

*Welcome!*

**Plant-based Meals Part II:  
key strategies for increasing participation rates**



# Presentation Overview

- Establish the health, environmental and financial case for plant-forward foodservice
- School district successful case studies
  - San Diego Unified
  - Napa Valley Unified
  - Riverside Unified
- Available resources and support
- Question and answer

**Friends of the Earth's Food and Agriculture Program** works to rapidly transition our food system to one that is sustainable, healthy, and just.

**Our Healthy Climate-friendly Food Program** works to shift state, municipal, K-12 and university food service purchasing dollars to support local farmers and ranchers and drive market shifts and consumption towards healthier, plant-forward, sustainable food.



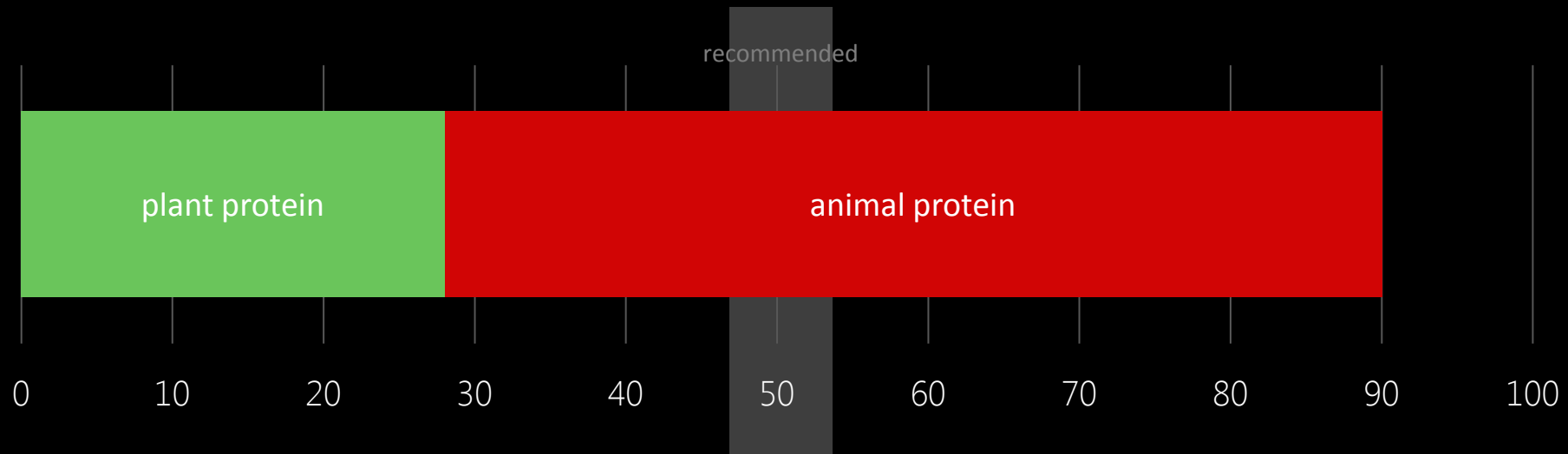
# Plant-forward healthy & climate friendly





# The Health Case





we're eating **nearly twice**  
the protein we need



Academy of Nutrition and Dietetics



American Institute for Cancer Research®



AMERICAN MEDICAL ASSOCIATION



AMERICAN PUBLIC HEALTH ASSOCIATION

For science. For action. For health.



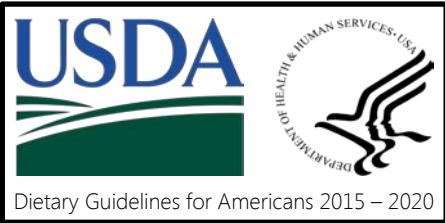
AMERICAN COLLEGE OF Lifestyle Medicine



KAISER PERMANENTE®



HARVARD T.H. CHAN SCHOOL OF PUBLIC HEALTH



a public health consensus  
More Plant Foods, Less Meat



# High Meat Diets & Diet-related Diseases

Meat consumption is associated with obesity among US adults



International  
Journal of Obesity



National Institutes  
of Health

Eating red meat daily triples heart disease-related chemical (TMAO)



