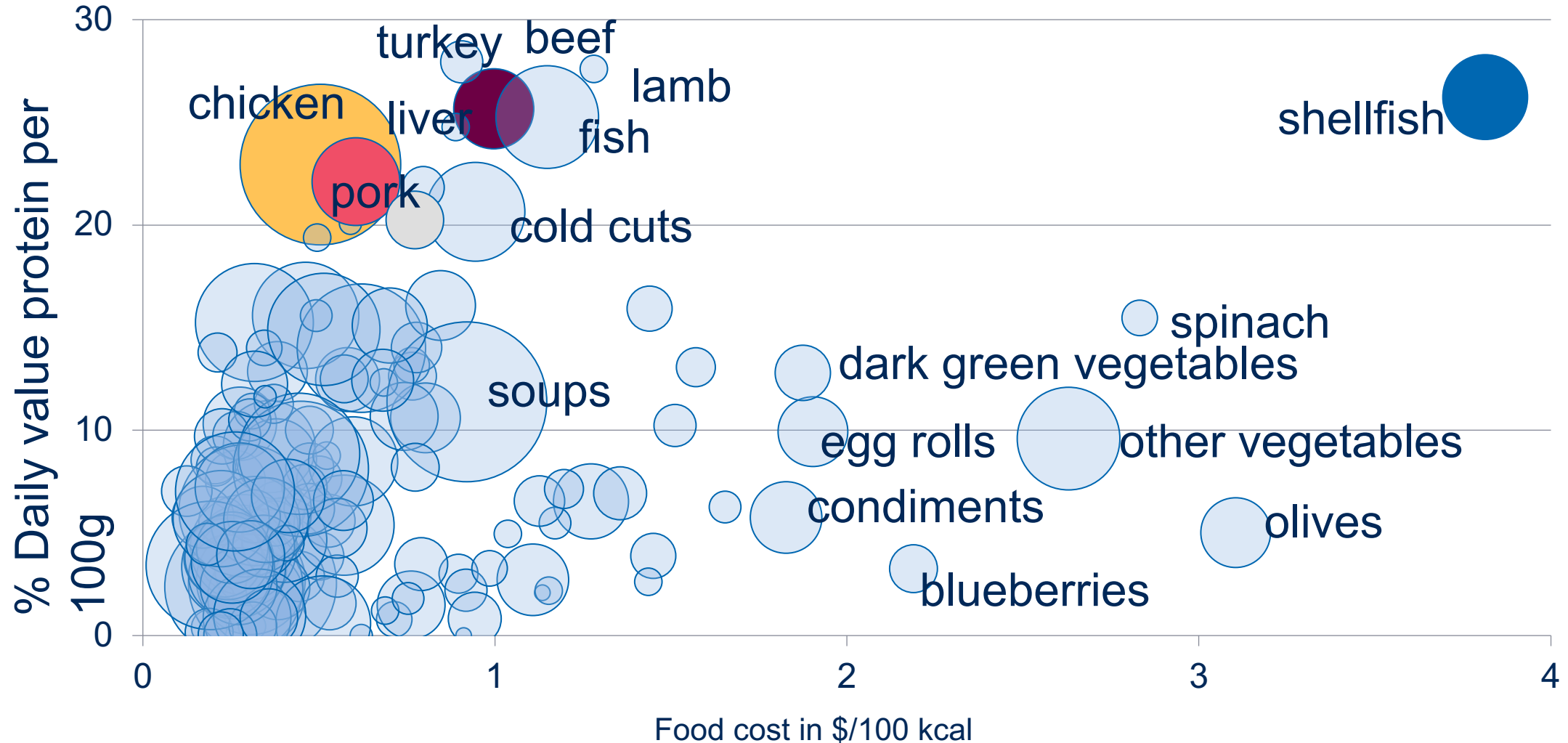
2. Pork Provides Affordable Protein

- The FNDDS database lists 83 fresh pork products (also cured meats).
- The USDA 2021 Thrifty Food Plan lists national food prices (adjusted to June 2021) for about 3,000 foods.
- Food prices data were merged with the FNDDS nutrient composition and protein data.