Even moderate red and processed meat eaters at risk for bowel cancer

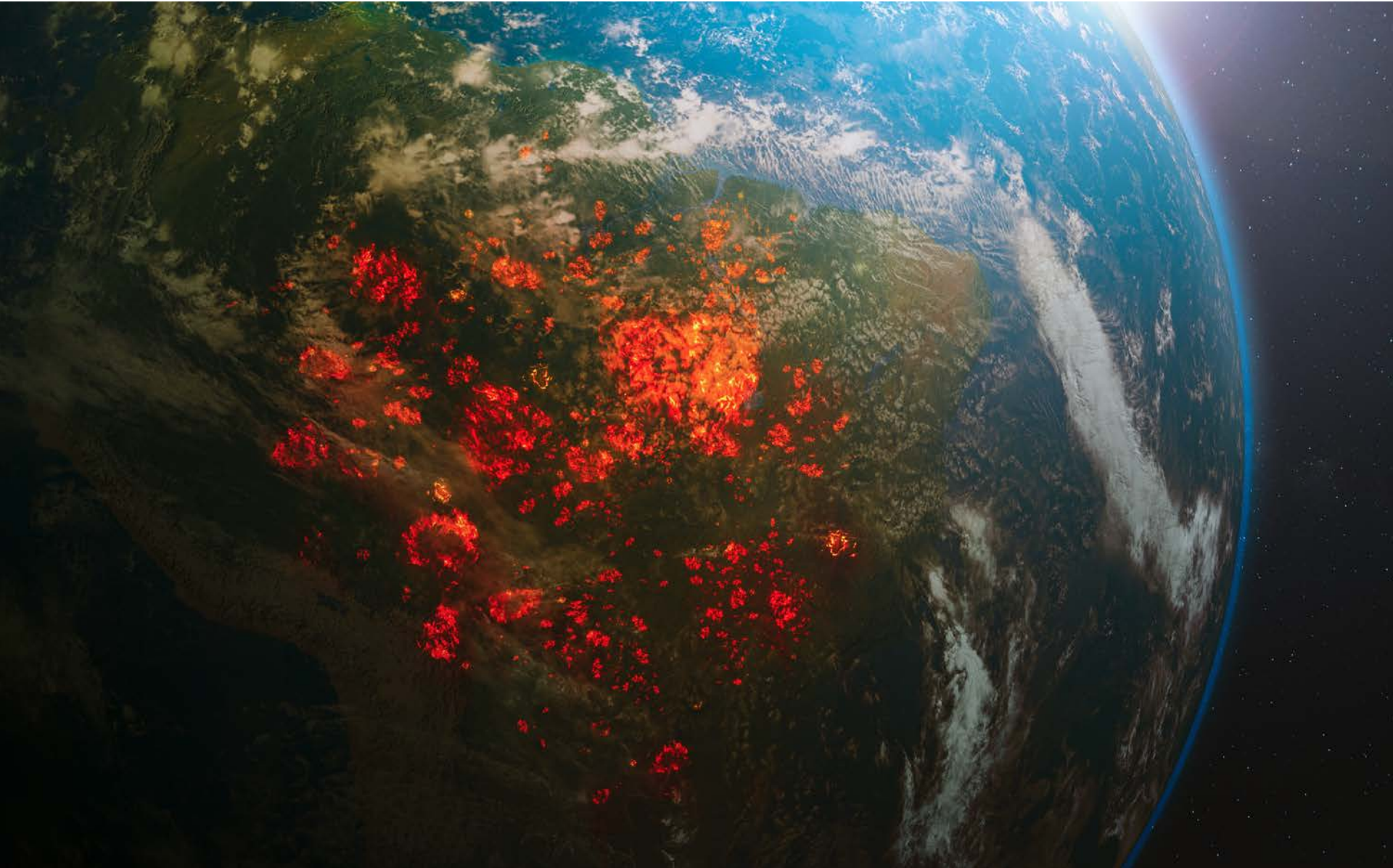


Eating meat linked to higher risk of diabetes



Plant-based diets can be effective in reducing heart failure risk

# The Environmental Case







## IPCC Report Shows Food System Overhaul Needed to Save the Climate



## Climate change: Landmark UN report warns sea levels will rise faster than projected by 2100

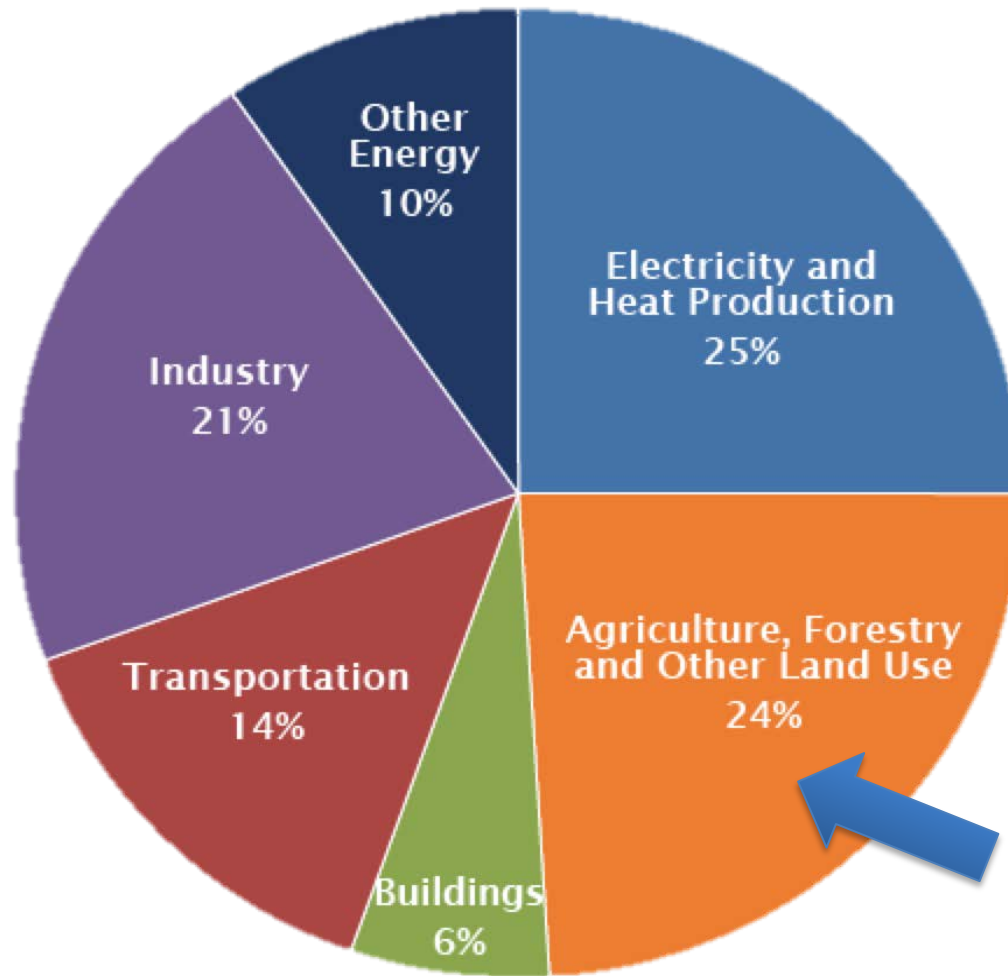


© Felipe Dana/AP In this Aug. 16, 2019, photo, large icebergs float away as the sun rises near Kulusuk, Greenland. Scientists are hard at work, trying to understand the alarmingly rapid melting of the ice. (AP Photo/Felipe Dana)

Glaciers and ice sheets from the Himalayas to Antarctica are rapidly melting.



# Food & Climate Change



China



United States



Cattle



If the world's cattle formed a nation, it would be the 3rd largest greenhouse gas emitter after China and the U.S.



methane is **30-80x** more potent than CO<sub>2</sub>  
**6-10 pounds** of feed per pound of meat  
beef accounts for **36%** of US diet related emissions

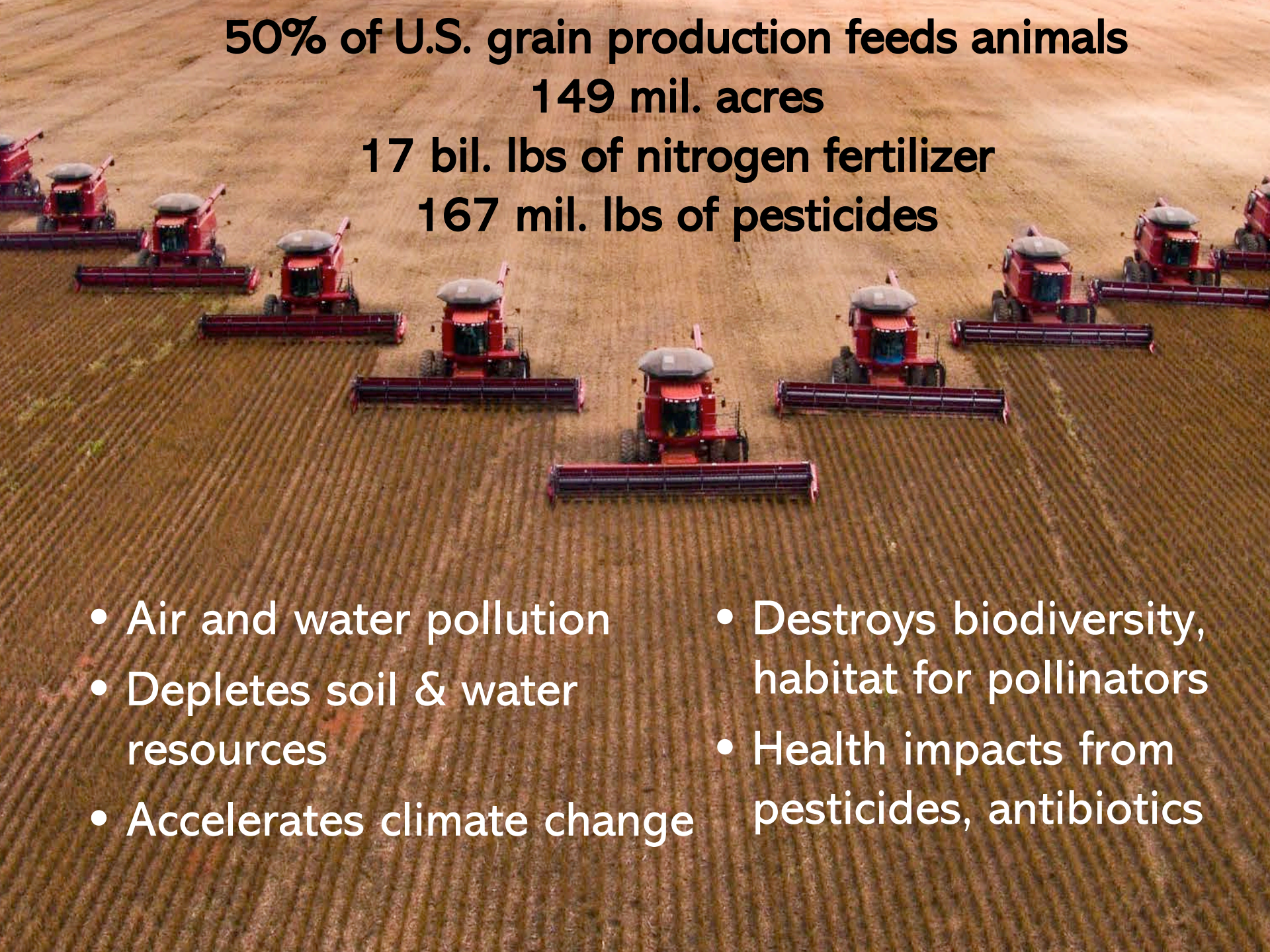


**50% of U.S. grain production feeds animals**

**149 mil. acres**

**17 bil. lbs of nitrogen fertilizer**

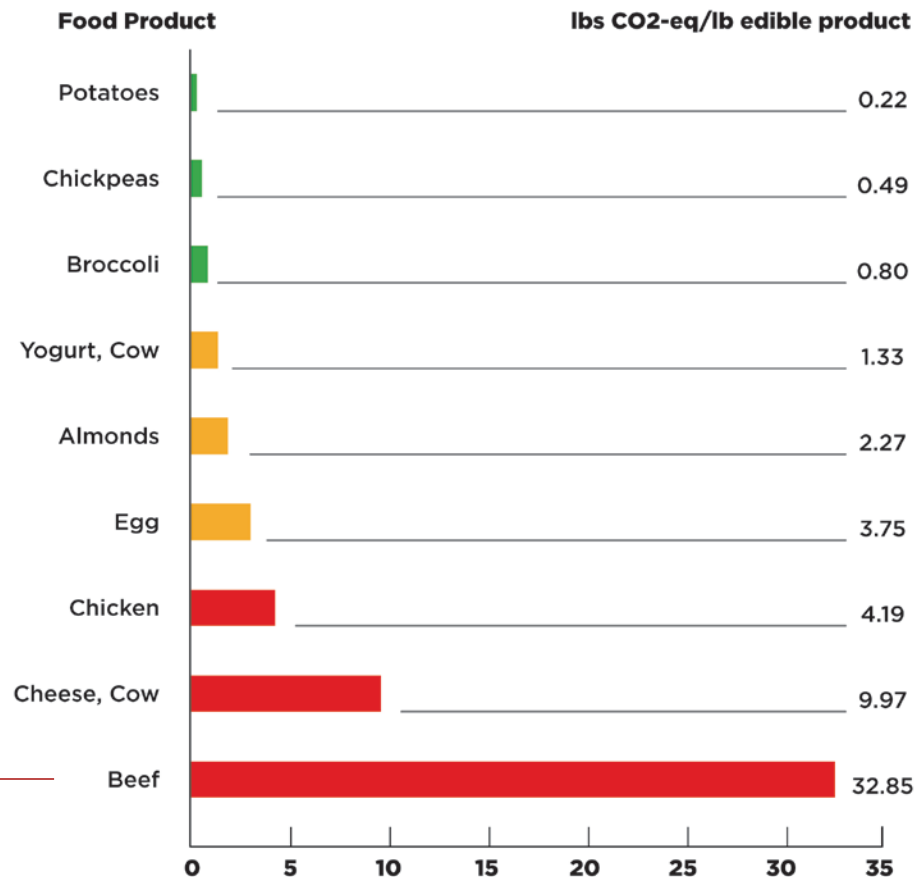
**167 mil. lbs of pesticides**

- 
- Air and water pollution
  - Destroys biodiversity, habitat for pollinators
  - Depletes soil & water resources
  - Health impacts from pesticides, antibiotics
  - Accelerates climate change



# Not all protein is created equal

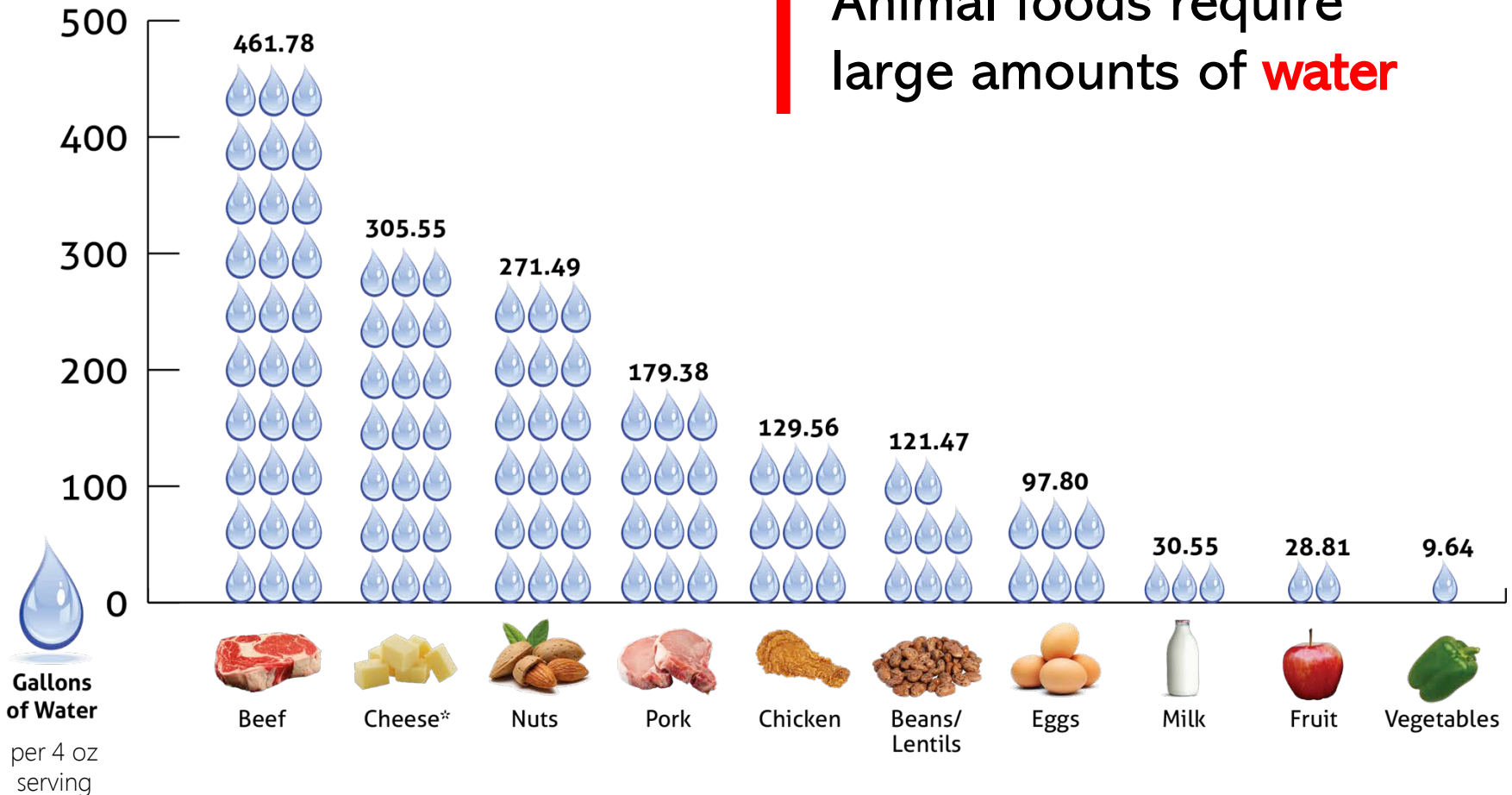
**BEEF** has 15-100x the carbon footprint of beans & lentils