Protein (% DV Per 100 Calories) And Cost Per 100 Calories

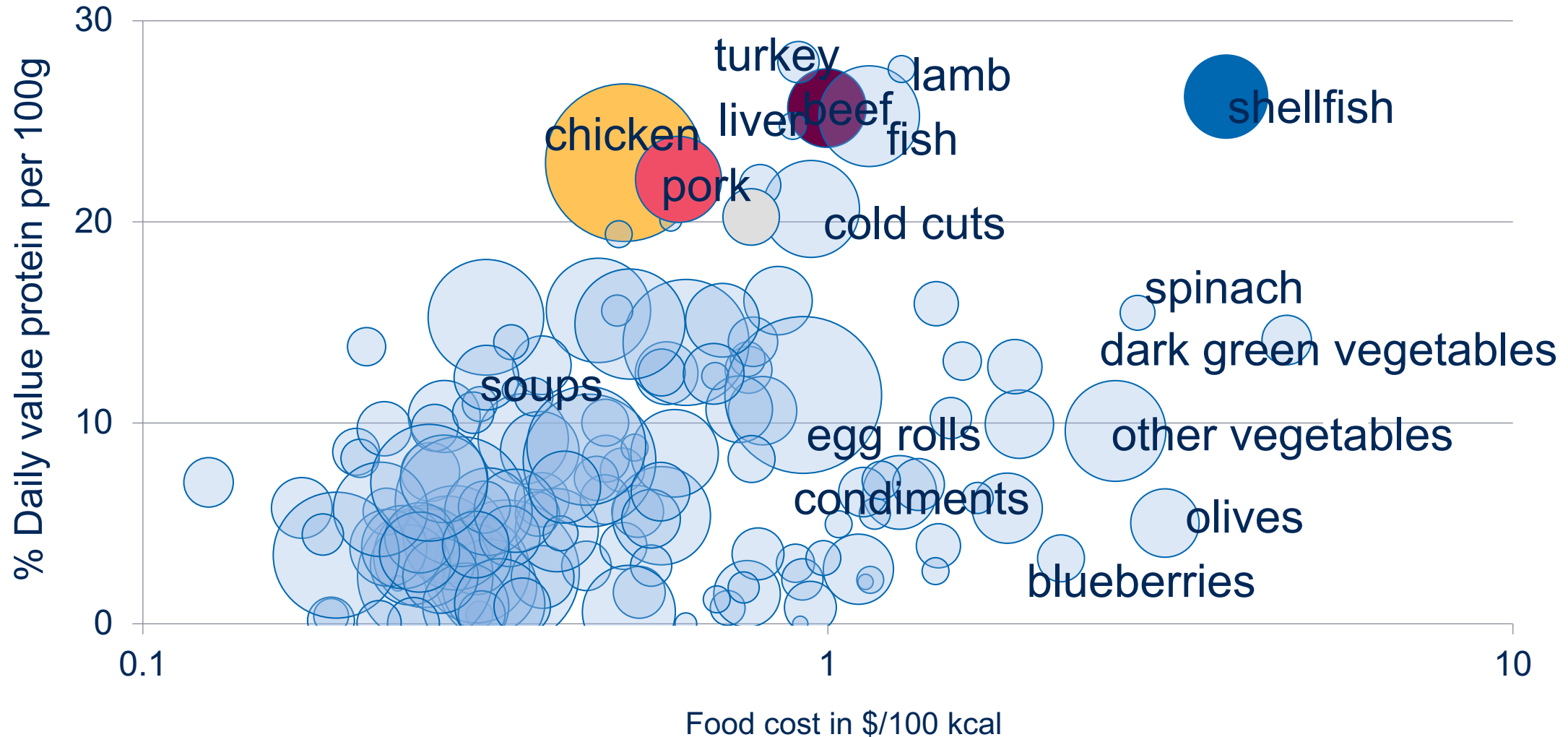
Data for 6581 foods from USDA FNDDS 2015-16



Size of bubble denotes number of foods in each USDA WWEIA category

Protein (% DV Per 100 Calories) And Cost Per 100 Calories

Data for 6581 foods from USDA FNDDS 2015-16



Size of bubble denotes number of foods in each USDA WWEIA category

3. Pork In The TFP 2021

- This project – conducted by MS-Nutrition – replicated the 2021 TFP, using the same inputs, modeling categories and aggregation codes.*
- The 2021 food prices came from the USDA/CNPP.
- The USDA/CNPP provided valuable advice and assistance.
 - Linear programming was done by Romane Poinot and Matthieu Maillot in France.



*Unpublished data, National Pork Board project #21-144 titled, "Fresh Pork in the New USDA Thrifty Food Plan."

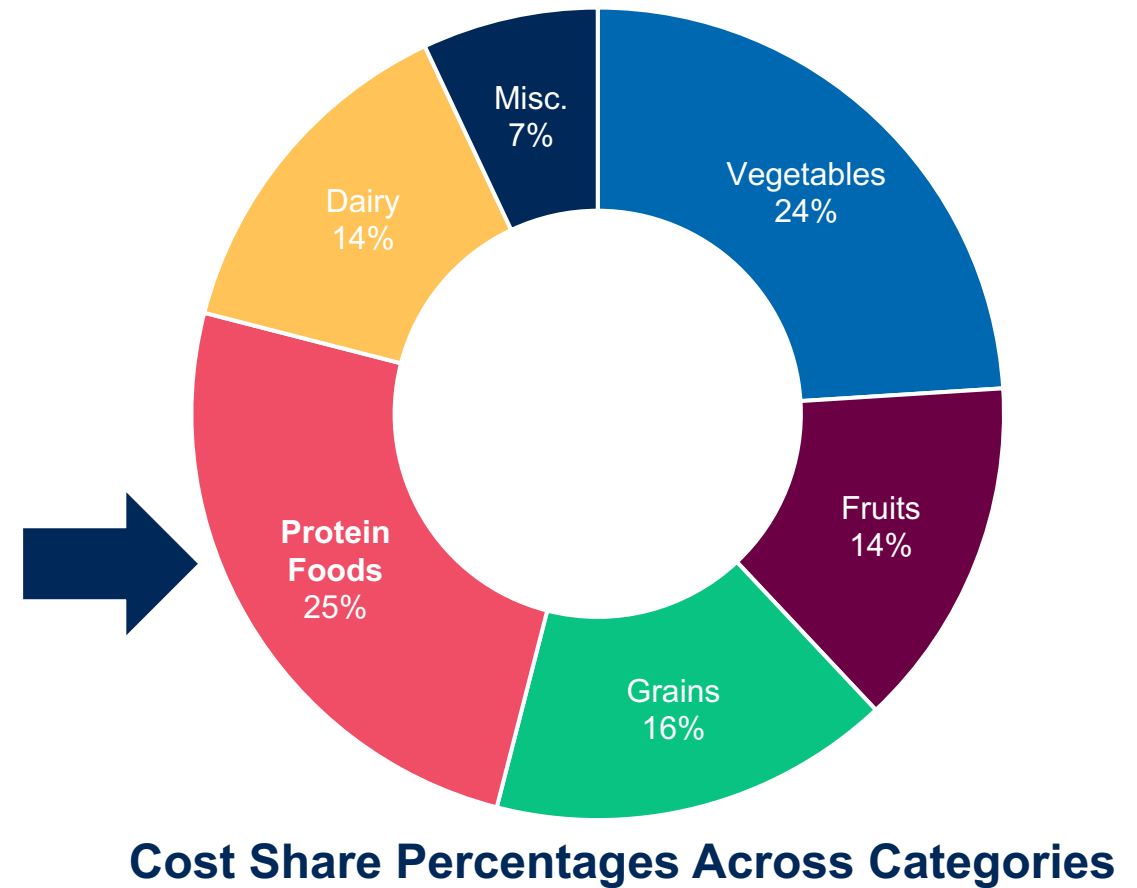
Thrifty Food Plan 2021 Methods

- The 2021 TFP provides cost of groceries needed for a healthy, budget-conscious diet for a family of four (2 adults, 2 children).
- The TFP healthy diet meets both nutrient and food group recommendations at the lowest cost.
- Linear programming (LP) methods created market baskets for 15 age-gender groups.
- Protein categories were meat, poultry, eggs, seafood, nuts.
- The meat category included beef and pork (weighted by consumption patterns).
- The TFP did not provide relative amounts (or cost) of beef versus pork.



Thrifty Food Plan 2021 Market Basket

- The TFP was revised by the USDA for the first time in decades.
- The June 2021 TFP for a family of 4 is \$835.57, based on a market basket of 24 food categories.
- Within each category, there are items that are lower in price and higher in nutritional quality.
- We will focus on **protein foods**.



2021 TFP As Replicated By MS-Nutrition (With CNPP Assistance)

Inputs

Mean food prices from
TFP 2021
USDA supplemental
data

Mean consumption
patterns for 8 age-sex
groups in NHANES 2013-
16

Dietary guidelines:
nutrients (DRI) and
foods (**FPED 2015-
16**)

Mean nutrient
composition for 99
modeling categories in
FNDDS 2015-16

LP models

Minimize deviation
from observed diet,
weighted by the cost of
each category

Cost constraints
*Keep lowering cost by
0.01 \$ decrement to
find the lowest cost*

Nutrient
requirements
and social
constraints



More constraints
for pork models
M1 M2A, M2B

LP optimization

Diet optimization LP

Run 8 optimizations by
sex and 4 age groups
(4-13; 14-19; 20-50 ; 51-70)



Output

Optimized amounts (g/week) and cost (\$/week) for 99 modeling categories

Market basket

Market Baskets
for 8 age-sex groups

Conversion from Modelling Categories
to Market Basket Categories

The MS-Nutrition 2021 TFP And Pork-Relevant Models

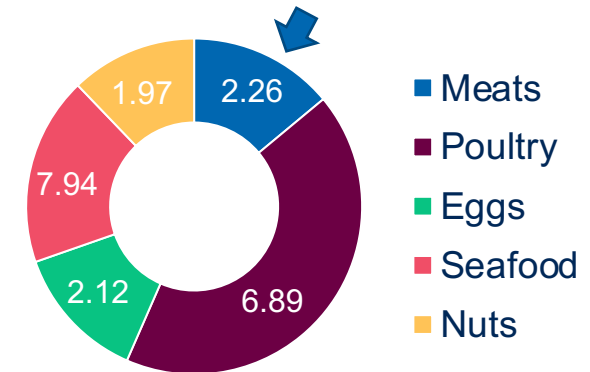
USDA TFP: Beef and pork are combined in USDA TFP.
(Pork + beef) = meats. Constraints = minimize cost.

MS-Nutrition TFP replication (M1): Pork and beef are separated.
V1 Meat amounts same as TFP, cost same as TFP
V2 Meat amounts TBD by program; constraint = minimize cost

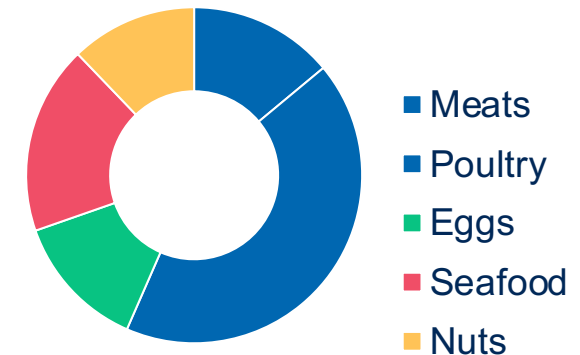
Model2A: Beef replaces all meat and poultry
*beef = \sum meat and poultry (M1)
*poultry=pork=cured meat=0 g/d
Constraint: Minimize cost

Model2B: Pork replaces all meat and poultry
*pork = \sum meat and poultry (M1)
*poultry=beef=cured meat=0 g/d
Constraint: Minimize cost

Pork and beef are together in TFP



Replace “meats + poultry” with either pork or beef



Meats and poultry have the same amounts as in model 1
but eggs, seafood and nuts amounts can change

MS-TFP – Keep Cost At Same Level As USDA TFP*

For Males 20-50: Cost (\$/Week)