Source: Friends of the Earth, Scaling-Up Healthy Climate Friendly Food, 2018 based on data from Heller, M. C., Willits-Smith, A., Meyer, R., Keoleian, G. A., & Rose, D. (2018).

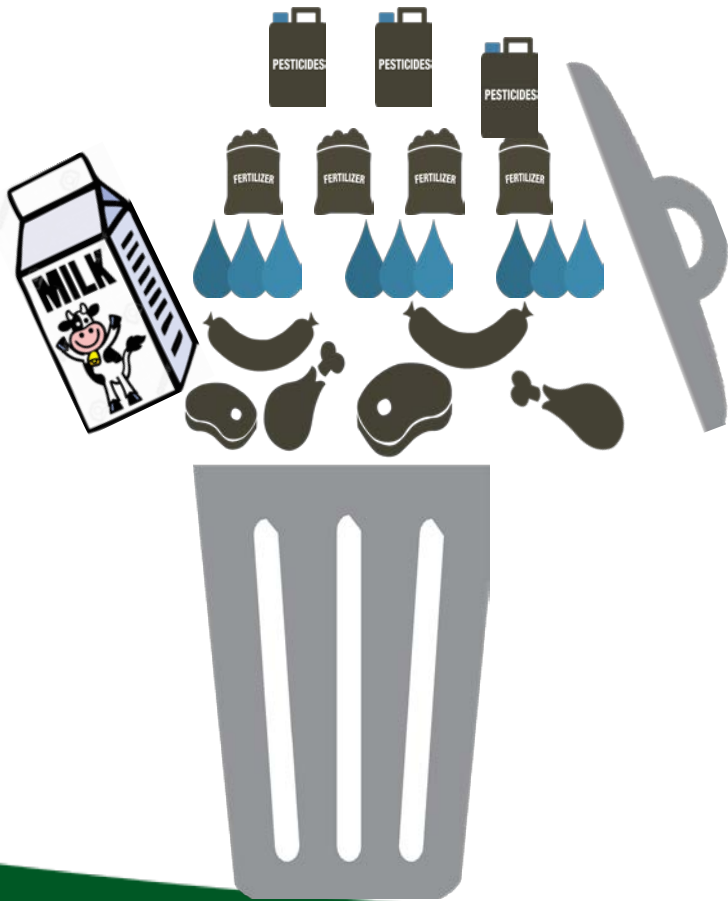
*Greenhouse gas emissions and energy use associated with production of individual self-selected US diets.* Environmental Research Letters, 13(4), 044004

Animal foods require large amounts of **water**



Source for all water figures: Mekonnen, M.M. and Hoekstra, A.Y. (2010) The green, blue and grey water footprint of crops and derived crop products, Value of Water Research Report Series No. 47, UNESCO-IHE, Delft, the Netherlands

# Food Waste = Wasted Water, Energy, Fertilizer, Pesticides & other resources



Resource-intensive animal foods account for  $\frac{1}{3}$  of GHG emissions from food waste.



# What is healthy, climate-friendly food?

- Food that:
  - ✓ Has a low carbon and water footprint
  - ✓ Is produced using organic farming practices that sequester carbon in the soil
  - ✓ Does not end up in the landfill





**Shrinking the Carbon and  
Water Footprint of School Food:**  
**A RECIPE FOR  
COMBATING  
CLIMATE CHANGE**  
*A pilot analysis of Oakland Unified School District's Food Programs*  
**BY KARI HAMERSCHLAG AND JULIAN KRAUS-POLK**  
FEBRUARY 2017



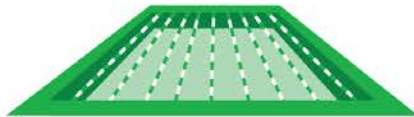


# FOOD SHIFTS MATTER

Over 2 years, Oakland Unified School District reshaped its menu with fewer animal foods and more protein-rich legumes and vegetables. This shift generated considerable **water** and **climate benefits**, and **cost savings**:



**SAVED 42million**  
GALLONS OF  
**WATER**



**63**  
OLYMPIC SIZED  
SWIMMING POOL



**14% REDUCTION**  
IN THE  
**CARBON FOOTPRINT**  
OF ITS ENTIRE FOOD PURCHASES

**15,000**  
TREES PLANTED



**1.5 million**  
FEWER MILES DRIVEN



**87** SOLAR SYSTEMS INSTALLED  
ON THE SCHOOL DISTRICTS' ROOFS



**COST**  
**SAVINGS**

**\$42,000**







## Scaling Up Healthy, Climate-Friendly School Food

STRATEGIES FOR SUCCESS



 Friends of  
the Earth

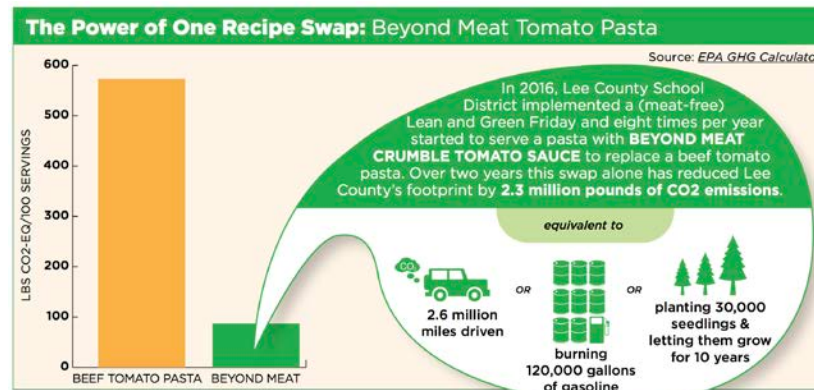
# Key Strategies

- Boosting **student participation** & **image** of school food
- **Investment** in kitchen **facilities**, **staff**, **recipes** and cost-effective **procurement**
- Dedicated **leadership** from multiple stakeholders
- **Policy actions** at district, state and federal levels

# How Can Friends of the Earth Help?

Piloting marketing strategy with school districts – sign the form after session if you are interested!