« As-consumed » Market Basket Category	USDA TFP 2021	Model 1
Vegetables	14.27	13.41
Fruits	8.21	8.21
Grains	9.67	9.17
Dairy	7.13	7.2
Protein foods:	14.85	14.96
Beef	3.22	0
Pork		2.47
Cured meat	0	0
Poultry	4.68	5.81
Eggs	1.17	1.08
Seafood	3.85	3.85
Nuts, seeds, soy products	1.93	1.75
Miscellaneous	5.65	6.82
Total cost (\$/week)	59.78	59.78

This is what happens when we set the cost to correspond to TFP cost and (beef+pork) quantity to TFP amounts

*Unpublished data, National Pork Board project #21-144 titled, "Fresh Pork in the New USDA Thrifty Food Plan."

MS-TFP selects pork!

MALES 20-50y Minimum Cost In \$/Week*

Minimum Cost (\$/Week)

« As-consumed » Market Basket Category		TFP 2021	MS-N TFP	Model 2A	Model 2B
Vegetables		14.27	14.09	13.71	13.74
Fruits		8.21	8.19	8.24	8.23
Grains		9.67	9.02	10.71	9.06
Dairy		7.13	6.92	7.11	7.1
Protein foods:		14.85	14.24	23.29	14.36
Meat	Beef	3.22	0	16.34	0
	Pork		5.37	0	7.78
Cured meat		0	0	0	0
Poultry		4.68	2.30	0	0
Eggs		1.17	0.97	1.19	0.89
Seafood		3.85	3.85	3.85	3.85
Nuts, seeds, soy products		1.93	1.75	1.91	1.84
Miscellaneous		5.65	6.68	4.64	6.66
Total		59.78	59.15	67.69	59.15

*Unpublished data, National Pork Board project #21-144 titled, "Fresh Pork in the New USDA Thrifty Food Plan."

Only Pork Was Selected

Beef Selected

Pork Selected

4. Summary

- Beef and pork were separated in LP analyses.
- Replicating TFP, the MS-Nutrition LP model selected pork to achieve a healthy diet at a lower cost.
- Selecting pork as the only source of *meat* protein reduced the weekly cost below the USDA TFP.
- Selecting pork as the only source of protein still allowed for nutrient adequate diets.
- These LP models tracked the work of USDA/CNPP .

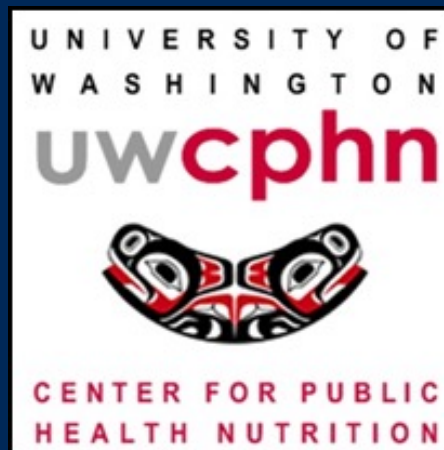


Thank You

Adam Drewnowski, PhD

Director, Center for Public Health Nutrition

Professor of Epidemiology University of Washington,
Seattle, WA, USA



Practical Application Of The Thrifty Food Plan

Shelley Maniscalco, MPH, RDN

Nutrition on Demand

Former Director of the Office of Nutrition Marketing and
Promotion at USDA's Center for Nutrition Policy



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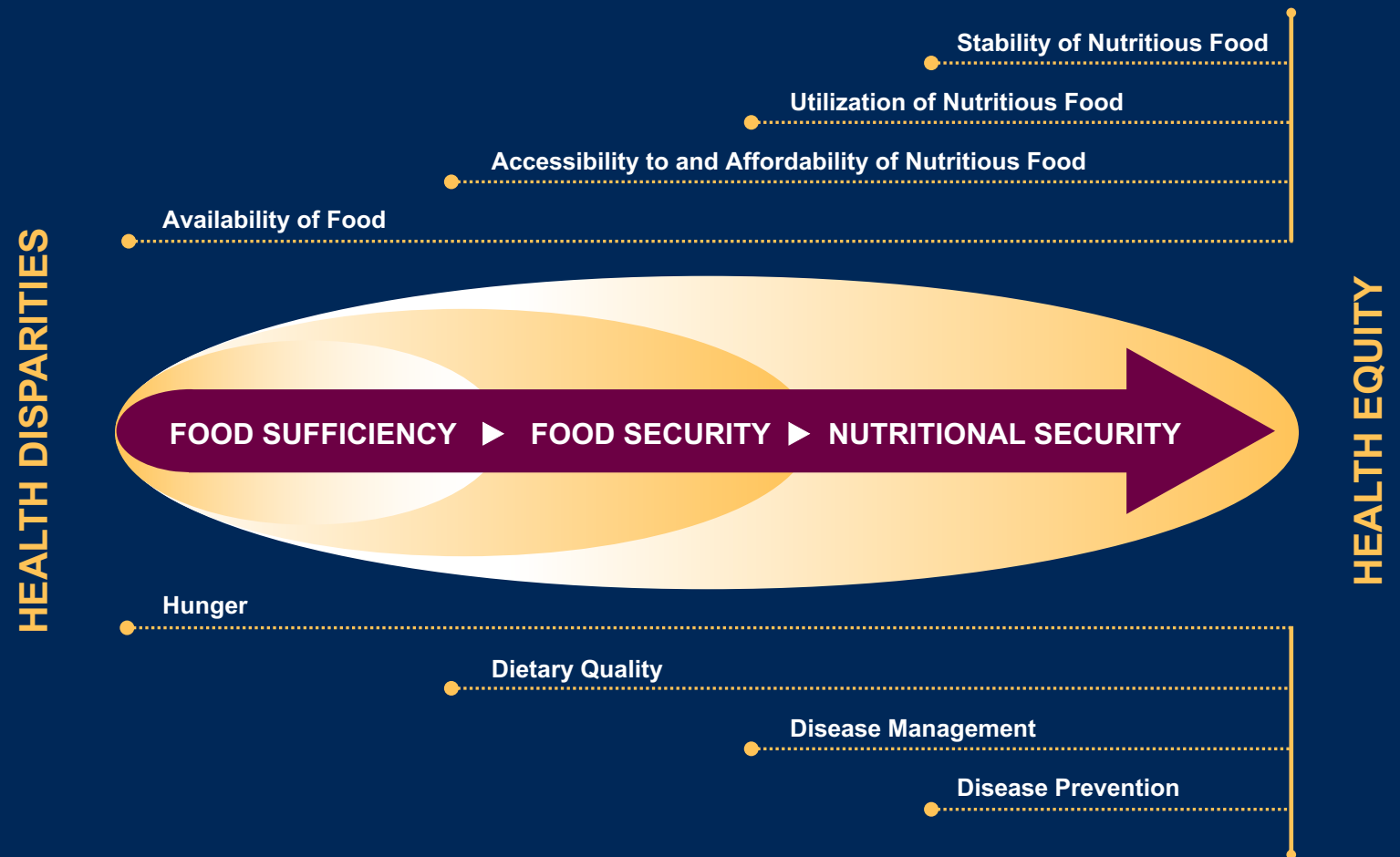
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Disclosures

AFFILIATION/FINANCIAL INTERESTS (prior 12 months)	ENTITIES
Grants/Research Support	
Scientific Advisory Board/Consultant/ Board of Directors	National Pork Board Human Nutrition Task Force; Keurig/Dr. Pepper
Owner	Partner, Nutrition On Demand
Speakers Bureau	
Stock Shareholder	
Employee	
Other	

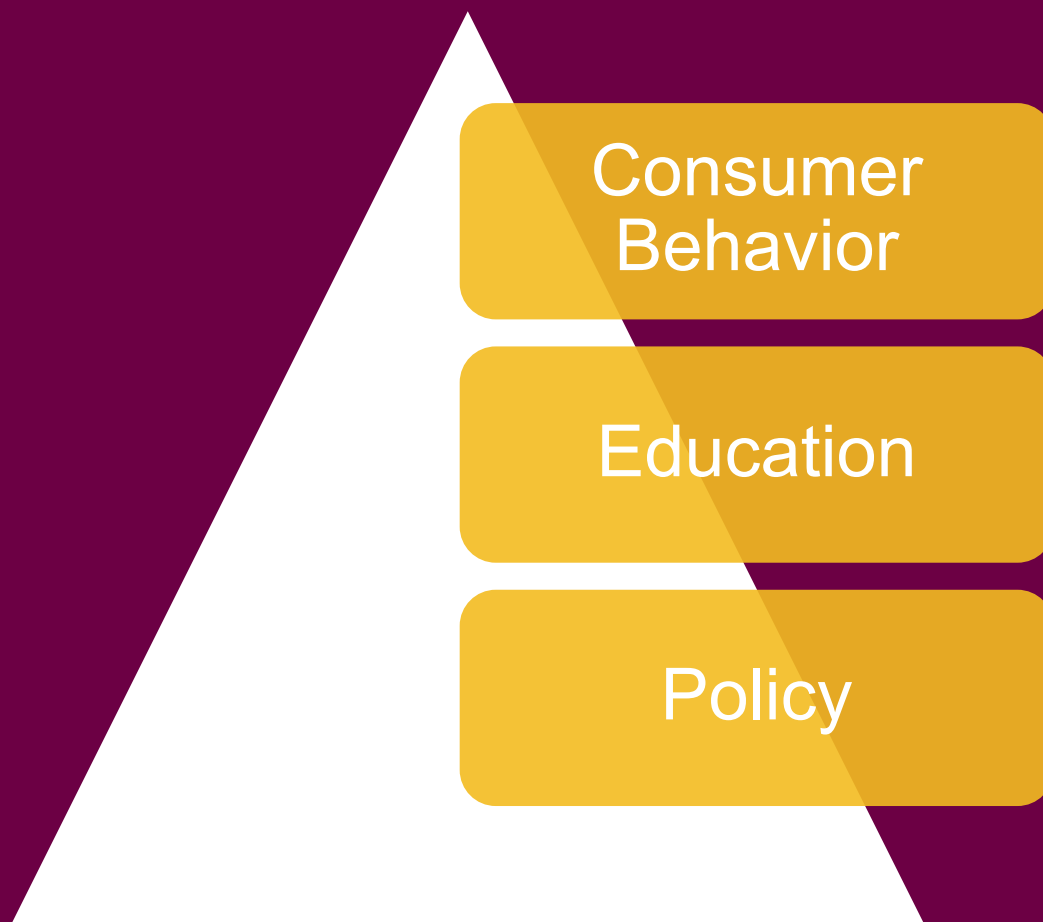


The Journey From Food Sufficiency To Nutrition Security Is Complicated, Multifaceted, And Intricate.