- Will conduct carbon analysis on recipe and highlight it on a poster
- Example: Serving this veggie burger instead of a beef burger is saving our district 11 metric tons of CO2 emissions.



# Promoting Plant-Based In San Diego Unified

Tara McNamara  
Marketing Coordinator





# Quick Facts About San Diego Unified

**Students**  
District: 105,793  
Other: 11,362  
58% Free & Reduced-Price

## **Schools**

District: 181

Other: 43

111 Community Eligibility & Provision 2 Sites

## **Meals** (daily average)

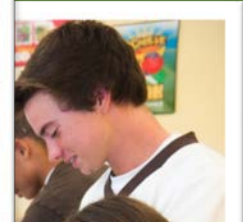
Breakfast: 43,000

Lunch: 56,000

Supper: 10,000

Nearly 20 million meals per year

# Healthy Food. Successful Students.







**Three Bean Chili**



**Marinara Pasta &  
Italian Bean Salad**



**Veggie Burger**







# PLANT FORWARD FOOD



# STUDENT ENGAGEMENT & FEEDBACK

Announcing San Diego Unified Food & Nutrition's

## KIDS CREATE RECIPE CONTEST

*plant-based edition*

Enter to win:

**1st Place** for each age group: **\$40**  
AND recipe will be featured on  
the school menu next year!

**2nd Place** for each age group: **\$30**

**3rd Place** for each age group: **\$20**  
gift card prizes







**PLANT  
STRONG**

**CULINARY  
WORKSHOP**

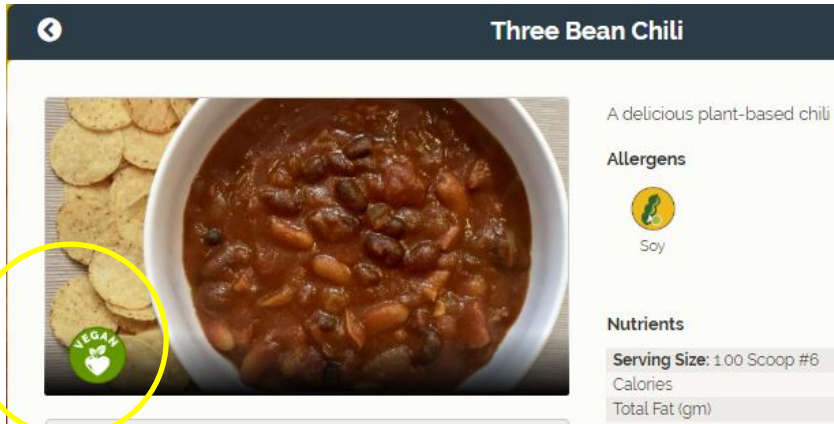
**THANKS FOR JOINING US!**



**EMPLOYEE ENGAGEMENT**



# MARKETING & PROMOTION



## FRESH FROM YOUR SCHOOL CAFÉ

### CLASSICS

- ALL-AMERICAN CHEESEBURGER  
available Mon & Fri
- ALL BEEF HOT DOG  
available Tues & Thurs
- SRIRACHA CHICKEN SANDWICH  
available Wed
- CHICKEN & WAFFLES  
available Mon & Wed



### FRESH SALADS

- CHICKEN CAESAR  
available Mon & Fri
- AVA'S AVOCADO  
available Tues & Thurs
- SOUTHWEST CAESAR  
available Wed



- CRISPY CHICKEN DRUMSTICK  
available Tues
- FISH & CHIPS  
available Thurs
- SAUCY BEEF & BEAN BURRITO  
available Fri



### PLANT-BASED

- MARINARA PASTA W/ITALIAN BEAN SALAD  
available Mon & Wed
- THREE BEAN CHILI W/TORTILLA CHIPS  
available Tues & Thurs
- VEGGIE BURGER  
available Fri



### ASIAN BOWLS

- TERIYAKI CHICKEN  
available Mon, Wed & Fri
- MANDARIN CHICKEN  
available Tues & Thurs



### MANAGER SPECIALS

- limited time offers  
check for availability
- ST. LUIS STYLE RIBS
- AMAZING LO MEIN
- SALSA VERDE PORK
- PHILLY CHEESE STEAK



### PIZZAS

- TURKEY PEPPERONI  
available Mon & Thurs
- CHEESE  
available Tues
- HAWAIIAN  
available Wed
- BUFFALO CHICKEN  
available Fri



### BUILD YOUR OWN BARS

- limited time offers  
check for availability
- RAMEN BAR
- NACHO BAR
- SANDWICH BAR
- MAC & CHEESE BAR
- BURGER & HOT DOG BAR




San Diego Unified School District  
@SanDiegoUnified

Home  
About  
Events  
Photos  
Videos  
Posts  
Unified Vision Sign Up

San Diego Unified School District  
September 10 at 4:35 PM

In addition to nutritional benefits, San Diego Unified's new plant-based meals make a big impact far outside the cafeteria: providing healthy alternatives to meat products may just help save the planet.



MEDIUM.COM

**Partaking in schools' new plant-based meals may be your biggest contribution to the environment**

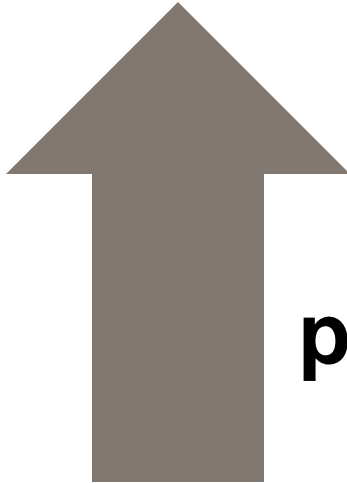


Healthy food.  
Successful students.  
Food & Nutrition Services

This institution is an equal opportunity provider.  
Menus subject to change.

More Information | 858-627-7340  
www.sandiegounified.org/food

@sdfarmtoschool 



**Participation in  
plant-based is on  
the rise!**

**30%**

**of meals served are vegetarian**

(UPDATED DATA SHOWING PLANT-BASED  
NOT AVAILABLE UNTIL AFTER OCTOBER)

**RESPONSE**

<input type="checkbox"/>	09/16/2019 07:39 PM	Sunbutter Jelly Sandwich	★★★★★	Miramar Ranch
<i>Thank you for having options for vegan or vegetarians.</i>				

# Want More Info?

tmcnamara@sandi.net

[www.sandiegounified.org/food](http://www.sandiegounified.org/food)

@sdfarmtoschool





# San Diego Unified

Eliminated one ounce of cheese topping from chili at 84,000 servings for one month.

*equivalent to*

## CO<sub>2</sub> emissions from

1,212



Gallons of  
gasoline  
consumed

## Carbon sequestered by

178



Tree seedlings  
grown for 10  
years

*What are the savings for eliminating cheese topping on one dish for 10 months?*



# San Diego Unified

Eliminated one ounce of cheese topping from chili at 84,000 servings for **10 months**

*equivalent to*

**Greenhouse gas emissions from**

**580,726**



Miles driven  
by an average  
passenger  
vehicle

**CO<sub>2</sub> emissions from**

**26,726**



Gallons of  
gasoline  
consumed

**Carbon sequestered by**

**3,927**



Tree seedlings  
grown for 10  
years





NAPA VALLEY  
UNIFIED SCHOOL DISTRICT



NAPA'S OPERATIVE for SCHOOL food HEALTH

Brandy Dreibelbis  
Director of Food Services



# NOSH began July 2017

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Revamping of the menu-6 Week Cycle Menu

2 main items with 1 additional secondary item

Vegetarian option daily

Salad bars in all schools

Eliminated HFCS/Cut back on high sugary items

No more Chocolate Milk

Eliminate many pre-packaged items

Developed Relationships with Key Partners

# Scratch Cooking-New Central Kitchen



Improving  
Food Quality  
+ Expanding  
Menu by  
Returning to  
Scratch  
Cooking





# Salad Bars in all Schools!



**Salad Bars are  
used as part  
of the  
reimbursable  
meal!**



We purchase locally  
whenever possible  
and 97% of our  
produce comes  
from CA!







# Sampling Events



**LIFETIME  
FOUNDATION**  
HEALTHY PEOPLE. HEALTHY PLANET



**THE HUMANE SOCIETY  
OF THE UNITED STATES**



**CHEF ANN  
FOUNDATION**  
Changing the way we feed our kids

**HEALTH  
KIDS**  
COLLABORATIVE

Building Partnerships &  
Developing  
Relationships



**WHOLE  
KIDS**  
FOUNDATION

# Healthy Kids Collaborative's Plant Forward Initiative....

- **30 Compliant Recipes with Nutrient Analysis**
  - **Food Photos**
- **All Plant Forward recipes are CIA approved**
  - **7 K-12 School Food Chefs**
- **Recipes available on the 'Lunchbox' in November**  
**[www.thelunchbox.org](http://www.thelunchbox.org)**

Chef Tested!





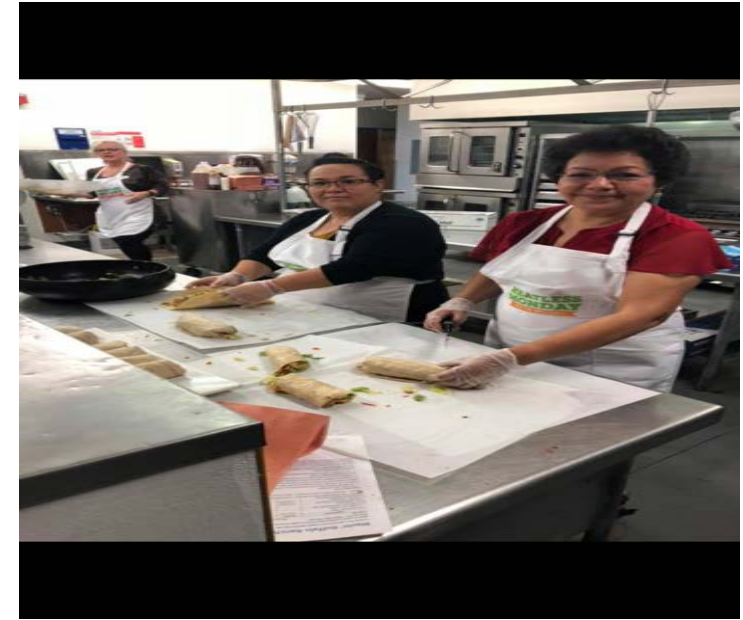
# Kid Approved!



# Future of Plant Forward in NVUSD



More Culinary Trainings for Staff!



Introduce new Plant Forward Recipes to our Menu

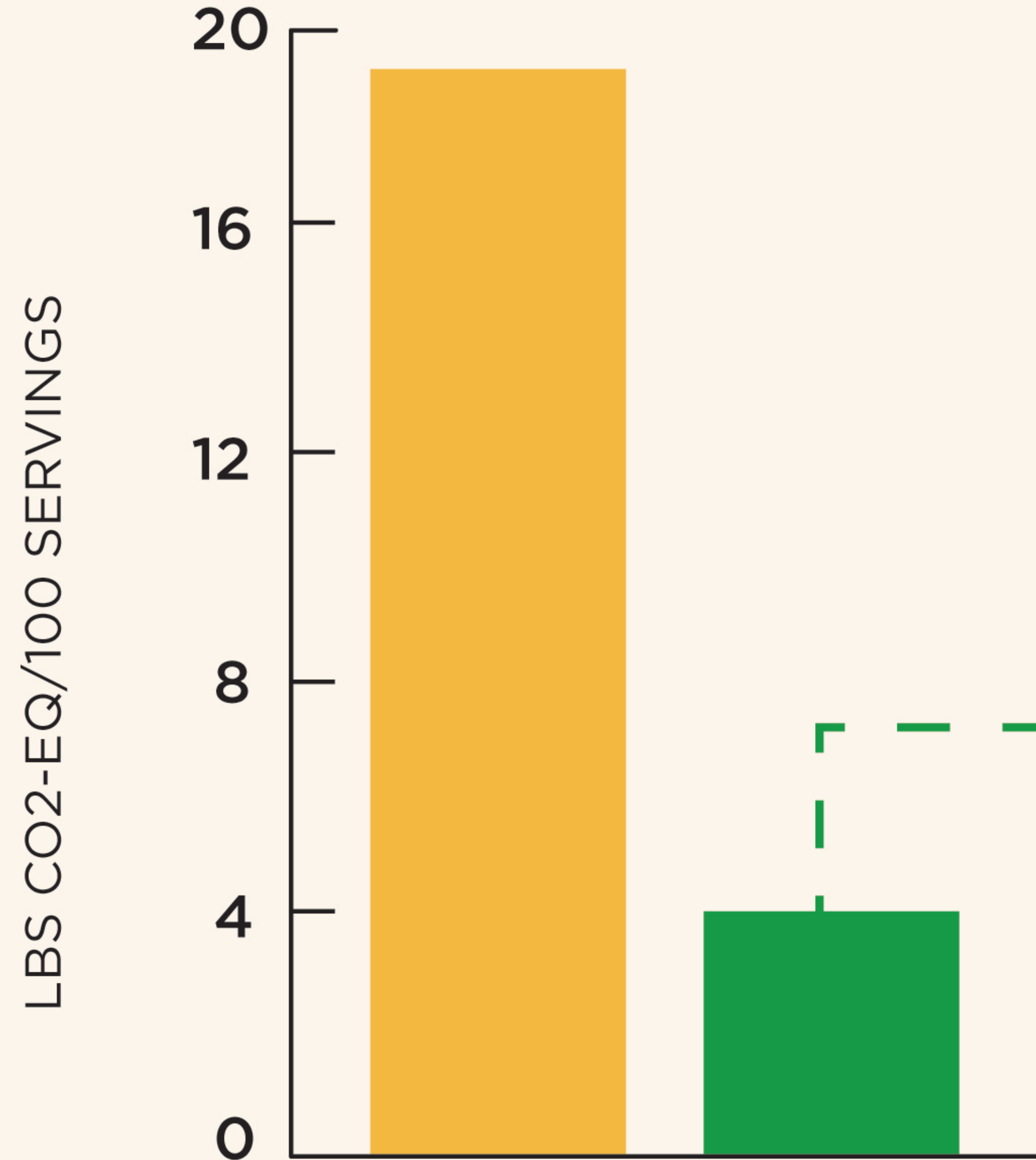


Develop  
30 More  
Plant  
Forward  
Recipes  
Spring of  
2020



# The Power of One Recipe Swap: Tofu Stir Fry (Napa Valley Unified)

Source: EPA GHG Calculat



In one year of serving tofu stir fry in place of chicken stir fry, Napa Valley Unified has saved 700 pounds of CO<sub>2</sub> emissions.