Source: Strengthening US Food Policies and Programs to Promote Equity in Nutrition Security: A Policy Statement From the American Heart Association

The Role Of Federal Nutrition Policy Is To Inform Educators Who Support Consumers In Implementing Healthy Eating Behaviors.

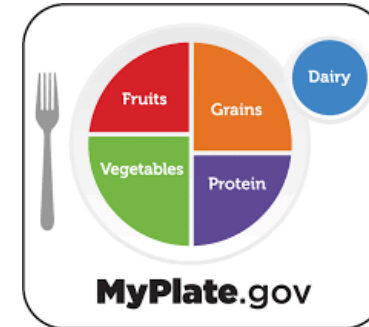


MyPlate Provides Roadmap For Nutrition Education, Including Consumer Messaging, Resources And Programming.

Consumer Behavior

Education

Policy



1. Nutrient density
2. Cost-consciousness
3. Health equity

The Closer We Are Communicating To The Consumer, The More Specific We Must Be.



Consumer
Behavior

Education

Policy

Cost-Consciousness (TFP)

Must navigate family taste preferences and dietary needs

Healthy, budget-friendly options

SNAP allotments based on market basket percentages, low-cost options within high- and low-nutrient dense food groups and subgroups

We Must Meet Individuals And Families Where They Are, By Addressing Their Top Eating Priorities And Challenges.

The sweet spot is helping consumers:

- Understand how to build a **healthy** dietary pattern,
- With **food they love**,
- On a **budget**, and,
- Within all the other **constraints** they experience!



Consumers Make Food Decisions Based On Taste, Price And Everything Else Going On In Their Lives!

- #1 and #2 drivers of food choice are taste (80%) and price (68%)
- SNAP participants report barriers to achieving a healthy diet (88%)
 - 61% cite cost as barrier
- Inflation is real
 - Cost of food ↑ 12.5% June 2021 – June 2022
- Family is paramount
 - Healthy eating as a family can be challenging

Sources: IFIC Food & Health Survey 2022, Barriers that Constrain the Adequacy of Supplemental Nutrition Assistance Program (SNAP) Allotments, SNAP Cost of Food Monthly Reports, FMI US Grocery Shopping Trends 2020



5 Steps To Helping Your Audience Eat Healthfully And Flavorfully!

1. Start with what they are already eating
2. Understand and consider nuances of food choices
3. Optimize for health
4. Identify low-cost options
5. Match with skillset and lifestyle



A Guide To The 5 Steps: Pork As A Case Study



Step 1. Start With What Your Audience Is Already Eating.

- People love pork! It's the most widely consumed meat in the world and is versatile in use across dayparts
- Sandwiches are the most commonly consumed food in the US
- Salads and sandwiches are the top carrier foods for fruits and vegetables

SMART Tip: Have pork leftovers in the fridge? Pair with veggies in a pita or add to a lunch or dinner salad to pack on the protein!

Sources: UN Food and Agriculture Organization, NPD National Eating Trends, PBH State of the Plate 2020



Step 2. Understand Nuances Of Food Choices.

- Pork is a mainstay in traditional dishes across many cultures
- Consumers want ease in prep/cleanup and to maximize food budget
 - Sheet pan and one-pot meals (crockpot recipes)
 - SNAP participants cite lack of cooking equipment and storage as top barriers to healthy eating

SMART Tip: Craving Mexican Chile Verde? Combine cubed pork shoulder with garlic, canned tomatoes, green salsa, garlic, and jalapenos in a slow cooker for a delicious and fuss-free dinner meal!



Step 3. Optimize For Health.

- Teach about the leanest of pork cuts (e.g., tenderloin, chops)
- Maximize nutrient density of favorite meals and recipes:
 - Add fruits and vegetables
 - Cut salt
 - Reduce saturated fat
- Add flavor with spices and herbs

SMART Tip: No need to cook with fat, pork chops are delicious as is – just give them a rub with a mix of your favorite spices and pop in the oven!



Step 4. Identify Low-Cost Options.

- Nutrient-dense forms of pork comprise the majority of lower-cost meat options
- Provide ideas to eliminate food waste

SMART Tip: DYK that pork products rate high on nutrients and low on cost? Win-win! At the store, load up on pork chops or roast and pair with your favorite veggies and grains for a deliciously balanced meal.

Meat; higher nutrient density^c (≤4.5 g saturated fat/100 g AND 0 g added sugars/100 g)	1.15 (0.61–3.36)	Lower cost: pork chop (baked, broiled, stewed, fried), pork (cut not specified, fried), pork roast, pork steak/cutlet (baked, broiled, fried), beef liver, gizzard
Meat; lower nutrient density^c (>4.5 g saturated fat/100 g AND/ OR >0 g added sugars/100 g)	0.97 (0.69–3.22)	Lower cost: pork roast, pork spareribs with barbecue sauce, ground pork, pork steak/cutlet (baked, broiled), pork chop (breaded and baked, broiled, fried), beef steak (breaded and baked, fried), beef pot roast

Step 5. Match With Skillset And Lifestyle.

- Educate on “cost-per-unit”
- Introduce healthy meat prep methods
 - Cooking methods:
<https://www.pork.org/cooking-techniques/>
- Provide recipes and/or recipe videos
 - MyPlate Kitchen
<https://www.myplate.gov/myplate-kitchen>
 - Powerful Pairings
<https://powerfulpairings.com/>

SMART Tip: Ground pork is a versatile ingredient that can easily and inexpensively be subbed in many of your family’s favorite dishes – try in chili, meatballs, stroganoff, and more!