equivalent to



1,642 miles driven

or



Burning 76 gallons of gasoline

or



Planting 11 trees and growing them for 10 years

**Chicken is 70% more carbon intensive than tofu.**





Riverside Unified School District  
Nutrition Services

**Adeit Asi**

Director, Nutrition Services

**Danielle Willhite**

Operations Manager, Nutrition Services

# This is Us...

## Enrollment

50 School Sites

40,200 Students

Infants – Twelfth Grade

## Nutrition Programs

Mixed District

40 NSLP Sites

10 Community Eligibility Sites

**67%**  
Qualify Free/ Reduced





37,235

Average Meals Served Daily



10,000

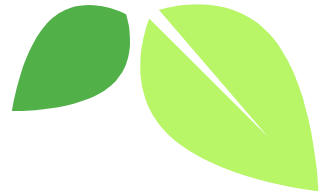
Breakfast

24,000

Lunch

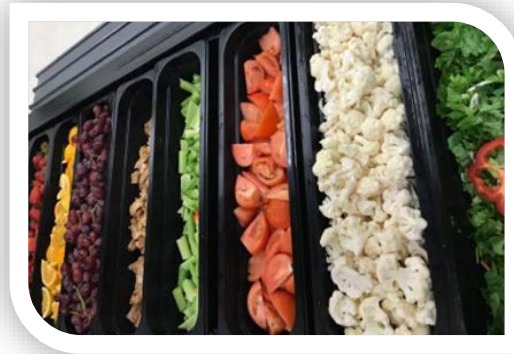
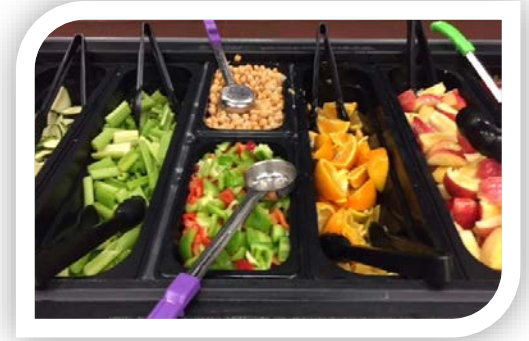
4,000

Supper (Super Snack)

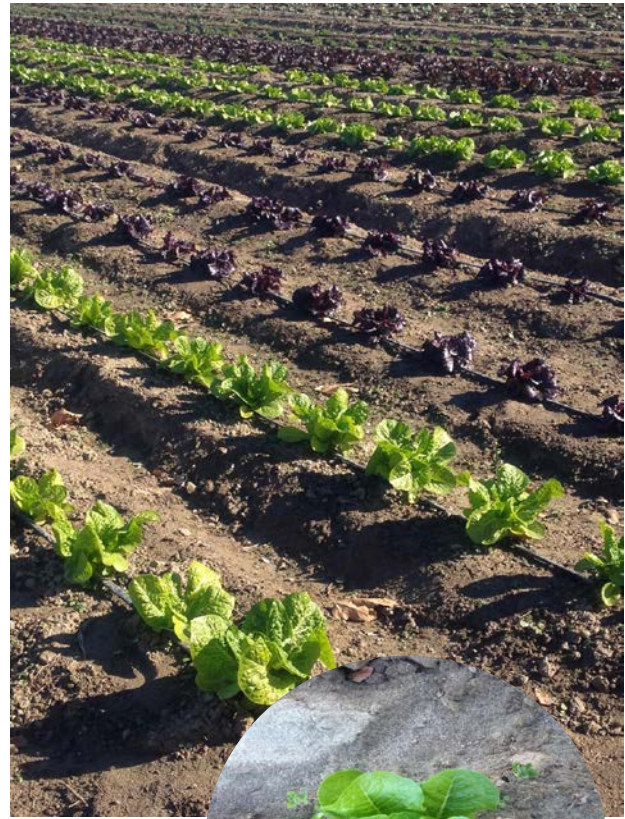
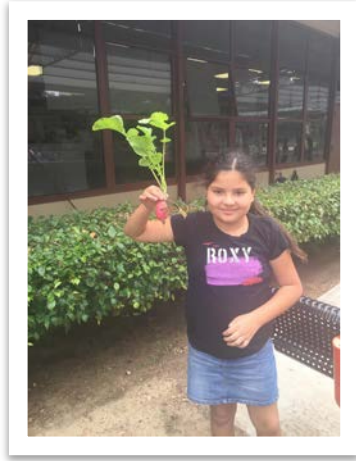


# Farmers Market Salad Bar

- ◆ 14 years (since 2005)
- ◆ 85% of Produce is California grown
- ◆ 60% of Produce is grown in Riverside and surrounding communities







# School + Farm

Partnerships between RUSD and local farmers

# Riverside USD Food HUB



## Block Grant (2016)

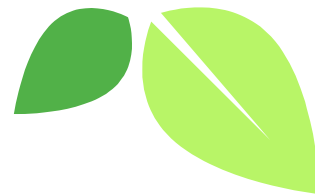
### California Department of Food and Agriculture

- 1<sup>st</sup> produce distribution arrangement operated by school district
- Use of locally grown produce
- Farmers have a central place for distribution
- Small districts, child care centers, restaurants

## Local Food Promotion Program Grant (2018)

### United States Department of Agriculture

- Provide resources to continue HUB
- Farmer Training
  - Food Safety
  - GAP Certification



# Buying Local Produce

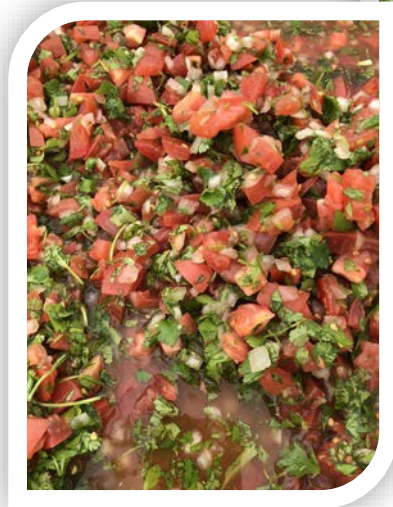




# Scratch Cooking



# California Fresh Pop Up



# California Fresh Pop Up



@californiafresh   
Pop Up Eatery Taste Test

Please fill out the other side  
after tasting the samples



# California Thursdays



# What's Next?

- California Thursdays
- Explore More Plant Based Options
- Expanding Scratch Cooking and Commodity Use
- Grow Partnerships with Local Farmers
- More Pop Up Taste Testing



# Marinara Sauce

RUSD NUTRITION SERVICES  
RECIPES

MARINARA SAUCE (404MS)