Top Takeaways To Help Consumers Eat Healthfully On A Budget With Pork.



Taste and cost are top drivers of consumer food choice – start with what they love (and what's affordable) when helping build healthy dietary patterns.



Create favorite recipe “makeovers” by adding produce, spices, and herbs and cutting sodium and cooking fat.



Focus on combo dishes and carrier foods – encourage consumers to top their salad with pork, provide recipes for quick one-pot meals.

SNAP Benefit Adequacy: The Thrifty Food Plan In Context

Ellen Vollinger, JD
SNAP Director
Food Research & Action Center



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Disclosures

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Owner	
Speakers Bureau	
Stock Shareholder	
Employee	Food Research & Action Center
Other	



Who We Are

The Food Research & Action Center (FRAC) improves the nutrition, health, and well-being of people struggling against poverty-related hunger in the United States through advocacy, partnerships, and by advancing bold and equitable policy solutions. For more information about FRAC, or to [sign up](#) for FRAC's e-newsletter, go to www.frac.org.



What We Do

- Conduct research to document the extent of hunger and identify effective solutions
- Advocate for federal, state and local public policies that protect and strengthen the federal nutrition programs
- Provide coordination, training, technical assistance, and support on hunger-related issues

SNAP Benefits Are A Lifeline, Still Inadequate



[SNAP] EBT was comfort when we were dealing with the medical bills, and it really helped. It would be great if they can raise the amount so there's actually enough, but it was a real help.

I remember having to get over the stigma. I said to my husband we need to do this to help ourselves let's get over any shame. The EBT card is actually really nice, but I think it would still be nice to have an increase. It helped my dad who is disabled get some items. I just wish it could be a little bit more substantial and now with inflation, you can buy less.

*SNAP customer testimony to the White House Conference on Hunger, courtesy
California Association of Food Banks*

SNAP Benefits Are A Lifeline, Still Inadequate



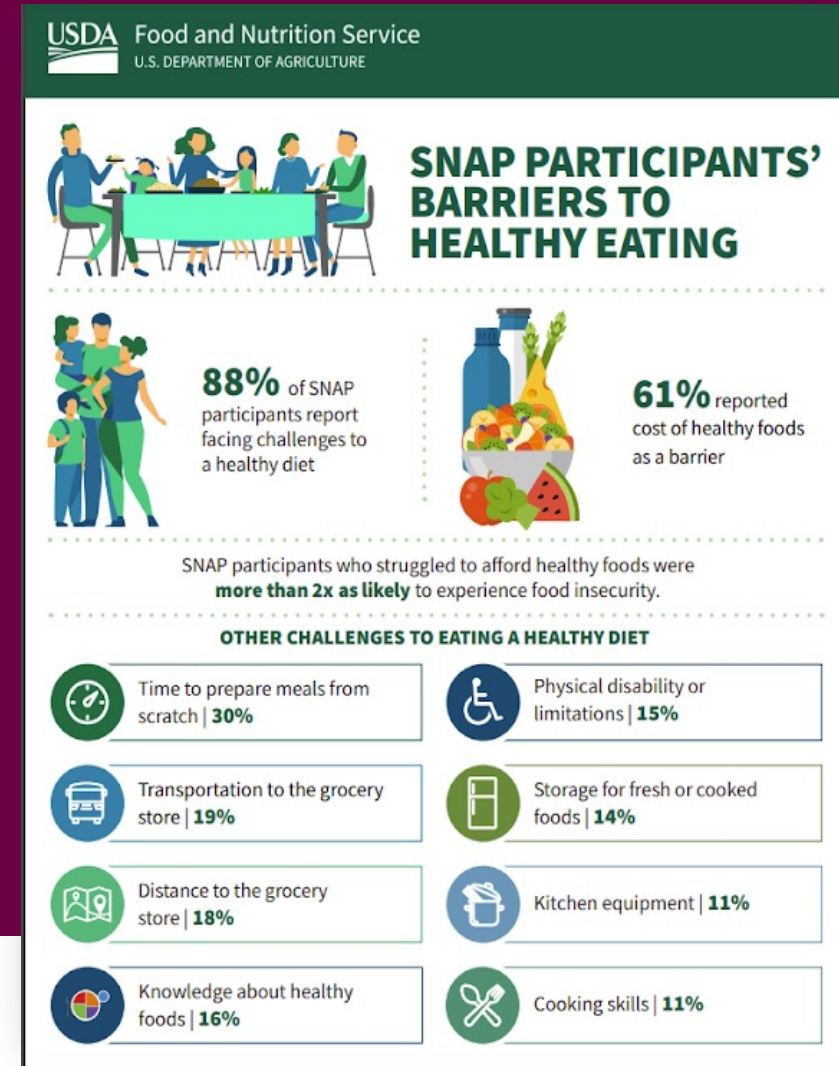
I learned how to stretch [food stamps] but you don't get much. You have to find ways and it's not always consistent. Basically, it's meager. You don't get all the meats and cheese. You get the basics. You get what you need to stay alive so you're missing out on a lot of things. But we always tried to stretch nutrition no matter what you get.”