RECIPE NUMBER:	404MS	RECIPE TITLE:	MARINARA SAUCE	YIELD: (# OF PANS/GALLONS/LOAVES, ETC.)	13.75 LB BAGS ABOUT 59 1/4 BAGS PRODUCE OUT OF THE 100 GALLON KETTLE (SMALL KETTLE)
PORTION SIZE:	4 OZ. (NO. 8 SCOOP)	PORTION PER RECIPE:	56 SERVINGS	TEMPERATURE OVEN:	N/A
EQUIPMENT NEEDED: KETTLE, TUMBLER, FOOD BAGS, CLIPS, TAGS					

INGREDIENTS	3,272 SERVINGS		DIRECTIONS
	WEIGHT/MEASURE		
Paste, Tomato, cn*	10 Cans		<p><b>Follow all HACCP based Food Safety and Sanitation SOP procedures</b></p> <ol style="list-style-type: none"> <li>1) Pull all cans and dry ingredients out from dry storage.</li> <li>2) Start up 100 gallon kettle and add paste, diced tomatoes, tomato sauce into the kettle.</li> <li>3) Add all dry ingredients and stir.</li> <li>4) Brown fresh diced onions in a separate kettle or pan. Remove quickly and add in 100 gallon kettle to be mix in will.</li> <li>5) Bring temperature to 140 °F. CCP: 140°F or greater.</li> <li>6) Start of up tumbler to begin cooling down process.</li> <li>7) Attached food pump to the kettle and extract marinara mix into a bag up to 14 lbs. Clip tag and place on rack to be ready to be place on conveyor belt to drop into the tumbler. Monitor temperature to ensure proper holding temperature. CCP: 135 °F or greater.</li> <li>8) Once all bags are clipped and tag, begin process to cool down product.</li> <li>9) Within two hours or less product should be brought down to 45 °F. Remove product from tumbler and place on cart to be transported to a control cooler at to continue the cooling process. In 4 hours, the sloppy joe should be down to 35°F or lower.</li> </ol> <p><b>Cleaning Equipment</b></p> <ol style="list-style-type: none"> <li>1) Rinse with hot water. Use detergent wash and scrub with brush thoroughly. Rinse out the detergent and sanitize. Rinse out sanitation solution.</li> </ol> <p><b>Reheat/Retherm</b></p> <ol style="list-style-type: none"> <li>2) Allow bags to thaw in refrigerator for 24 hours. CCP 41°F or lower.</li> <li>3) Open bags and add to pasta dishes and or meatsauce. Follow the proper heating protocol of 165°F. CCP: 165°F for a minimum of 15 seconds.</li> <li>4) No. 8 Scoop for 4 oz. serving of sauce. Hold sauce at 135 °F. CCP: 135°F or greater. Any left overs will be discarded after 2 hours of service.</li> </ol> <p><b>Follow HACCP food storage guidelines based on Food Safety and Sanitation SOP procedures.</b> *USDA Items</p>
Diced Tomato, cn*	54 Cans		
Sauce, Tomato, cn*	60 Cans		
Italian Seasoning	28 oz. (1 Container)		
Dry, Basil Leaves	1/4 lb		
Garlic Salt	15 lb		
Diced Onions, Fresh	20 lb		

**NUTRITIONAL ANALYSIS**

CALORIES	SAT. FAT	SODIUM	TOTAL FAT	TRANS FAT	CARBS	DIETARY FIBER	PROTEIN
33	0.0	784.8	0.0	0.0	7.5	1.6	1.2

**CONTRIBUTION TO MEAL PATTERN:**

M/M A	TOTAL GRAINS	WG RICH	FRUIT	DK GR. VEG.	RED/ORANG VEG.	LEGUMES	STARCHY	OTHER VEG.	TOTAL VEG.
					1/4				1/4 C

4/1/19



# Venice Beach Pasta Bake

**Recipe Number:** V8015P

**Grade Group:** Gr. K-12

**Special Equipment Needed:**

**Temperature:** 150°

**Conventional Oven:** 325°

**Convection Oven:**

**Other:**

**Notes:**

**Recipe Title:** Venice Beach Style Pasta Bake (Plant Based)

**Serving Size:** 1 Serving ( 1 Cup)

1 Hour 15 mins per 100 100 servings

**Yield:** Container size, volume, weight and/or cut

5 1 Cup Spoodle per 100 100 servings

Assembly (if applicable directions for 1 serving):	Ingredients:	100 servings		Directions: <i>Include Critical Control Points (CCP)</i>
		weight (lb + oz)	measure (largest unit)	
Cook pasta al dente	Whole grain pasta, penne or rotini, dry	20 lb. 3 oz.		1) Preheat oven to 325°. Cook Pasta al dente. 2) Washed spinach and chopped.
Chopped	Spinach	11lb. 3 oz.		3) Mix Hungry Planet (HP) Italian Sausage ingredients with granulated garlic, basil and salt. <b>After combing the ingredient, brown the Italian Sausage.</b>
Thawed	Hungry Planet Italian Beef, Frozen	12.5 lb		4) Add spinach, CK-Marinara Sauce and cooked pasta to the HP mixture. Mix together.
	Granulated garlic		1.5 cup	5) Spray pans with release spray, and spread pasta mixture evenly in table pans. Cover pan with foil and bake for 25 minutes, or until internal temperature of 135 °F. CCP: 135 °F.
	Basil, dried		12 tsp cup	6) Use a 1 Cup spoodle when ready to serve.
	Marinara sauce (CK)		38 Cup	7) CCP: Place in warmer at 135 °F for holding.
				8) Discard all left over after 2 hours of services
				Follow HACCP food storage guidelines based on Food Safety and Sanitation SOP procedures.

**Key:** \* = Ingredient is USDA food, AP = As Purchased, cup = cups, gal = gallon, lb = pound, No. = number, qt = quart, Tbsp = tablespoon, tsp = teaspoon, " = inches.

# Riverside Unified School District Nutrition Services

## Venice Beach Bowl:

Swapping out beef crumbles with non-meat substitute at 13,600 for **one day** has saved 25 metric tons of CO2 emissions.

*equivalent to*

**Greenhouse gas emissions from**

**5.3**



Passenger  
vehicles driven  
for one year

-or-

**61,125**



Miles driven  
by an average  
passenger  
vehicle

**Carbon sequestered by**

**413**



Tree seedlings  
grown for 10  
years

# Venice Beach Bowl continued

Swapping out beef crumbles with non-meat substitute at 13,600 once a week for the school year has saved **975** metric tons CO<sub>2</sub>-eq

*equivalent to*

**Greenhouse gas emissions from**

**2,383,863**



Miles driven  
by an average  
passenger  
vehicle

**CO<sub>2</sub> emissions from**

**109,711**



Gallons of  
gasoline  
consumed

**Carbon sequestered by**

**16,122**



Tree seedlings  
grown for 10  
years



# Resources for Climate-Friendly Food

Come up after session for more details

## Healthy, Climate-friendly School Food Coalition

- Student engagement
- Nutrition education
- Free marketing materials
- Free culinary trainings
- List of vendors and products
- Technical support
- Staff & student presentations





**What advice do you have for food service professionals interested in scaling-up climate-friendly food?**

# Q & A



# Thank you for attending our session!

 Friends of the Earth, U.S.

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