SNAP customer testimony to the White House Conference on Hunger, courtesy California Association of Food Banks

Thrifty Food Plan Update Critical, Long Overdue

- Benefits still very modest:
- ~ \$4.25 to \$5.25 per person, day
- ~ \$8 per person, meal with Emergency Allotments

Department of Agriculture. Thrifty Food Plan, 2021. August 2021. FNS-916. Available at <https://FNS.usda.gov/TFP>.



Hunger Cliff Looming

SNAP Emergency Allotments Still Available in Most Jurisdictions

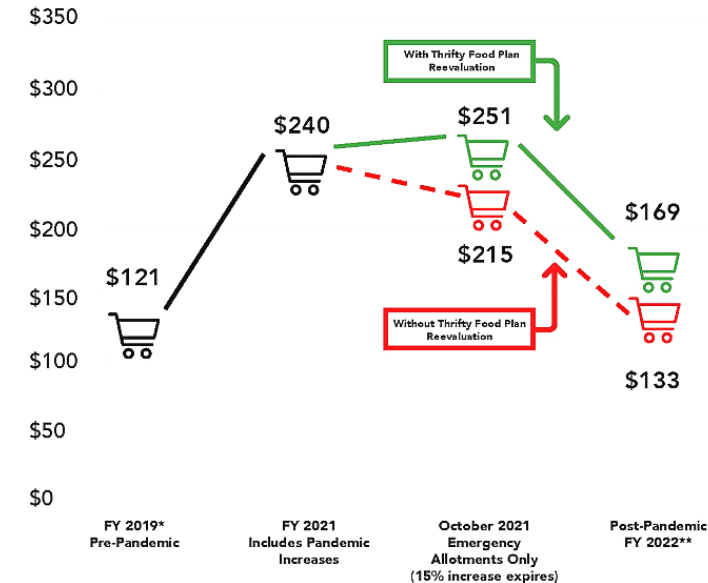
- On average, \$82 monthly drop in SNAP benefits per person

Department of Agriculture. Thrifty Food Plan, 2021. August 2021. FNS-916. Available at <https://FNS.usda.gov/TFP>.



U.S. DEPARTMENT OF AGRICULTURE

SNAP Average Monthly Per Person Benefits FY 2019 - FY 2022 (Projected)



- Average benefits pre-pandemic (i.e., FY 2019) were **\$121** per person*.

- Average benefits today – with the pandemic aid provided by Congress (15% increase and Emergency Allotments) – are **\$240** per person.

- Average benefits starting October 1 – with the Thrifty Food Plan increase, and most states providing emergency allotments – and once the 15% increase ends will be an estimated **\$251** per person. This \$11 increase from the prior month reflects \$8 due to the reevaluation, and \$3 due to food inflation from the prior year.

- Average benefits, once all emergency allotments end, will be an estimated **\$169** per person, reflecting USDA's revised estimate of levels that will support a nutritious, practical, cost-effective diet.

- Without the Thrifty Food Plan increase (i.e., only adjusted from FY 2021 by inflation), the average projected benefit after the public health emergency ends would be only **\$133**.

Note: All figures are nominal (for the respective year cited).

*Adjusted for changes in issuance due to the government shutdown.

**Assumes the end of the federal public health emergency declaration and, thereby, the expiration of emergency allotments.

USDA is an equal opportunity provider, employer and lender.

Strengthening SNAP Benefit Adequacy

Many Ways to
“Ease the
Squeeze”
Between Food
and Other Basics



Base SNAP benefits on
the more adequate
Low-Cost Food Plan



Boost SNAP benefits for
families with children
forced to choose
between food & shelter



Boost SNAP benefits for
older Americans forced to
choose between
food & medicine



Boost the SNAP
minimum monthly
benefit



Remove SNAP time limits

Additional Resources

Please Stay in Touch:



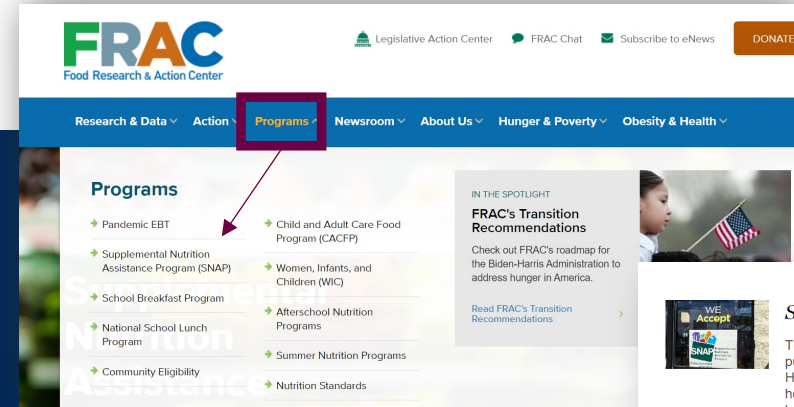
EVollinger@frac.org



@fractweets



frac.org



SNAP Benefit Adequacy

The monthly benefits provided by SNAP enhance the food purchasing power of eligible low-income individuals and families. However, the [greatest shortcoming of SNAP](#) is that benefits for most households are not enough to get through the entire month without hunger or being forced to sacrifice nutrition quality.

[Learn More](#)

CPE Certificate Of Attendance And Suggested Performance Indicators

Approved for 1 CPEU from the Commission on Dietetic Registration of the Academy of Nutrition and Dietetics. **This is an ethics-related CPE activity.**

1.7.6

8.1.1

12.1.1

12.3.3



Questions?



Thank You!

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Insights From Food Modeling Research

September 22, 2022

